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# Furneaux Islands Festival Report 2026

This report provides an overview of the 2026 Furneaux Islands Festival and associated activities delivered in partnership with Flinders Island Aboriginal Association Inc (FIAAI) and Furneaux Community Arts.

The 2026 program continued to deliver strong social, cultural and economic outcomes for the Flinders Island community through partnerships, shared resourcing and community collaboration.

Since 2014, the Furneaux Islands Festival has grown into an important annual event that celebrates local identity, creativity and connection across the Furneaux Islands.

## 2026 Festival Approach

With reduced Festival funding in 2026, Council staff adopted a smaller event model that prioritised partnerships, shared resources and community participation.

Council contributed $13,000, in addition to staff time, communications and operational support towards the 2026 program. Flinders Island Aboriginal Association Inc (FIAAI) contributed approximately $24,000 plus staff time and operational support.

Contributions towards the 2026 Festival program were spent on local and visiting musicians, flights, transport and accommodation, catering, event communications, event merchandise, materials and delivery.

The 2026 program focused on making the most of available resources while continuing to deliver accessible community events across multiple locations across the island.

## Community Events Delivered

### Makers and Growers Market – FAEC, Whitemark

A community market was held at the Flinders Arts and Entertainment Centre (FAEC) in Whitemark, creating opportunities for local makers, growers, artists, food providers and community groups to showcase and sell local products.

### Music at the Tavern - Furneaux Tavern, Lady Barron

A live music event was held at the Furneaux Tavern, Lady Barron, featuring visiting musicians and supporting local hospitality activity during the Festival period.

### Community BBQ Day – FIAAI Park, Lady Barron

The Community BBQ Day was held at FIAAI Park in Lady Barron, bringing together residents, visitors and local musicians through live music, activities and a shared BBQ lunch.

A total of 278 tickets were issued, comprising of 225 adult and 53 child tickets.

### Islander Portrait Prize – Straitworks Gallery Whitemark

Delivered by Furneaux Community Arts, the Islander Portrait Prize celebrated local creativity and provided valuable exposure for local artists during the Festival period.

# Community and Economic Outcomes

The 2026 Festival program delivered positive outcomes for our Island community, including:

- Increased opportunities for community participation and social connection
- Support for local businesses, musicians, artists, stallholders and food providers
- Activation of community spaces and local venues
- Strengthened partnerships between Council, FIAAI, Furneaux Community Arts and the broader community
- Delivery of inclusive and accessible community events across the Island

The 2026 Festival program demonstrated the value of collaboration, shared investment and community-led activity.

# Strategic Plan Alignment

The 2026 event program strongly aligned with the Flinders Council Strategic Plan 2021–2031 and demonstrated how partnerships and community activation contribute to the long-term wellbeing of the Furneaux Islands community.

## Focus Area 1: Liveability

**1.2 A harmonious and healthy community actively engaged in employment, recreation, volunteering, arts and culture.**

The program created opportunities for people to come together through music, markets, arts and shared experiences. Events encouraged participation across all age groups and backgrounds, strengthening social connection and supporting community wellbeing.

The program also created opportunities for local musicians, artists, growers, food providers and stallholders to participate and contribute to community life.

**1.2.2 Maintain and develop partnerships with Arts and Cultural organisations and support activities, projects and events that provide opportunities for community involvement and creative expression.**

Council's partnerships with Flinders Island Aboriginal Association Inc (FIAAI), Furneaux Community Arts, local musicians, community groups and businesses demonstrated a collaborative approach to delivering community events.

Activities such as the Makers and Growers market at the FAEC, Music at the Tav, the Community BBQ Day and the Islander Portrait Prize brought vibrancy to the community through local creative expression, shared experiences and strong community participation, despite a reduced funding environment.

## Focus Area 3: Economy / Business

### 3.1 Ongoing opportunities across all business sectors to future-proof the critical needs of the islands.

The 2026 events supported local economic activity by creating opportunities for local businesses, artists, musicians, stallholders and food providers to participate and generate income.

A community market, art exhibition and live music event increased visitation to local venues and provided valuable exposure for local artists, makers and performers, while supporting hospitality venue, local enterprise and broader visitor economy activity.

### 3.3.1 Encourage and support positive impact and regenerative visitor experiences that create conditions for people and places to thrive.

The events focused on creating authentic community experiences that benefited both residents and visitors while celebrating the people, culture and character of the Furneaux Islands.

Through partnerships between Flinders Council, Flinders Island Aboriginal Association Inc (FIAAI) and the broader community, the Furneaux Islands Festival delivered positive social, cultural and economic outcomes grounded in local participation and place-based experiences.

## Focus Area 4: Good Governance

### 4.1.2 Improve communication channels between Council and Community to foster greater community participation and outcomes.

The collaborative delivery of the 2026 program strengthened relationships between Council, FIAAI and the broader community.

Through shared resources, partnerships and community participation, the program demonstrated a practical and financially responsible approach to delivering positive community outcomes.

FLINDERS COUNCIL

# Confirmed Minutes
# Audit Panel Special Committee Meeting
# 27 April 2026

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# 1 Attendance

| | |
|---|---|
| **DATE:** | **Monday 27th April 2026** |
| **VENUE:** | Rose Garden Room, Flinders Arts and Entertainment Centre |
| **TIME:** | 1:03pm |

**ATTENDEES – MEMBERS**

| **MEMBERS** | | |
|---|---|---|
| **Position/Organisation** | **Name** | **In-Attendance** |
| Chairperson | John Watson | Yes |
| Member | Diana Droog | Yes |
| Member | Danny Masters | Yes |
| **GUESTS** | | |
| Director, Practice Management and Financial Audit | Monique Langridge Tasmanian Audit Office | Apology |
| Manager Financial Audit Services Engagement Leader | Dylan Xing Tasmanian Audit Office | Apology |
| Director, Bentleys Tasmania | Brendan Lovell | Apology |
| Audit Supervisor, Bentleys Tasmania | Nick Allardice | Apology |
| **STAFF** | | |
| General Manager | Warren Groves | Yes |
| Contract Accountant | Marissa Walters | Yes |
| Corporate Services Manager | Jade Boyes | Yes |
| Executive Officer (Minute taker) | Sue Mythen | Yes |
| **NOTE:** Standing invitation to Council Elected Members as observers | | |

**(NOTE: In these minutes any reference to Annexures means any attachments that were included in the reports provided to the Audit Panel at the panel meeting.)**

# 2 Business

## 2.1 Acknowledgement of Country

The Chair opened the meeting with the following acknowledgement of Country:
We respect the deep and continuing connection the Traditional Owners may have had to these lands and waters we reside on, and we will continue to work together with them to care for the Country.

## 2.2 Declaration of Interests

### 2.2.1 Declarations of Interest

| Name | Appointment Date | Rotation Date | Person and/or Organisations with Interest | Nature of Conflict of Interest | Perceived / Potential / Actual | Date of Declaration |
|---|---|---|---|---|---|---|
| Diana Droog | Annual Membership | Sept | Flinders Island Business Inc. (FIBI) | Treasurer (& member) | Potential | 7 Feb 2018 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Annual Membership | July | Furneaux Historical Research Association Inc. | Member & Membership of Museum's IT Group | Potential | 7 Feb 2018 |
| | Annual Membership | | Landcare | | Potential | 4 June 2018 |
| | | | Emita Volunteer Fire Brigade | Member | Potential | 16 Dec 2019 |
| | Annual Membership | | Sports and RSL Club | Member | Potential | 13June 2024 |
| **Marissa Walters** | Ongoing | | Break O'Day Council | Consultant Accountant | Perceived | 29 September 2022 |
| | Ongoing | | Glamorgan-Spring Bay Council | Consultant Accountant | Perceived | 12 February 2026 |
| **John Watson** | Ongoing | | Kingston City Council. | Municipal Monitor of the | Perceived | 12 February 2026 |
| **Danny Masters** | Nil | | | | | |
| **Warren Groves** | Nil | | | | | |
| **Jade Boyes** | Nil | | | | | |

Nil changes were reported.

### 2.2.2 General Manager's Declaration – General

The General Manager declared no knowledge of any impending legal actions, legislation breaches or any actual or suspected fraud occurrences within the organisation since last reported to the Panel on 12 February 2026.

### 2.2.3 General Manager's Declaration – Credit Cards

The General Manager declared there had been no unapproved/cancelled transactions within the organisation since last reported to the Panel on on 12 February 2026.

**DECISION**
**The Panel noted the Declarations of interest from the General Manager.**

The General Manager advised the group that at a recent Northern General Managers workshop another Council had noted an error relating to their Land Tax charges. Corporates Services were asked to undertake the same exercise for Flinders Council and have identified approximately $30,000 which could be backdated for three years; a potential saving of up to $90,000 . The reviewed fees are currently with Councils lawyers, and the Panel would be kept informed of the progress.

The Contract Accountant advised that in Tasmania certain properties can be exempt from land tax.

John Watson noted that in Victoria they had a rule that one level of government did not tax another level of government.

## 2.3 Confirmation of Previous Minutes

**DECISION**
**The Panel noted the minutes from the meeting held on 12 February 2026 were confirmed out-of-session via circular resolution on 24 February 2026; and**
**That at the 25 March 2026 Council meeting Councillors considered the minutes of the 12 February 2026 Audit Panel Meeting and asked that the following be noted and the Audit Panel be advised:**

- ***At item 2.5 of the minutes the date should read 2026 not 2025***
- ***Deputy Mayor Vanessa Grace queried whether Council undertake recreational water sampling. The Development Services Manager confirmed they do not and the Audit Panel will be advised of this at their next meeting.***
- ***Cr Cox asked that the following note be added: That the audit panel be advised that a review of subscriptions reported in the Audit Panel meeting minutes was incorrect, Council has done a review and we do not have a Zoom subscription, we do have a Vimeo subscription which is used by Community Development .***

There were further queries regarding the recreational water testing requirements and what testing Council undertook. The General Manager advised that TasWater provided some water testing as they had their own testing facility.

John Watson queried Councils obligation to provide the service and whether the issue needed to be taken further.

The General Manager advised further action was not considered necessary as Council had a strong collaboration with TasWater, were comfortable using the TasWater service. He noted there was a limited risk and TasWater covers off on sampling requirements.

The Corporate Services Manager clarified that recreational testing was for pools and spas.

John Watson requested the following action:

***Action:*** *General Manager to advise what water sampling obligations Council is required to do and how it is currently dealt with through arrangement with TasWater, plus whether there were any gaps.*

Diana Droog added that Council needed to be wary of stormwater outlets at Whitemark and Lady Barron into the ocean.

## 2.4 Actions Arising from Previous Meetings of the Panel

### 2.4.1 Actions Table

| Meeting | Action | Progress |
|---|---|---|
| 12/02/2026 | Corporate Services Manager to investigate whether the review frequency of any policies can be changed. | See 3.2 in this agenda |
| 12/02/2026 | Audit Panel Work plan document to be shared by circular email to be reviewed by the Panel. | Complete |
| 12/02/2026 | General Manager to review Council-wide paid subscriptions with Corporate Services Manager and | Complete see item 3.8 this agenda |

| | | |
|---|---|---|
| | Community Engagement Manager to seek efficiencies. To be added to next meeting's agenda. | |
| 12/02/2026 | Gift register to be added to next meeting's agenda for review. | Complete see item 3.8 this agenda |

**DECISION**
**The Panel noted the progress of the actions arising from previous minutes.**

## 2.5 Future 2026 Meetings

Meeting dates for 2026 are:

- Monday 20 July 2026
- Tuesday 13 October 2026

**DECISION**
**The Panel noted the future meetings for 2026**

## 2.6 Correspondence

**Annexures** 1. 2026.03.25 Ordinary Council Meeting Action items [**2.6.1** - 1 page]

**2.5.1 Correspondence IN**

2026.03.25 Ordinary Council Meeting – notes on Audit Panel Minutes

**2.5.2 Correspondence OUT**

Nil

**DECISION**
**The Panel noted the inward and outward Correspondence.**

# 3 Standing Items

## 3.1 Financial Report

**Annexures** 1. Finance Report - Council reports with Capex 31 March 2026 [**3.1.1** - 15 pages]

Any variations to the budget and movement of money are presented for the Panel's consideration. The Quarterly report for the period ending 31 March 2026 was presented along with the Council Agenda item.

The Contract Accountant advised that the forecast was tracking to come in within, or slightly better than budget, adding that it was the same as usual with the Airport, however the situation had improved somewhat with the summer trade.

The 2026-27 budget was well under way.

Diana Droog queried the high receivables balance on the cash flow and the number debtors with an outstanding balance over 30 days.

The Contract Accountant advised this was due to the timing of rates with the second payment due 28 February. This meant Corporate Services were now actively following up the outstanding debts and this is usually reduced by June. She added that this could also be due to a Department of State Growth (DSG) contract invoice or a large grant that remained unpaid.

***Action**: Contract Accountant/Corporate Services Manager - The Panel requested a breakdown of receivables/debtors with historic tracking to be presented at the next meeting.*

John Watson queried how serious a concern the airport expenses were and the General Manager advised it was a large concern and Council were doing a number of things to try to minimise costs. He had advised the Panel previously about the selling of the fuel facility and getting a throughput fee and recently had leased part of a building instead of demolishing it for use as a freight hub with a view to renovate the building and lease to a business provider. He added that depreciation was a large concern and accounted for the majority of the loss at year end. Council had advocated for 2-4 years with the politicians, had a good relationship with the Rural Flying Doctors Service (RFDS) and they have supported Council in their advocacy. The $3,000,000 for the current electrical upgrade and ARO office was a result of past advocacy and two quotes had been secured for the runway works to address the CASA safety finding. These quotes have various levels between [redacted] to rectify the issues. Current Grant funding program criteria preclude Council applying for funds as they require up to 50% co-funding which is not in our budget or capability. The State Government has indicated they would in principle talk to us once the runway was rectified. He noted that the Airport was our number one advocacy project and Council had advocated through a number of submissions, attendance at hearings with the Tasmanian Freight Equalisation Scheme (TFES) and Rural and Regional Affairs and Transport References Committee (RPAT).

John Watson queried whether the island was of nationally strategic importance, specifically with relation to emergency purposes and the military. The General Manager advised that it was and Council had included these aspects in their advocacy, however, with low population numbers we had little political capital. He added that the Airport was the only refuelling facility in Bass Strait for AMSA search and rescue, and politicians agreed it was important but there were no votes in it for them. Council had met with the aviation advisor for Minister of Defence, (Richard Marles) but there had been no outcome. The funding criteria is always out of Councils funding ability and it was suggested that we look at a staged approach to the runway works.

Danny Masters advised he was happy with the financials across the board. He added that he had visited the Lady Barron Boating Facility yesterday and considered it was a fantastic put together project and a significant asset. On his visit he had witnessed multiple boats using and enjoying the facility.

The Contract Accountant summarised by saying the forecast on 30 June would probably be a $1,000,000 loss; slightly less than budget and noting the majority was depreciation. She added that Council did not fund depreciation on the Airport but missed the mark on some others also.

**DECISION**
**The panel noted the financial reports as presented by the Consultant Accountant.**

## 3.2 Policy Review

**Annexures** 1. 00- Policy & Procedure Contents - 2026.04.17 [**3.2.1** - 2 pages]

The following policies have been reviewed since the last Panel meeting on 12 February 2026:

- The Code for Tenders and Contracts was scheduled for discussion at the 15 April Workshop; however, the item was deferred due to time constraints and will be relisted for 13 May Workshop.

The following policies are under review/development by the Management Team:

- S-OXX Single Use Plastics Policy

- O-G17 Use of the Common Seal Of Council Policy
- S-HR13 Uniform Policy – Rev0
- S-OXX Waste Cost Recovery Policy

A Policy working group has been set up to expedite the following HR Policies:

| | |
|---|---|
| O-HR1 | Workplace Behaviour Policy |
| O-HR3 | Disciplinary Policy |
| O-HR3-P | Disciplinary Procedure |
| O-HR5 | Performance Management Policy |
| O-HR5-P | Performance Management Procedure |
| O-HR8 | Issue Resolution Policy |
| O-HR8-P | Issue Resolution Procedure |
| O-HR11 | Employee Code of Conduct Policy |

John Watson noted that work was continuing on policies, which is good to see.

Danny Masters added that good progress was being made and asked the General Manager to pass back to those responsible the Panels appreciation on the progress.

**DECISION**
**The Policy Review report was received and noted by the Panel.**

## 3.3 Audit Panel Work Plan

**Annexures** 1. 2025-26 Audit Panel WORK PLAN - JW & DD & DM [**3.3.1** - 3 pages]

The Audit Panel Work Plan was reviewed by members via circular email and presented for noting.

John Watson noted that the work plan would always be a work in progress and include the ability to adjust items as needed.

Diana Droog noted that colouring in accordance with the key needed to be added to the work plan.

**DECISION**
**The panel reviewed and noted the Work Plan.**

## 3.4 Credit Card Audit

**Annexures** 1. Flinders Council CC Expenses 2026 FY Jul- Feb [**3.4.1** - 1 page]

A Credit Card Report for the period July 2025 to February 2026 is presented for review.

**DECISION**
**The Panel received and noted the credit card report provided**

## 3.5 Cyber Security

**Annexures** Nil

The Cyber security status remains unchanged for previous meeting.

**Cyber security breaches / issues since last meeting.**

- New CCTV installed at the Airport was found to have remote access to Councils network for a period of time. This was discovered following the firewall update in February 2026 and a Virtual platform created to rectify the issue.

The General Manager advised that the Local Government Association of Tasmania (LGAT) and The Tasmanian Police had collaborated and funded a program to work with Councils to have community cameras in identified hotspots. Council went through the process and updated the airport cameras, noting this is required by CASA and got additional CCTV cameras installed for the Airport car park.

Following a recent firewall upgrade Council discovered that the CCTV provider could access council's IT network. Councils IT service provider and the LGAT program manager collaborated to find a solution via a separate network access. The General Manager added that this issue could be a concern for all the other Councils that were included in the program.

The Whitemark and Lady Barron Gyms have had CCTV installed for the safety of participants. Previously a buddy system was required and people could not train alone; funding was secured for duress alarms in conjunction with CCTV installation. This was included with the electronic door system which had improved income from the memberships.

Diana Droog queried what CCTV monitoring was being done by Council and the General Manager advised that Council had a CCTV policy which outlined that basically no one accesses footage unless there is an incident and then the General Manager must approve any access to view the footage. If a duress alarm is activated then the gym footage can be accessed by the system management company.

He referred to a recent instance when staff asked for access to view footage [redacted], however the General Manager had not given approval in this instance. He added that the Airport had CASA requirements to address also.

Diana Droog queried whether appropriate signage had been installed, warning users that the area is being recorded. The General Manager confirmed signage had been erected and that Council had undertaken a communication survey and campaign to promote and advise of the recording in the gym areas with CCTV.

[redacted]

**DECISION**
**The panel noted the Cyber security report and status.**

## 3.6 Internal Audit Provider Review

**Annexures**

1. [redacted] Internal Audit Quote [**3.6.1** - 10 pages]
2. IA Proposal & Quote - Flinders Island Council- Combined ([redacted] [**3.6.2** - 24 pages]

The General Manager had contacted two internal audit service providers; their submissions for the provision of internal audit were attached as annexures 1 and 2 to this item for the Panel's discussion.

Danny Masters declared that his accountant in Launceston was aligned to [redacted]. He was currently in the process of moving to a different provider for personal accounting purposes. John Watson noted the declaration and considered there was no conflict of interest which might preclude Danny Masters contribution in relation to this item.

The General Manager advised that he had asked for additional details from one of the providers to clarify items and allow appropriate comparison, however the detail had not been received. He noted that one provider was more flexible on approach and had been vetted by the LGAT procurement process and Council could engage them through this method which also included a discounted rate.

John Watson queried whether the General Manager had any knowledge from other Council regarding their providers, he added that his assumption was that both providers could provide a suitable service.

The Contract Accountant advised she had worked with both providers, adding that the Tasmanian Audit Office (TAO) had employed [redacted] (quote 1) to undertake Council's audit some years ago. She noted they had been good to deal with and had a connection to the island through one of partners. [redacted] (Quote 2) may have done some grant audits and she had dealt with them in various places and had no issues with them either. She added that she considered [redacted] had more local government internal audit experience.

Diana Droog suggested asking if either provider were using AI as part of their process, adding that this may be cheaper.

Danny Masters advised he was impressed by [redacted] submission and considered both could provide the services. He added that [redacted] offered a risk workshop and an assurance map which would help inform Councils focus on priorities, and he added that he was also impressed they had LGAT prequalification, however he recalled there was only $5,000 in the budget for internal audit.

The General Manager invited some form of guidance/recommendation from the panel and John Watson noted that the Panel considered both providers could deliver the services and that the General Manager would follow Councils procurement process.

**DECISION**
**The panel discussed the Internal Audit Provider quotations and noted that Council would follow their procurement process.**

## 3.7 Tasmanian Audit Office Findings

**Annexures** Nil

Audit Tasmania sent their apologies for the meeting, as they were unable to issue the audit strategy in time. They apologised for any inconvenience caused and will circulate the strategy out of session once finalised and present it at the next meeting, if required.

**DECISION**
**The Panel noted the progress on the status of the audit strategy.**

### 3.8 Additional Agenda Items

**Annexures**
1. 2013 - 2026 CURRENT Gift & Donations Register - Councillors [**3.8.1** - 2 pages]
2. 2025 Gift Donations Register STAFF [**3.8.2** - 1 page]

**1. Gift register**

Action arising from the 12 February 2026 Council Meeting.
The gift and donations registers to 31/03/2026 were attached at annexures 1 and 2 to this item. An agenda item is proposed to be taken to the 27 May 2026 Council meeting recommending adopting the Victorian best practice model to report gifts/donations accepted and declined.

**DECISION**
**The Panel noted the gift and donations registers and the proposed amended procedure.**

**2. Council-wide paid subscriptions**

Action arising from the 12 February 2026 Council Meeting:
Discussions with the Corporate Services Manager and Community Engagement Manager to seek efficiencies.

**DECISION**
**The Panel noted the report on Council-wide paid subscriptions.**

### 3.9 Other Business

**Annexures** Nil

Diana Droog noted there had been a question to Council regarding fuel security for the island and Council and queried how supplies for Council and the Emergency Services were tracking and if there was a need to be aware of anything specific.

John Watson echoed the sentiment querying if there were any implications or concerns relating to the fuel supply.

The General Manager advised that Council had comfort in the current supply; the State Government had been proactive, LGAT met with General Managers' and there were regular (weekly) meetings for the two Bass Strait Islands with updates from Renewables, Climate, Future Industries, Tasmania (ReCFIT), suppliers, freighters and the State Government on fuel supply and updates on the countrywide fuel implications. He added that Council had updated their Business Continuity Plan (BCP) and noted we had regularity of supply and islanders were not panic buying. The Works and Services Manager had drafted up a fuel optimization plan with trigger points that included actions such as reduction in works/services, working from home, carpooling or enforced staff leave. Currently Council had not reached any trigger points and updates were being provided via e-news and Island News to keep the community informed.

An external provider now manages Airport AvGas, and they were maintaining 90% reserves for the airport and depot operations with regular supplies. The Airport

Operations Coordinator was very fastidious and was monitoring supply and usage closely.

John Watson questioned whether there were any concerns relating to fertiliser supplies and the General Manager advised that to his knowledge fertiliser was available, however freight to get it across to the island could be an issue.

The Contract Accountant noted bitumen pricing in the coming year may not be cost effective for Council.

## 3.10 Members Only With Auditors' Session

**Annexures** Nil

The Tasmanian Audit Office representatives were not in attendance; therefore, the Chair did not ask if the Auditors had any matters to discuss with members only in the absence of management.

## 3.11 Next Meeting

Date: Monday 20th July 2026
Time: 1.00pm

Meeting Close: 2.01pm

FLINDERS COUNCIL

# Unconfirmed Minutes Furneaux Group Aviation Special Committee Meeting 28 April 2026

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# 1 Attendance

| | |
|---|---|
| **DATE:** | Tuesday 12th May 2026 |
| **VENUE:** | Rose Garden Room, Flinders Arts and Entertainment Centre |
| **TIME:** | 3.27pm – 4.23pm |

**ATTENDEES**

**MEMBERS**

| Position/Organisation | Voting | Name | In-Attendance |
|---|---|---|---|
| Mayor - Chairperson (non-voting) | - | Rachel Summers | Yes |
| Deputy Mayor | 1 | Vanessa Grace | Yes |
| Councillor | 1 | Ken Stockton | Yes |
| General Manager - Flinders Council | - | Warren Groves | Yes |
| Works and Services Manager | - | Oliver Ward | Yes |
| Airport Operations Coordinator | - | Richard Harley | Yes |
| Multi-Purpose Centre Representative | 1 | Sam Elrick | No |
| Regular Passenger Transport Representative | 1 | Sean Caris | Yes |
| Charter Aircraft Representative | 1 | Peter Barron | Yes |
| Department of State Growth | - | Arun Kendall | Yes |
| Cape Barren Island Aboriginal Assoc. Inc. | 1 | Kathryn Longey | No |
| Community Representative | 1 | Linda Nicol | Apology |
| Flinders Island and Business Incorporated Representative | 1 | Michael Buck | Yes |
| Sharp Airlines CEO (Guest) | - | Alistair Dorward | Yes |
| Royal Flying Doctors Service | 1 | Nicole Henty | No |
| STAFF | | | |
| Executive Officer (Minute Taker) | - | Sue Mythen | Yes |

# 2 Standing Items

## 2.1 Declaration of Pecuniary Interest - Councillors Only

Nil

## 2.2 Confirmation Of Previous Minutes

**Moved: Deputy Mayor Vanessa Grace** **Seconded: Cr Ken Stockton**

That the Unconfirmed Minutes of the Furneaux Group Aviation Special Committee meeting held 18 August 2025 are a true and fair record and noting that the meeting scheduled for the 10th November 2025, 23 March 2026 and 31 March 2026 did not proceed due to absence of a quorum.

**CARRIED UNANIMOUSLY**

| Date | Item | Responsible | Progress |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 18/08/2025 | MOTION<br>Moved: Deputy Mayor Vanessa Grace Seconded Cr Ken Stockton<br>That the changes to the Furneaux Group Aviation Special Committee Terms of Reference (TOR) be accepted and forwarded to Council for consideration.<br><br>CARRIED UNANIMOUSLY | Chairperson | Adopted at 27/08/2025 Council Meeting. Complete. |

### 2.4 Correspondence

- Furneaux Group Aviation Special Committee Terms of Reference – adopted 27/08/2025
- The Airport Operations Monthly reports to Council are shared with Committee members following each Council meeting.

### 2.5 Committee Review

As part of the review of the Terms of Reference for the Committee, the Royal Flying Doctors Service has been invited to nominate a representative on the Committee and Nicole Henty (CEO) has accepted the nomination.

### 2.6 Council and Airport Update

The Airport Operations Coordinator (AOC) provided an update to the Committee.

He advised that as the AOC he reports directly to the General Manager, adding that the information provided today was commercial in confidence and could not be shared unless approved through the General Manager or Mayor.

**The Airport Masterplan** – The AOC contacted the consultant at [redacted] and had sent them the information from the 2012 Masterplan and information regarding future options. The consultant moved to another company and had passed the information to [redacted] to undertake consultation with the AOC.

**Sharp Airlines (Sharp)** – There was a reduced flight schedule due to passenger numbers, with the winter months coming up and numbers were down as other operators were moving passengers, hence Sharp have had to reduce flight numbers to cover business liability. [redacted]

**Landing numbers** - Had remained steady, he reminded the group that last year weather conditions were very windy (40-50 knots) due to lows from the southern ocean and this resulted in a reduced number of smaller aircraft visiting.
Alistair Dorward (Sharp CEO) confirmed Sharp had moved to their winter schedule, adding that the Essendon service had dropped to 2 days (Monday and Friday). He advised that load factors were good on the sector and they continued to work with the State Government regarding service to the Island.

**Fuel Facility –** Council entered into an agreement with [redacted], and they now operated the fuel facility at the Airport. They were currently in a transition period across to a 24/7 service, which they hoped to have available in the next month or so. They plan to increase jet fuel capacity to 70,000L in a couple of months and also increase the AvGas capacity to 10,000L. The

increases will improve the emergency response as they will be better able to manage emergencies as/when they arise. The increased capacity should attract other operators also as they will not be subject to a call out fee of approximately $300.

**Airport Electrical upgrade** – The State Government has provided $320,000 toward the project and the Commonwealth Government has provided $2,682,000. [redacted] are undertaking the construction of the new ARO office with the framing and roof completed and wrapping of the building being undertaken today.

[redacted]) were the successful contractor for the lighting upgrade. They are 20% into the trenching and the under runway drilling has been completed. The benefits of the project are:
Removal of the grandfather clauses through the following upgrades:

- Replacement of all runway lighting systems, including the generator and switchboard, to comply with the new CASA MOS Part 139 standards.
- Installation of new runway approach systems, including Precision Approach Path Indicators (PAPI) and Runway Threshold Identification Lights (RTIL), and may opt for PAPI 5 on runway 05/23.
- Installation of a new obstacle self-reporting lighting system on the five surrounding hills.
- Replacement of the existing windsock tower on Runway 14 with a new Illuminated Wind Direction Indicator (IWDI).
- Construction of a new operations office to accommodate runway lighting controls, CCTV, Bureau of Meteorology (BOM) airport weather reporting systems, and other essential infrastructure.
- New generator and switchboard which will comply with CASA standards.

The Project is scheduled for completion and commissioning at the end of October 2026 and will be an up to date lighting system that can send messages of outages to the phone of those on call.

**Future Federal Government Grant – Advocacy Underway**
Advocacy continues for the upgrade of the main runway to remove the safety finding (due to water not running off) and strengthen the taxiway, small runway and apron. This included meetings in Canberra to advocate for the project last year, with the Mayor returning to meet with Defence Minister.

The fences on runway 14/32 will need to be moved and it will be [redacted] and costings will need to go to Council.

Cr Grace queried whether the extension would be on Council land and the AOC advised there was a lot of work to be done, noting there was also a small hill on eastern side. The works would be costed and go to Council to see if they could be done during the stage 2 upgrade.

**Current state of the Airport**
The next Airport inspections are planned for November 2026. In November 2025 the Airport Technical Inspection (ATI) was completed which noted that remedial work was required and some patches were being done and addressing the water pooling areas to demonstrate we are trying to address the issue . They identified the electrical degradation which was currently being addressed by the upgrade and no compliance issues were identified with the Obstacle Limitation Surface (OLS) Survey.

The CASA technical inspection was done in October 2025 noting there was nothing to fix or do in addition to the grandfathered safety finding.

The General Manager advised that CASA had indicated they could see we were trying but there may come a day that they become regulatory about the safety finding, which reinforced the need to keep pushing to undertake stage 2 of the upgrade.

The AOC advised that two companies had assessed the runway and provided engineering quotes for the runway upgrade which had been shared when undertaking advocacy. To minimise costs for the project Council had tested the material [redacted] for the project and highlighted to the Federal Government that we were doing everything to reduce the cost and get the job done. Council is currently waiting on the next round of Regional Airports and Growing Regions Grant Funding to come out and the Australian Aviation Authority (AAA) were working with us also to help secure the funding.

Ongoing monthly reports are submitted to the community through the Council agenda and also to the Committee detailing other maintenance and operational works at the aerodrome.

Michael Buck queried the progress on hangars and the AOC advised Council had investigated where the next line of hangars would be placed and he had been approached by an interested party with whom he would be setting up a meeting next week to discuss options. Council will look to move west of the old hangar (ex Leedham Walker's) where the new hangars will go.

[redacted]

Michael Buck understood from the previous meeting there would be discussion about charges for hire car parking at the Airport and the AOC advised that discussion had been undertaken [redacted]

## 2.7 Sharp Airlines Update

Sean Caris provided the following report from Sharp Airlines operations.

He confirmed that there had been reduced flights for winter, passenger numbers remained steady and the Essendon planes were full. The fuel price was affecting some areas however the Launceston numbers remained much the same. They were happy with the state of things and looking at Aviation Security Identification Cards (ASICs). [redacted] He queried when the lighting system would be in place and when would Sharp be required to have ASICs. The AOC advised that Home Affairs monitor passenger numbers and would 6 months' notice if numbers increased to a level that required ASICS; he noted that only Sharp passenger numbers were used to base this on. He advised Sharp to get prepared and be ready for security checks and have ASICs, adding that he would be doing the same for Council airport staff. He reiterated that he would notify Sharp as soon as he was told.

Sean Caris advised the new fare system was in place and would hopefully be promoting passenger numbers.

The AOC advised that he was an ASIC company agent on the Island and could be used by Sharp staff.

Alistair Dorward provided an update on Sharp Airlines business operations. He advised that Aviation ID Australia was being used by Sharp and asked the AOC to let them know what was required. He had attended the Regional Senate Inquiry and Productivity Commission and was keen to see what came out of this.

[redacted]

Regular fuel meetings were being attended along with the General Manager and Peter Barron, he noted another price increase had been experience on 1 May and considerable increases over the last two months but added that supply was not an issue. [redacted]

He reported that the Tasmanian Government recognised that the Sharp service was an essential service for the Island and they had a further 6 month agreement. Apart from that it was business as usual.

### 2.8 Other Business

Other Committee members were invited to provide updates or information relating to their sector.

Peter Barron had a drop in visit from Local Government representatives regarding the logistics of to and from the Island. He considered that Flinders Island stood out regarding how it operated with Sharp, Flinders Island Aviation (FIA) and Flinders Island Air Charters, adding that it was important not to cut the lifeline of the Island. Freight had picked up significantly through Australia Post for small parcel post. He advised FIA had rented a small space to assist the Island with freight coming into Whitemark and getting perishable goods supplied. He added that he was looking to make the service reliable and sustainable, and also to use the Council airport. FIA now had a chiller and a freezer and were trying to increase the capacity as they were constantly running out of space. He added that it would be hard to get delivery times scheduled to suit the flight times and would be looking at the freezer options and storage on the other side also to store goods when the weather was bad.

The Mayor advised that she and the General Manager had attended the Rural and Regional Affairs and Transport (RRAT) hearing in Wynyard. They spoke on behalf of Council and the community and stayed to hear Kerry Vincent MLC speak and the outcome report was due out on 13 October 2026. They also met with the Productivity Commission regarding the regional airfares report which is due out late 2026 with the final paper due 27 April 2027. She added that there would be more opportunities in the future to have further input.

Michael Buck queried whether Council were advocating to the senators and the AOC advised Council had been to Canberra three times, had also met with State Senators and met with the Premier [redacted] The Mayor was scheduled to go back to Canberra in June 2026 and would again continue the advocacy.

The General Manager noted that the Committee haven't managed to meet for over nine months due to not achieving a quorum. He queried how members felt about putting the Committee into abeyance and resurrecting if there was a need, adding that you could argue that the lack of ability to achieve a quorum could suggest the Committee was not needed.

Michael Buck argued that as the Committee only met six monthly people had lost interest.

The Mayor noted that they were struggling before the reduction in meeting numbers and that had been the reason the frequency of meetings had been reduced.

Peter Barron considered the meetings were important, especially for business development and updates, adding that it was important that the information was shared with the community so they understood the issues.

Alistair Dorward agreed that he considered the meetings were important

The AOC noted that it was great to disseminate the information but felt it was important that the meetings were maintained.

Peter Barron commented on how good the airport looked now compared to others, it looked professional and the ARO staff meet you with a smile. He passed on his thanks to the AOC on how it is currently run noting that if you want to grow business and tourism on the Island the airport is critical and Council should be proud of the Airport infrastructure.

The Works and Services Manager was curious to understand if there was anything that the Committee could take on to assist the air services, other than just giving updates. He queried whether the members had any suggestions that Council could consider regarding general improvements or future aspirations.

Peter Barron advised that he considered a cohesive approach and working toward the betterment for the general public was crucial. Sharing the importance of the assets and how Council were working to improve it and sending the message that it is a cohesive approach.

Alistair Dorward noted that the working relationship with General Manager was good, adding that the cooperative approach from all would allow each to continue to flourish and keep the gateway open. The importance of the upgrades will mean less days lost due to weather and will enhance operations into Whitemark and Council should continue to share the importance of the upgrades to the island community.

### 2.9 Next Meeting

Date: Monday 21st September 2026.
Time: 3.30pm
Venue: FAEC, Rose Garden Room or Via Teams

### 2.10 Closure of Meeting

**Meeting Closed: 4.23pm**

# INFORMATION REPORT
# May 2026

**Development Applications 1 to 30 April 2026**

**ENQUIRIES**
**NIL**

**ACCEPTED**
**NIL**

**APPROVED**

| APPLICATION NUMBER | DATE | ADDRESS | PID NO | DEVELOPMENT/USE DESCRIPTION | D or P* |
|---|---|---|---|---|---|
| **2026 / 00008** | 15 April | 60 Franklin Parade Lady Barron | 3596989 | Subdivision – Consolidation of 2 lots Cohen | **P** |
| **2026 / 00007** | 20 April | 745 Trousers Point Road, Trousers Point | 9605815 | Visitor Accommodation | **D** |

**EXEMPTION or NO PERMIT REQUIRED CONFIRMATION**
**NIL**

**MINOR AMENDMENTS GRANTED**

| APPLICATION NUMBER | DATE | ADDRESS | PID NO | DEVELOPMENT/USE DESCRIPTION |
|---|---|---|---|---|
| **2019 / 00018** | 10 April | 3 Robert Street, Whitemark | 1837806 | Service Station in the Commercial Zone |

**PLANNING PERMIT EXTENSIONS**

| APPLICATION NUMBER | DATE | ADDRESS | PID NO | DEVELOPMENT/USE DESCRIPTION | D or P* |
|---|---|---|---|---|---|
| **2024 / 00003** | 8 April | Palana Road, Palana. | 9961855 | Residential | **D** |

**APPEALS BEING PROCESSED**
**1**

*The D, P column indicates if an application is Discretionary or Permitted.
Note that only Discretionary applications incur an advertising period.
No refusals were issued within the period.

TASMANIAN PLANNING COMMISSION

# DECISION

| | |
|---|---|
| **Planning scheme** | Tasmanian Planning Scheme – Flinders |
| **Planning authority** | Flinders Council |
| **Applicant** | Douglas and Collins Lawyers for Markarna Grazing Company Pty Ltd |
| **Date of decision** | 13 April 2026 |

## Background

On 11 March 2026, Douglas and Collins, on behalf of Markarna Grazing Company Pty Ltd, submitted a request to the Commission under section 40B(1) of *Land Use Planning and Approvals Act 1993* (the Act). The request relates to an application to amend the Flinders Local Provisions Schedule and seeks a review of the Flinders planning authority's (the planning authority) decision to refuse the request to amend the LPS.

The applicant's letter to the Commission, which outlined the reasons for the requested review, noted the proposed combined draft amendment and permit was supported by a comprehensive suite of documents. The request was also accompanied by a copy of the planning authority's notice of decision.

The following documents were provided by the applicant's representative to assist the Commission is its review of the decision to not certify the amendment:

- Notice of determination dated 27 February 2026
- Copy of the Council Agenda dated 25 February 2026
- Copy of attachments to Council Agenda dated 25 February 2026
- Unconfirmed Minutes Flinders Council Meeting dated 25 February 2026
- Extract from Flinders Council Minutes dated 16 March 2021
- Letter from the Commission to Flinders planning authority dated 3 November 2025
- Email from Mick Purves Strategic Planner Flinders and attachments, and
- Flinders Island Structure Plan – Draft for Public Consultation dated July 2016.

The planning authority subsequently confirmed that the documents provided by the applicant were the relevant documents.

The Commission also reviewed the recording of the planning authority's consideration of the draft amendment at its meeting on 25 February 2026.

**Requirements of the Act**

Under section 40B(1) of the Act, the Commission must consider whether it is satisfied that the planning authority took into account, in making its decision the matters referred to in section 38(1), when refusing the request for the amendment.

Section 38(1) provides -

> A planning authority, before deciding whether to prepare a draft amendment of an LPS in relation to a municipal area in accordance with a request under section 37(1), must be satisfied that such a draft amendment of an LPS will meet the LPS criteria.

The LPS criteria under section 34(2) of the Act are:

(a) contains all the provisions that the SPPs specify must be contained in an LPS; and

(b) is in accordance with section 32; and

(c) furthers the objectives set out in Schedule 1; and

(d) is consistent with each State policy; and

(da) satisfies the relevant criteria in relation to the TPPs; and

(e) as far as practicable, is consistent with the regional land use strategy, if any, for the regional area in which is situated the land to which the relevant planning instrument relates; and

(f) has regard to the strategic plan, prepared under section 66 of the *Local Government Act 1993*, that applies in relation to the land to which the relevant planning instrument relates; and

(g) as far as practicable, is consistent with and co-ordinated with any LPSs that apply to municipal areas that are adjacent to the municipal area to which the relevant planning instrument relates; and

(h) has regard to the safety requirements set out in the standards prescribed under *the Gas Safety Act 2019*.

In the council minutes dated 25 February 2026 it was stated: ‘As noted in the Assessment Report, AM2025-02 is generally consistent with the majority of the Northern Tasmania Regional Land Use Strategy (regional strategy), however there are specific provisions that allow for local strategy to determine a range of matters on the Furneaux Islands, including competing demands to:

- maintain the natural appearance of the landscape of areas surrounding Marshall Bay (including the subject lands) for their landscape, biodiversity and geodiversity functions, and
- support the rural and agriculture sectors on Flinders Island.

A recommendation was provided for the planning authority to determine whether to certify the combined amendment and permit which stated:

> That the planning authority adopts the *draft Flinders Structure Plan 2016* as local strategy to inform assessment of AM2025-02 under the *Northern Tasmanian Regional Land Use Strategy* and:
>
> A. Refuses the application by Van Diemen Consulting on behalf of the owner, to initiate AM2025-02 to the Flinders Local Provisions

Schedule under section 40D(b) of the Land Use Planning and Approvals Act 1993 to rezone Certificates of Title 120064/1, 215120/1 & 230282/1 (PID 3513143),part of the 'Markarna Park' property at 368 Five Mile Jim Road, Memana, from Landscape Conservation Zone to Rural Zone under Section 37(1) of the *Land Use Planning and Approvals Act* 1993 (Act), as:

i. the request was not considered to be practicably consistent with the draft Flinders Structure Plan;

ii. the request was not considered to comply with the requirements of the *Northern Tasmanian Regional Land Use Strategy*; and

iii. the respective merits of the requested rezoning were not accepted; and

iv. DA2023-038 is refused.

or

B. Supports the application by Van Diemen Consulting on behalf of the owner, to initiate AM2025-02 to the Flinders Local Provisions Schedule under section 40D(b) of the *Land Use Planning and Approvals Act 1993* to rezone Certificates of Title 120064/1, 215120/1 & 230282/1 (PID 3513143), part of the 'Markarna Park' property at 368 Five Mile Jim Road, Memana, from Landscape Conservation Zone to Rural Zone under Section 37(1) of the *Land Use Planning and Approvals Act 1993* (Act); and

1. Pursuant to Section 40F of the *Land Use Planning and Approvals Act 1993*, certifies that AM2025-02 meets the LPS criteria; and

2. Instructs that adjoining property owners and occupiers be notified of draft amendment AM2025-02; and

3. Under s6, delegate to the General Manager the authority to:

   a. authorise final revisions to the documentation for AM2025-02;

   b. submit notice of the decision to initiate and certify AM2025-02 to the Tasmanian Planning Commission;

   c. complete the statutory notification of AM2025-02;

   d. provide responses to information requests or directions issued by the Commission in their processing of AM2025-02; and

4. Pursuant to Section 57 and 40Y of the *Land Use Planning and Approvals Act 1993* and the *Tasmanian Planning Scheme – Flinders*, approve the planning application DA2023-038 for the proposed lime sand pit and associated works and infrastructure, subject to the conditions including *Permit Part B Permit Conditions - Environmental No. 11576, EPA Tas, 5*

> *August 2025*, and as otherwise determined by the General Manager.

Page 54 of the council agenda dated 25 February 2026 stated:

> '….Both the Assessment Report and the Statutory Requirements section of this Agenda Item identify that the central question for AM2025-02 is whether the requested rural zone is consistent with the strategic directions and intents for the wider Marshall Bay landscape identified through the Structure Plan, which is the only available strategy consulted with the Flinders community.
>
> Absent strong submissions by the proponent to address the strategic philosophy for the zoning of the Marshall Bay area within the Structure Plan, it is difficult to identify why a departure to the zoning regime for the Marshall Bay area that was accepted and ultimately approved by the Commission, should be adopted by the Council.
>
> The lack of a clear outcome on the conflict between management of the natural and landscape values established under the Structure Plan with the need to develop and diversity the local agriculture sector suggests that a precautionary approach may be suitable.'

The Commission notes that the regional strategy does acknowledge specific challenges exist in relation to the Furneaux Group of islands and that local strategies may be adopted to address those challenges.

It is apparent from the documentation submitted to the planning authority in the planning advisers report, that considerable reliance was placed on the document referred to as the Draft Flinders Structure Plan 2016.

## Draft Flinders Structure Plan 2016

The Commission notes that references to the subject site occur throughout the draft Flinders structure plan 2016 (Structure Plan) below:

Page 20 - 'Open Space linkages with large vegetation patches on Crown land, on Local Authority land adjacent to the Lady Barron Waste Transfer station and on Vinegar Hill are also important. Further north threatened species are mapped at very high density on several individual allotments at Long Point Centre Hill and Killiecrankie. Threatened ecological communities occur in large patches at NE River; east of Palana Road near West End Road intersection; at Leeka and West End; along Boat Harbour Creek; adjacent to Killiecrankie, Limestone and Marshall Bays; north of the Dock; on Quoin Hill and at NE River.'

Page 36 - 'There are locations where loss of vegetation is unacceptable, for example, Marshall Bay where intensification of development is not warranted and where grazing is encouraged to reduce and ultimately cease as a use. The land adjacent to the length of Marshall Bay is potentially subject to extreme erosion and the Tasmanian land classification (Classification 6-7) confirms its unsuitability for grazing. An allotment near the Long Point Road and Palana Road intersection, Centre Hill and two Quoin allotments have the highest density of listed threatened species on the island.'

Page 37 - 'The residential enclave at West End has potential for further holiday home development with some constraints in relation to visibility across Marshall Bay from Emita and clearance of vegetation. No further subdivision on the vegetated slopes above West End Road addresses the issue of land slip and fire hazard management, and will also reduce the potential visual impacts. Below the road, adjacent to the coast, there is some potential for further development of housing that minimises visual impacts from Marshall Bay/Emita. A minimum lot size of 10ha is proposed in this coastal location. Land division should ensure that frontage to the coast is approximately 150-200 metres to retain the amenity of the beach front area in keeping with current character.'

It appears from the record of the planning authority deliberations, that the planning authority at its meeting on 25 February 2026 resolved to adopt the Structure Plan and consider its application to the request to certify the combined draft amendment and permit.

**Commission consideration**

1. The Commission notes that in the planning adviser report and in the report before the planning authority, reliance was placed on the application of the Structure Plan.
2. It was submitted that the applicability and reliance on the Structure Plan was said to derive from the regional strategy, with the Structure Plan being adopted by the planning authority.
3. The Commission notes that while it is not a matter for the Commission to decide, it is questionable whether the Structure Plan has any status that is derived for the regional strategy.
4. The Commission also notes, that the fact that the Commission previously considered the Structure Plan in its assessment of the draft Flinders LPS, does not preclude its further consideration in application to a request for a subsequent amendment to the draft LPS.
5. In any event, even if the Structure Plan does derive some status from the regional strategy, that is not solely determinative of the matter. In considering the application of the LPS criteria to a requested amendment, the test for the application of the regional strategy is that a proposed amendment is 'in so far as practicable consistent with the regional strategy'. The planning authority could determine that the positive application of the other LPS criteria results in it not being practicable for the amendment to be consistent with the regional strategy.
6. Whether or not the existence and application of the Structure Plan have any relevance to the consideration of any of, or application to, other LPS criteria that the planning authority must consider, is a matter for the planning authority.
7. While it is not a factor in the Commission's decision, the Commission further observes that it appears that the Structure Plan was formally adopted for the purpose of consideration of the requested amendment. The Commission is uncertain as to whether the Structure Plan is being adopted effectively on a 'case by case' basis or has ongoing application to the planning authority's decision making. In fairness to any applicant for an amendment, the existence and status of any strategic or structure plan and its ongoing application in

planning authority decision making must be a public document able to be ascertained by an applicant, so that any matters relevant to the amendment request, can be addressed in an application.

**Consideration of section 40(B)**

8. Section 40B(1) of the Act states:

> (1) A person, within 14 days of receiving a notice under section 38(3) that the planning authority has decided not to prepare a draft amendment of an LPS in accordance with the person's request, may request the Commission to determine whether the Commission is satisfied that the planning authority took into account, in making its decision, the matters referred to in section 38(1).

9. The role of the Commission under section 40B(1) is limited. It does not require that the Commission reviews the planning merit of the planning authority's decision. Rather, it requires that the Commission is satisfied that the planning authority took into account the LPS criteria.

**Commission consideration**

10. At the meeting on 25 February 2026 the planning authority had before it a planning adviser report that provided advice on application of the LPS criteria to the draft amendment. The report provided options. It indicated that the amendment could meet the LPS criteria and indicated that it could be refused principally placing reliance on the Structure Plan.

11. The Commission review of the discussions at the planning authority meeting, recorded on video indicated that the planning authority did not consider the proposal in the context of the advised LPS criteria. The planning authority essentially considered two matters:

- that the area of land for which the draft amendment to rural zoning was sought, was too large an area of land
- observations were also about the benefit of access to the sand resource to the economy of the island

12. The Commission has reviewed all the information and finds that while the planning adviser report before the planning authority did provide advice on the application of the LPS criteria, the deliberations of the planning authority indicate that the full suite of the LPS criteria and their relevance and application to the draft amendment were not considered. One of the options presented by the planning adviser report indicated that the draft amendment could meet the LPS criteria. However, the merits of that option by reference to the LPS criteria was not considered.

## Decision

13. After reviewing the documents provided by the applicant, which were confirmed by the planning authority to be all the relevant documents, and viewing the video recording of the meeting, I am satisfied the planning authority was provided with enough information to determine whether the requested

amendment met the LPS criteria. I also consider it clear that the planning authority did not take the LPS criteria into account in making its decision.

## Direction

In accordance with section 40B(4)(a) of the Act, the Commission directs the planning authority to reconsider whether to prepare a draft amendment in relation to a request made on behalf of Markarna Grazing Company Pty Ltd, considered by the planning authority on 25 February 2026.



John Ramsay
**Executive Commissioner**

# PLANNING SCHEME AMENDMENT REPORT

## MARKARNA GRAZING COMPANY PTY LTD

## PALANA ROAD, FLINDERS ISLAND

**6 JANUARY 2026**

Van Diemen Consulting Pty Ltd

PO Box 171 Brighton Tasmania

T: 0438 588 695 E: rwbarnes73@gmail.com

This document has been prepared in accordance with the scope of services agreed upon between Van Diemen Consulting (VDC) and the Client.

To the best of VDC's knowledge, the report presented herein represents the Client's intentions at the time of completing the document. However, the passage of time, manifestation of latent conditions or impacts of future events may result in changes to matters that are otherwise described in this document. In preparing this document VDC has relied upon data, surveys, analysis, designs, plans and other information provided by the client, and other individuals and organisations referenced herein. Except as otherwise stated in this document, VDC has not verified the accuracy or completeness of such data, surveys, analysis, designs, plans and other information.

No responsibility is accepted for use of any part of this document in any other context or for any other purpose by third parties.

This document does not purport to provide legal advice. Readers should engage professional legal advisers for this purpose.

## EXECUTIVE SUMMARY

Pursuant to s37 and s40T(1) of the *Land Use Planning and Assessment Act 1993* (LUPAA) Markarna Grazing Company Pty Ltd requests an Amendment to the Local Provision Schedule concurrent with the assessment of a development application for a permit to conduct an activity that is otherwise prohibited in the current zone.

The Amendment requested is to rezone land (Certificates of Titles CT 120064/1, CT 215120/1, CT 230282/1 – private freehold (PID 3513143)) at Lughrata from Landscape Conservation to Rural. No deletions, amendments, or additions to Code mapped overlays are proposed.

The purpose for the requested zone Amendment is to facilitate broader use of the Site to include the establishment and use of a small-scale Extractive Industry use class – being the extraction of lime sands for use in the island's critically important agricultural sector.

A Mining Lease is in force; Provision 2.1.8 of the State Coastal Policy provides that the extraction of construction materials in the coastal zone will be allowed provided access to areas is allowed under the provisions of the *Mining Act 1929* (superseded by the *Mineral Resources Development Act 1995*).

Agricultural potential and the value the land can generate in livestock and produce is reliant on sustainable soil nutrition and maintenance of productivity. Agriculture is also a critical employment and income generation activity on Flinders Island, so its longevity is of paramount importance to the social and economic well-being of the island.

Off-island supplies of lime are costly due to high freight charges which in the medium to long-term undermines the economic viability of agriculture on the island. That is, if lime is expensive then it is likely that inadequate levels would be used by agricultural operators (due to cost) that then has a long-term negative impact to the overall soil health and potential of agricultural lands to produce food.

The Amendment does not alter the existing management arrangements of natural hazards established by the LPS process, being the occurrence of mapped overlays for relevant codes such as landslip hazard and coastal erosion hazard.

The zoning of the Land to Rural does not alter the applicability of the Natural Assets Code.

This report describes and considers the merits of the Amendment against the relevant statutory requirements such as the *Land Use Planning and Approvals Act 1993*.

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## ACRONYMS

| | |
|---|---|
| **AHD** | Australian Height Datum |
| **DA** | Development Application |
| **DPIPWE (now DNRE)** | Department of Primary Industries, Parks, Water and Environment |
| **DNRE** | Department of Natural Resources and Environment |
| **EAR** | Environmental Assessment Report of the EPA |
| **EIS** | Environmental Impact Statement |
| **EMPCA** | *Environmental Management and Pollution Control Act 1994* |
| **ENV** | Effective Neutralising Value (used in relation to the ability of a substance to neutralise acidity) |
| **EPA** | Environment Protection Authority |
| **FC** | Flinders Council |
| **LCZ** | Landscape Conservation Zone |
| **LUPAA** | *Land Use Planning and Approvals Act 1993* (Tas) |
| **QCP** | Quarry Code of Practice, May 2017 |
| **RLUSNT** | Regional Land Use Strategy of Northern Tasmania, 23 June 2021 |
| **RMPS** | Resource Management and Planning System |

## GLOSSARY

| | |
|---|---|
| **(the) Amendment** | the rezoning of parts of Certificates of Titles CT 120064/1, CT 215120/1, CT 230282/1 – private freehold (PID 3513143) to Zone 20 (**Figure 4**). See also **Attachment 6.** |
| **(the) Activity** | all use and development associated with the lime sand extraction pit (DA2023-038) including the screening of extracted sands and ancillary infrastructure such as the storage shed (including crib room), sediment ponds and drains, road and access tracks, hardstand, and wastewater (septic) infrastructure. |
| **Decision** | *Flinders Local Provisions Schedule approval [2022] TASPComm 16 (21 April 2022)* |
| **development** | development includes –<br>(a) the construction, exterior alteration or exterior decoration of a building; and<br>(b) the demolition or removal of a building or works; and<br>(c) the construction or carrying out of works; and<br>(d) the subdivision or consolidation of land, including buildings or airspace; and<br>(e) the placing or relocation of a building or works on land; and<br>(f) the construction or putting up for display of signs or hoardings –<br>but does not include any development of a class or description, including a class or description mentioned in paragraphs (a) to (f) , prescribed by the regulations for the purposes of this definition; |
| **Guideline** | *Section 8A Guideline No.1 Local Provisions Schedule Zone and Code Application, June 2018* |
| **(the) Land** | Mining Lease 2117P/M (in force); the area within which the Activity is proposed to occur |
| **Landowner** | Markarna Grazing Company Pty Ltd<br>129 Wellington Parade South, East Melbourne VIC 3002 |
| **Landscape Conservation (zone)** | means Zone 22.0 *Landscape Conservation* in the Scheme |
| **Planning Scheme or Scheme** | Tasmanian Planning Scheme - Flinders |

| | |
|---|---|
| **Rural (zone)** | means Zone 20.0 *Rural* in the Scheme |
| **Site** | means the land included within the Amendment (**Figure 1** and **Attachment 6**) |
| **Threatened fauna** | Species of fauna listed on the –<br>• Tasmanian *Threatened Species Protection Act 1995,* or the<br>• Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.* |
| **Threatened flora** | Species of flora listed on the –<br>• Tasmanian *Threatened Species Protection Act 1995,* or the<br>• Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.* |
| **Threatened ecological community or communities** | Ecological communities listed under s 181 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.* |
| **Threatened native vegetation community or communities** | Native vegetation communities listed under Schedule 3A of the Tasmanian *Nature Conservation Act 2002*. |
| **works** | includes any change to the natural or existing condition or topography of land including the removal, destruction or lopping of trees and the removal of vegetation or topsoil, but does not include forest practices, as defined in the *Forest Practices Act 1985* , carried out in State forests. |

## PART A – INTRODUCTION

### A.1 AMENDMENT

Pursuant to s37 and s40T(1) of the *Land Use Planning and Assessment Act 1993* (LUPAA) Markarna Grazing Company Pty Ltd requests an Amendment to the Local Provision Schedule concurrent with the assessment of a development application for a permit to conduct an activity that is otherwise prohibited in the current zone (i.e. Landscape Conservation).

The requested Amendment is to rezone land (part of each of Certificates of Titles 120064/1, 215120/1, and 230282/1) at Lughrata from Landscape Conservation to Rural. The Landscape Conservation zone is proposed to be retained along the foreshore part of the three CTs where there is no mining lease in force.

The draft Amendment is provided in **Attachment 6.**

The purpose of the Amendment is to facilitate the establishment and use of a small-scale Extractive Industry use class – being the extraction of lime sands for use in the island's critically important agricultural sector. The Amendment will establish a permitted pathway for future extraction of lime sands within the mining lease (to be applied for progressively using the statutory mechanisms in force at the time as the lime sand resource is required) while retaining the Landscape Conservation zone on the sensitive coastal foreshore of Marshall Bay.

No deletions, amendments, or additions to Code mapped overlays are proposed nor requested (see **Figures 5A and 5B** for existing LPS mapped overlays).

The retention of Code overlays and the level 2 activity assessment provisions of EMPCA (notably the s74 of EMPCA which requires an environmental impact assessment to be undertaken) provides a broader layer of environmental impact assessment than is solely afforded by the Scheme.

### A.2 DETAILS OF APPLICANT AND LANDOWNER

| | |
|---|---|
| **Name of Applicant** | Markarna Grazing Company Pty Ltd |
| **Registered address of Applicant** | 129 Wellington Parade South, East Melbourne VIC 3002 |
| **Postal address of Applicant** | 129 Wellington Parade South, East Melbourne VIC 3002 |
| **ACN** | 063 634 444 |
| **Contact person's details** | Mr George Adams (Director)<br>Phone: (03) 9333 2400, Fax: (03) 9333 1258<br>cynthia.adams@adamsgroup.com.au |

| | |
|---|---|
| **Consultant engaged to prepare the DA** | Dr Richard Barnes, Van Diemen Consulting Pty Ltd<br><br>0438 588 695, rwbarnes73@gmail.com |

Authorisation for the Applicant to act for the Landowner are provided in **Attachment 1**.

### A.3 PLANNING INSTRUMENT

Tasmanian Planning Scheme – Flinders Island Local Provisions Schedule

### A.4 APPLICABLE CERTIFICATES OF TITLE AND AMENDMNET AREA

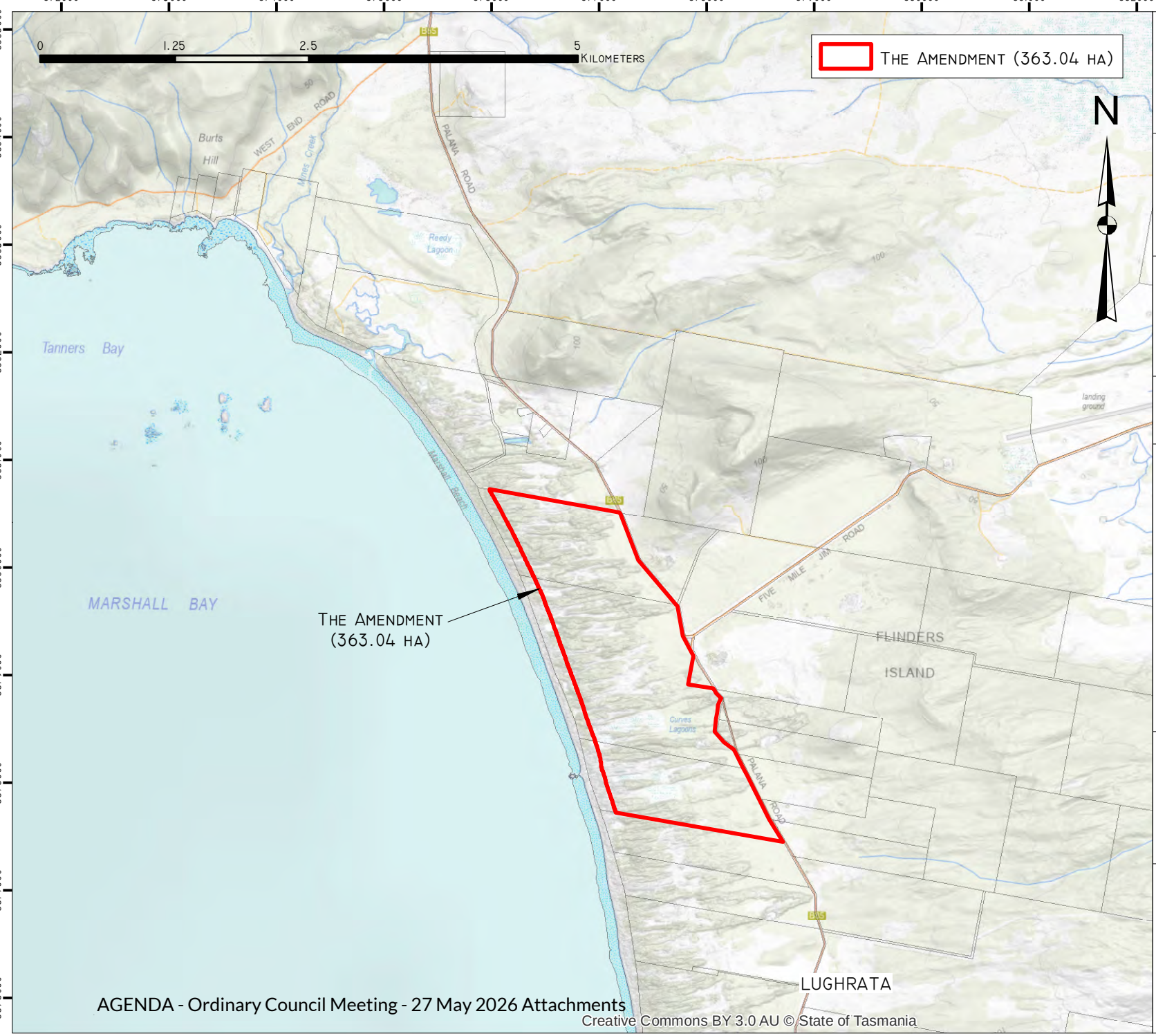
| | |
|---|---|
| **Certificates of Title included in the amendment**<br><br>**(Attachments 2 and 5)** | Part of each 120064/1, CT 215120/1, and CT 230282/1 (see **Figures 1 and 2**) |
| **PID** | 3513143 |
| **Physical Address** | 'MARKANA PARK' - 368 FIVE MILE JIM RD MEMANA TAS 7255 |
| **Access** | Access is from Palana Road (sealed road section) over Crown Land under licence |
| **Area of amendment** | Approximately 363.04 Ha |

### A.5 EXISTING ZONE

The current zone is Landscape Conservation as shown in **Figure 3.**

### A.6 REQUESTED ZONING

The requested zone is Rural as shown in **Figure 4** and **Attachment 6.** The foreshore area of each of the three relevant CTs will remain Landscape Conservation.




Annexure: 16.2.2

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK PLANNING SCHEME AMENDMENT

FIGURE 1: LOCATION OF MARKARNA PARK PLANNING SCHEME AMENDMENT AREA

| TASMAP: | LGA: FLINDERS |
|---|---|

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Van Diemen CONSULTING
PO Box 1 NEW TOWN TAS 7008



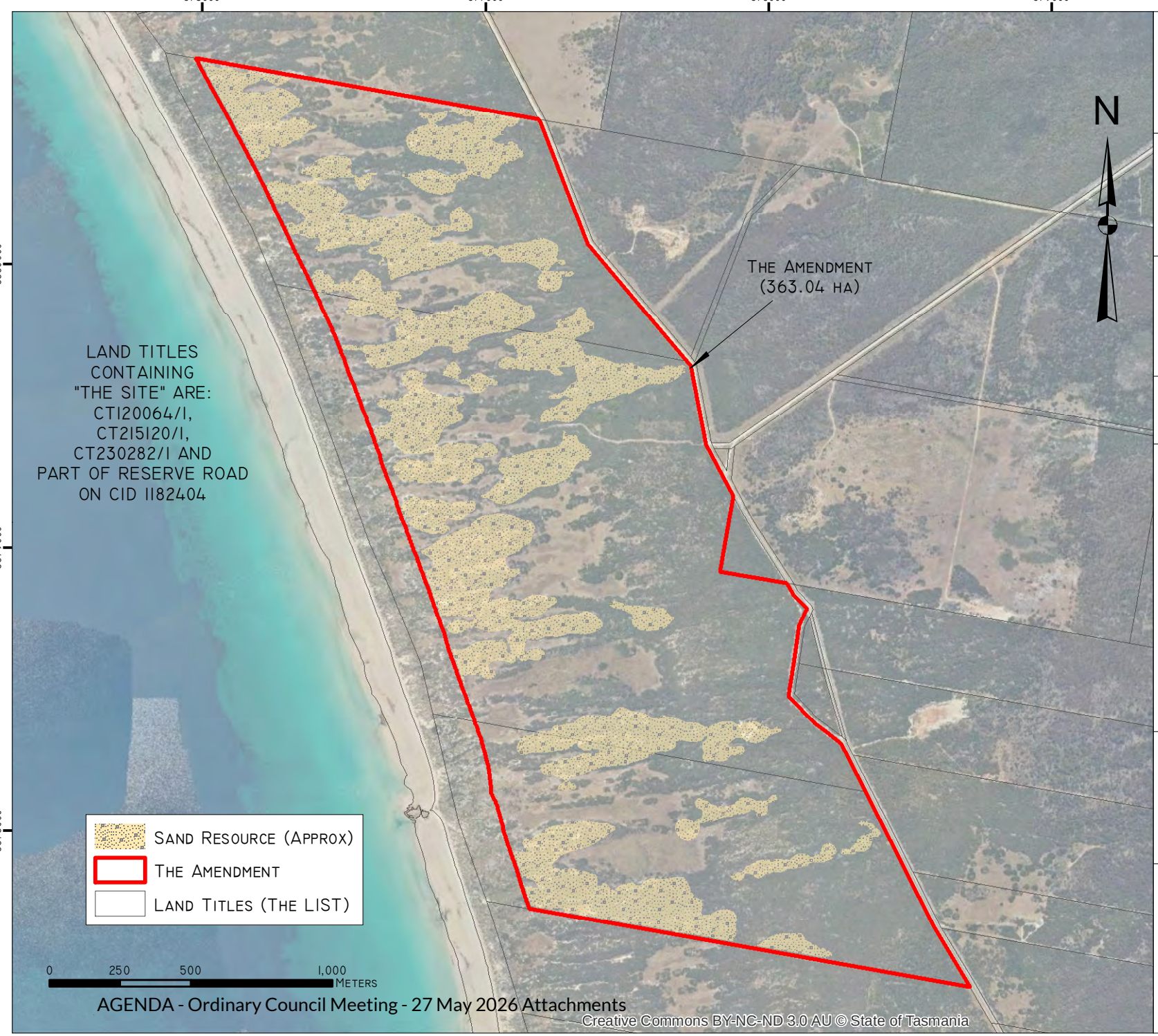
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GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 1 JAN 2026



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Annexure: 16.2.2

# MARKARNA GRAZING COMPANY PTY LTD

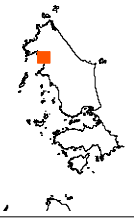
## MARKARNA PARK PLANNING SCHEME AMENDMENT

FIGURE 2: LOCATION OF MARKARNA PARK LAND TITLES

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

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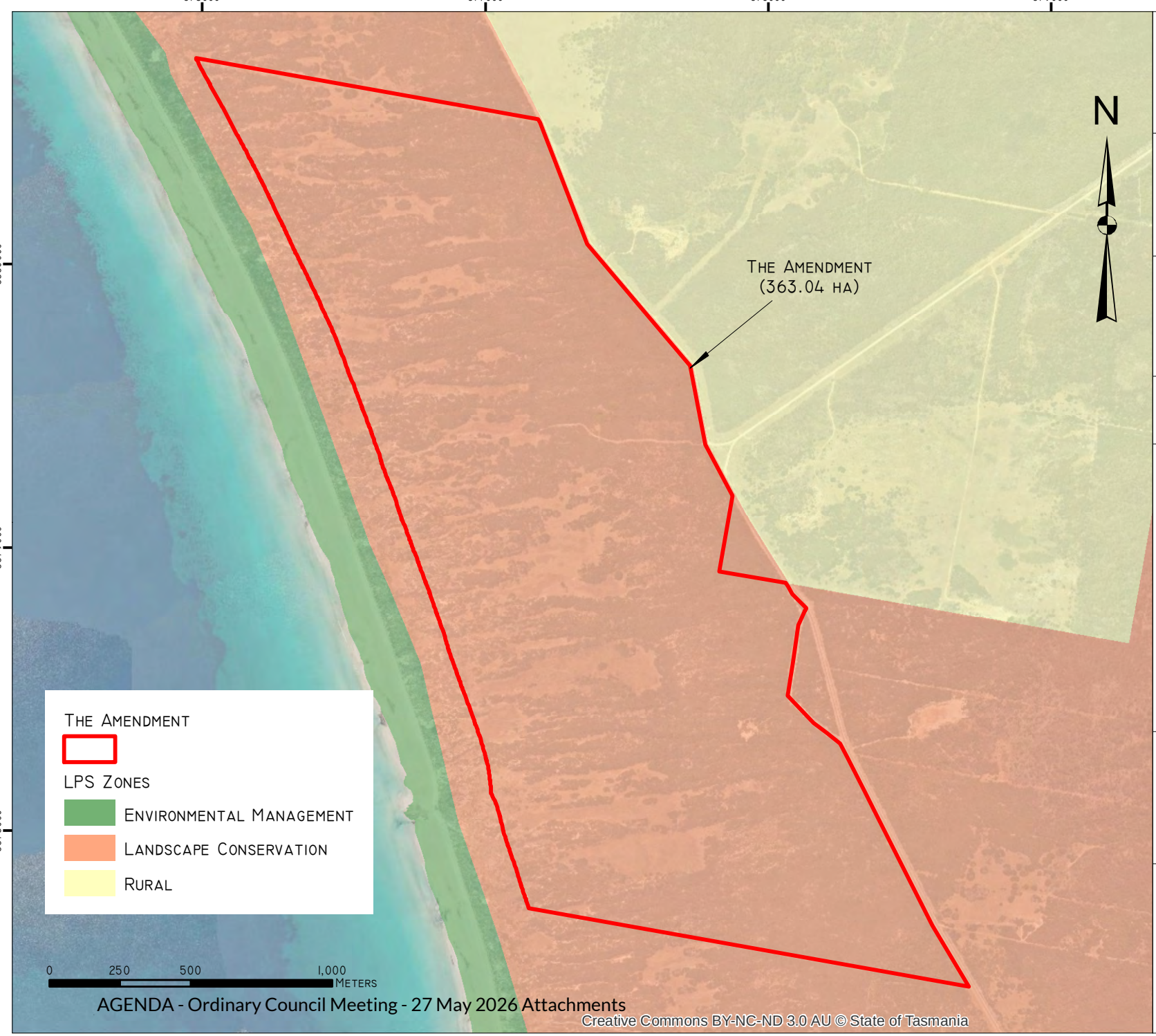
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GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING
COMPANY PTY LTD

DATE: 1 JAN 2026



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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK PLANNING SCHEME AMENDMENT

FIGURE 3: EXISTING ZONING TASMANIAN PLANNING SCHEME LPS ZONES

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

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DATE: 1 JAN 2026

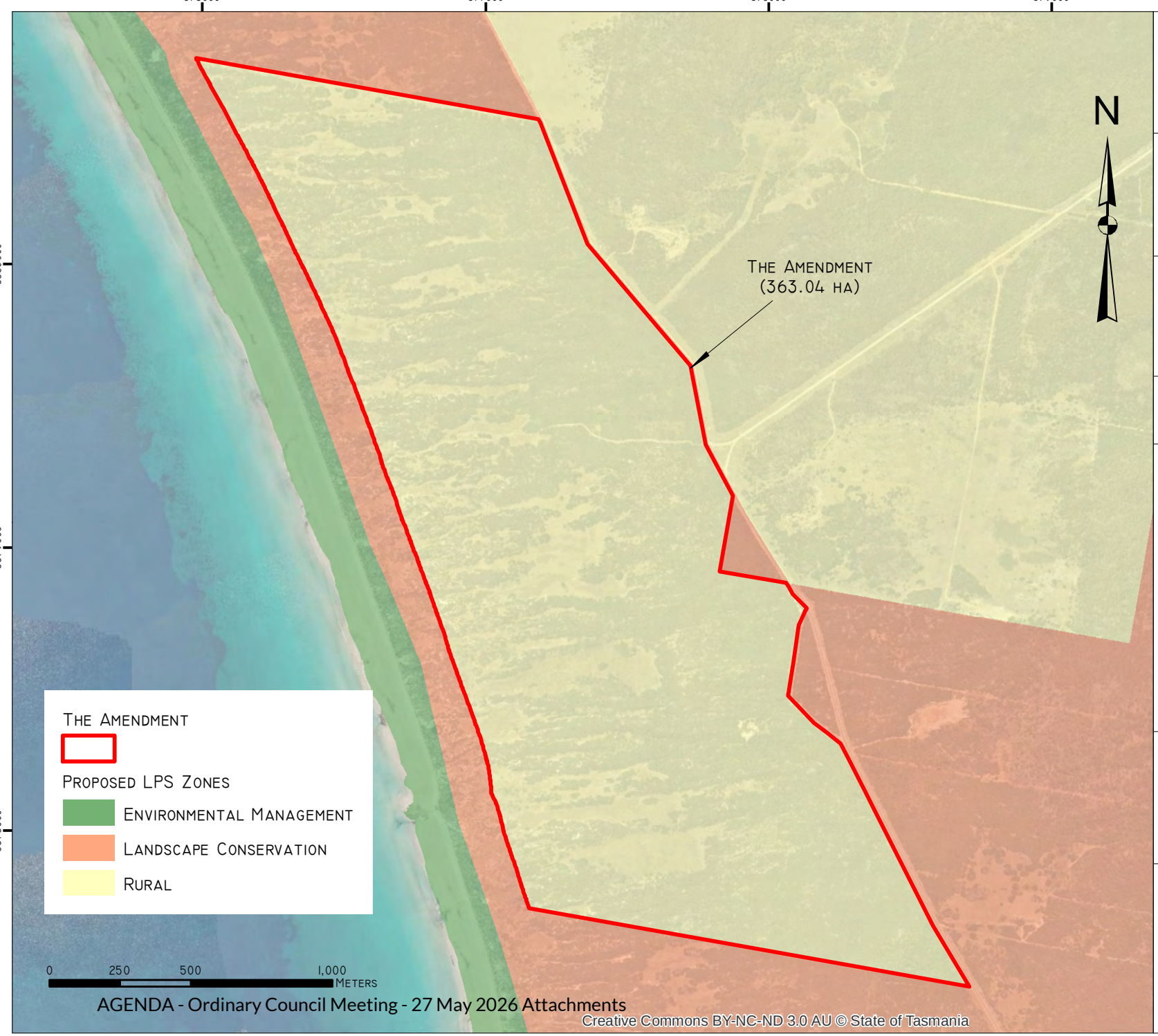


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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK PLANNING SCHEME AMENDMENT

### FIGURE 4: PROPOSED ZONING TASMANIAN PLANNING SCHEME LPS ZONES




| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

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DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
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DATE: 1 JAN 2026

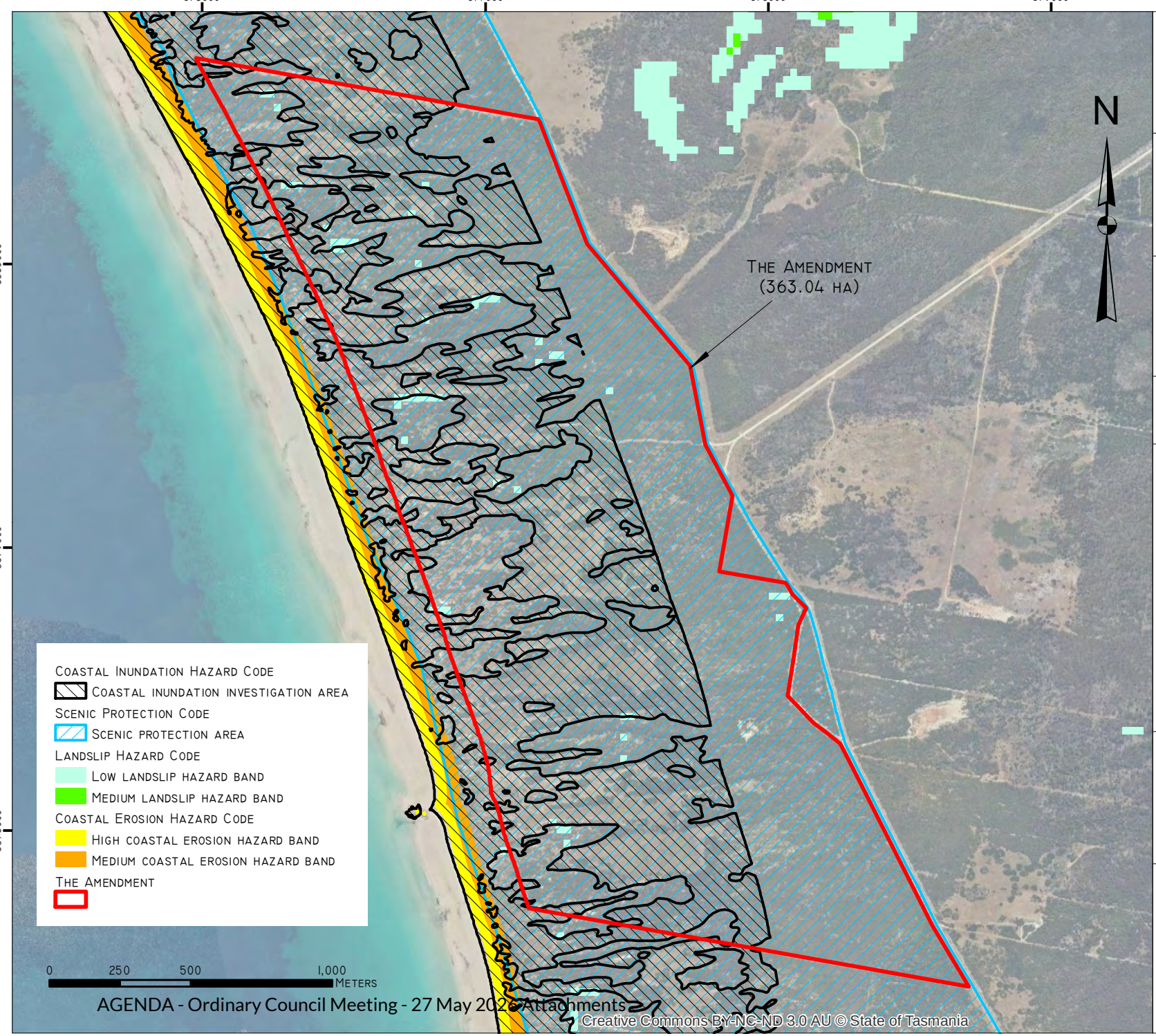


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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK PLANNING SCHEME AMENDMENT

### FIGURE 5A: CODE OVERLAYS TASMANIAN PLANNING SCHEME (EXC. NATURAL ASSETS CODE)




| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

NOTE:
ENTIRE LAND AREA ON MAP IS:
BUSHFIRE-PRONE AREAS CODE

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DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 1 JAN 2026



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Annexure: 16.2.2

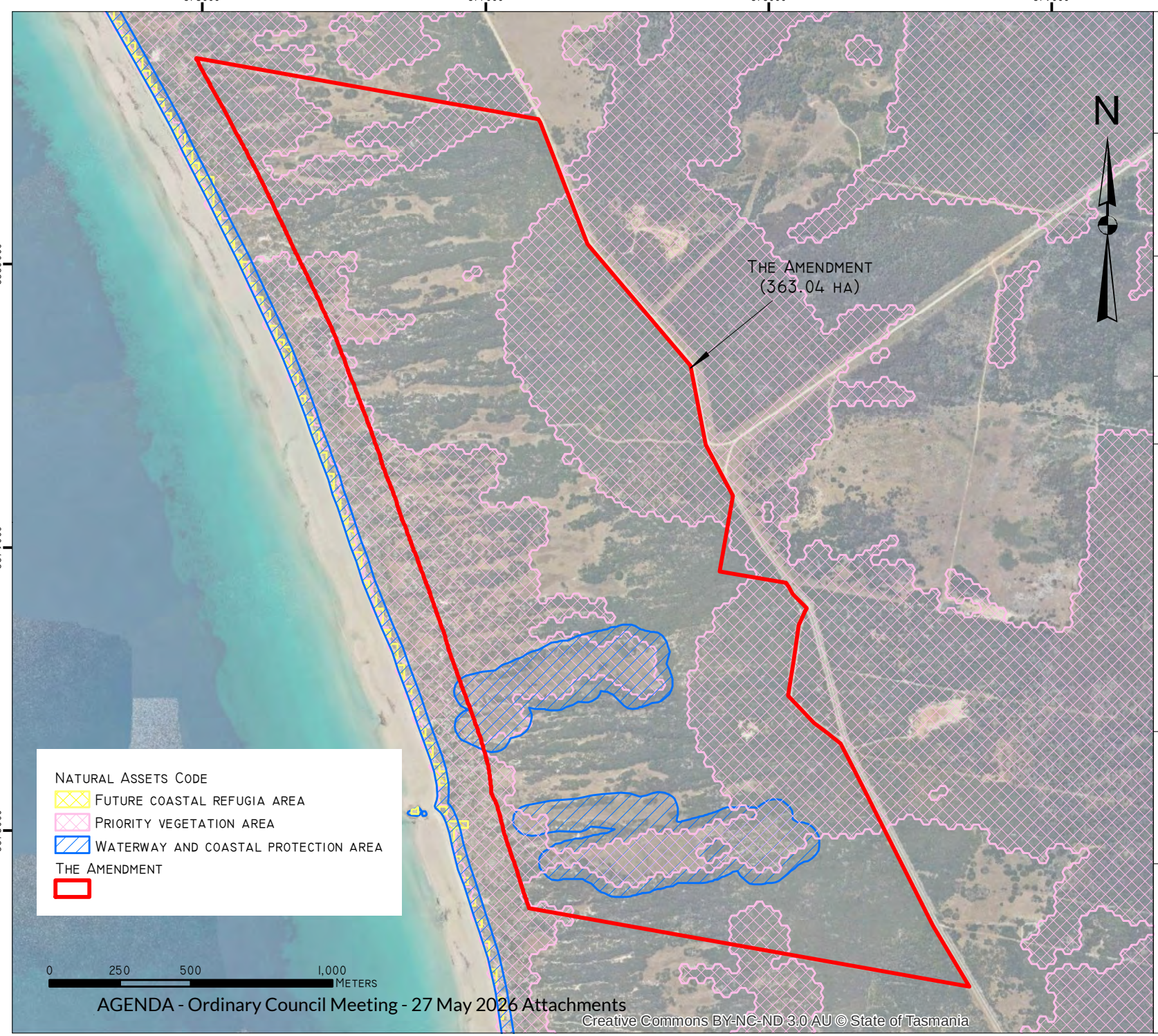
# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK PLANNING SCHEME AMENDMENT

FIGURE 5B: CODE OVERLAYS TASMANIAN PLANNING SCHEME (NATURAL ASSETS CODE)

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

NOTE:
ENTIRE LAND AREA ON MAP IS:
BUSHFIRE-PRONE AREAS CODE




BASE DATA BY TASMAP. © STATE OF TASMANIA
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DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 1 JAN 2026



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**A.7 RATIONALE FOR THE AMENDMENT REQUEST**

The basis for the s40T application is to rezone land (being part of each of Certificates of Title CT 120064/1, CT 215120/1, CT 230282/1) from the Landscape Conservation to Rural zone, with existing LPS mapped Code overlays to remain unaffected.

Information is provided in **Attachment 4,** which includes a report by Dr Lee Peterson of Nicholbrook Horticultural Consulting. Dr Peterson's report was prepared to provide an expert assessment of the requirement for lime sand application by agricultural enterprises on Flinders Island, in particular Markarna Grazing Company Pty Ltd.

*THE NEED FOR LIME SAND*

Dr Peterson summarises the issues associated with acidic soils and their effect on agricultural production in the extracted portion of his report provided below -

## Requirement for soil neutralising compounds

Many soils in Tasmania, especially in coastal regions are acidic. Soil acidification is a natural process caused primarily due to the buildup of hydrogen ions, a natural result of organic matter decay, heavy rainfall leaching alkaline minerals, and geological factors. Soil acidification is accelerated by agriculture through the use of nitrogen fertilizers (which release hydrogen ions during nitrification) and removing nutrients with crops. Essentially, acids build up or alkaline "base" elements (like calcium, magnesium) get washed away or harvested, leaving more acidic conditions.

Soil acidity is a potentially serious land degradation issue. When soil becomes too acidic it can:

- decrease the availability of essential nutrients
- increase the impact of toxic elements
- decrease plant production and water use
- affect essential soil biological functions like nitrogen fixation
- make soil more vulnerable to soil structure decline and erosion.

Without treatment, soil acidification can impact agricultural productivity and sustainable farming systems. Acidification can also extend into subsoil layers, posing serious problems for plant root development and requires remedial action.

In addition to general acidity issues, the low pH of soils can cause secondary issues with aluminium toxicity to plants. Aluminium is highly abundant in soils, pH is the most important factor affecting aluminium solubility and toxicity and, for this reason, it is:

- the easiest and most-used measurement for making lime decisions; and
- often used as a proxy to estimate aluminium levels.

When soil pH is above 6.0, aluminium is in a solid state and not in the soil solution – and therefore not toxic to roots. When soil pH drops below about 5.0, aluminium becomes more soluble and dangerous to roots. Aluminium in the soil solution rises exponentially when pH is less than 4.5. Applying lime to acidic soils and lifting pH (towards neutral or alkaline conditions) precipitates soluble aluminium from the soil solution into a biologically inactive (solid) form.

The following extract from Dr Peterson's report (Attachment 4, pg. 11) illustrates the loss of agricultural activity/production with a lack of lime application to correct soil pH and to then maintain it at productive levels for production. The initial application is often large, and must be followed up with maintenance levels of spreading to keep soil pH at productive levels to carry stock grazing.

Utilising the Western Australian developed iLime app which allows for selection of lime source, soil type characteristics, rainfall and pasture type to determine the productivity improvement of lime application. This demonstrates the effect of lime application of lime to initially low pH soil and the future requirements to maintain more acceptable pH levels. This also demonstrates the decrease in productivity without any lime applications. (Figure 1)

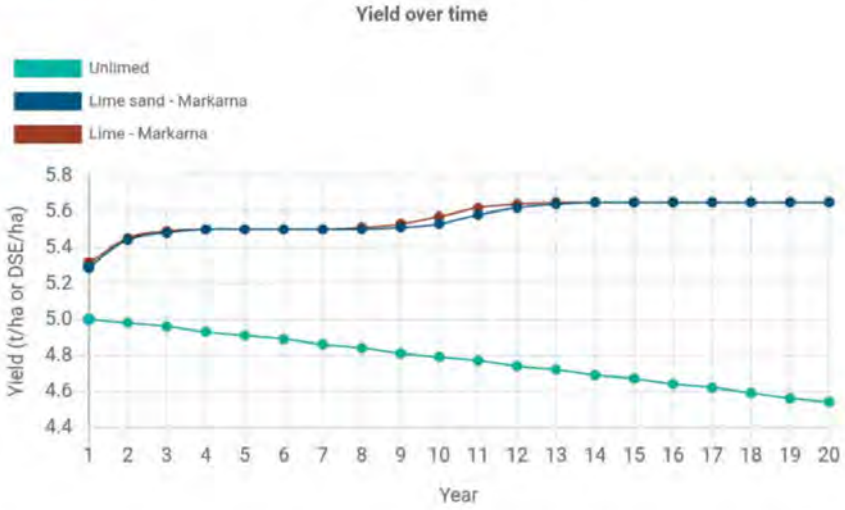



*Figure 1: iLime calculation of applying 8 t/ha to newly developed area followed by maintenance applications every 3 years of 4.6 t/ha of lime sand or 4.3 t/ha agricultural lime to maintain long term productivity*

Based on the soil test data and aluminium levels, Table 3 indicates the required lime sand application rates for each farm and the total amount of lime sand required for treatment of 33% of pasture area per annum (1 in every 3 year application) plus assuming the new areas are developed over the next 5 years.

The cost of product (lime) is variable in Tasmania, with high costs associated with freight to Flinders Island.

Dr Peterson's report (**Attachment 4**, pg 7) notes that Nutrien Whitemark provided a quotation for supply of Beams Bros. lime landed on farm on Flinders Island at $600 per tonne. This is significantly higher than on mainland Tasmania where it ranges from $45 to $100 per tonne. This is due to the additional road and sea freight and additional handling costs as this can only be delivered in 1 tonne bulk bags. A 100% natural calcium carbonate product, Calciprill, is available which decreases the total volume needed by 20% for equivalent neutralising value of Beams lime, however it is only available in 600kg bags at a cost of $1200 per tonne delivered on farm on Flinders Island.

The agricultural activity of Markarna is the largest operation on Flinders Island, and agriculture is the largest private economic sector on Flinders Island. Any diminishment in the output and investment by Markarna will have a marked negative effect on the Flinders Island economy and broader community.

The following text and tables are taken from Peterson (2026; **Attachment 4**) and reproduced here as they are critically important to understanding the basis for the Amendment to farm costs and viability on Flinders Island.

Based on the soil test data and aluminium levels, Table 3 (from Peterson 2026; **Attachment 4**) indicates the required lime sand application rates for each farm and the total amount of lime sand required for treatment of 33% of pasture area per annum (1 in every 3 year application) plus assuming the new areas are developed over the next 5 years.

| **Table 3: Lime sand application requirements 33% of pasture application annually** | **Pasture Average Application Rate (t/ha)** | **New Area Application Rate (t/ha)** | **Total Annual Application (tonne)** |
|---|---|---|---|
| Oatdale | 5 | | 282 |
| Wingaroo | 5 | 8 | 2078 |
| Markarna | 5 | 8 | 6577 |
| Carnsdale | 3 | | 797 |
| Grandview | 2.5 | | 365 |
| Yeltanna | 5 | | 655 |
| Centre Hill | 2.5 | | 481 |
| **Overall** | | | **11300** |

Based on the lime requirements of Table 3 and typical excavator, truck and labour rates, an assessment of the gross margin of lime sand extraction from the companies own mining lease is shown in Table 4 (from Peterson 2026). This is the price of lime sand delivered on farm which equates to $13.33/t. Typical mainland lime supply is in the order of $45-100/t. The current pricing of lime sand supplied from other leases for the raw material is $9-10/t plus the extraction costs. The overall cost of lime sand supplied to farms without their own mining lease is a very cost effective price compared to mainland Tasmania farms.

| **Table 4: Gross margin of utilising lime sand** | | | | **Total** | **Per Hectare** |
|---|---|---|---|---|---|
| Pasture Area | 6800 Ha | | | | |
| Lime sand requirement | 11300 t | 1300 kg/m3 | 8692 m3 | | |

| | | | | | |
|---|---|---|---|---|---|
| Excavator | 30 m3/hr | 140 $/hr | 290 hrs | $ 40,564 | $ 5.97 |
| Truck | 10 m3/hr | 80 $/hr | 869 hrs | $ 69,538 | $ 10.23 |
| Labour | 1159 hrs | 35 $/hr | | $ 40,564 | $ 5.97 |
| **Gross Margin** | | | | **$ 150,667** | **$ 22.16** |

By comparison, the gross margin of agricultural lime supplied by Beams Brothers with a neutralising value of 85% which allows for some saving in volume requirements compared to the 75% neutralising value of lime sand is shown in Table 5 (from Peterson 2026; **Attachment 4**). The significant price of lime landed on farm on Flinders Island far outweighs the neutralising value variance making this source of lime uneconomic. Such a cost would result in an overall negative gross margin for beef production.

| **Table 5: Gross margin of importing lime** | | | | **Total** | **Per Hectare** |
|---|---|---|---|---|---|
| Pasture Area | 6800 Ha | | | | |
| Lime import requirement | 85% NV | 9971 t | | | |
| Price landed on farm | 600 $/t | | | $ 5,982,353 | $ 879.76 |
| **Gross Margin** | | | | **$ 5,982,353** | **$ 879.76** |

A high analysis product such as Calciprill reduces the volume of lime required further but is even less economic due to the high landed price.

| **Table 6: Gross margin of importing Calcipril** | | | | **Total** | **Per Hectare** |
|---|---|---|---|---|---|
| Pasture Area | 6800 Ha | | | | |
| Lime import requirement | 100% NV | 8475 t | | | |
| Price landed on farm | 1200 $/t | | | $10,170,000 | $ 1,495.59 |
| **Gross Margin** | | | | **$10,170,000** | **$ 1,495.59** |

The Marshall Bay land parcels owned by Markarna Grazing Company Pty Ltd ('Markarna') were specifically purchased to provide ongoing lime sands for the agricultural lands on the property and associated properties, and to also provide some for sale to other agricultural enterprises on the island. The existing but now disused

pit (which is the starting location for the new pit) was once used by many islanders to access lime sand due to its ease of access to obtain and extract high ENV lime sand for agricultural land application. Sands will also be used to supply concrete production activities because most sand for such a purpose is currently brought to the island.

Some lime sands produced from the pit, in excess of Markarna's own needs, may be sold to other Island graziers. The two nearby pits have a combined license to produce 10 000 tonnes per year. Markarna requires around 16 000 tonnes per annum (subject to the climatic conditions and overall production requirements of the farm) for its operations. Importing lime sand onto the island is very expensive ($160 per tonne), making it not financially viable.

The financial impact if Markarna cannot replace the supply of lime sands from the "new" pit when its existing site in exhausted is that the profitability of its operations will suffer as its pastures progressively deteriorate and the carrying capacity of those pastures progressively declines. Because of the negative financial effect this will cause, Markarna would also find it increasingly more difficult to justify the investment of more capital into the property.

Further information is provided in **Attachment 4** in relation to Markarna's own lime sands needs, and the broader need for a lime sand resource on Flinders Island, including but not limited to the following: available supply of lime sands on Flinders Island; potential need and demand for lime sands on Flinders Island; and the current and projected usage of lime sands on the Markarna Park holdings.

*OBJECTIVE OF AMENDMENT*

The intended outcome of the Amendment is to establish a zone (**Figure 2**) to ensure the extraction of lime sands and associated infrastructure is a permitted use to support the agricultural sector on Flinders Island. An Extractive Industry is Prohibited in the LCZ.

The rezoning seeks to recognise the legitimate land use of lime sand extraction that underpins agriculture and other activities on the island, to promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity. It is submitted that 'maintenance' is not solely 'protection', rather protection is a component of maintenance.

The lime sand deposits at Marshall Bay are well known, highly significant to the agricultural productivity of Flinders Island, and proven in their ENV on agricultural lands (see also **Attachment 4**).

The Amendment seeks to secure the economic and social well-being of the local population because it unlocks an on-island natural resource to avoid off-island dependence for inputs, which otherwise add cost to enterprises and an off-island flow of funds. *Sustainable development* can be achieved by managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while –

(a) *sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations*; and [access to lime sands and other earth-based resources are necessary to meet the needs of roads, construction materials, agricultural inputs, etc.]

(b) *safeguarding the life-supporting capacity of air, water, soil and ecosystems*; and [these are managed by the application of various Acts, such as the *Mineral Resources Development Act 1995, Forest Practices Act 1985, Environmental Management and Pollution Control Act 1994,* etc.]

(c) *avoiding, remedying or mitigating any adverse effects of activities on the environment*. [this is achieved through the application of the Natural Assets Code, Scenic Protection Code, as well as legislation such as the *Mineral Resources Development Act 1995, Forest Practices Act 1985, Environmental Management and Pollution Control Act 1994,* etc].

*ALTERNATIVE OPTIONS*

Options to establish a permissible pathway for an Extractive Industry in the LCZ are limited but may include the use of a site-specific qualification (SSQ), particular purpose zone (PPZ), or specific-area plan (SAP) as allowed by s32(3) of LUPAA.

These options were not proposed by the Amendment because there is already a zone (Rural) within the SPP's that can accommodate the proposed use (and its associated development), while noting the tight constraints imposed by s32(4) on the actual use of any other planning instrument within the LPS –

'(4) An LPS may only include a provision referred to in subsection (3) in relation to an area of land if –

(a) a use or development to which the provision relates is of significant social, economic or environmental benefit to the State, a region or a municipal area; or

(b) the area of land has particular environmental, economic, social or spatial qualities that require provisions, that are unique to the area of land, to apply to the land in substitution for, or in addition to, or modification of, the provisions of the SPPs.'

Furthermore, in the hearings that led to the Decision [for the Flinders LPS], the Planning Authority proposed a site-specific qualification (SSQ) to provide for Extractive Industry as a Permitted use within the mining lease **only** for the Mining Lease in force on 2270 Palana Road, Lughrata folios of the Register 160313/1 and 154620/2. The Decision rejected this proposition and instead directed that the Rural zone apply to the property in its entirety (i.e. the Mining Lease and the remainder of the two CT's which were intersected by the Mining Lease). The thought process for the Decision was seemingly based on the presence (or not) of a Mining Lease which does not provide an exemption to the enactment of LUPAA because s11 does not apply.

As noted by the Decision, 'The Commission is of the view that landscape values cannot simply be managed through the Priority Vegetation Area and Scenic Protection Area overlays, as neither the Natural Assets nor Scenic Protection Area codes control use.' (paragraph 152, Flinders Local Provisions Schedule approval [2022]TASPComm 16 (21 April 2022)'.

It is therefore counterintuitive for example, to adopt, or even to suggest the adoption of, a SSQ for an Extractive Industry use in the LCZ, especially given the use is not existing (it is a proposed new use and development) and the way an Extractive Industry use was treated by the TPC in the LPS assessment process. That is, an Extractive Industry use is not compatible with the zone purpose statement for the LCZ.

For these reasons a SSQ approach to the creation of a permissibility pathway was rejected in the drafting of the s40T application. Equally, neither a PPZ nor SAP were pursued, especially in the context of s32(4), because the Rural zone already exists and is available.

Codes that regulate Development already exist on most of the CTs within the Amendment (**Figures 5A and 5B**), including the Scenic Protection Code, and the Natural Assets Code. While Use is not regulated by, for example, the Scenic Protection and Natural Assets Codes, it is exceptionally rare for a development

application to not include some form of *development*[1], which may simply be in the form of *works* (i.e. '….includes any change to the natural or existing condition or topography of land including the removal, destruction or lopping of trees and the removal of vegetation or topsoil'). Therefore, unless an exemption exists, tree removal or lopping for example is encompassed in the definition of *works* and therefore represents development, and the Scenic Protection and Natural Assets Codes consequently apply. On this basis it can be stated that the Scenic Protection and Natural Assets Codes are broad regulatory tools which are easily triggered in their operability, and powerful in their application to regulate native vegetation clearance and conversion and associated impacts to both natural assets and scenic values. It is for these reasons that no alterations are proposed to the existing LPS mapped scenic protection and priority vegetation overlays by the amendment.

[1] Development includes –

(a) the construction, exterior alteration or exterior decoration of a building; and

(b) the demolition or removal of a building or works; and

(c) the construction or carrying out of works; and

(d) the subdivision or consolidation of land, including buildings or airspace; and

(e) the placing or relocation of a building or works on land; and

(f) the construction or putting up for display of signs or hoardings –

but does not include any development of a class or description, including a class or description mentioned in paragraphs (a) to (f) , prescribed by the regulations for the purposes of this definition;

## PART B – DESCRIPTION OF SITE AND SURROUNDS

### B.1 TOPOGRAPHY AND LANDFORM

The Site is comprised of relatively flat land with intermittent east-west linear dune series with minor depression between dunes. The Site is part of the very large area of low relief land associated with Marshall Bay, with steeper hills formed mainly by granite to the east, and with Mt Tanner (granite) being prominent to the north-west.

The deflection basins within the Site are dominated by coastal grasslands (**Plate 2**) with any minor dune formation in the basins, even those of only 1-2 m high, being dominated by scrub or ex-pasture vegetation. The inland dunes (predominantly comprised of calcareous sands) on the Site are very distinctive as they are covered by *Acacia* scrub and *Leptospermum* scrub/forest.

A series of foredunes occur north-south along the coastal fringe of Marshall Bay like many other coastal beach formations and are dominated by typical sand dune vegetation (e.g. coastal grasses, herbs and succulent species). These foredunes are excluded from the Site and consequently remain within the Landscape Conservation zone.

### B.2 SOILS AND GEOLOGY

VDC engaged the Forest Practices Authority (FPA) to investigate the geomorphology, and soils present in the Site owned by the Markarna Grazing Company between Palana Road and Marshall Beach near the settlement of Lughrata on Flinders Island. The field work and report were completed by Dr Adrian Slee (Slee 2024; **Attachment 5**).

The geological profile is a mosaic of lacustrine/littoral gravels and sands compacted/cemented in situ by the overlaying dune sequences. The base geology is highly fossiliferous (marine shells), compacted and easily distinguished from all forms of dune derived sands (**Plate 1B**).

Slee (2024) observed no karst landforms in the Site apart from very minor surface solution sculpture (karren) landforms have been identified during his survey. Given the extensive nature and relief of the limestone on the hills east of the mining lease subsurface water flow through karst aquifers is likely but significant karst landforms are unlikely to be present. In the absence of evidence for significant karst formulation of mitigation measures were unnecessary for the proposed development by DA2023-038, and in terms of the amendment, there is little to no risk or impact to karst values by the rezoning.

The general and approximate location of the dunes that are the lime sand resource in the Mining Lease are shown in **Figure 2**. The sands to be extracted are of littoral origin and are highly calcareous in nature. The sands are white to yellow-white and unconsolidated generally with scrub dominated vegetation typical of alkaline sands. **Plate 1A** illustrates the previously worked area of the existing but now disused pit. All overlaying lime sand was extracted from the base geology at the now disused pit; there are no podsols present between the base sediments and overlaying Quaternary derived sands.

Acidic soils are unlikely to be present over extensive areas and may be totally absent. While organic topsoils, buried paleosols and lake/swamp sediments are present in the pit location for example, none of these soils contain adequate organic material to significantly reduce the pH within the dune sands due to the abundance of acid neutralising carbonates. This is applicable across the Site where lime sands occur over limestone

bedrock. The likelihood of occurrence of coastal acid sulphate soils is accordingly low to extremely low (TheLIST).

Landslip hazard bands (applied through the Landslide Planning Map in the LPS which shows the distribution and relative susceptibility of landslides in Tasmania and underpins the state's planning and building regulations) in the Site are minor and are only associated with very small sections of the steepest of inland dunes. The Amendment does not propose to alter the landslip hazard area overlay. Functionally, the Mining Lease provides an exemption to the Landslip Hazard Code[2] for an Extractive Industry but otherwise applies for other land use classes subject to the exemptions prescribed at Clause 15.4.1.

**Plate 1. Base geological formation and dune system at the disused sand pit**

A – basement geology is a compacted/cemented mosaic of gravel, sand, and mud

B – a vegetated dune dominated by white to yellow-white lime dominated sands overlays the base geological formation

**A** **B**



## B.3 LAND USE

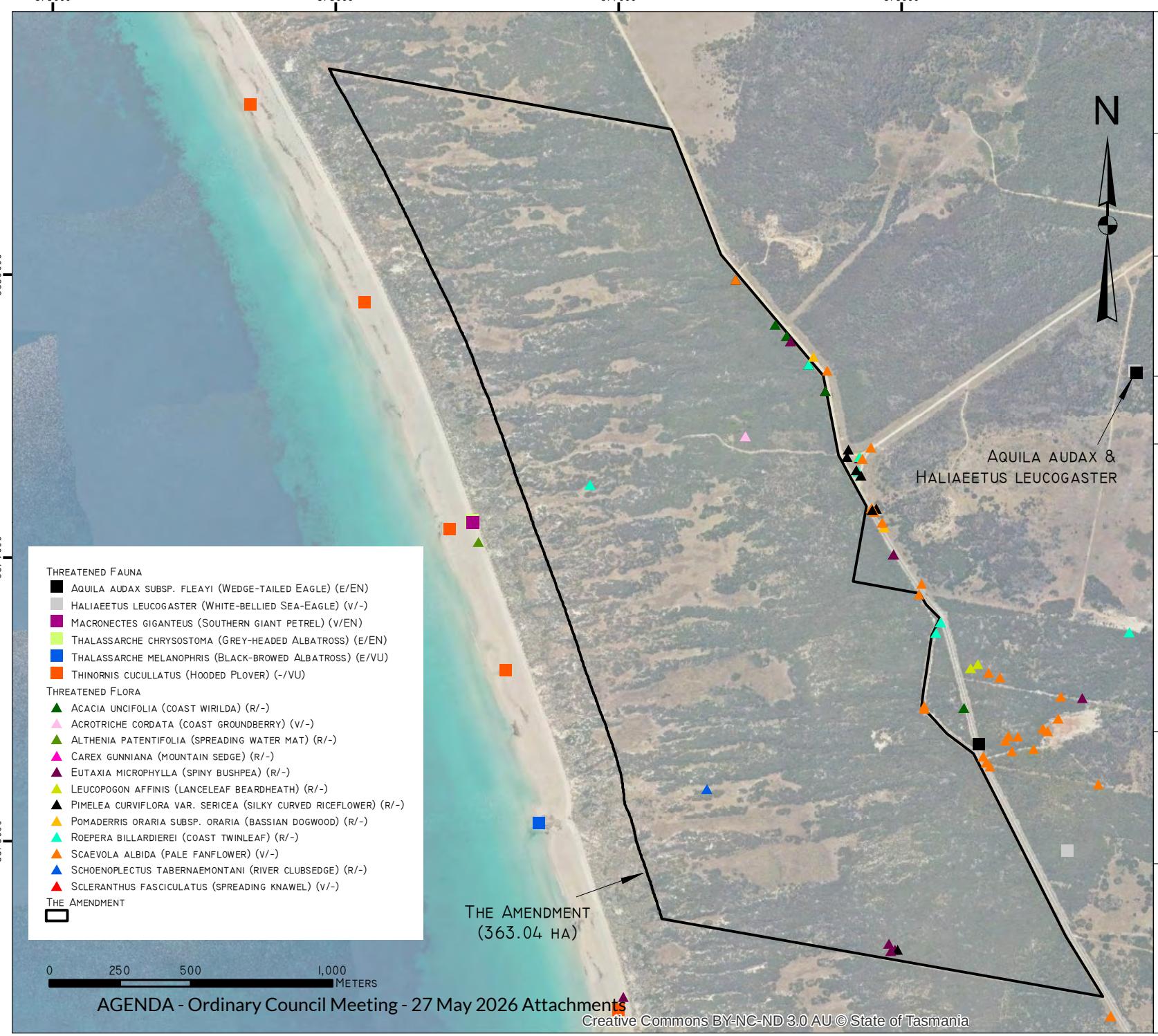
The current land use of the Site is native vegetation and some stock (cattle) grazing. Historically the Site has been used for livestock grazing. Some areas are dominated by agricultural grass and herb species with only minor recruitment of native species such as grasses, herbs and occasional emergent shrubs (mainly species of *Acacia* and *Leptospermum*).

The Land Capability is not recorded by NRE however the sandy alkaline sands are likely to qualify as Land Class 5 to 6 or possibly 7 as there is no irrigation water available for the Site.

[2] C15.4.1

The following use or development is exempt from this code:

(b) use or development of land for Extractive Industry if on a mining lease that is in force under the *Mineral Resources Development Act 1995*, excluding a hazardous use;




Annexure: 16.2.2

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK PLANNING SCHEME AMENDMENT

### Figure 6: Threatened flora and fauna (Natural Values Atlas) at the Site

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Base data by TASMAP. © State of Tasmania
Base image by TASMAP. © State of Tasmania

Van Diemen Consulting
PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 1 JAN 2026



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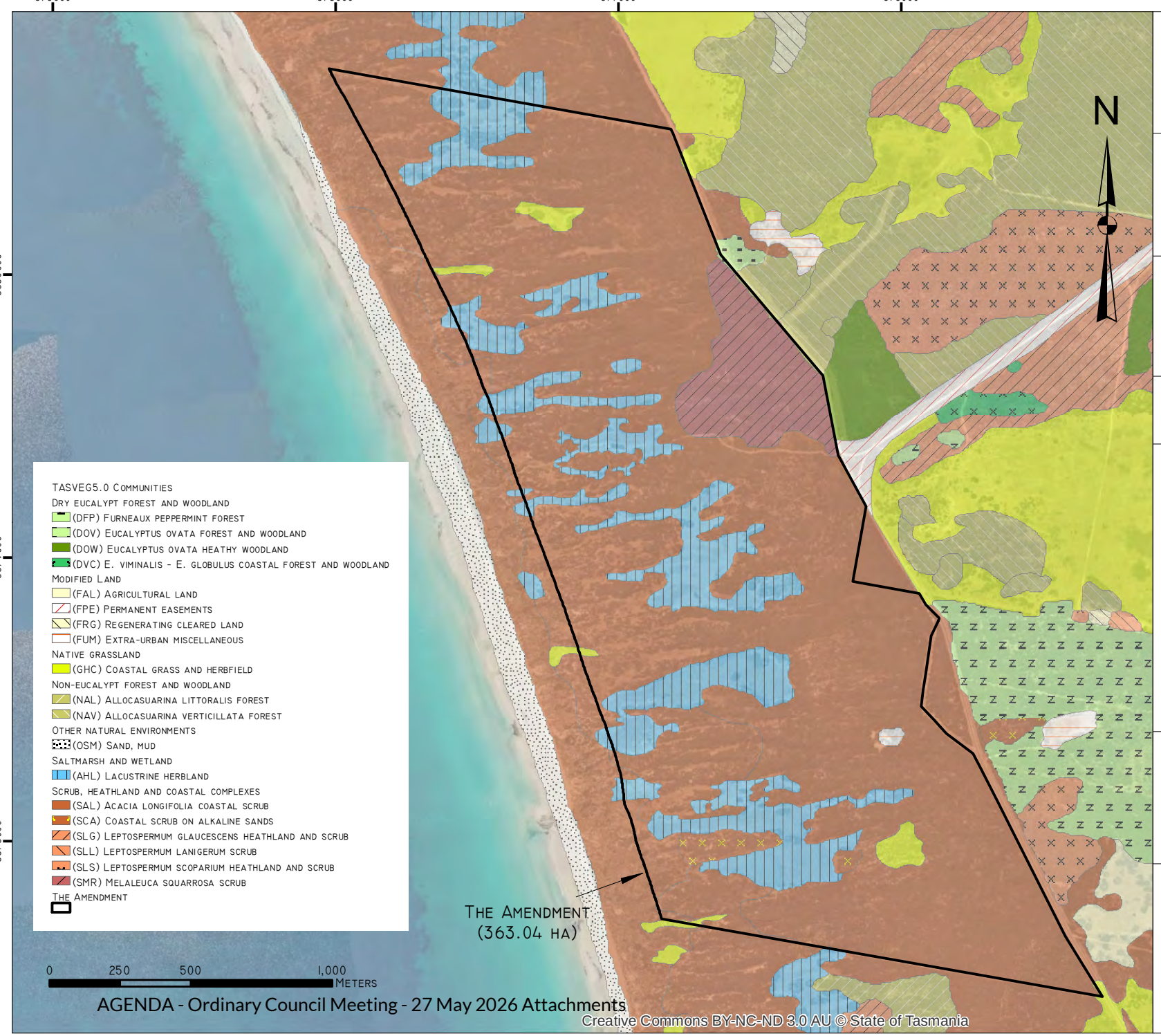
# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK PLANNING SCHEME AMENDMENT

### FIGURE 7: TASVEG5.0 COMMUNITIES WITHIN AND AROUND THE AMENDMENT

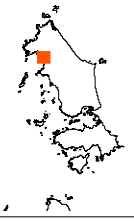
TASMAP: TANNER EMITA

LGA: FLINDERS




BASE DATA BY TASMAP. © STATE OF TASMANIA
BASE IMAGE BY TASMAP. © STATE OF TASMANIA

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PO Box 1 New Town TAS 7008



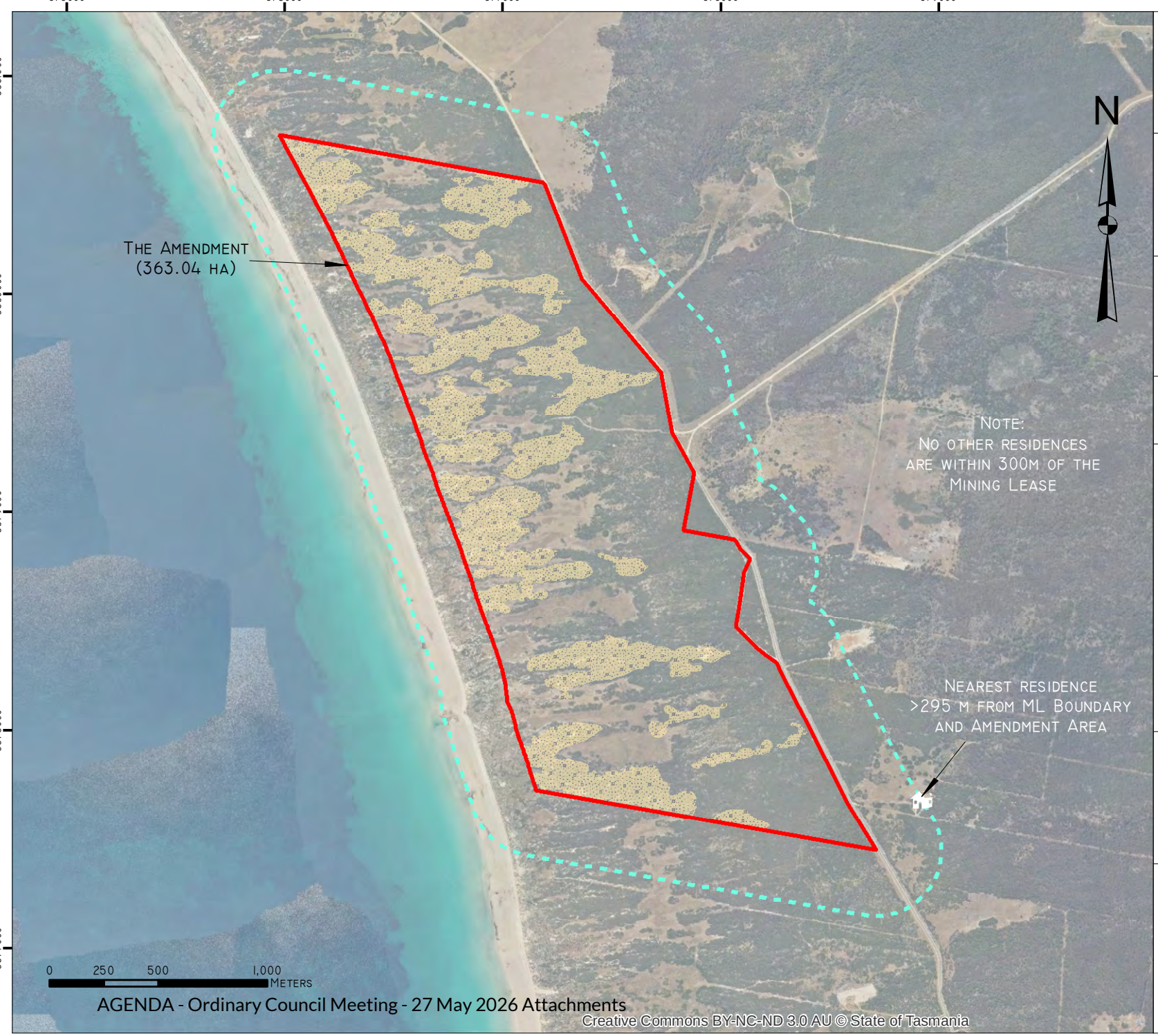
DATUM: GDA94
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DATE: 1 JAN 2026



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Annexure: 16.2.2

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK PLANNING SCHEME AMENDMENT

FIGURE 8: RESIDENTIAL USE (SENSITIVE RECEPTORS) RELATIVE TO THE AMENDMENT

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

SAND RESOURCE (APPROX)
300M BUFFER ON ML
THE AMENDMENT

BASE DATA BY TASMAP. © STATE OF TASMANIA
BASE IMAGE BY TASMAP. © STATE OF TASMANIA

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PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING
COMPANY PTY LTD

DATE: 1 JAN 2026


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The lime sands proposed to be extracted are well drained and there is no formal drainage to the nearby wetlands. There are low lying depressions of sandy soils that occur southwards and northwards of the Site. These depressions are dominated by coastal vegetation, dominated by scrub or ex-pasture vegetation. The surrounding area consists of two occasionally used small sand pits, scrubland and limited grazing.

There are no defined watercourses, or swamps within the Site.

The nearest sensitive receptor to the Site is approximately 295 m to the east (**Figure 8**), with no other sensitive uses within 300m of the Site.

**Plate 2. Coastal grasslands between linear dunes**



**B.4 NATURAL ASSETS**

*VEGETATION*

**Figure 7** provides the TASVEG mapping for the Site and surrounds which formed the basis of the priority vegetation overlay included in the LPS.

The recorded vegetation communities/TASVEG mapping units in the Site are listed in **Table 1.**

The vegetation in the Site is typical of coastal dune sequences derived from or dominated by lime sands on Flinders Island. Other parts of Tasmania also support comparable vegetation, including King Island (e.g., Yellow Rock Beach, Porky Beach and many areas of west coast in the 'Old Dune' sequences), and the far north-west (e.g. Cape Grim, Marrawah, Cape Woolnorth). These vegetation types are well-reserved and not Threatened ecological community or communities or Threatened native vegetation community or communities.

Remnant agricultural land occurs sporadically across the Site and is generally very localised on the edge of coastal grassland vegetation – no areas of this non-native vegetation mapping unit have been mapped in the Site by TASVEG (**Figure 6**).

The active dunes at the beach (outside the Site) are dominated by grasses, mainly the introduced marram grass (*Ammophila arenaria*), with succulent herbs and shrubs typical of an exposed beach environment. As distance is traversed inland the effect of the salt spray and wind exposure lessen to enable scrub to replace grassland on the dunes, with grassland generally restricted to the deflation basins.

**Table 1. TASVEG mapping unit categories recorded in the Site**

| TASVEG Code | TASVEG community or mapping unit name | Threatened native vegetation community (NC Act) | Threatened ecological community or communities (EPBC Act) |
|---|---|---|---|
| **SCA** | Coastal scrub on alkaline sands | **No** | **No** |
| **FAL** | Agricultural land | **No** | **No** |
| **SAL** | *Acacia longifolia* coastal scrub | **No** | **No** |
| **GHC** | Coastal grassland and herbfield | **No** | **No** |

There are no Threatened native vegetation community/communities mapped in the Site (**Figure 7**).

Several 'lagoons' are mapped by TASVEG in the Site as TASVEG as lacustrine herbland (TASVEG code - AHL) however the vegetation present does not represent this community. These areas are a coastal grassland and herbfield community (TASVEG Code – GCH) and not 'wetlands' in the sense of TASVEG mapping units and the application of the 'wetland' concept as a Threatened native vegetation community. Unlike Arbothnots Lagoon further to the south of the Site, which is easily visited on route to Castle Rock, there is no standing water or associated 'aquatic species and vegetation of a wetland' in the Site.

The priority vegetation overlay which includes Scheme protection measures for **Threatened native vegetation community/communities** operates in the Site, and there is no change (addition, deletion or amendment) to the mapped overlay by the amendment.

Comments are provided below for each native vegetation type and mapping unit recorded in the Site.

Coastal scrub on alkaline sands (TASVEG code - SCA)

The dominant species are *Leptospermum laevigatum* and *Myoporum insulare*. In the Site this mapping unit is represented by a relatively species poor scrub community dominated by *Leptospermum laevigatum* with sub-dominant to occasional *Allocasuarina verticillata*, *Acacia longifolia* subsp*. sophorae* and sparse numbers (and canopy coverage) of *Myoporum insulare*.

The ground layer species diversity is low to very with most of the ground covered by leaf litter, mosses and lichens and/or exposed lime sands. Common herbs include *Tetragonia implexicoma*, *Parietaria cardiostegia*, *Threlkeldia diffusa*, *Ajuga australis, Podolepis jaceoides, Dichondra repens, Senecio biserratus*, *Wahlenbergia gracilenta*, and *Urtica incisa*. A few rush and sedge species occur in the ground layer where there are canopy openings and include *Juncus pallidus, J. pauciflora*, and *Lepidosperma concavum*.

The following images depict the various forms of this scrub type in the Site.













Coastal grassland and herbfield (TASVEG code – GCH)

This community is dominated by *Austrofestuca littoralis, Austrostipa stipoides, Poa poiformis* and *P. labillardierei*. Common non-dominant grasses include *Distichlis distichophylla* and the sedge *Ficinia nodosa*. Herbs include *Acaena nova-hollandiae, Carpobrotus rossii, Centaurium erythraea, Pelargonium australe, Ranunculus lappaceus, Samolus repens, Apium prostratum, Dichondra repens, Tetragonia tetragonioides, Rhagodia candolleana* and *Selliera radicans*.

The *Lowland Native Grasslands of Tasmania* ecological community, and EPBC listed community (i.e. a Threatened ecological community), is considered here given the presence of a TASVEG potential analogue - Coastal grassland and herbfield (TASVEG – Code GCH).

In this case, the GCH in the Survey Area –

(1) has less than 50% *Poa labillardierei* coverage of the native perennial tussock grasses (it is 0 to 20%) present in the GCH patches, and/or

(2) Patch size is less than 1 hectare, and/or

(3) Weeds (perennial) make up 20% or more than the total ground cover of the patch.

- which excludes it from *the Lowland Native Grasslands of Tasmania* ecological community listed on the EPBC Act[3].

The following images depict the various forms of this vegetation type in the Site.

[3] Department of the Environment, Water, Heritage and the Arts (2010). Lowland Native Grasslands of Tasmania — a nationally threatened ecological community. Environment Protection and Biodiversity Conservation Act 1999 Policy Statement 3.18. Australian Government, Canberra.








<u>*Acacia longifolia* coastal scrub (TASVEG code - SAL)</u>

*Acacia longifolia* subsp*. sophorae* coastal scrub occurs on sand dunes in a narrow but variable coastal zone; typically, there is a strong zonation from the high-water mark inland across the dunes. This mapping unit is shrubland with a dense closed canopy. *Leucopogon parviflorus, Banksia marginata, Allocasuarina verticillata, Myoporum insulare* and *Rhagodia candolleana* are occasionally prominent elements in this community, though *Acacia longifolia* subsp*. sophorae* is always dominant.

The ground layer species diversity is low to very with most of the ground being bare sand/soil, or with a covering of leaf litter, mosses and lichens and/or exposed lime sands.

Common herbs include *Tetragonia implexicoma*, *Parietaria cardiostegia*, *Ajuga australis, Podolepis jaceoides, Dichondra repens, Senecio biserratus*, and *Wahlenbergia gracilenta*. A few rush and sedge species occur in the ground layer where there are canopy openings and include *Juncus pallidus, J. pauciflora*, and *Lepidosperma concavum*.

The following images depict the various forms of this scrub type in the Site.





*THREATENED AND CONSERVATION SIGNIFICANT FLORA SPECIES*

Eleven flora species ('Threatened flora') are known to occur near and/or in the Site (TSP Act and EPBC Act listing):

- *Acacia uncifolia*, coast wirilda (r/-)
- *Asperula minima*, mossy woodruff (r/-)
- *Eutaxia microphylla*, spiny bushpea (r/-)
- *Schenkia australis*, spike centaury (r/-)
- *Pimelea curviflora* var. *gracilis*, curved riceflower (r/-)
- *Leucopogon affinis*, lanceleaf beardheath (r/-)
- *Pomaderris oraria* subsp. *oraria*, bassian dogwood (r/-)
- *Pomaderris paniculosa* subsp. *paralia*, shining dogwood (r/-)
- *Acrotriche cordata,* coast groundberry (v/-)
- *Roepera billardierei*, coast twinleaf (r/-)
- *Scaevola albida*, pale fanflower (v/-)

Species locations are shown in **Figure 6.**

No species listed on the *Environment Protection and Biodiversity Conservation Act 1999* are known to occur or have been observed/recorded in the Site.

Despite the number of Threatened Flora known from the Site, their occurrence is limited spatially and often to very specific habitats such as in open areas of scrub where windthrow has created a canopy gap (e.g. *Schenkia australis, Asperula minima, Eutaxia microphylla*), or on skeletal areas of limestone bedrock (e.g., *Acacia uncifolia, Acrotriche cordata*). Canopy closure in scrub often leads to many plants of several species to die as light becomes too restricted for growth and survival. This is evident throughout some areas where there are dead *Eutaxia microphylla* and *Pimelea curviflora* var. *gracilis*.

The priority vegetation overlay which includes Scheme protection measures for Threatened Flora Species operates in the Site, and there is no change (addition, deletion or amendment) to the mapped overlay.

*THREATENED AND CONSERVATION SIGNIFICANT FAUNA SPECIES*

There are several Threatened fauna species known from Flinders Island, and some which may occur on Flinders Island (e. g. chaostola skipper) where there is potential habitat.

**Table 2** provides a list of Threatened fauna species that were identified in a Natural Values Atlas (NRE maintained database of natural values in Tasmania including threatened flora and fauna species) search of the Site. Comments are provided in **Table 2** of the possible or likely occurrence in the Site, and whether the species' occurrence is significant.

Significant habitat as applied through the Natural Assets Code (i.e. 'significant habitat for threatened fauna species') is absent from the Site for all fauna species discussed in **Table 2.**

**Table 2. Threatened and conservation significant fauna species that do or may occur in the Site**

| **Common name**<br>*Species name* | **Habitat present in Site?**<br>**If yes, comments about likelihood of presence.** |
|---|---|
| **Birds** | |
| **blue-winged parrot**<br>*Neophema chrysostoma* | **No.** No eucalypt forest or woodland present. |
| **forty-spotted pardalote**<br>*Pardalotus quadragintus* | **No.** No white gum eucalypt forest or woodland present. Not a known colony. |
| **swift parrot**<br>*Lathamus discolor* | **No.** Not a known nesting site, no nesting suitable eucalypt forest or woodland is present. |
| **wedge-tailed eagle**<br>*Aquila audax* subsp. *fleayi* | **Yes.** Foraging habitat is present in the Site. |

| | |
|---|---|
| **white-bellied sea-eagle**<br>*Haliaeetus leucogaster* | **Yes.** Foraging habitat is present in the Site. |
| **Mammals** | |
| **New Holland Mouse**<br>*Pseudomys novaehollandiae* | **Unlikely**. Some vegetation present at the western edge of the Site contains floristic components that may represent possible foraging habitat; vegetated dunes but the Site is outside the species' core range so significant habitat is absent. |
| **Amphibians** | |
| **Green and gold frog**<br>*Litoria raniformis* | **No** suitable habitat (i.e. freshwater wetlands, coastal freshwater lagoons and swamps, freshwater dams) in the Site. The Site is within the potential range but habitat (breeding and overwintering) is absent. |
| **Striped Marsh Frog**<br>*Lymnodynastes peroni* | **No** suitable habitat (i.e. freshwater wetlands, coastal freshwater lagoons and swamps, freshwater dams) in the Site. The Site is within the potential range but habitat is absent. |
| **Fish** | |
| **Australian grayling**<br>*Prototroctes maraena* | **No.** A migratory freshwater and marine species. The Site is within the potential range, but habitat (waterways, creeks and/or streams) is absent. |
| **Eastern Dwarf Galaxias**<br>*Galaxiella pusilla* | **No.** On Flinders Island the species is known from wet heathlands, swamps, backwaters of streams and rivers, and drains. The Site is within the potential range, but habitat is absent. |
| **Invertebrates** | |
| **chaostola skipper**<br>*Antipodia chaostola* | **Possible but unlikely.** *Gahnia* species are present in the Site (*Gahnia radula, G. grandis*) but patches are very small (<20 square metres) and are sporadic. This invertebrate species is not known from Flinders Island. |
| **Reptiles** | |
| **Tussock skink**<br>*Pseudemoia pagenstecheri* | **Possible but unlikely**. Grassland with *Poa* tussock is present, especially in the deflation basins which are dominated by Coastal grassland and herbfield (TASVEG – GCH). |

Marshall Bay has a typical beach profile of an active beach system, foredunes, and less mobile back dunes. As noted by Slee (pp. 12-13 of **Attachment 5**), at the west are the modern foredune and back dunes behind Marshall Beach while inland are a series of elongated west-to-east trending parallel dunes that rise to 24 m above sea level. The coastal foredunes climb onto the older dunes but can be broadly demarcated by their

hummocky forms and presence of sand blow-outs that contrast to the more elongated uniform stabilised ridges of the older dunes.

The Site does not include the beach, or foredunes but does include the back dunes in part, and older dune sequences (i.e. they are not part of the Amendment and would remain in the Landscape Conservation zone). The beach associated birds are limited to the active dunes and foredunes as depicted in **Plate 3.**

**Table 3** provides a list of the avifauna which are known to occur at the nearby Marshall Bay beach associated habitats (e.g., dune, beach and back dune environments associated with modern/recent dunes).

**Table 3. Summary table of Site relevant avifauna and associated statutory conservation listings**

| Scientific Name | Common Name | EPBC Act-listed | TSP Act-listed |
|---|---|---|---|
| **Australian fairy tern** | *Sternula nereis nereis* | Vulnerable | vulnerable |
| **Eastern hooded plover** | *Thinornis cucullatus cucullatus* | Vulnerable | - |
| **Little tern** | *Sternula albifrons* | Migratory | - |

**Plate 3. Marshall Bay beach and dune avifauna habitat outside the Site**



**B.5 AVAILABILITY OF INFRASTRUCTURE AND SERVICES**

*WATER AND SEWER*

The Site has no reticulated water or sewer connections. It's noted in the development application that neither reticulated service is required.

*POWER*

The Site has access to powerlines and poles along its eastern edge.

*STORMWATER DRAINAGE*

There is no public reticulation stormwater system to the Site which is comparable to most rural areas on Flinders Island.

*ROAD ACCESS*

Access to the Site is from Palana Road (sealed road section). Traffic would enter and exit onto the sealed section of Palana Road using the now disused reserved road section. This reserved road section is licensed by the Crown to provide access to the Land.

## PART C – STATUTORY PLANNING INSTRUMENTS

### C.1 *LAND USE PLANNING AND APPROVALS ACT* (THE ACT)

The Resource Management and Planning System of Tasmania (RMPS) provides for the planning and environmental policy framework within which the planning merit of the Amendment can be assessed.

The key tenet of the RMPS is the concept of **sustainable development** which is statutory defined as;

> *'managing the use, development and protection of natural resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while:*
>
> *a) sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations;*
>
> *b) safeguarding the life supporting capacity of air, water, soil and ecosystems; and*
>
> *c) avoiding, remedying or mitigating any adverse impacts of activities on the environment.'*

The Act sets out the requirements for a planning scheme amendment. These are;

*(a) must seek to further the objectives set out in Schedule 1; and*

*(b) must be prepared in accordance with State Policies, and*

*(c) it may make provision which relates to the use, development, protection or conservation of any land; and*

*(d) must have regard to the safety requirements set out in standards prescribed under the* Gas Pipelines Act 2000*; (*There is no gas pipeline involved*) and*

*(e) must, as far as practicable, avoid the potential for land use conflicts with use and development permissible under the planning scheme applying to the adjacent area; and*

*(f) must have regard to the impact the use and development permissible under the Amendment will have on the use and development of the region as an entity in environmental, economic and social terms.*

*SCHEDULE 1*

Schedule 1 of the Act establishes the following objectives, which must be furthered by the amendment;

*a) To promote the sustainable development and natural and physical resources and the maintenance of ecological processes and genetic diversity.*

Extensive environmental studies found the Amendment will not have an adverse impact on this objective.

*b) To provide for the fair, orderly and sustainable use and development of air, land and water.*

Adequate infrastructure to and on the Site exists so there is no requirement to extend or further supplement publicly owned/managed infrastructure assets or services.

*c) To encourage public involvement in resource management and planning.*

The community and government departments will be able to formally comment on the Amendment in accordance with the provisions of the Act.

*d) To facilitate economic development in accordance with the objectives set out in paragraphs(a), (b) and (c) and*

The Amendment will facilitate the extraction of lime sands to assist with the improvement and maintenance of the soil structure of rural land that in turn will provide economic benefits from vigorous and sustainable agricultural activity on Flinders Island.

*e) To promote the sharing of responsibility for resource management and planning between the different spheres of Government, the community and industry in the State.*

The Amendment requires consultation, review and where necessary approval by the local planning authority, State government departments, and the community.

*PART 2 OBJECTIVES OF THE PLANNING PROCESS ESTABLISHED BY THIS ACT*

The objectives of the planning process established by this Act are, in support of the objectives set out in Part 1 of this Schedule –

*(a) to require sound strategic planning and co-ordinated action by State and local government; and*

*(b) to establish a system of planning instruments to be the principal way of setting objectives, policies and controls for the use, development and protection of land; and*

*(c) to ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land; and*

*(d) to require land use and development planning and policy to be easily integrated with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels; and*

*(e) to provide for the consolidation of approvals for land use or development and related matters, and to co-ordinate planning approvals with related approvals; and*

*(f) to promote the health and wellbeing of all Tasmanians and visitors to Tasmania by ensuring a pleasant, efficient and safe environment for working, living and recreation; and*

*(g) to conserve those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value; and*

*(h) to protect public infrastructure and other assets and enable the orderly provision and co-ordination of public utilities and other facilities for the benefit of the community; and*

*(i) to provide a planning framework which fully considers land capability.*

The proposed Amendment gives effect to Part 2 objectives in that approval or otherwise is made within the framework established by the Act, no buildings or specified values are identified, and further development and use must be in accord with the planning scheme.

**C.2 STATE POLICIES**

The State Policies are;

- Tasmanian State Coastal Policy 1996
- Protection of Agricultural Land 2009
- State Policy on Water Quality Management 1997
- National Environmental Protection Measures ( NEPM)

*TASMANIAN STATE COASTAL POLICY 1996*

The Land is within one kilometre of the coast thus the State Coastal policy applies.

The Coastal Policy contains three principles relating to;

- the protection of *natural and cultural values*:
- *sustainable use and development and*
- *integrated management and protection of the coastal zone is a shared responsibility.*

The Policy also lists a series of expected outcomes that ensure any development or use in the coastal zone is environmentally sustainable. It also recognises that the coast has economic, landscape and social values that should be developed or enhanced.

The relevant *Protection of Natural and Cultural Values of the Coastal Zone* outcomes are provided below with comments in relation to each and the proposed use and development –

| **1.1. NATURAL RESOURCES AND ECOSYSTEMS** | |
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| 1.1.1. The coastal zone will be managed to ensure sustainability of major ecosystems and natural processes.<br><br>1.1.2. The coastal zone will be managed to protect ecological, geomorphological and geological coastal features and aquatic environments of conservation value.<br><br>1.1.3. The coastal zone will be managed to conserve the diversity of all native flora and fauna and their habitats, including seagrass and seaweed beds, spawning and breeding areas. Appropriate conservation measures will be adopted for the protection of migratory species and the protection and recovery of rare, vulnerable and endangered species in accordance with this Policy and other relevant Acts and policies. | The Amendment considers the management of the area of land within the coastal zone to ensure the sustainability of major ecosystems and natural processes. There will be no adverse impact on major ecosystems.<br><br>The sustainability of major ecosystems and natural processes was considered in the assessment of DA2020-038 by the Environment Protection Authority concluded there was to be no adverse impacts. More broadly, the Site doesn't support recorded features (geomorphological and geological coastal features and aquatic environments) of conservation value.<br><br>The protection of migratory species and the protection and recovery of rare, vulnerable and endangered species will be via measures identified and prescribed through the Environmental Impact Assessment Principles at s74 of EMPCA for the assessment of Level 1 and 2 activities. |

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| 1.1.4. Exotic weeds within the coastal zone will be managed and controlled, where possible, and the use of native flora encouraged.<br><br>1.1.10. The design and siting of buildings, engineering works and other infrastructure, including access routes in the coastal zone, will be subject to planning controls to ensure compatibility with natural landscapes. | The Scheme provides for the assessment of priority vegetation, which includes threatened species, and other Acts also apply regardless of the Scheme and any assessment undertaken through EMPCA or LUPAA – e.g., the EPBC Act protects and regulates impacts to MNES which includes migratory species.<br><br>The Site does not occur in the marine environment so seagrass beds and spawning and breeding areas for marine aquatic species is not relevant.<br><br>Buildings and other infrastructure will remain the subject of planning controls in the TPS – Flinders which includes the scenic protection code. |
| **1.2. CULTURAL AND HISTORIC RESOURCES** | |
| 1.2.1. Areas within which Aboriginal sites and relics are identified will be legally protected and conserved where appropriate.<br><br>1.2.2. All Aboriginal sites and relics in the coastal zone are protected and will be identified and managed in consultation with Tasmanian Aboriginal people in accordance with relevant State and Commonwealth legislation. | An Aboriginal Heritage Assessment has been conducted. The report has been accepted by Aboriginal Heritage Tasmania.<br><br>The findings of that report are confidential but would be made available to the regulatory authorities for assessment purposes. |
| **1.4. COASTAL HAZARDS** | |
| 1.4.1. Areas subject to significant risk from natural coastal processes and hazards such as flooding, storms, erosion, landslip, littoral drift, dune mobility and sea level rise will be identified and managed to minimise the need for engineering or remediation works to protect land, property and human life.<br><br>1.4.2. Development on actively mobile landforms such as frontal dunes will not be permitted except for works consistent with Outcome 1.4.1. | The Scheme contains Codes which consider natural coastal processes and hazards such as flooding, storms, erosion, landslip, littoral drift, dune mobility and sea level rise.<br><br>The Amendment does not propose to add, delete, or amend any of the overlays that trigger the operability of Codes that regulate natural hazards including landslip hazard, and coastal inundation hazard, and coastal erosion hazard. |

The relevant *Sustainable Development of Coastal Areas and Resources* outcomes are provided below with comments in relation to each and the proposed use and development –

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| **2.1. COASTAL USES AND DEVELOPMENT** |

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| 2.1.1. The coastal zone shall be used and developed in a sustainable manner subject to the objectives, principles and outcomes of this Policy. It is acknowledged that there are conservation reserves and other areas within the coastal zone which will not be available for development.<br><br>2.1.2. Development proposals will be subject to environmental impact assessment as and where required by State legislation including the *Environmental Management and Pollution Control Act 1994.*<br><br>2.1.3. Siting, design, construction and maintenance of buildings, engineering works and other infrastructure, including access routes within the coastal zone will be sensitive to the natural and aesthetic qualities of the coastal environment.<br><br>2.1.4. Competing demands for use and development in the coastal zone will be resolved by relevant statutory bodies and processes, in particular the Land Use Planning Review Panel, the Resource Management and Planning Appeal Tribunal and the Marine Farming Planning Review Panel. Planning schemes, marine farming development plans and other statutory plans will provide guidance for resource allocation and development in accordance with this Policy.<br><br>2.1.5. The precautionary principle will be applied to development which may pose serious or irreversible environmental damage to ensure that environmental degradation can be avoided, remedied or mitigated. Development proposals shall include strategies to avoid or mitigate potential adverse environmental effects.<br><br>2.1.8. Extraction of construction materials, mineral, oil, and natural gas deposits in the coastal zone will be allowed provided access to areas is allowed under the provisions of the *Mining Act 1929.*<br><br>2.1.10. Extraction will be subject to the Quarry Code of Practice and environmental assessment as required by State legislation including the *Environmental Management and Pollution Control Act 1994*. Adequate rehabilitation shall be carried out.<br><br>2.1.11. Extraction of sand will be provided for by zoning of appropriate areas in planning schemes.<br><br>2.1.16. Water quality in the coastal zone and in ground water aquifers will accord with the requirements and guidelines established by the *Environmental Management and Pollution Control Act 1994* or the | The extraction of lime sands to support agricultural use on Flinders Island is critical to keeping input costs low to the farming sector to keep it competitive locally.<br><br>The Amendment is the means to enable an application for the extractive use to be made (i.e., made permissible); it is currently a prohibited use and development in the Landscape Conservation zone. Being a level 2 activity, the Board of the Environment Protection Authority assessed the proposal and concluded that the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the RMPS and EMPCS objectives would be compromised, provided that the Permit Conditions - Environmental No. 11576 appended to the EAR are imposed and duly complied with.<br><br>The design, colour, location, and layout of buildings associated with the extractive use are sensitive to the natural and aesthetic qualities of the coastal environment. Measures applicable through the Scenic Protection Code (which covers the Site and will not change because of the amendment) would continue to operate as they do now as the Code is equally applicable in the Landscape Conservation and Rural zones.<br><br>**A Mining Lease is in force**; Provision 2.1.8 provides that the extraction of construction materials in the coastal zone will be allowed provided access to areas is allowed under the provisions of the *Mining Act 1929* (superseded by the *Mineral Resources Development Act 1995).* In granting the Mining Lease, the Minister considered *inter alia* the risk of mobile dunes in the coastal area as acceptable.<br><br>Extraction will be subject to the Quarry Code of Practice and environmental assessment as required by State legislation including the *Environmental Management and Pollution Control Act 1994.* |

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| *Environment Protection (Sea Dumping) Act 1987* (as appropriate) and any other relevant State and Commonwealth Policies and statutes. | |

The Amendment is specifically consistent with policy principles and outcomes;

- specifically clause, 2.1.11'. states that the extraction of sand will be provided for by the zoning of appropriate areas in planning schemes.' and
  - does not cause nor contribute to ribbon development along the coast;
  - provides for adequate rehabilitation to be carried out through the Mining Lease under the *Mineral Resources Development Act 1995* and the draft permit conditions imposed by the Board of the Environment Protection Authority (EPA) if a permit is issued;
  - is a use and development that was assessed and will be regulated under the Quarry Code of Practice and environmental assessment as required by State legislation including the *Environmental Management and Pollution Control Act 1994*. Adequate rehabilitation shall be carried out as required by the Mining Lease (granted under the MRDA, and by the draft permit conditions proposed to be imposed by the EPA Board); and
  - does not impact on any significant natural or cultural values and the potential impact to amenity value can be appropriately managed and regulated by controls administered through planning permit conditions and the Mining Lease.

*STATE POLICY ON WATER QUALITY MANAGEMENT 1997*

*The policy is designed to achieve the sustainable management of Tasmania's surface water and groundwater resources by protecting or enhancing their qualities while allowing for sustainable development in accordance with the objectives of RMPS.*

The Policy sets out a series of objectives that include the enhancing and protection of water quality and managing pollutants at the source in order the water quality is not reduced.

Of particular relevance are clauses 31.1 and 31.5;

> Clause 31.1 of the policy states that – 'Planning schemes should require that development proposals with the potential to give rise to off-site polluted stormwater runoff which could cause environmental nuisance or material or serious environmental harm should include, or be required to develop as a condition of approval, stormwater management strategies including appropriate safeguards to reduce the transport of pollutants off-site.'
>
> Clause 31.5 states, 'Planning schemes must require that land use and development is consistent with the physical capability of the land so that the potential for erosion and subsequent water quality degradation is minimised.'

A geomorphological study of the Site was conducted by Dr Adrian Slee (see **Attachment 5**) who found the top layer of lime sand has high permeability, which influences infiltration rates and storm water runoff. There are no defined water courses, and no formal drainage exists into the nearby wetlands.

The policy is relevant to the planning and design of stormwater, sewage and grey water disposal systems to ensure that any discharge complies with the policy requirements. Accordingly appropriate provisions need to be part of any development permit.

The rezoning proposed by the Amendment has no effect on the continued operability of the Policy at the Site.

*STATE POLICY ON PROTECTION OF AGRICULTURAL LAND 2009 (PAL)*

The policy aims to conserve and protect agricultural land so that it remains available for the sustainable development of agriculture, recognising the importance of Prime Agricultural Land. Specific objectives are to enable the sustainable development of agriculture by minimising: (a) conflict with or interference from other land uses; and (b) non-agricultural use or development on agricultural land that precludes the return of that land to agricultural use.

The Site is not Prime Agricultural land[4] as defined in the PAL. Given the soil types present, the land is marginal (Class 5-7) for agricultural use.

The Site is zoned Landscape Conservation. The proposed Amendment rezones the Site to Rural.

The rezoning is consistent with Principle 1 of the PAL:

> 'Agricultural land is a valuable resource and its use for the sustainable development of agriculture should not be unreasonably confined or restrained by non-agricultural use or development.'

The Amendment allows land to be used in a manner that enhances and supports Agricultural use on other lands.

It's noted the planning scheme identifies the purpose for the Rural zone as,

To provide for a range of use or development in a rural location:

(a) where agricultural use is limited or marginal due to topographical, environmental or other site or regional characteristics;

(b) that requires a rural location for operational reasons;

(c) is compatible with agricultural use if occurring on agricultural land; and

(d) minimises adverse impacts on surrounding uses.

To minimise conversion of agricultural land for non-agricultural use.

[4] "Agricultural land" means all land that is in agricultural use or has the potential for agricultural use, that has not been zoned or developed for another use or would not be unduly restricted for agricultural use by its size, shape and proximity to adjoining non-agricultural uses.

The Land is now zoned Landscape Conservation (**Figure 3**), and the Amendment would conform to the requirements of the Rural zone.

*NATIONAL ENVIRONMENTAL PROTECTION MEASURE (NEPM)*

In accordance with s.12A of the *State Policies and Projects Act 1993*, a national environmental protection measure is taken to be a State Policy. There is no discretion to differentiate a State Policy made under s.12A compared to s.11.

Thus, the following items need to be considered,

- Ambient Air quality June 2002
- Diesel Vehicle emission 2001
- Assessment of site contamination 1999
- Used Packaging Materials 1999
- Movement of Controlled Waste between States and Territories 1998
- National Pollutant Inventory June 2000

Consideration of the relevant EPNs is the assessment of site contamination, diesel vehicle emissions and air quality.

*REGIONAL LAND USE STRATEGY OF NORTHERN TASMANIA 2021 (RLUSNT)*

The Strategy which encompasses Flinders Island guides future land use, development and infrastructure provision. **Table 4** provides comments about the Amendment relative to the Strategic Directions of the RLUSNT.

The following from the NTRLUS provides definitive guidance that applies to extractive industry;

- ED-A11 Identify natural economic resource areas and protect from further fragmentation and inappropriate land use; and
- ED-A12 Identify and protect extractive and mineral resources for potential future extraction (including providing appropriate transport corridors and buffers) and protect these, ensuring that planning preserves the opportunity for discovery and development of new resources in appropriate areas.

**Table 4. Comments in relation to the Strategic Directions of the RULSNT**

| GOAL | RELEVANT STRATEGIC DIRECTION | COMMENTS IN RELATION TO AMENDMENT |
|---|---|---|
| **C.4.1 Goal 1: Economic Development**<br>**To facilitate economic development and productivity through integrated land use and infrastructure planning.** | | |
| **Strategic Direction G1.1**<br>Capitalise on the region's sources of competitiveness by identifying future opportunities for sustainable competitive advantage. | a) Facilitate innovation and capitalise on the co-location of industry in strengthened 'clusters' of economic and employment activity.<br>b) Add value, diversify the economy and generate jobs.<br>c) Develop the preconditions for business competitiveness through merits-based planning and development assessment processes that:<br>• Flexibly consider the location of economic development having regard for the changing economic environment; and<br>• Focus on community-specific outcomes and environmental impacts, rather than a standards-based approach.<br>d) Facilitate the needs of small business, including working from home and other flexible/non-traditional locations. | The Amendment seeks to enable an extractive industry to be permissible in the Site, which would then be assessed on its merits via a development application.<br>The extractive industry is to extract lime sands to directly benefit the agricultural land productivity of Flinders Island through a substantial on-island supply capable of being used to increase and maintain productivity of soils to grow agricultural produce.<br>The Amendment would facilitate value to be added to the island economy (e.g., by offering on-island jobs, a resource for sale on the island), to provide opportunities to diversify agriculture (including different and/or novel agricultural activities) and to overall generate and/or facilitate continued employment on the island. Some jobs generated may be in downstream processing of agricultural products (not directly caused by the Amendment) from lands that receive the lime sands from the Site. |
| **Strategic Direction G1.2**<br>Adopt an integrated and coordinated approach to government infrastructure, transport and land use planning. | a) Coordinate provision of transport, energy, communications and other infrastructure services with appropriately zoned and located land for development. | The Amendment relates to land accessed from Palana Road – a major arterial road that connects the north and south of the island.<br>The use of the main arterial road on the western side of the island provides efficient travel options to all parts of the island |

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| | | for the delivery and use of lime sands on agricultural lands in production, or capable of being brought into production.<br><br>The Amendment does not change the requirement of new or additional government funded or managed infrastructure. |
| **Strategic Direction G1.3**<br><br>Develop a thorough understanding of key industry needs, including future demand and location requirements. | a) Support agricultural and related primary industries by:<br>• Recognising the complex jurisdictions and the role of Natural Resource Management (NRM) organisations;<br>• Applying the State Policy on the Protection of Agricultural Land (PAL) Policy (2009) consistently across the region;<br>• Supporting the forest practices system and ongoing structural reforms;<br>• Promoting appropriate aquaculture development;<br>• Identifying and mapping key mineral assets, protecting key resources; and<br>• Supporting appropriate mining and mineral development, and protecting that resource from encroachment by sensitive land uses.<br><br>b) Support tourism, culture and arts by:<br>• Recognising the 'drivers' of tourism, including natural values, heritage, food and wine, and local character; and<br>• Providing for development of tourism products including accommodation. | The PAL policy has been considered, and the Amendment is consistent with it. The outcome of the rezoning provides an opportunity to directly support the further development and sustained maintenance of agricultural lands and their productivity to generate local jobs and wealth.<br><br>The lime sands at Marshall Bay are a key mineral asset, as noted by the MRT mapping of Strategic Resources, for Flinders Island. The resource needs to be protected from sensitive uses, and can be accessed, utilised and managed in an environmentally appropriate manner.<br><br>Extractive Industry is listed as a permitted use in the Rural zone with no specified use limitations. Notwithstanding this, the Rural zone does open other Use classes to the permitted and discretionary pathways. Extractive Industry is probably the highest level of use that the Site can sustain due to its locality, soil types and vegetation. Consideration of the other listed uses in the Rural zone as occurring on the Land (especially of Permitted Uses) is improbable given the financial limitations and isolated locality of the Site (being on an island, and in a remote location on that island).<br><br>Aquaculture is not proposed.<br><br>Forest practices are not proposed. |
| **C.4.2 Goal 2: Liveability**<br><br>**To promote liveability measures for social and community development and the betterment of healthy, strong and vibrant urban and rural settlements.** | | |

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| **Strategic Direction G2.1**<br>Identify Urban Growth Areas to advance a sustainable urban settlement pattern. | Not directly applicable to the PSA. | |
| **Strategic Direction G2.2**<br>Plan for socio-demographic changes. | Not directly applicable to the PSA. | |
| **Strategic Direction G2.3**<br>Promote local character values. | Not directly applicable to the PSA. | |
| **Strategic Direction G2.4**<br>Enhance social inclusion. | c) Provide for a mix of integrated and complementary land use. | The Amendment will provide a land use that is complementary to agricultural use and supports social inclusion by creating employment for those people who want to live on the island. |
| **C.4.3 Goal 3: Sustainability**<br>**To promote greater sustainability in new development and develop stronger community resilience to social and environmental change.** | | |
| **Strategic Direction G3.1**<br>Promote and protect the Region's unique environmental assets and values. | a) Protect sensitive landforms and ecosystems, including coastal landforms and karst (limestone area shaped by erosion).<br>b) Manage the relationship between development and impacts of natural hazards (for example salinity, land instability, acid sulfate soils, bushfire and flood potential, contamination).<br>e) Protect the future capacity of the natural resource base including productive soils, minerals, hard rock and significant forest assets.<br>g) Protect and manage available agricultural land for sustainable productive use and values. | The Amendment considers the management of the area of land within the coastal zone to ensure the sustainability of major ecosystems and natural processes.<br>Slee (**Attachment 5**) found no evidence of a karst landform in the Site, nor any other coastal geomorphological or geological feature of such significance that its preservation must occur.<br>The Amendment does not alter the existing management arrangements of natural hazards established by the LPS |

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| | h) Preserve and protect areas of natural environmental significance, particularly:<br>• Areas of biodiversity and important flora and fauna communities and threatened species;<br>• Land and coastal areas sensitive to climate change, tidal and storm surges, rising sea levels and other natural hazards (including acid sulfate soils, bushfire and flooding); and<br>• Regionally significant open space, scenic landscape amenity areas and outdoor recreation reserves | process, being the occurrence of mapped overlays for relevant codes such as landslip hazard and coastal erosion hazard.<br>The zoning of the Land to Rural does not alter the applicability of the Natural Assets Code.<br>The lime sands at Marshall Bay are a key mineral asset, as noted by the MRT mapping of Strategic Resources, for Flinders Island. It is a local natural resource that should be available as an input to agricultural use of land on Flinders Island. The extraction of lime sands to support agricultural use on Flinders Island is critical to keeping input costs low to the farming sector to keep it competitive locally and to other markets, such as Victoria.<br>The extraction of the lime sands provides an end-to-end model of business infrastructure provision. It therefore provides lower costs than freighted equivalents, and the greater reliability of supply given it is on island, so its availability is not transport reliant. |
| **Strategic Direction G3.2**<br>Establish planning policies to support sustainable development, address the impacts of climate change, improve energy efficiency and reduce environmental emissions and pollutants. | a) Support good building design, reuse and recycling by:<br>• Identifying known or foreseeable impacts of climate change, such as rising sea levels, flood risk and land instability, and adopting a precautionary approach to the location of new development. | The LPS already provides for the assessment of known or foreseeable impacts of climate change, such as rising sea levels, flood risk and land instability through a development application.<br>The Amendment does not alter the existing management arrangements of natural hazards established by the LPS process, being the occurrence of mapped overlays for relevant codes such as landslip hazard and coastal erosion hazard. |
| **C.4.4 Goal 4: Governance**<br>**To provide cooperative and transparent leadership and regionally supportive local governance structures to advance integrated strategic land use objectives/ outcomes, including the goals, strategies and policies of the RLUS.** | | |

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| **Strategic Direction G4.1**<br><br>Advance regional leadership. | This will be achieved by the following strategies -<br><br>a) Adopt and implement best practice governance structures to provide strategic and innovative leadership within communities.<br><br>b) Empower and engage communities to develop community 'visions', build community confidence and support acceptance of change. | The assessment of the PSA should be via the best practice governance structures implemented by the RLUS. |

### C.3 *ENVIRONMENTAL MANAGEMENT AND POLLUTION CONTROL ACT 1994* (EMPCA)

Because DA2023-038 involves a level 2 activity the Planning Authority was required to refer the proposal to the Board of the Environment Protection Authority (EPA) for assessment.

A comprehensive Environmental Impact Statement (EIS) was prepared for DA2023-038. The EIS provides further details of the environmental matters associated with the proposed use and development and it is this which formed the basis for the decision of the EPA. The EPA concluded that the proposal for an extractive industry on the Land is capable of being managed in an environmentally acceptable manner and meets the requirements of the Resource Management and Planning System (RMPS).

### C.4 FLINDERS COUNCIL STRATEGIC PLAN 2021 TO 2031

A Strategic Plan is to be in respect of at least a 10-year period and guides the decision making of Council, resource allocations, and work plans of Council staff and is a means of communicating how Council will work to contribute to community ambitions, meet its governance obligations, provide leadership and set priorities.

Council identifies in the Strategic Plan that when setting our strategic priorities and decision making, Council will be guided by the following principles:

1. *Community Engagement* – encourage and value community contribution.
2. *Island Heritage and Character* – retain and enhance our heritage, cultural traditions and community spirit.
3. *Environment, Waste and Sustainable Land Use Practices* – value our unique natural environment and encourage sustainable industries, lifestyle and practices.
4. *Service Quality* –provide service excellence, efficiently and effectively, and within our means.
5. *Transparency* – make professional and transparent decisions, communicated and implemented in the interest of the Community.
6. *Governance and Financial Responsibility* –comply with government regulations and Council's guiding plans: Strategic Plan, Long-Term Financial Management Plan and Long-Term Asset Management Plan.
7. *Sustainability* – strive for sustainability in the social / community, economic / business, and built / natural environments.
8. *Continuous improvement* – Ensure ongoing, documented, continuous improvement processes.

The importation of required earth-based resources to support the island's biggest employer and economic driver seems counter-intuitive to the sustainability of the island and the broader objectives of the Strategic Plan.

**Table 5. Comments in relation to the proposed Amendment and the Strategic Plan 2021-20231**

| **Focus Area 1: Liveability** | | |
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| **WHAT COUNCIL WANTS TO ACHIEVE TOGETHER:** | **HOW COUNCIL PLANS TO DO IT:** | **AMENDMENT RELEVANT ITEMS FOR IMPLEMENTATION OF VISION** |
| *1.1 A viable population that enables the necessary services and activities required for the Community to prosper.*<br><br>*1.2 A harmonious and healthy community actively engaged in employment, recreation, volunteering, arts and culture.*<br><br>*1.3 Development and land use planning guidelines that promote balance between our built and natural environments.*<br><br>*1.4 Our natural environment protected and enhanced through land management activities.*<br><br>*1.5 Reliable and sustainable water security that strengthens community resilience, public health, and environmental balance.* | 1.1.1 Encourage and support an increased supply of housing for long-term residential rental and purchase.<br><br>1.1.2 Promote the islands' authentic lifestyle, business and entrepreneurial opportunities to attract 'working age' population and families.<br><br>1.1.3 Collaborate with stakeholders to enable a variety of training and employment opportunities, including local skills and knowledge sharing.<br><br>1.1.4 Support provision of services to attract families as residents e.g childcare services.<br><br>1.2.1 Provide recreational facilities and assist community groups to encourage an active and healthy lifestyle.<br><br>1.2.2 Maintain and develop partnerships with Arts and Cultural organisations and support activities, projects and events that provide opportunities for community involvement and creative expression.<br><br>1.3.1 Promote and support sustainable activities to conserve the islands' natural and agricultural environments. | **Items 1.1.1, 1.1.2, and 1.1.3**<br><br>Agricultural activity generates employment and therefore can attract workers and their families to the island to invest in housing stock. Economic activity generates entrepreneurial opportunities and possibly training opportunities for service providers and recipients.<br><br>**Item 1.3.1**<br><br>Agricultural potential and the value the land can generate in livestock and produce is reliant on sustainable soil nutrition and maintenance of productivity. Agriculture is also a critical employment and income generation activity on Flinders Island, so its longevity is of paramount importance to the social and economic well-being of the island.<br><br>Off-island supplies of lime are costly due to high freight charges which in the medium to long-term undermines the economic viability of agriculture on the island. That is, if lime is expensive then it is likely that inadequate levels would be used by agricultural operators (due to cost) that then has a long-term negative impact to the overall soil health and potential of agricultural lands to produce food. |

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| | 1.3.1 Develop a current Flinders Structure Plan for the Municipality.<br><br>1.4.1 Develop and implement strategies to reduce the risks of flood inundation.<br><br>1.5.1 Promote sustainable water use through education and awareness campaigns.<br><br>1.5.2 Collaborate with stakeholders to strengthen water security and prepare for climate change impacts. | |
| **Focus Area 2: Infrastructure and Services** | | |
| **WHAT COUNCIL WANTS TO ACHIEVE TOGETHER:** | **HOW COUNCIL PLANS TO DO IT:** | **AMENDMENT RELEVANT ITEMS FOR IMPLEMENTATION OF VISION** |
| *2.1 Quality public infrastructure, roads and footpaths.*<br><br>*2.2 Safe and reliable air and sea access to the islands.*<br><br>*2.3 Council assets/land maintained and utilised effectively.*<br><br>*2.4 Compliant, integrated waste management program that is cost-effective.*<br><br>*2.5 Compliant treatment and disposal of wastewater* | 2.1.1 Maintain a network of safe roads and pedestrian pathways that recognises the changing needs of the Community.<br><br>2.1.2 Create townships that are attractive and welcoming through improvements to community infrastructure.<br><br>2.2.1 Review and update the Flinders Airport Masterplan.<br><br>2.2.2 Engage with key stakeholders to support and improve commercial and community sea access.<br><br>2.1.3 Develop and implement a Council Land Strategy to ensure land is utilised effectively.<br><br>2.3.2 Finalise and implement the Asset Management Plan, maintenance schedules and disposal procedures to meet audit and governance requirements. | These operational and financial management matters are not directly relevant to the Amendment. |

| | | |
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| *2.6 A modern and equitable freight system that supports affordability and access for island communities.* | 2.4.1 Review and implement Council's Waste Management Strategy in line with relevant legislation, codes of practice and policy.<br><br>2.5.1 Collaborate with TasWater to provide an integrated septic and sewerage system for Flinders Island.<br><br>2.6.1 Advocate for an updated freight equalisation scheme that includes both air and sea freight across all industries.<br><br>2.6.2 Lobby for the inclusion of a CPI index to ensure Freight Equalisation remains responsive to rising costs. | |
| **Focus Area 3: Economy and Business** | | |
| **WHAT COUNCIL WANTS TO ACHIEVE TOGETHER:** | **HOW COUNCIL PLANS TO DO IT:** | **AMENDMENT RELEVANT ITEMS FOR IMPLEMENTATION OF VISION** |
| *3.1 Ongoing opportunities across all business sectors to future-proof the critical needs of the islands.*<br><br>*3.2 Sustainable and alternative energy opportunities embraced.*<br><br>*3.3 A visitor economy that embraces regenerative tourism principles.* | 3.1.1 Support and encourage innovation in business and industry through partnerships, infrastructure provision and support services.<br><br>3.1.2 Encourage diversity in agricultural endeavours to future-proof food security for the islands.<br><br>3.1.3 Advocate federal and state governments for improved availability of critical services and industries on the islands to benefit the Community and economy.<br><br>3.2.1 Engage with relevant partners to explore renewable energy options, including opportunities to turn waste streams into energy.<br><br>3.3.1 Encourage and support positive impact and regenerative visitor experiences that create conditions for people and places to thrive. | **Item 3.1.2**<br><br>The Amendment facilitates the additional supply of lime sands, both to the landowner for their large farming activity and to the broader community for lime sand access. Agriculture underpins the island economy, and its diversification and intensification would benefit from further lime sand access and security of inter-generational supply. |

| Focus Area 4: Good Governance | | |
|---|---|---|
| **WHAT COUNCIL WANTS TO ACHIEVE TOGETHER:** | **HOW COUNCIL PLANS TO DO IT:** | |
| *4.1 An organisation that provides good governance, effective leadership and high-quality services, within our means.*<br><br>*4.2 Skilled, committed, and professional employees in a supportive environment.* | 4.1.1 Council meets its statutory obligations to manage risk, achieve financial sustainability and model good governance.<br><br>4.1.2 Improve communication channels between Council and Community to foster greater community participation and outcomes.<br><br>4.1.3 Provide effective and timely incident and emergency management planning and response.<br><br>4.1.4 Collaborate with King Island Council, other councils, and stakeholders to improve efficiencies and advocacy.<br><br>4.2.1 Maintain a framework for staff performance management, training, and safety. | These operational and financial management matters are not directly relevant to the Amendment. |

**C.5 STRUCTURE PLAN (2016 DRAFT)**

*STATUS OF THE STRUCTURE PLAN*

It's noted the Act makes no reference (nor requirement) that any matters in a Council structure plan (or plans) are to be used as a direction for amendments (specifically, these plans are not identified at s34 of the Act as a relevant consideration in the LPS criteria). There is no requirement that a structure plan be amended because of a zone amendment. On this basis, we do not see any relevance of the Structure Plan to the Amendment.

The above noted, to avoid as far as possible an appeal, the following is submitted.

The ***draft*** *Flinders Structure Plan 2016* states –

> 'The Structure Plan seeks to provide the basis and direction to satisfy this test. It is likely that most local area provisions will rely on s32(4)(b).
>
> Thus [*sic*] the Structure Plan has the key purpose of highlighting local land use priorities with the concurrent aim of supporting a sustainable future for the Flinders Municipality.'

*AMENDMENT AND THE STRUCTURE PLAN*

The Amendment seeks to install a permissible pathway for an Extractive Industry Use on selected lots to extract lime sands for use in agriculture on the island.

The Structure Plan (pg. ) notes for agriculture –

> 'Agriculture, in the form of the pastoral related activity is vital to the municipal economy. In 2010, ABS reported a gross value of agricultural production on Flinders Island totalling $14 million. In 2008 there were 58 agricultural holdings running 119,159 head of sheep for meat and wool and 75 holdings running 20,032 head of meat cattle. There was also 1,119 hectares of pasture for cereal or hay. Since then, there has been a significant increase in the number of cattle and a reduction in sheep.[5]'; and
>
> 'It is therefore important for the planning scheme to facilitate opportunities for diversification of the rural economy. Flinders Island already produces garlic, olive oil, honey, chillies and wine as well as agricultural products for the local market. Expansion of 'niche market' products and adding value to those products by some form of processing is a critical element of the Council's strategy to diversify the economy and is considered to be a fundamental strategic pillar of the new planning scheme.'

The s40T application is clearly consistent with the existing *draft Flinders Structure Plan* because it is logical to say that the same considerations (s34 criteria) ought to apply to the s40T application as they did to the DRAFT LPS assessment. That is, the *draft Flinders Structure Plan* was actively used by the TPC to justify its Decision to rezone those lands that support a Mining Lease to a zone where Extractive Industry was permissible as detailed below –

1. retain the Landscape Conservation Zone for the area now covered by Mining Lease 2117P/M because it was not in force at the time of the Decision; and to

[5] AK Consultants 2010 Agricultural Profile Flinders Municipality

2. alter the Draft LPS to revise the zoning of the following properties to Rural:
    - 2270 Palana Road, Lughrata folios of the Register 160313/1 and 154620/2;
    - Palana Road, Lughrata folios of the Register 141842/1 and 141842/2;
    - That part of 634 Palana Road, Whitemark folio of the Register 182299/2 that previously contained in folio of the Register 245509/1; and
    - Harleys Road, Whitemark folio of the Register 176057/2.'.

All these properties are in Marshall Bay to which the statement in the *draft Flinders Structure Plan 2016* has been applied in the Decision (emphasis added) –

> '*There are locations where loss of vegetation is unacceptable, for example, Marshall Bay where intensification of development is not warranted and where grazing is encouraged to reduce and ultimately cease as a use*. The land adjacent to the length of Marshall Bay is potentially subject to extreme erosion and the Tasmanian land classification (Classification 6-7) confirms its unsuitability for grazing. An allotment near the Long Point Road and Palana Road intersection, Centre Hill and two Quoin allotments have the highest density of listed threatened species on the island.'

It is submitted 'Marshall Bay' is a very large area and includes numerous zones, including the LC and Rural zones. The application of zones to each lot within the Marshall Bay area in the Decision was driven by the *presence* of a Mining Lease (in force) on those lots at the time the Decision was made. For example, the zoning of land at Marshall Bay [2270 Palana Road, Lughrata folios of the Register 160313/1 and 154620/2; Palana Road, Lughrata folios of the Register 141842/1 and 141842/2;] to Rural in the Decision is in stark contrast to the retention of the LCZ on nearby land which lacked a Mining Lease coverage.

Now that Mining Lease 2117P/M is in force for parts of the lots in the amendment, and supported by a s40T application, the rezoning of the land to Rural is consistent with the reasons for the Decision. That is, the Structure Plan is the strategy used by the Decision to justify the zoning of Rural for lots with a Mining Lease; the same process applies here, as the land proposed to be rezoned is now covered by a Mining Lease. For these reasons, the Amendment does not seek to amend or modify the Structure Plan because it does not need to be.

**C.6 APPLICATION OF SECTION 8A GUIDELINE NO.1**

The purpose of the document 'Section 8A Guideline No.1 Local Provisions Schedule Zone and Code Application' issued by the Tasmanian Planning Commission (the 'Guideline') is to provide an easy reference guide for the application of all zones and codes for the –

(1) preparation of draft Local Provisions Schedules (LPSs); and

(2) amendments to LPSs.

Clauses 5.0 and 6.0 of Guideline provides detailed Local Provisions Schedule (LPS) application instructions for the State Planning Provisions (SPPs) zones and codes.

Clause 3.4 is directive in the use of the Guideline –

> 'The primary objective in applying a zone should be to achieve the zone purpose to the greatest extent possible. Reference may also be made to the 'allowable minimum lot size' in the Acceptable Solution, unless there is a Performance Criterion that specifies an absolute minimum, in the subdivision standards for the zone to understand the density that is allowable.'

The Guideline itself is relevant to the PSA because it proposes to rezone land; Landscape Conservation to Rural because an Extractive Industry Use Class is **Prohibited** in the LCZ.

Of importance is the Guideline states that the **primary objective in applying a zone** should be to achieve the zone purpose to the greatest extent possible. Hence, it is unlikely that the retention of a zone to which a Use Class is prohibited could simply be addressed by the application of a SSQ within that zone – the zone purpose would be inconsistent with the use Class of the activity which the SSQ sought to 'make permissible'. This is especially so for a use that is not existing (i.e. there are no existing use rights), nor does it have a permit issued prior to the LPS being declared.

**Table 6** provides a full list of the zones in the TPS and commentary on whether an *Extractive Industry* use is, may be, or is compatible with the zone purpose, which is largely driven by its Use Table status (i.e., Prohibited, Discretionary, Permitted) for each zone.

Noting that the Guideline directs the primary objective in applying a zone is to achieve the zone purpose to the greatest extent possible (noting that the zone purpose is not necessarily limited to either **use** or **development**), it could be said that an Extractive Industry has been specifically excluded as a **use** from the LCZ because it does not achieve the zone purpose (even to a moderate extent). This proposition is consistent with the Decision in how the Rural zone was applied to lots which supported a Mining Lease at the time of the Decision and those that did not.

*RURAL ZONE*

The purpose of the Rural Zone is:

20.1.1 To provide for a range of use or development in a rural location:

(a) where agricultural use is limited or marginal due to topographical, environmental or other site or regional characteristics;

(b) that requires a rural location for operational reasons;

(c) is compatible with agricultural use if occurring on agricultural land; and

(d) minimises adverse impacts on surrounding uses.

20.1.2 To minimise conversion of agricultural land for non-agricultural use.

20.1.3 To ensure that use or development is of a scale and intensity that is appropriate for a rural location and does not compromise the function of surrounding settlements.

**Table 6. Assessment of Zone suitability for an Extractive Industry as proposed.**

| ZONE NUMBER AND NAME | POSSIBLE ZONE FOR EXTRACTIVE INDUSTRY | COMMENTS |
|---|---|---|
| **8.0 General Residential Zone** | **No** | Residential use focused zone. |
| **9.0 Inner Residential Zone** | **No** | Residential use focused zone. |
| **10.0 Low Density Residential Zone** | **No** | Residential use focused zone. |
| **11.0 Rural Living Zone** | **No** | Residential use focused zone. |
| **12.0 Village Zone** | **No** | Residential use focused zone. |
| **13.0 Urban Mixed Use Zone** | **No** | Business and commercial oriented use zone. |
| **14.0 Local Business Zone** | **No** | Business and commercial oriented use zone. |
| **15.0 General Business Zone** | **No** | Business and commercial oriented use zone. |
| **16.0 Central Business Zone** | **No** | Business and commercial oriented use zone. |
| **17.0 Commercial Zone** | **No** | Business and commercial oriented use zone. |
| **18.0 Light Industrial Zone** | **No** | Industrial activity-oriented use zone. |
| **19.0 General Industrial Zone** | **No** | Heavy industrial activity-oriented use zone. |
| **20.0 Rural Zone** | **Yes** | |
| **21.0 Agriculture Zone** | **Yes** | The purpose of the zone is to protect agricultural use to a greater extent that is allowed in the Agricultural zone |
| **22.0 Landscape Conservation Zone** | **No** | Natural value and landscape protection-oriented zone. |
| **23.0 Environmental Management Zone** | **No** | While the land is private freehold (to which the zone **can** apply based on the Guideline), not public, this zone is not suitable because it refers to a statutory management plan. |

| | | |
|---|---|---|
| **24.0 Major Tourism Zone** | **No** | |
| **25.0 Port and Marine Zone** | **No** | |
| **26.0 Utilities Zone** | **No** | |
| **27.0 Community Purpose Zone** | **No** | |
| **28.0 Recreation Zone** | **No** | |
| **29.0 Open Space Zone** | **No** | |
| **30.0 Future Urban Zone** | **No** | |

*USE TABLE (CLAUSE 20.2)*

Extractive Industry is listed as a permitted use in the Rural zone with no specified use limitations. Extractive Industry is probably the highest level of use that the Site can sustain due to its locality, soil types and vegetation.

Consideration of the other listed uses as occurring on the Land (especially of Permitted Uses) is improbable given the financial limitations and isolated locality of the Site (being on an island, and in a remote location on that island).

| **Use Class** | **Qualification** |
|---|---|
| **No Permit Required** | |
| Natural and Cultural Values Management | |
| Passive Recreation | |
| Resource Development | |
| Utilities | If for minor utilities. |
| **Permitted** | |
| Business and Professional Services | If for:<br>(a) a veterinary centre; or<br>(b) an agribusiness consultant or agricultural consultant. |

| | |
|---|---|
| Domestic Animal Breeding, Boarding or Training | |
| Educational and Occasional Care | If associated with Resource Development or Resource Processing. |
| Emergency Services | |
| Extractive Industry | |
| Food Services | If associated with Resource Development or Resource Processing. |
| General Retail and Hire | If associated with Resource Development or Resource Processing. |
| Manufacturing and Processing | If for the processing of materials from Extractive Industry. |
| Pleasure Boat Facility | If for a boat ramp. |
| Research and Development | If associated with Resource Development or Resource Processing. |
| Residential | If for:<br>(a) a home-based business in an existing dwelling; or<br>(b) alterations or extensions to an existing dwelling. |
| Resource Processing | |
| Storage | If for:<br>(a) a contractors yard;<br>(b) freezing and cooling storage;<br>(c) grain storage;<br>(d) a liquid, solid or gas fuel depot; or<br>(e) a woodyard. |
| Utilities | If not listed as No Permit Required. |
| Visitor Accommodation | If for guests accommodated within an existing building. |
| **Discretionary** | |
| Bulky Goods Sales | If for:<br>(a) a supplier for Extractive Industry, Resource Development or Resource Processing;<br>(b) a garden and landscaping materials supplier; |

| | |
|---|---|
| | (c) a timber yard; or<br><br>(d) rural supplies. |
| Business and Professional Services | If not listed as Permitted. |
| Community Meeting and Entertainment | |
| Crematoria and Cemeteries | |
| Custodial Facility | |
| Educational and Occasional Care | If not listed as Permitted. |
| Food Services | If not listed as Permitted. |
| General Retail and Hire | If not listed as Permitted. |
| Manufacturing and Processing | If not listed as Permitted. |
| Motor Racing Facility | |
| Pleasure Boat Facility | If not listed as Permitted. |
| Recycling and Waste Disposal | |
| Research and Development | If not listed as Permitted. |
| Residential | If for a single dwelling and not restricted by an existing agreement under section 71 of the Act. |
| Service Industry | If associated with Extractive Industry, Resource Development or Resource Processing. |
| Sports and Recreation | |
| Storage | If not listed as Permitted. |
| Tourist Operation | |
| Transport Depot and Distribution | |
| Visitor Accommodation | If not listed as Permitted. |
| **Prohibited** | |
| All other uses | |

## PART D - CONCLUSION

The intended outcome of the PSA is to establish a zone on on the Site (i.e., the Mining Lease that is in force) that makes the extraction of lime sands and associated infrastructure a **permissible** use to support the agricultural sector on Flinders Island. An Extractive Industry is **Prohibited** in the LCZ.

The approval of the PSA would substantially contribute to securing the economic and social well-being of the local Flinders Island population, because it unlocks an on-island important natural resource that will avoid off-island dependence for inputs, which otherwise add cost to enterprises and an off-island flow of funds. The cost of bringing lime sand onto the island is not a viable and sustainable proposition for the agricultural industry.

*Sustainable development* as defined in the Act can be achieved (by managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while –

(a) sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; and [access to lime sands and other earth-based resources are necessary to meet the needs of roads, construction materials, agricultural inputs, etc.]

(b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and these are managed by the application of various Acts, such as the *Mineral Resources Development Act 1995, Forest Practices Act 1985, Environmental Management and Pollution Control Act 1994,* etc.]

(c) avoiding, remedying or mitigating any adverse effects of activities on the environment. through the application of various Acts such as the *Mineral Resources Development Act 1995, and, Environmental Management and Pollution Control Act 1994,* and the planning scheme provisions.

The Amendment should be approved as the RMPS objectives have been achieved and it complies with the LPC criteria.

## PART E - ATTACHMENTS

**ATTACHMENT 1 OWNERS CONSENT AND AUTHORISATION TO ACT**

TASMANIAN PLANNING COMMISSION

Form No. 1

# Owners' consent

Requests for amendments of a planning scheme or Local Provisions Schedule and applications for combined permits require owners' consent. This form must be completed if the person making the request is not the owner, or the sole owner.

The person making the request must clearly demonstrate that all owners have consented.

Please read the notes below to assist with filling in this form.

## 1. Request made by:

| | |
|---|---|
| Name(s): | MARKARNA GRAZING COMPANY PTY LTD |
| Email address | cynthia.adams@adamsgroup.com.au |
| Contact number: | (03) 9333 2400 |

## 2. Site address:

Address:

'Markarna Park'
368 FIVE MILE JIM RD MEMANA TAS 7255

Property identifier (folio of the Register for all lots, PIDs, or affected lot numbers on a strata plan):

PID 3513143
(the whole of CT215120/1, CT230282/1, and CT120064/1)

## 3. Consent of registered land owner(s):

**Every owner, joint or part owner** of the land to which the application relates must sign this form (or a separate letter signed by each owner is to be attached).

Consent to this request for a draft amendment/and combined permit application is given by:

Registered owner : MARKARNA GRAZING COMPANY PTY LTD

Property identifier (folio of the Register for all lots, PIDs, or affected lot numbers on a strata plan):

PID 3513143 (the whole of CT215120/1, CT230282/1, and CT120064/1)

Position (if applicable): DIRECTOR.

Signature: [signature] Date: 19.6.2023.

Registered owner (please print):

Property identifier (folio of the Register for all lots, PIDs, or affected lot numbers on a strata plan):

Position (if applicable): DIRECTOR.

Signature: [signature] Date: 19.6.2023

Registered owner (please print):

Property identifier (folio of the Register for all lots, PIDs, or affected lot numbers on a strata plan):

Position (if applicable):

Signature: Date:

**NOTES:**

**a. When is owners' consent required?**

Owners' consent is required for:

- amendments to an interim planning scheme or to a Local Provisions Schedule[1]; or
- combined permits and amendments[2].

Owners' consent must be provided before the planning authority determines to initiate, certify or prepare the amendment.

**b. Who can sign as owner?**

Where an owner is a natural person they must generally sign the owner's consent form personally.

Where an owner is not a natural person then the signatory must be a person with legal authority to sign, for example company director or company secretary.

If the person is acting on behalf of the owner under a legal authority, then they must identify their position, for example trustee or under a power of attorney. Documentary evidence of that authority must also be given, such as a full copy of the relevant Trust Deed, Power of Attorney, Grant of Probate; Grant of Letters of Administration; Delegation etc.

Please attach additional pages or separate written authority as required.

**c. Strata title lots**

Permission must be provided for any affected lot owner and for common property for land under a strata title under the *Strata Titles Act 1998*. For common property, permission can be provided in one of the following ways:

i. a letter affixed with the body corporate's common seal, witnessed by at least two members of the body corporate (unless there is only one member, in which case the seal must be witnessed by that member) and which cites the date on which the body corporate or its committee of management met and resolved to give its consent to the application; or,

ii. the consent of each owner of each lot on the strata plan.

**d. Companies**

If the land is owned by a company the form is to be signed by a person with authority in accordance with the *Corporations Act 2001 (Cwth)*.

**e. Associations**

If the land is owned by an incorporated association the form is to be signed by a person with authority in accordance with the rules of the association.

**f. Council or the Crown**

If the land is owned by a council or the Crown then form is to be signed by a person authorised by the relevant council or, for Crown land, by the Minister responsible for the Crown land, or a duly authorised delegate.

The name and positions of those signing must be provided.

Effective Date: September 2021

[1] under section 33(1) of the former provisions of the *Land Use Planning and Approvals Act 1993* or section 37 of the current provisions.

[2] under section 43A of the former provisions or section 40T of the current provisions of the Act

FLINDERS COUNCIL
4 Davies St (PO Box 40)
Whitemark, Flinders Island, Tas, 7255
www.flinders.tas.gov.au
P (03) 6359 5001
F (03) 6359 2211
ABN: 75 754 974 669

# AUTHORISATION TO ACT AS AGENT

| | |
|---|---|
| **Property Address** | 'Markarna Park', 368 FIVE MILE JIM RD MEMANA TAS 7255 |
| **Title Reference** | CT215120/1, CT230282/1, and CT120064/1 |
| **Proposed Development** | Extractive Industry - extract lime sand (incl screening), max 10,000 cu m/annum, storage shed (incl crib room), septic system and ancillary infrastructure |

**I/We** GEORGE ADAMS

**Hereby grant authorisation for** Van Diemen Consulting Pty Ltd

**To act on my/our behalf regarding planning, building, and plumbing applications for the proposed work at the above-mentioned property.**

| | *Name: (Print)* | *Signed:* | *Date:* |
|---|---|---|---|
| **Owner** | GEORGE ADAMS | | 19 · 6 · 2023. |

**ATTACHMENT 2 CERTIFICATE OF TITLES**

OWNER

FOLIO REFERENCE C.T. 2914/55

GRANTEE

# PLAN OF TITLE

LOCATION FLINDERS./LUGHRATA

FIRST SURVEY PLAN No.

COMPILED BY L T O

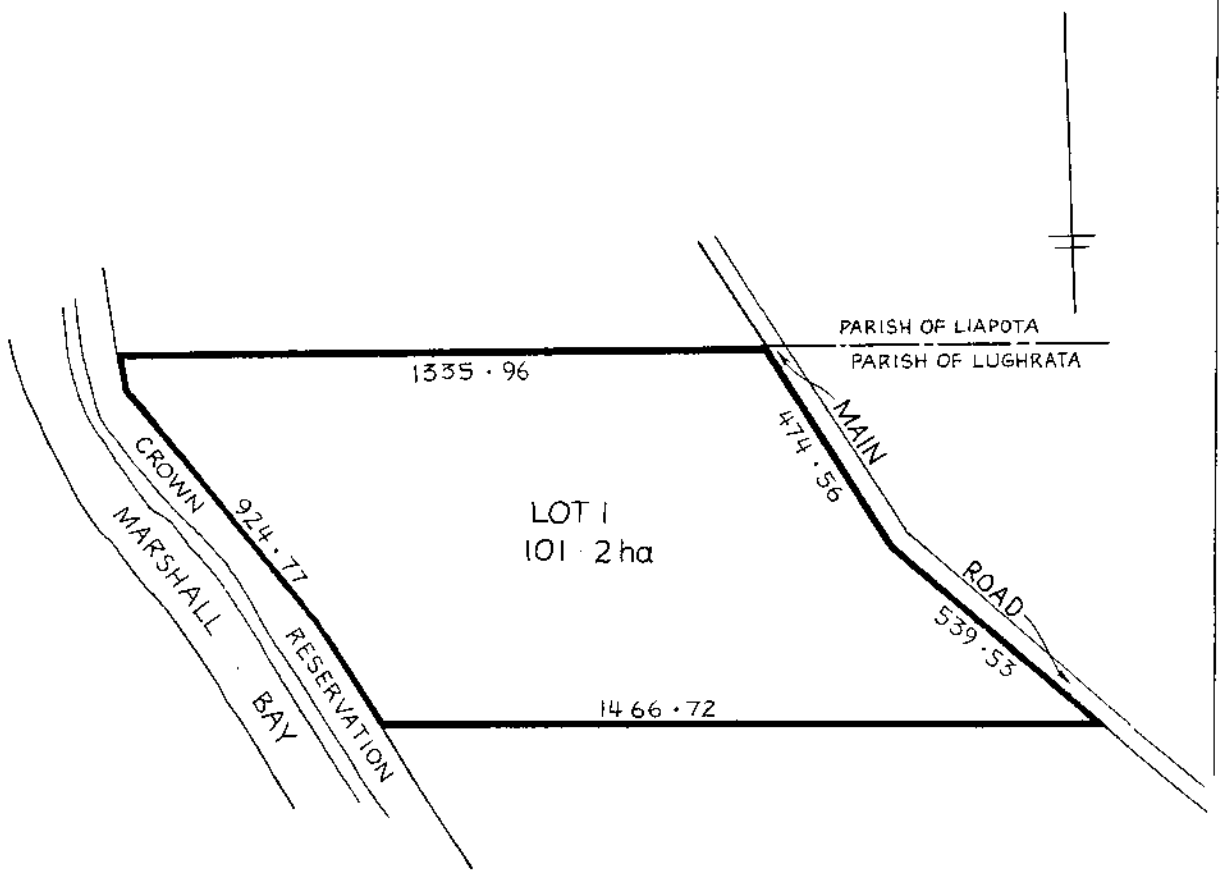
SCALE 1: 900 LENGTHS IN METRES

REGISTERED NUMBER
P 120064

APPROVED 16 AUG 1995
Recorder of Titles

| MAPSHEET MUNICIPAL CODE No. | LAST UPI No | LAST PLAN No. | ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN |
|---|---|---|---|

## BALANCE PLAN





Search Date: 10 Apr 2023 Search Time: 04:47 PM Volume Number: 120064 Revision Number: 01 Page 1 of 1
Department of Natural Resources and Environment Tasmania
www.thelist.tas.gov.au

# RESULT OF SEARCH

RECORDER OF TITLES

*Issued Pursuant to the Land Titles Act 1980*

SEARCH OF TORRENS TITLE

| VOLUME | FOLIO |
|---|---|
| 120064 | 1 |
| EDITION | DATE OF ISSUE |
| 4 | 14-May-2015 |

SEARCH DATE : 10-Apr-2023
SEARCH TIME : 04.46 PM

## DESCRIPTION OF LAND

Parish of LUGHRATA, Land District of FLINDERS
Lot 1 on Plan 120064
Derivation : Whole of Lot 25441 Gtd to T McKenzie
Prior CT 2914/55

## SCHEDULE 1

C829114 TRANSFER to MARKARNA GRAZING COMPANY PTY LTD
Registered 27-Nov-2007 at noon

## SCHEDULE 2

Reservations and conditions in the Crown Grant if any
E10087 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 14-May-2015 at 12.05 PM

## UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

R.P. 312

2580 64

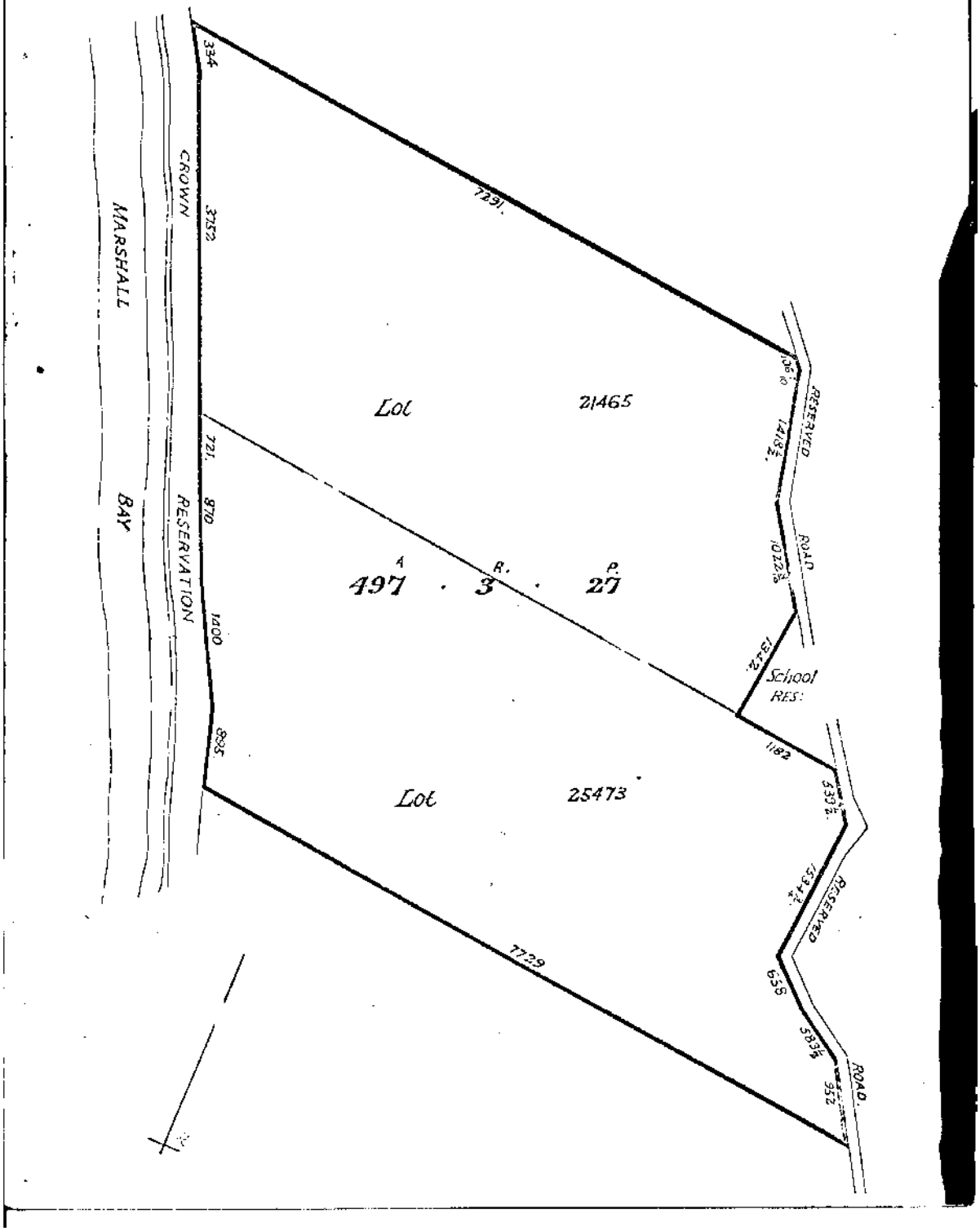
**ANNEXURE TO CERTIFICATE OF TITLE VOL. FOL.**

REGISTERED NUMBER

**215120**

Recorder of Titles

**Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register.**



# RESULT OF SEARCH

RECORDER OF TITLES

*Issued Pursuant to the Land Titles Act 1980*

SEARCH OF TORRENS TITLE

| VOLUME | FOLIO |
|---|---|
| 215120 | 1 |
| EDITION | DATE OF ISSUE |
| 4 | 14-May-2015 |

SEARCH DATE : 10-Apr-2023
SEARCH TIME : 04.47 PM

## DESCRIPTION OF LAND

Parish of LUGHRATA, Land District of FLINDERS
Lot 1 on Plan 215120
Derivation : Whole of Lots 21465 and 25473 Gtd. to C.J. Robinson & J.H. Thompson respectively.
Prior CT 2580/64

## SCHEDULE 1

C829114 TRANSFER to MARKARNA GRAZING COMPANY PTY LTD
Registered 27-Nov-2007 at noon

## SCHEDULE 2

Reservations and conditions in the Crown Grant if any
E10087 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 14-May-2015 at 12.05 PM

## UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

VOL. FOL.

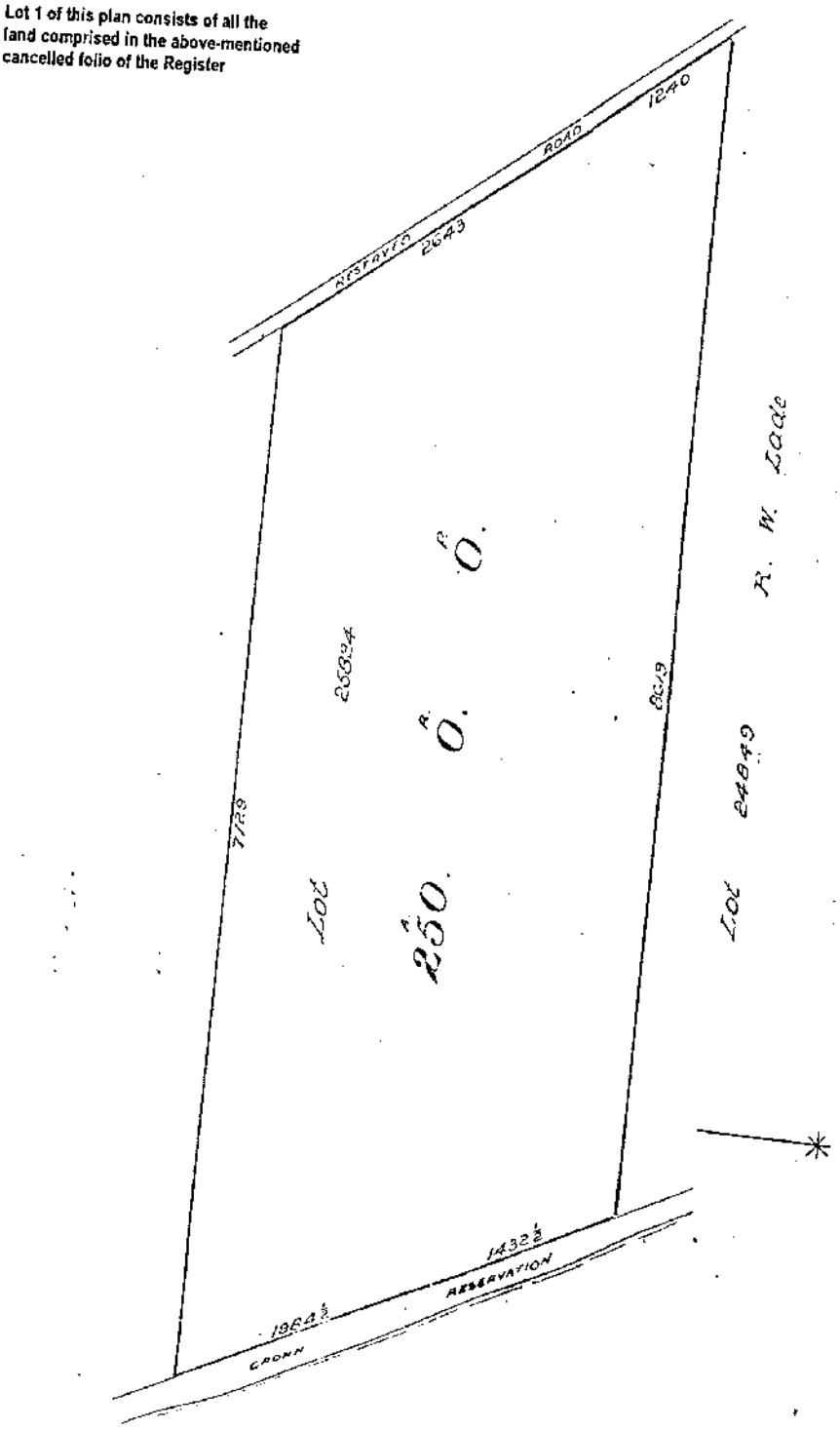
## ANNEXURE TO CERTIFICATE OF TITLE

REGISTERED NUMBER

230282

*Recorder of Titles*

Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register




NOTE

# RESULT OF SEARCH

RECORDER OF TITLES

*Issued Pursuant to the Land Titles Act 1980*

Tasmanian Government

SEARCH OF TORRENS TITLE

| VOLUME | FOLIO |
|---|---|
| 230282 | 1 |
| EDITION | DATE OF ISSUE |
| 4 | 14-May-2015 |

SEARCH DATE : 10-Apr-2023
SEARCH TIME : 04.47 PM

## DESCRIPTION OF LAND

Parish of LUGHRATA, Land District of FLINDERS
Lot 1 on Plan 230282
Derivation : Whole of Lot 25824 Gtd. to J.R. Robinson.
Prior CT 2992/93

## SCHEDULE 1

C829114 TRANSFER to MARKARNA GRAZING COMPANY PTY LTD
Registered 27-Nov-2007 at noon

## SCHEDULE 2

Reservations and conditions in the Crown Grant if any
E10087 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 14-May-2015 at 12.05 PM

## UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

**ATTACHMENT 3 SIGNIFICANCE OF LIME SANDS TO AGRICULTURE ON FLINDERS ISLAND**

**RFI ITEM 4**

**Why is lime sand used for agricultural production?**

Soil acidification is a naturally occurring process which is influenced by soil type, organic matter, fertiliser usage, rainfall, and farming practices. Most of Tasmania's soils are naturally acidic, which compounds the problem of acidification.

Lime sands (material rich in calcium carbonate – CaCO3) reduce acidity by neutralising the acid reaction in soils. The carbonate component of lime consumes hydrogen ions present in the soil solution and in doing so raises soil pH. The higher the Effective Neutralising Value (ENV) the more reactive the lime product is within the soil and the greater its ability for unit volume to neutralise acidity.

'Liming' is the only cost-effective way to manage low soil pH. It prevents loss of production and profitability in farming systems and reverses acidification. Lime is usually applied on the surface several months before sowing pasture or crops to allow time for the lime to react in the soil. Incorporation of the lime into the soil is recommended for the quickest results, as lime does not move readily down through the soil profile.

Commonly used liming materials include for example –

1. Agricultural lime - Crushed and sieved natural limestone is mainly calcium carbonate. It is safe, cheap and effective.
2. Lime sand - Lime sand is mined from natural deposits and is mainly calcium carbonate. It is safe and cheap but can on occasion be coarser and slower reacting than agricultural lime.
3. Dolomite - A mixture of calcium and magnesium carbonates. It is particularly valuable where magnesium is low.
4. By-product lime - This is a by-product from the production of soda ash. It contains mostly calcium carbonate, but with some calcium oxide and hydroxide.

Over time soil pH decreases, with the rate of pH decline being quicker in light textured soils that have low organic matter. The processes which reduce pH levels in agricultural soils are primarily –

1. Organic matter accumulation which causes organic acids;
2. Removal of plant and animal material containing large amounts of cations (calcium, magnesium and potassium);
3. Leaching of cations due to high rainfall;
4. Leaching of nitrate and nitrogen from the root zone; and/or
5. The application of soil-acidifying fertilisers.

The acidification of agricultural land is potentially a serious land degradation issue and without addressing the issue, agricultural productivity and sustainability will be negatively affected. The key issue which are caused by soil acidification are:

- A decrease in the availability of nutrients to plants;
- Increasing the toxicity of aluminium and manganese;
- Decreasing soil biological functions;

- Reduce the ability for legumes to fix nitrogen; and
- Make the soil more vulnerable to soil structure decline and erosion.

**The importance of agricultural production to Flinders island**

Agriculture is a critical employment and income generation activity on Flinders Island, so its longevity is of paramount importance to the social and economic well-being of the island. The size of the agriculture sector on Flinders Island is however not easily ascertained.

Island wide agricultural sector

Approximately half (46,600 ha) of the island is under agricultural production, with dryland pasture supporting beef cattle grazing being the dominant enterprise[6].

In 2010, AK Consultants produced a report for the Flinders Island Council which stated in 2008 there were 58 holdings running 119,159 head of sheep and 75 holdings running 20,032 head of cattle. The gross value of agricultural production on Flinders Island at that time was reported to be $14m.

In terms of measuring the *Dry Sheep Equivalent* ("DSE") of Flinders Island at that time and using an average figure of 10 DSE per head of cattle, the above figures suggest the Island's agricultural industry at the time was carrying 320,000 DSE. The industry has grown since then.

Currently, a large cattle property is for sale on Flinders Island which claims to have a carrying capacity of 75,000 DSE and lays claim to covering over 10% of the arable area on Flinders Island. This property has seen a high level of investment in infrastructure and fertiliser over the years, and its DSE per hectare would be above many other smaller producers on the Island. Therefore, suggesting a 750,000 DSE for the whole Island would be an overstated estimate.

Most likely, the stocking capacity of the agricultural industry on Flinders Island today would be around 500,000. However, anecdotal evidence would suggest that smaller producers aren't able to stock their properties to optimal levels, and it seems unlikely that the agricultural industry on Flinders Island would ever see pastures stocked to 500,000 DSE.

It's accepted that in an average season, prime pastures on Flinders Island (like those operated by Markarna) can sustain a DSE of 14-15 – say 15 per hectare. In the absence of any scientific data, a diminishment in pasture growth where no Lime Sand or Superphosphate is applied could be said to be 4-5% per year cumulatively.

From a DSE of 15 per Hectare on an ideally fertilised pasture, the DSE would fall to 14.25 after a year, to 13.5 after two years, to 12.9 after three years and to 12.2 at the end of four years.

RMCG (2022) note of the soils on Flinders Island –

> 'The island's soils are highly variable, ranging from acidic sandy loam over Podosols and poor draining sodic Kurosols, to sandy, alkaline Calcarosols and shallow Rudosols with limited organic matter. This variability and its impact on pasture and subsequent meat production and profitability, present a range of soil management challenges to maintaining their economic and environmental sustainability. One key consideration is the challenge and cost of bringing farming inputs and technologies to the island. The inputs and management

[6] RMCG (2022). Flinders LPS Rural Enterprise Concept Report. 5 January 2022.

> options are market driven. This results in a greater emphasis to achieve economies of scale to be able to justify the inputs.'

As noted by RMCG 'challenge and cost of bringing farming inputs and technologies to the island', off-island supplies of lime are costly due to high freight charges which in the medium to long-term undermines the economic viability of agriculture on the island. That is, if lime is expensive then it is very likely that inadequate levels would be used by agricultural operators (due to cost) which then has a long-term negative impact to the overall soil health and potential of agricultural lands to produce food. A lessening of soil fertility and optimal growth characteristics will reduce productivity.

The FLPS Supporting Report[7] notes that under the current Flinders Planning Scheme, the Rural Zone applies to 75,338 hectares or 94.1% of all freehold and Crown lease land within the local government area. There is no distinction between high productivity agricultural land and other rural land within the current Flinders Planning Scheme.

The FLPS Supporting Report also states (citing references in that document) that (my emphasis) –

> 'Within the Flinders Municipality there is no prime agricultural land. 79% of land on Flinders Island is class 5. There are small pockets of class 4 land representing 4% of the total of Flinders Island. Class 6 or 7 land represents 16%. **The land capability and nominal irrigation potential reinforces broad acre grazing enterprises as the highest agricultural use on Flinders Island**. This is supported by the value of agricultural commodities for the Flinders Municipality in the year ended 2016: slaughtered livestock represented 89% of the $22,371,148 total agricultural product. The remainder was wool and hay for animal production.'

Despite 'low quality' land, the island has enjoyed significant island activity, and hence agriculture must be the focus of any regional strategy. The significance of Agriculture to the island economy has been clearly recognised in the Flinders Island Structure Plan.

The FLPS Supporting Report[8]

> 'Consistent with the NTRLUS expectation that "..the Furneaux Group are more reliant on local strategies for Rural Residential Areas and the protection of agricultural land that respond to the complexities of remote area economics and the need to retain or increase population and visitation", the proposal on Flinders Island is to convert some non-prime agricultural land from the current Rural Zone to one of four main SPP zones.'

This statement is critical to why agricultural land and associated activities (that may occur on non-agricultural or low agricultural lands) need to be further and better maintained in the relevant zones. Remote area economics are transport driven, which is often a high proportion of cost – it is simply logical to deliver a local zone that facilitates access to agriculture dependent inputs (e.g., lime sands, rock for farm road and track infrastructure) that should be accessed on-island in favour of costly off-island inputs.

<u>Markarna Grazing Company Pty Ltd</u>

The Marshall Bay land parcels owned by Markarna Grazing Company Pty Ltd ('Markarna') were specifically purchased to provide ongoing lime sands for the agricultural lands on the property and associated properties, and to also provide some for sale to other agricultural enterprises on the island. The existing but now disused

[7] Flinders Local Provisions Schedule Supporting Report, November 2020 and Revised April 2021

[8] p.53

pit (which is the starting location for the new pit) was once used by many islanders to access lime sand due to its ease of access to obtain and extract high ENV lime sand for agricultural land application. Sands will also be used to supply concrete production activities because most sand for such a purpose is brought to the island.

The agricultural activity of Markarna is the largest operation on Flinders Island, and agriculture is the largest private economic sector on Flinders Island. Any diminishment in the output and investment by Markarna will have a marked negative effect on the Flinders Island economy and broader community.

As set out for reasons mentioned above, the approval and subsequent operation of the lime pit sought by Markarna will not result in any material increase in capital investment, employment or income on Flinders Island.

Some product produced from the lime pit (product in excess of Markarna's own needs) may be sold to other Island graziers. Depending upon how much product they're currently selling, this may have no impact on the two other lime pit operators, or it could possibly cause them to reduce their prices. Even so, the price of Lime Sand at the pit gate from an on-island source is only 20% of the overall cost to have Lime Sand spread on paddocks so the benefit to producers in seeing a reduction in the pit gate price from an on-island source is minimal.

The costs of 'liming' options to graziers on Flinders Island are provided in the report by Dr Lee Peterson – forms part of **Attachment 4.**

The financial impact if Markarna cannot replace the supply of Lime Sand from the "new" pit when its existing site in exhausted is that the profitability of its operations will suffer as its pastures progressively deteriorate and the carrying capacity of those pastures progressively declines. Because of the negative financial effect this will cause, Markarna would also find it increasingly more difficult to justify the investment of more capital into the property.

The financial implications are provided in the report by Dr Lee Peterson – forms part of **Attachment 4.**

In summary, the approval sought by Markarna to establish the "new" lime pit, is highly unlikely to provide a *boost* to the Flinders Island economy in the immediate term and is possibly unlikely to do so in the medium/longer term either. Rather, the approval sought by Markarna will allow it to continue its existing operations at current levels (and hopefully increase them incrementally over time).

**ATTACHMENT 4 RFI RESPONSE ITEMS 4 AND 13**

**Background – Agriculture on Flinders Island**

The size of the agriculture sector on Flinders Island is not easily ascertained.

In 2010, AK Consultants produced a report for the Flinders Island Council which stated in 2008 there were 58 holdings running 119,159 head of sheep and 75 holdings running 20,032 head of cattle. The gross value of agricultural production on Flinders Island at that time was reported to be $14m.

In terms of measuring the Dry Sheep Equivalent ("DSE") of Flinders Island at that time and using an average figure of 10 DSE per head of cattle, the above figures suggest the Island's agricultural industry at the time was carrying 320,000 DSE. The industry has grown since then.

Currently, a large cattle property is for sale on Flinders Island which claims to have a carrying capacity of 75,000 DSE and lays claim to covering over 10% of the arable area on Flinders Island. Markarna has seen a high level of investment in infrastructure and fertiliser over the years, and its DSE per hectare would be above many other smaller producers on the Island. Therefore, suggesting a 750,000 DSE for the whole Island would be an overstated estimate.

Most likely, the stocking capacity of the agricultural industry on Flinders Island today would be around 500,000. However, anecdotal evidence would suggest that smaller producers aren't in a position to stock their properties to optimal levels, and it seems unlikely that the agricultural industry on Flinders Island would ever see pastures stocked to 500,000 DSE.

**Background – Lime Sand**

When it can be done so economically, the application of Lime Sand can be beneficial to pasture growth when soil sampling reveals pH levels are below 5. Applications of up to 2-3 tonnes per Hectare could be deemed appropriate for degraded paddocks.

Currently on Flinders Island there are two commercial operators supplying Lime Sand to local farmers. Between them, it's estimated they can lawfully (constrained by permits) supply up to 15,000 tonnes p.a. of product. Their pits potentially have a long life, but one less so than the other. Product is sold from their gates at about $7 per tonne. No details of how much Lime Sand is sold from these two sites is publicly available.

With transport-to-farm costs and spreading costs, it's estimated the total cost to buy, transport and spread a tonne of Lime Sand is about $35 per tonne.

As Lime Sand cannot be shipped to Flinders Island for less than about $100 per tonne landed at the port of Lady Barron, sourcing Lime Sand "off island" is not economic.

**Proposed Lime Sand pit**

Currently, Markarna Grazing Company Pty Ltd ("Markarna") mines Lime Sand from another deposit on its farm. This site will soon be exhausted and thus the company has sought to establish a new lime pit on land it owns on Marshall Bay.

Historically, the proposed lime pit site had been (illegally) mined by locals for many years until the current owner restricted access to the site.

The location of this proposed lime pit is virtually beside another lime pit currently operating; it includes the same landforms and is equally part of the Marshall Bay 'scenic and natural value' area that was the focus of the LPS assessment. The lime sand pit has been located to minimise scenic and natural value impacts while

providing for a medium-term supply of lime sand material. As the area proposed for initial extraction is exhausted, another area of lime sand (another lime sand dune system) would be identified and carefully planned to be extracted to avoid and mitigate impacts to the environment and so on. The PSA essentially seeks to rezone land such that a naturally occurring resource vital to the island's agricultural sector is available now and well into the future – the rate at which it would be extracted would safeguard the life-supporting capacity of air, water, soil and ecosystems as well as provide for their social, economic and cultural well-being and for their health and safety (including food safety).

Construction of an access road and opening of the lime pit would be completed by Markarna employees. The capital outlays required by Markarna all seem to be the costs involved in *actually getting* a Permit for the activity.

Once approved, operational costs for the lime pit will simply be absorbed within overall farm costs (as they are at the moment). There won't be any additional employment generated because activity at the "new" lime pit will simply replace existing activity which occurs at the current lime pit (which is imminently close to being fully exhausted of material).

Rehabilitation, again, would be completed by Markarna employees.

**Degradation of Pasture with no Lime Sand or Superphosphate applied**

It's accepted that in an average season, prime pastures on Flinders Island (like those operated by Markarna) can sustain a DSE of 14-15 – say 15 per hectare.

In the absence of any scientific data, a diminishment in pasture growth where no Lime Sand or superphosphate is applied could be said to be 4-5% per year cumulatively.

From a DSE of 15 per hectare on an ideally fertilised pasture, the DSE would fall to 14.25 after a year, to 13.5 after two years, to 12.9 after three years and to 12.2 at the end of four years.

**Environmental matters**

An Environmental Impact Statement (EIS) was prepared for the proposed activity which found that the impact to the environment is negligible, and manageable through careful planning and rehabilitation programs – which are already imposed by the in-force Mining Lease over the area and would likely be supported by the permit conditions prescribed by the Environment Protection Authority. This finding of the EIS is not surprising given the existence of two other smaller lime sand pits in the Marshall Bay area which operate there without unreasonable ill-effects to the scenic and natural values of the area.

The EIS, with input from experts, found that the lime pit is consistent with all State Policies and that on balance the impact to the environment, including threatened flora and fauna species, is acceptable and reasonable. Cultural values (including aboriginal heritage) were also considered in detail through on-site studies and liaison with the aboriginal community and Aboriginal Heritage Tasmania. On environmental grounds alone (i.e. the very low intensity of the known and likely future impact), the activity meets the definition of *sustainable development*[9] within Schedule 1 of LUPAA regardless of the quantum of its economic benefits.

[9] *sustainable development* means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while –

An EAR prepared and approved by the EPA Board based on information provided in the permit application and additional information provided in the EIS. The area defined as the Development Area at page 8 and Figure A-4 of the EIS has been adopted as the Activity Area within this EAR, with the inclusion of the drains, sediment basins and septic system absorption pad excluded by the EIS definition (refer Figure 3 of the EAR).

The EPA conducted its assessment of the proposed Activity and concluded the following in its Environmental Assessment Report –

1. the RMPS and EMPCS objectives have been duly and properly pursued in the assessment of the proposal; and
2. the assessment of the proposal has been undertaken in accordance with the Environmental Impact Assessment Principles, except for those excluded under Section 25A(4); and
3. the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the RMPS and EMPCS objectives would be compromised, provided that the Permit Conditions - Environmental No. 11576 appended to the EAR are imposed and duly complied with.

**Economic Impact on Flinders Island**

As set out for reasons mentioned above, the approval and subsequent operation of the lime pit sought by Markarna will not result in any material increase in capital investment, employment or income on Flinders Island.

Some lime sand product (in excess of Markarna's own needs) may be sold to other Island graziers. Depending upon how much product the other pit operators are currently selling, this may have no impact to them, or it could possibly cause them to reduce their prices. Even so, the *actual price* of Lime Sand at the quarry gate is only 20% of the overall cost to have Lime Sand spread on paddocks so the benefit to producers in seeing a reduction in the quarry gate price is minimal.

The financial impact if Markarna is not able to replace the supply of Lime Sand from the "new" lime pit when its existing site in finished is that the profitability of its operations will suffer as its pastures progressively deteriorate and the carrying capacity of those pastures progressively declines.

Because of the negative financial effect this will cause, Markarna would also find it increasingly more difficult to justify the investment of more capital into the property, and reduced employment for the activity.

In summary, the approval sought by Markarna to establish the "new" lime pit, is highly unlikely to provide a boost to the Flinders Island economy in the immediate term and is possibly unlikely to do so in the medium/longer term either.

Rather, the approval sought by Markarna will allow it to continue its existing operations at current levels (and hopefully increase them incrementally over time). Markarna is the largest agricultural operation on Flinders Island, and agriculture is the largest private economic sector on Flinders Island. Therefore, a refusal of the application would cause economic harm to Markarna and therefore to the island given there would be less investment and less employment from the farming activity.

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(a) sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; and

(b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and

(c) avoiding, remedying or mitigating any adverse effects of activities on the environment.

Any diminishment in the output and investment by Markarna will have a marked negative effect on the Flinders Island economy.

# LIME SAND REQUIREMENT – FLINDERS ISLAND

## JANUARY 2026

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## Introduction

This report, by Dr Lee Peterson, Principal Consultant, Nicholbrook Pty Ltd, has been prepared to provide an expert assessment of the requirement for lime sand application by agricultural enterprises on Flinders Island, in particular Markarna Grazing Company Pty Ltd.

This report reviews the agricultural use and requirements for lime, soil analysis, lime alternatives and the financial implications on Flinders Island.

## Qualifications and Experience

Dr Lee Peterson is an agricultural science graduate from the University of Tasmania with over 35 years of experience in primary industry production, research and consulting. Dr Peterson has worked with a variety of farming enterprises throughout Tasmania, mainland states and overseas. An outline of experience and qualifications is attached in Appendix A.

## Scope of Assessment

This report has been prepared to assess the following request from council:

13. Independent advice from a qualified and experienced agronomist or other such professional regarding the need for the lime sand resource on Flinders Island, including but not limited to the following:
    a. available supply of lime sands on Flinders Island;
    b. potential need and demand for lime sands on Flinders Island;
    c. current and projected usage of lime sands on the Markarna Park holdings; and
    d. any other matters the agronomist considers relevant to support the proposal.

## Requirement for soil neutralising compounds

Many soils in Tasmania, especially in coastal regions are acidic. Soil acidification is a natural process caused primarily due to the buildup of hydrogen ions, a natural result of organic matter decay, heavy rainfall leaching alkaline minerals, and geological factors. Soil acidification is accelerated by agriculture through the use of nitrogen fertilizers (which release hydrogen ions during nitrification) and removing nutrients with crops. Essentially, acids build up or alkaline "base" elements (like calcium, magnesium) get washed away or harvested, leaving more acidic conditions.

Soil acidity is a potentially serious land degradation issue. When soil becomes too acidic it can:

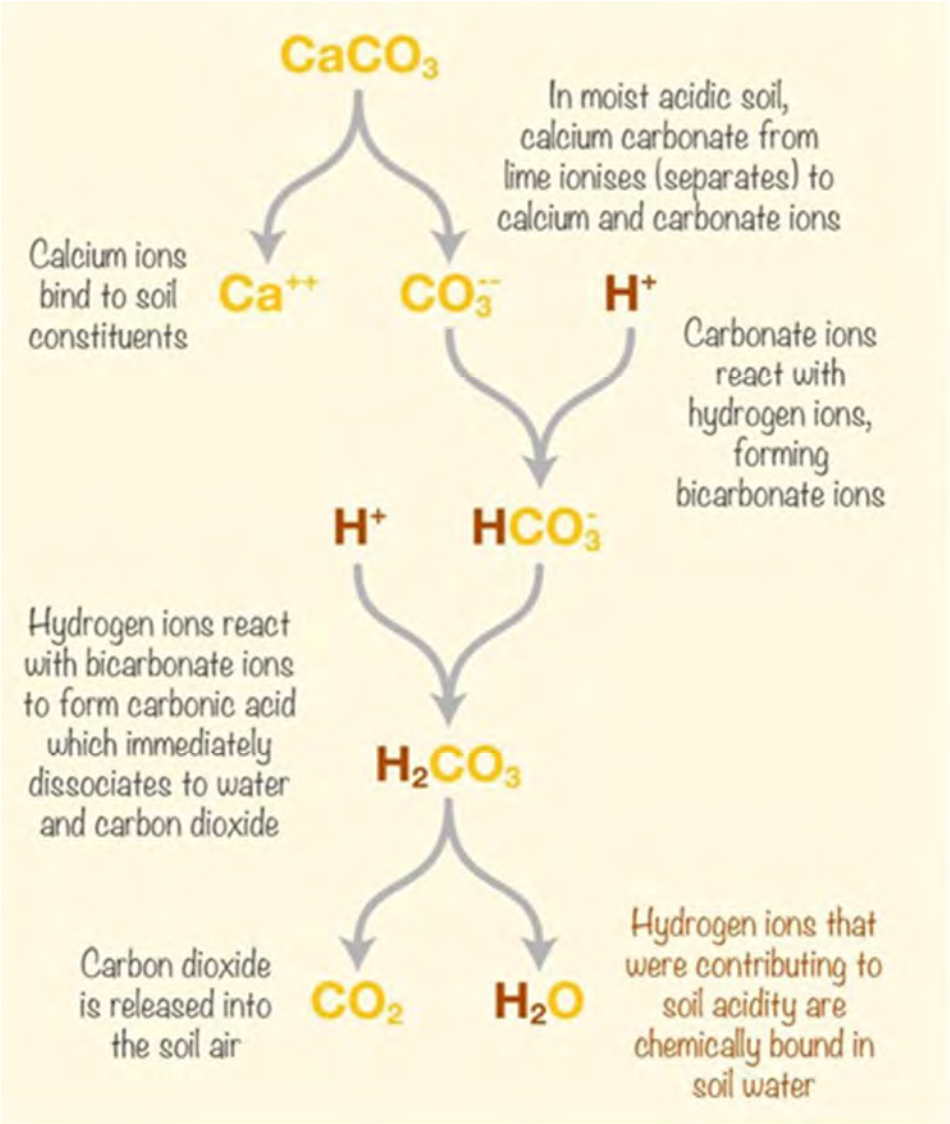
- decrease the availability of essential nutrients
- increase the impact of toxic elements
- decrease plant production and water use
- affect essential soil biological functions like nitrogen fixation
- make soil more vulnerable to soil structure decline and erosion.

Without treatment, soil acidification can impact agricultural productivity and sustainable farming systems. Acidification can also extend into subsoil layers, posing serious problems for plant root development and requires remedial action.

Agricultural lime is any inorganic product that is used to increase the pH of soil (i.e. increase the alkalinity). In Australia, the main sources are lime sand, limestone and dolomitic lime. Application of one of these products is usually the most economical method of ameliorating soil acidity depending on availability. When agricultural lime is applied, carbonate from calcium carbonate (or from magnesium carbonate) neutralises elements (mainly hydrogen ions, $H^+$) in the soil.

The soil chemistry can be simplified into a few steps:

1. In wet acidic soil, calcium carbonate ionises (separates) to calcium and carbonate ions ($CO_3^-$).
2. The carbonate ions ($CO_3^-$) react with hydrogen ions ($H^+$ )in the soil solution, forming bicarbonate ions ($h_2CO_3$)
3. The bicarbonate ions react with hydrogen ions in the soil solution and form carbon dioxide and water.
4. The end result is that the soil has more calcium ions on the exchange surfaces of the soil, carbon dioxide is released into the soil air and hydrogen ions that were contributing to acidity are bound in soil water.




## Importance of lime in relation to soil aluminium

Aluminium is highly abundant in soils, pH is the most important factor affecting aluminium solubility and toxicity and, for this reason, it is:

- the easiest and most-used measurement for making lime decisions; and
- often used as a proxy to estimate aluminium levels.

When soil pH is above 6.0, aluminium is in a solid state and not in the soil solution – and therefore not toxic to roots. When soil pH drops below about 5.0, aluminium becomes more soluble and dangerous to roots. Aluminium in the soil solution rises exponentially when pH is less than 4.5. Applying lime to acidic soils and lifting pH precipitates soluble aluminium from the soil solution into a biologically inactive (solid) form.

Aluminium is not essential for the growth of plants or animals. Aluminium toxicity has not been detected in grazing animals but plant growth, particularly growth of seedlings, can be greatly harmed by high levels of exchangeable soil aluminium. Aluminium is a major constituent of most soils but only when it moves into soluble or exchangeable form can it affect plants. Exchangeable aluminium values may be

high in soils with pH below 5.5 but may occur at pH values as high as 6.0 in heavy textured soils. The critical soil pH, at which aluminium becomes exchangeable in toxic concentration, depends on many factors, including the predominant clay minerals, organic matter level, concentrations of other cations, anions and total salts as well as the species or cultivar of the plant being considered. Species differ widely in their tolerance of excess aluminium. Lucerne and phalaris are highly sensitive. Subterranean clover, white clover and perennial ryegrass are moderately tolerant, while cocksfoot is tolerant.

The signs of aluminium toxicity may resemble those of phosphorus deficiency (overall stunting; small, abnormally dark green leaves; purpling of stems, leaves and leaf veins; and yellowing and death of leaf tips). Aluminium-injured roots are characteristically stubby and spatulate, while the root tips are thickened and may be brown. The root system as a whole has many stubby lateral roots but lacks fine branching. Aluminium damaged roots are inefficient in absorbing water and nutrients. Their appearance can be easily confused with that of malformed roots growing in compacted soil.

Whilst pH is the initial driver and potential indicator of aluminium toxicity the better indicator is the aluminum saturation percentage. Base saturation (BS) measures the percentage of a soil's Cation Exchange Capacity (CEC) occupied by basic cations and the percentage that is occupied by aluminium.  When BS aluminium exceeds 5% plant growth will be restricted.

# Review of availability of soil neutralising resources (lime) on Flinders Island

## Soil Neutralising Value

The carbonate content of lime determines the capacity of the lime to neutralise acidity. Neutralising value is expressed as a percentage relative to pure calcium carbonate, which is given a value of 100%. With higher neutralising value, a lower rate can be used to achieve the same pH change.

The size of the lime particles determines how quickly the lime can neutralise acid. Lime with a higher proportion of finer particles has a larger surface area to react with the acid in soil. Research shows that finer limes (a high proportion of particles less than 0.5 millimetres) increase pH faster, which is necessary for rapid amelioration of acidic soil.

## Current sources of lime

### Mainland Tasmania

Commercial lime suppliers operate throughout rural mainland Tasmania and there is widely spread limestone resource available.  One of the largest commercial suppliers of agricultural lime is Beams Brothers, they also supply dolomite which is calcium magnesium carbonate, this is used when correction of magnesium deficiencies is also required but generally restricted to more intensive cropping and horticultural applications, eg apples, cherries.

This source of lime is limestone rock that is quarried and crushed, lime sands are uncommon on mainland Tasmania and when they do occur they are of lower neutralising value. Lime sands are more common in coastal areas of Western Australia and South Australia.

Beams Bros. lime generally has a high neutralising value, typically greater than 80%, depending on batch origin.

Nutrien Whitemark provided a quotation for supply of Beams Bros. lime landed on farm on Flinders Island at $600 per tonne. This is significantly higher than on mainland Tasmania where it ranges from $45 to $100 per tonne. This is due to the additional road and sea freight and additional handling costs as this can only be delivered in 1 tonne bulk bags.

A 100% natural calcium carbonate product, Calciprill, is available which decreases the total volume needed by 20% for equivalent neutralising value of Beams lime, however it is only available in 600kg bags at a cost of $1200 per tonne delivered on farm on Flinders Island.

## Flinders Island

Areas of limestone occur on Flinders Island and are well documented by Everard (1950) but are of extremely porous and susceptible to erosion except where protected by granite. Sites suitable for quarrying of the limestone appear very limited, either due to scale of resource, neutralising value or accessibility and in many cases combination of these factors.

For agricultural use the limestone would have to be crushed and graded to a small particle size to have an acceptable neutralising value. This would require significant investment in equipment and infrastructure, appropriate environmental management practices as well as being centrally placed for efficient transportation to farms. While practical and economic due to scale on mainland Tasmania, such an operation is expensive to operate on Flinders Island.

The only other commercial scale resource of a neutralising resource on Flinders Island are lime sands. These are a naturally occurring mix of sand and calcium carbonate formed from naturally crushed marine shells blown inland over millennia. These lime sands have formed dune systems close to the coast and are most prominent in the Marshall Bay area. The advantage of utilising lime sands is that they can be extracted using regular earthmoving equipment and do not require any further processing or treatment before direct application to land. They are easily screened to remove large particles or plant matter (e.g. roots) and can be blended with other soil ameliorants if required, such as boron resulting in a complete soil product.

There are currently three mining leases in place for extraction of lime sands in Marshall Bay which includes the lease held by Markarna Grazing Company Pty Ltd.

| Lease | Owner | Expiry | Titles | Area (ha) | Status | TPS Zone | Comments |
|---|---|---|---|---|---|---|---|
| 2056P/M | Nicholls, JT | 28/2/2025 | 141842/2<br>141842/1 | 82 | Pending renewal | Rural | Existing area near depletion |
| 2056P/M | Davrol Rural Management Pty Ltd | 30/4/2024 | 160313/1<br>154620/2 | 44 | Pending renewal | Rural | Currently under offer of sale but new owner is agreeable for the extraction to continue |
| 2117P/M | Markarna Grazing Company Pty Ltd | 31/5/2028 | 230282/1<br>215120/1<br>120064/1 | 365 | Granted | Landscape conservation | Extraction a prohibited activity under current zoning |



*Nicholls lime sand pit*



*Davrol lime sand pit*

The extent of lime sands in the Marshall Bay area is considerable. The Initial lime sand resource area identified for development by Markarna Grazing Company is 17.7 ha, 4.8% of the total mining lease area. This development area of 17.7 ha has been assessed in the order of 30 years supply of Markarna Grazing Company requirements. There are further deposits present within the mining lease area that can provide future supplies of lime sands, or to be exploited sooner if larger volumes are required by agricultural activities on the island.

Analysis of the lime sands by Phosyn Analytical Pty Ltd indicates these lime sands have a neutralising value of between 75 and 77%. However, the effective neutralising value is potentially greater due to the small particle size of the lime sands. This neutralising value is very similar to lime sand resources utilised in South Australia and Western Australia.

# Markarna Grazing Company Lime Requirements

The Markarna Grazing Company owns and operates 7 farms (map Appendix A) the total areas, area of developed pasture and potential new areas of development are shown in Table 1.

| Table 1: Markarna Farms | Total Area | Pasture Area | Estimated New Area |
|---|---|---|---|
| Oatdale | 221 | 171 | |
| Wingaroo | 1727 | 896 | 300 |
| Markarna | 6798 | 3501 | 400 |
| Carnsdale | 879 | 805 | |
| Grandview | 546 | 442 | |
| Yeltanna | 483 | 397 | |
| Centre Hill | 709 | 583 | |
| **Overall** | **11363** | **6795** | **700** |

Recent soil test data from pasture areas is summarized in Table 2 which also indicates the typical number of paddocks tested annually. This data demonstrates the wide range of soil pH values and the Base Saturation levels of aluminium of the soils managed by Markarna Grazing Company.

| Table 2: Farm | Number of tests per farm | pH high | pH low | BS Al (%) low | BS Al (%) High |
|---|---|---|---|---|---|
| Wingaroo/Oatdale | 27 | 7.1 | 4.8 | 0.7 | 10 |
| Markarna Park | 85 | 7.8 | 5 | 0.9 | 9.9 |
| Carnsdale | 18 | 7.4 | 5.6 | 1.6 | 4.9 |
| Grandview | 14 | 6.5 | 5.3 | 1 | 1.9 |
| Yeltanna | 10 | 7.1 | 5.2 | 3.2 | 8.2 |
| Centre hill | 7 | 6.3 | 5.3 | 1.2 | 1.8 |

Whilst there are some paddocks with high pH they are very few compared to the number of low pH paddocks. Many of the paddocks have very low pH and these also correspond with high BS aluminium levels deeming them significant risk of aluminium toxicity to plants and reduced growth and therefore lower stocking rates. This is very prevalent on the Markarna Park, Wingaroo and Oatdale and Yeltanna farms which require higher liming rates for amelioration. In general, the Grandview and Centre Hill farms require only maintenance applications of lime.

The Markarna Park paddocks with a low pH are likely to be reflective of many paddocks on the island, especially in the Northern region.

The requirement for and the application rates of lime for a paddock are determined from the soil test data of pH and aluminium levels.

The most commonly used general formula for lime requirement is calculated as:

Lime requirement (t/ha) = (Target pH-Current pH) x Soil Texture Factor

The higher the soil clay content the higher the Soil Texture Factor. In the case of a sandy loam the factor is 3 and a loam/clay loam is 3.

This formula is based on using lime with a neutralising value of greater than 80%

It should also be noted that the majority of soils are sandy loams with moderate to high permeability and therefore prone to leaching of alkaline minerals hence even once pH levels have been ameliorated there is an ongoing requirement of continual base applications of lime to maintain acceptable pH level as these will continue to decrease over time.

Utilising the Western Australian developed iLime app which allows for selection of lime source, soil type characteristics, rainfall and pasture type to determine the productivity improvement of lime application. This demonstrates the effect of lime application of lime to initially low pH soil and the future requirements to maintain more acceptable pH levels. This also demonstrates the decrease in productivity without any lime applications. (Figure 1)

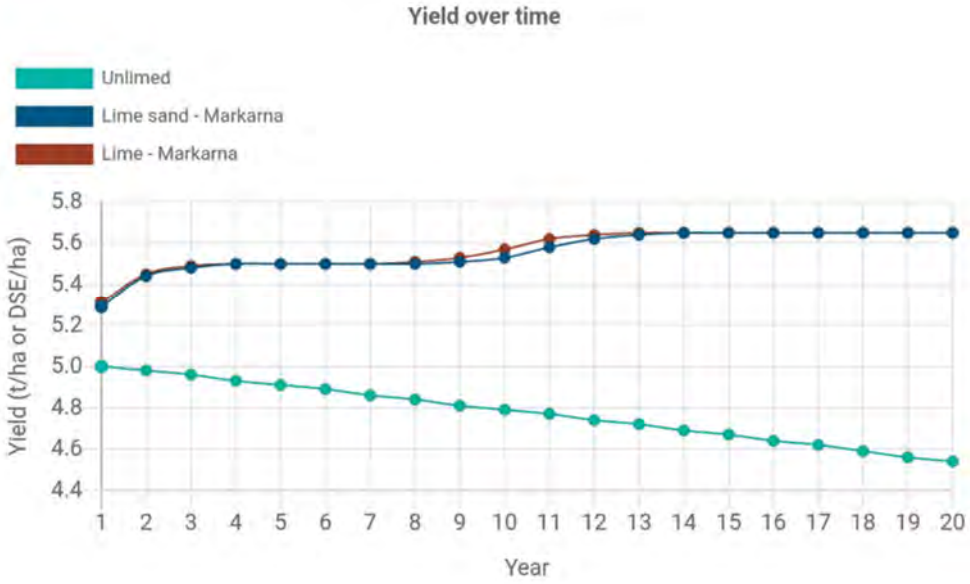



*Figure 1: iLime calculation of applying 8 t/ha to newly developed area followed by maintenance applications every 3 years of 4.6 t/ha of lime sand or 4.3 t/ha agricultural lime to maintain long term productivity*

Based on the soil test data and aluminium levels, Table 3 indicates the required lime sand application rates for each farm and the total amount of lime sand required for treatment of 33% of pasture area per annum (1 in every 3 year application) plus assuming the new areas are developed over the next 5 years.

| Table 3: Lime sand application requirements 33% of pasture application annually | Pasture Average Application Rate (t/ha) | New Area Application Rate (t/ha) | Total Annual Application (tonne) |
|---|---|---|---|
| Oatdale | 5 | | 282 |
| Wingaroo | 5 | 8 | 2078 |
| Markarna | 5 | 8 | 6577 |
| Carnsdale | 3 | | 797 |
| Grandview | 2.5 | | 365 |
| Yeltanna | 5 | | 655 |
| Centre Hill | 2.5 | | 481 |
| **Overall** | | | **11300** |

This equates to approximately 8,000 cubic metres of lime sand annual extraction. Annual soil testing to monitor the pH response and effect on aluminium levels will further determine teach annual liming program. In addition, the impact of variation in seasonal conditions may require higher rates such that the request for 10,000 cubic metre lease allows for sufficient lime sand to always be available and where applicable excess can be provided to other farms.

## Financial Impact of Lime Availability

Markarna Grazing has invested significantly in dedicated spreading equipment for the application of lime sands from the existing pit (on farm but almost depleted) to ensure accurate application rates.

Comparative gross margins for lime supplied on farm for different sources have been calculated assuming that the spreading costs are comparative between the products. There is potentially more on farm handling with supply of product in bulk bags versus bulk in truck, but there is also offsets in total volume handled due to variation in neutralising value of the lime product. These factors are considered to have less impact compared to cost supplied on farm.

### Gross Margin of lime supplied on farm

Based on the lime requirements of Table 3 and typical excavator, truck and labour rates, an assessment of the gross margin of lime sand extraction from the companies own mining lease is shown in Table 4. This is the price of lime sand delivered on farm which equates to $13.33/t. Typical mainland lime supply is in the order of $45-100/t. The current pricing of lime sand supplied from other leases for the raw material is $9-10/t plus the extraction costs. The overall cost of lime sand supplied to farms without their own mining lease is a very cost effective price compared to mainland Tasmania farms.

| Table 4: Gross margin of utilising lime sand | | | | Total | Per Hectare |
|---|---|---|---|---|---|
| Pasture Area | 6800 Ha | | | | |
| Lime sand requirement | 11300 t | 1300 kg/m3 | 8692 m3 | | |
| Excavator | 30 m3/hr | 140 $/hr | 290 hrs | $ 40,564 | $ 5.97 |
| Truck | 10 m3/hr | 80 $/hr | 869 hrs | $ 69,538 | $ 10.23 |
| Labour | 1159 hrs | 35 $/hr | | $ 40,564 | $ 5.97 |
| | | | | | |
| **Gross Margin** | | | | **$ 150,667** | **$ 22.16** |

By comparison, the gross margin of agricultural lime supplied by Beams Brothers with a neutralising value of 85% which allows for some saving in volume requirements compared to the 75% neutralising value of lime sand is shown in Table 5.

The significant price of lime landed on farm on Flinders Island far outweighs the neutralising value variance making this source of lime uneconomic. Such a cost would result in an overall negative gross margin for beef production.

| Table 5: Gross margin of importing lime | | | | Total | Per Hectare |
|---|---|---|---|---|---|
| Pasture Area | 6800 Ha | | | | |
| Lime import requiremen | 85% NV | 9971 t | | | |
| Price landed on farm | 600 $/t | | | $ 5,982,353 | $ 879.76 |
| | | | | | |
| **Gross Margin** | | | | **$ 5,982,353** | **$ 879.76** |

A high analysis product such as Calciprill reduces the volume of lime required further but is even less economic due to the high landed price.

| Table 6: Gross margin of importing Calcipril | | | | Total | Per Hectare |
|---|---|---|---|---|---|
| Pasture Area | 6800 Ha | | | | |
| Lime import requiremen | 100% NV | 8475 t | | | |
| Price landed on farm | 1200 $/t | | | $10,170,000 | $ 1,495.59 |
| | | | | | |
| **Gross Margin** | | | | **$10,170,000** | **$ 1,495.59** |

## Liming impact on stocking rate

The elevation of pH generally to acceptable levels will increase the dry matter production and the maintenance of these pH levels is important to manage aluminium toxicity and pasture productivity.

Table 7 outlines the current average dry matter production and stocking rates and the potential increase in stocking rate with pH correction of many of the acidic paddocks.

| Table 7: Impact of applying lime | | | | Per Hectare |
|---|---|---|---|---|
| Pasture Area | 6800 Ha | | | |
| Current herd | 7,000 | 84000 DSE | | 12 DSE/ha |
| Current average feed demand | | | | 4.5 t/ha |
| Potential feed production with corrected pH | | | | 6.0 t/ha |
| | | | | |
| **Potential stocking rate** | **9,315** | | | **16 DSE/ha** |



*Markarna Park healthy pasture production and stocking rate*

This impact is significant to Markarna Grazing and is also applicable to many other farms in the district and represents the development potential for the beef industry

on Flinders Island. This has been highlighted previously with a number of studies and benchmarking workshops undertaken by the island's producers.

Southern Farming Systems healthy soils group has highlighted the importance of maintaining soil pH whilst the Flinders Island Productivity Group and benchmarking groups run by Aggregate Consulting have reviewed management practices and the economics of current production highlighting the importance of improving and maintaining dry matter production to improve stocking rates for what is the islands biggest economic activity and employment source.

## Flinders Island lime sand requirement

In and around the Markarna farms there are similar soil types in the norther region of Flinders Island that would similarly require lime for pH correction and ongoing maintenance. The additional pasture area is estimated at approximately 7,000 ha.

46,600 ha has been stated as currently utilised for agricultural production in total on Flinders Island, some of which would be small holdings and some of which would be on soil types with more favourable pH, however the requirement for an economic lime source on the island is significant.

Table 8 represents a conservative estimate of the requirement for lime sands across the island.

| Table 8: Total Lime Requirement | | Pasture Area | Annual t/ha | Tonnes Lime Sand/Annum |
|---|---|---|---|---|
| Markarna Farms | | 6,800 | 1.7 | 12,000 |
| North Flinders | | 7,000 | 1.7 | 12,000 |
| Balance of agricultural land | | 8,000 | 1 | 8,000 |
| **Total** | | **21,800** | | **32,000** |

This overall potential requirement is in the order of 23,000 cubic metres of lime sand per annum.

## Impact of restricting lime sand extraction

The iLime app demonstrates the gains in dry matter production through application of lime but also demonstrates the gradual decline in dry matter production if no lime is applied (Figure 1). In the sandy loams typical of Flinders Island this decrease is approximately 0.2 t/ha after 10 years of no application. Table 9 indicates the potential increase in stocking rates as a result of lime sand application versus the inevitable decrease in stocking rates that will occur if no economic source of lime is available after 10 years.

| Table 9: Impact of lime sand availability on stock numbers | Potential Stock Number Increase with lime sand availability | Potential Stock Number Decrease due to unavailability of lime sand | Net Gain in livestock numbers from lime sand application |
|---|---|---|---|
| Markarna Farms | 2,300 | -320 | 2,620 |
| North Flinders | 2,400 | -320 | 2,720 |
| Balance of agricultural land | 1,400 | -370 | 1,770 |
| **Total** | **6,100** | **-1,010** | **7,110** |

The impact of restricting lime sand availability is very significant whilst its enhanced availability further improves the productivity of Flinders Island which will provide more employment not only on farm but to all agricultural associated enterprises and service providers on the island.

Generally accepted economic output multiplier for beef production is 3, meaning for every $100 of output generates $300 in total economic activity and for every 10 jobs in the industry an additional 15 to 20 jobs can be supported in the broader economy. Whilst not all of this gain will be directly on Flinders Island, a significant proportion will be added to the islands economy. (Tasmanian AgriFood ScoreCard 2022-23)

## References

Everard G. (1950) The limestone resources and general geomorphology of Flinders Island.
iLime, Department of Primary Industries and Regional Development Western Australia
Tasmanian Agri-Food ScoreCard (2022-2023) AgriGrowth Tasmania, Department of Natural Resources and Environment Tasmania

## Declaration

I declare that I have made all the enquiries which I consider desirable or appropriate, and no matters of significance which I regard as relevant have, to my knowledge, been withheld.



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January 2026

# Markarna Grazing Pty Ltd - Farms






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PhD (Ag Science) Horticultural Research Group University of Tasmania

**Professional Associations:**

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Company Directors Graduate Diploma 2007

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# Introduction

Dr Lee Peterson is an agricultural professional with extensive expertise in many aspects of agricultural production gained over a period of 39 years in industry, consulting and research. Lee has considerable experience in the areas of land capability and planning for agriculture, new crop development, horticultural production systems, plant extracts and waste stream management in agricultural.

# Professional Experience

| | |
|---|---|
| 2020-present | Director Nicholbrook Horticultural Consulting |
| 2018-2020: | National Technical Manager BerryWorld |
| 2011–2018: | Principal Consultant Macquarie Franklin |
| 2005-2011: | Executive Director – Agribusiness<br>Agricultural Resource Management (AGRM Pty Ltd) |
| 2000- 2004: | Agricultural Resource Management Group |
| 1998- 1999: | Serve-Ag Senior Project Agronomist |
| 1996-1997: | Private agricultural consultancy and contract research provider |
| 1993- 1995: | General Manager of Essential Oils of Tasmania |
| 1989- 1993: | Production Manager of Essential Oils of Tasmania |
| 1985- 1989: | Post-Graduate at the University of Tasmania |
| 1984- 1985: | Agricultural Officer with the Tasmanian Department of Agriculture, Pasture and Field Crops Branch |

# Project Examples

- Land capability assessments for numerous rural properties to support agricultural development, subdivision of non-agricultural land and expert witness reporting for legal representation when required
- Soil surveys, land capability, enterprise assessment reporting for developments ranging from irrigation schemes through to wind farm developments

Nicholbrook
Horticultural Consulting

### Areas of Expertise

- New crop development including essential oils, culinary herbs, medicinals and leafy vegetables
- Design of innovative harvest systems for new crops
- Waste water and effluent reuse
- Agricultural research and development
- Sustainable agricultural system design and implementation
- Environmental monitoring
- Land capability assessment
- Group training
- Agribusiness and financial management
- Socio and economic impact assessment

### Nicholbrook Expertise

- Economic studies
- Business and farm management
- Feasibility studies
- State and regional development
- Irrigation and water development
- Land capability and mapping
- Natural resource management
- Training and extension
- Technical agricultural consulting
- Legal representations

- Development of the Farm Water Access Plan framework for Tasmanian Irrigation – individual property requirements assessing soils, land capability and enterprises requirements prior to the granting of water licenses
- Review of Industrial Hemp as a commercial cropping opportunity
- Review of pyrethrum industry strategic plan and industry development officer program
- Economic and socio analysis of the impact of blueberry rust incursion to the Tasmanian blueberry industry
- Production system economic assessment and inputs for TI business case developments – Musselrow, Great Forester, Southern Midlands, Tamar and Greater South East irrigation schemes
- Market, production and feasibility study of medicinal cannabis production for Tasmanian Alkaloids
- Importation of new varieties and coordination and production system development for BerryWorld Australia in Tasmania and Queensland
- Technical advisor to Fresh Cut Salad producers including production system development, variety assessment, market research, crop scheduling, pesticide strategies, IPM program and representation of the industry in respect to technical issues such as biosecurity and IPM
- Agricultural assessment and stakeholder survey for future Hunter Valley irrigation development post power station and mining closures
- Independent advisor and author to the “Environmental Guidelines for Recycled Water Use in Tasmania”.
- Expert reporting for a range of broad acre and horticultural litigation cases
- Assessment of impact of Robbins Island Renewable Energy Park on Agricultural Land Use

  Technical advisor to South Pacific Sandalwood, essential oil production and extraction company, Vanuatu – Sandalwood production and research

**ATTACHMENT 5 MARKANA LIME SANDS GEOMORPHOLOGY AND SOILS REPORT**

# Survey of the Geomorphology and Soil characteristics of the Markarna Grazing Company Pty Ltd Property, Marshall Beach, Flinders Island

**18 January 2024**



**This report was compiled by Dr Adrian Slee, Earth Sciences and Cultural Heritage, Forest Practices Authority, 30 Patrick Street, Hobart 7000**

**Email:** adrian.slee@fpa.tas.gov.au

**Citation**

Slee, A. 2023. Survey of the Geomorphology and Soil characteristics of the Markarna Grazing Company Pty Ltd Property, Marshall Beach, Flinders Island, November 2023, Forest Practices Authority, Hobart 27p.

**FPA file reference**

D24-20638

**Disclaimer for report**

The advice contained in this document has been prepared for Markarna Grazing Company Pty Ltd and Van Diemen Consulting Pty Ltd only.

Whilst the Forest Practices Authority has used its best endeavours to ensure accuracy, it does not warrant that the material is free of error. Consequently, the advice is provided on the basis that the Forest Practices Authority will not be liable for any error or omission, in contract, tort or otherwise. However, should any error or omission be notified, the Forest Practices Authority will use its best endeavours to correct the advice.

**Disclaimer for maps**

While all reasonable care has been taken to ensure the information contained on the maps contained in this document is accurate and current at time of publication no guarantee is given by the Forest Practices Authority about the accuracy or suitability for use of the data contained in these maps. Consequently, the maps are provided on the basis that the Forest Practices Authority will not be liable for any error or omission. However, should any error or omission be notified, the Forest Practices Authority will use its best endeavours to correct the information.

**Glossary**

*Optically Stimulated Luminescence (OSL) dating*: A method of dating sand grains. This method measures the period of time since burial of the sand grains and therefore indicates the age of the host landform (i.e. dune ridge).

*Tasmanian Geoconservation Database (TGD):* A database that provides a source of information about geodiversity features, systems and processes of conservation significance in the State of Tasmania.

**Cover Image (Image 1)**

*View eastwards from the coastal foredune backing Marshall Beach, looking across isolated outcrops of granite towards the large west-to-east orientated longitudinal dunes forming the main Markarna Lime Sands resource*

# 1. Project scope and Aims

Van Diemen Consulting Pty Ltd engaged the Forest Practices Authority (FPA) to investigate the geomorphology and soils present on a 364.1 ha mining lease owned by the Markarna Grazing Company between Palana Road and Marshall Beach near the settlement of Lughrata on Flinders Island. The proposal by Markarna Grazing Company is to develop and extend an existing old lime sand extraction pit located within the dune fields located between Palana Road and Marshall Beach near the settlement of Lughrata. The priority area is an 800 m long west to east oriented sand dune complex covering approximately 4 ha that forms a lime sand resource immediately west of the current old extraction pit.

The aim of the project was to provide a detailed report on the dune field and other landforms including swamps and potential Tertiary limestone karst features in the vicinity of the proposed extraction pit. Soils were also be investigated in this area. A secondary focus was a general documentation of the dune field and other sites of geomorphic significance in the overall mining lease in the event of expansion of operations in the future.

**The report addresses the following issues:**

- Documentation of any karst features present and management recommendations.
- Overview of the sand dunes present at the proposed pit site and mine lease in general and dune special values management recommendations.
- Comment on sand blow risks and mediation recommendations.
- Documentation of other geomorphic landforms.
- Soil observations and management.

# 2. Previous Work

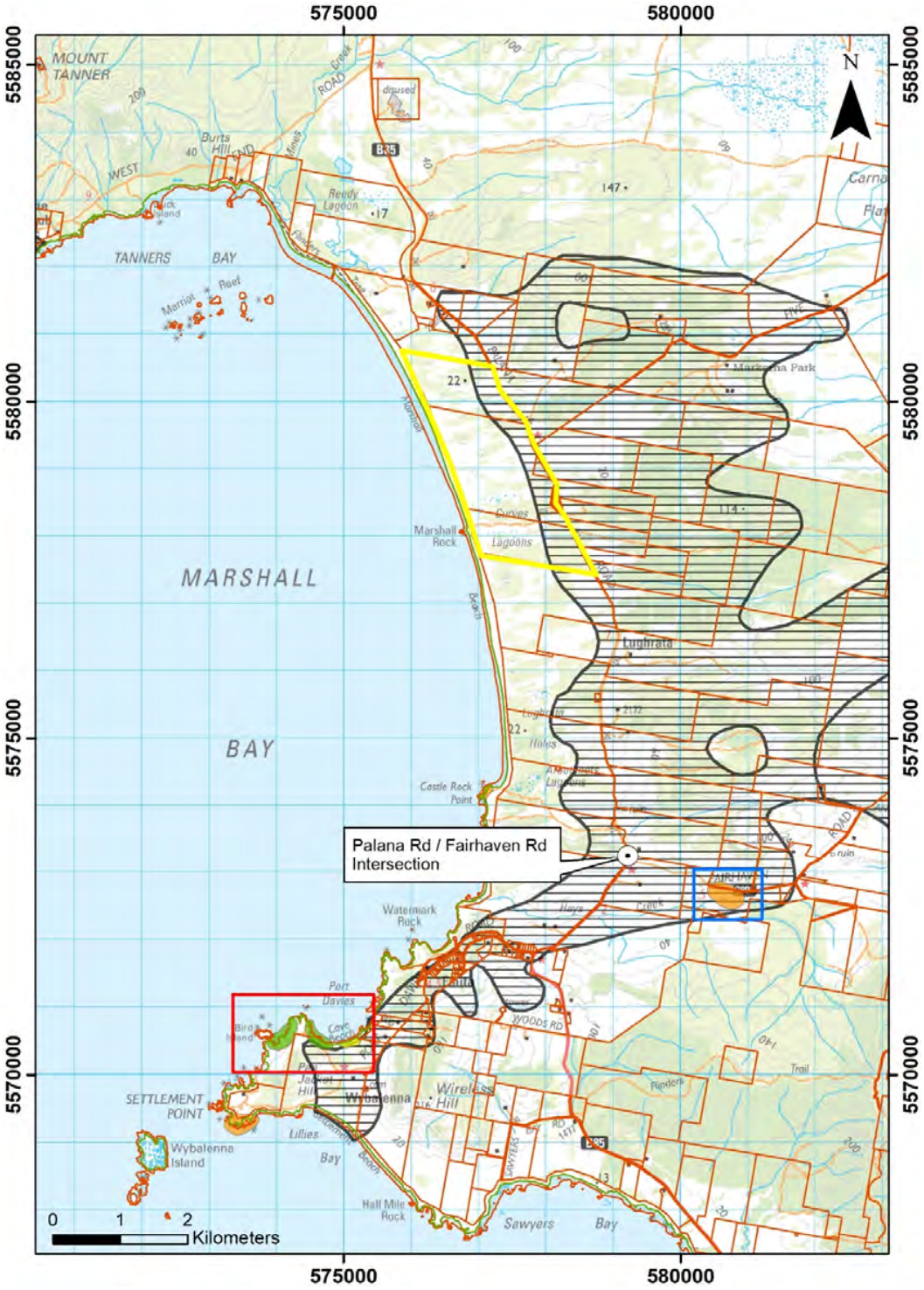
## Granite Bedrock

Devonian granite plutons are the dominant bedrock that floors Flinders Island and upon which the Tertiary Limestone and Quaternary deposits lie. White syenogranite/ monzogranite (I-type) granite outcrops in the vicinity of Five Mile Road immediately east of the study site. No granite was mapped on the 1:250,000 geological map (available on www.theList.tas.gov.au) within the study area (Mineral Resources Tasmania 2023). However aerial photographs clearly show that Marshall Rock (outcropping on Marshall Beach) is granitic.

## Karst

Tertiary dune limestone is mapped on the 1:250,000 Tasmanian geological maps. It forms the hills rising east of Palana Road immediately inland of the Markarna Lime Sands mining lease. The hills are part of an extensive belt of limestone extending from the vicinity of Five Mile Road in the north, inland to the Memana district and south along the coast to Wybalenna. The area is listed as a category B karst area (Emita-Memana BS17) (Kiernan 1995; see also map 1, below). The karst B classification indicates that karst processes are active in the area. The area has received limited attention from geoscientists and cavers. Limestone has been mapped on the hills to the east of the study site to altitudes approaching 130 m asl. The limestone is likely to be mantling granite and possibly sedimentary rock at depth and may be quite thin i.e., in the order of tens of metres. However, the topographic relief of the limestone here is more than 100 m which is more than enough for significant karst landforms and processes to develop. Kiernan and the author have observed subtle sinkholes in the vicinity of Palana Road/Fairhaven Road intersection (Map 1 and Image 2). Some of these depressions could be dune swales, but the presence of exposed limestone outcrops around others suggest sinkhole development.

A low hill north of Hays Creek has limestone cliff outcrops. The most notable karst landforms occur at Cave Beach where significant limestone exposures in a coastal setting display very rugged limestone weathering pinnacles and solutional forms (karren) associated with several notches and small caves formed at or near the contact between the limestone and the underlying granite (Image 3). The karst landforms in the vicinity of Cave Bay (red box on map 1) and the sinkholes along Fairhaven Road (Blue box on map 1) are listed as Geoconservation sites ID:2254 and ID:2298 in the Tasmanian Geoconservation Database (TGD) accessible on the Tasmanian Natural Values Atlas (NVA.tas.gov.au).




*Map 1: Marshall Bay. The striped area is the mapped extent of the Emita – Memana (BS17) karst according to Kiernan 1995; yellow square is the lease area; red and blue squares highlight TGD sites with notable karst development.*



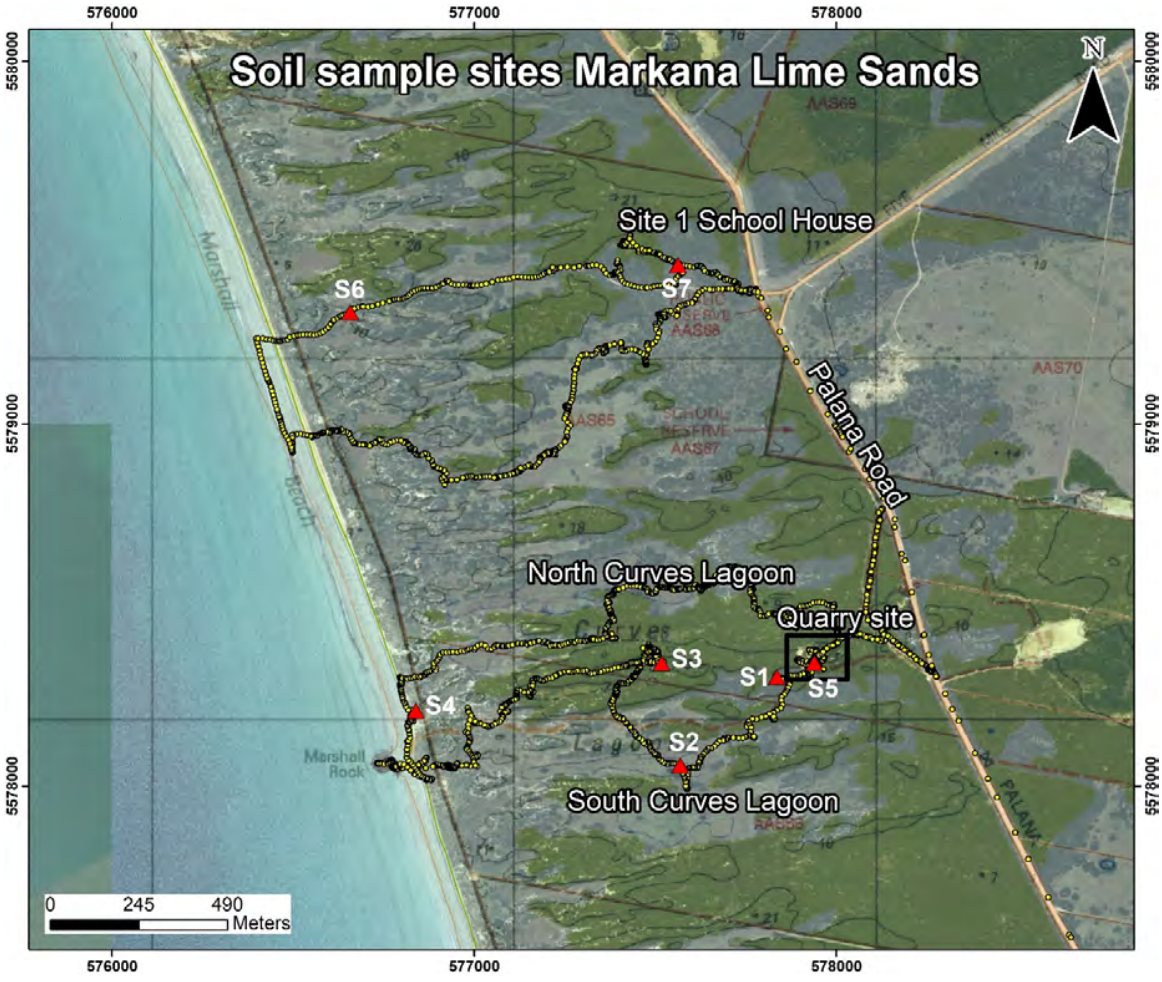
*Image 2: One of a large number of shallow basins (circled) associated with limestone outcrops (foreground and background) in the vicinity of the Palana Road/Fairhaven Road intersection (Map 1). The lack of dune cover and exposed outcrops suggest shallow soils and that these depressions are solution sinkholes associated with a subsurface karst aquifer.*



*Image 3: The Tertiary Limestone at Cave Bay features significant karst landforms including small caves, notches and solutional (karren) surface weathering forms. The area is a listed TGD site and the limestone outcrops are contiguous with the limestone bedrock in the vicinity of the mine lease.*

## 3. METHODS

Observations of the site were made over two days of fieldwork on the 7th and 8th of November 2023. Waypoints and route tracking were recorded using a Garmin Etrex 22s. The route taken during the field work and the location of the soil samples taken are shown in Map 2. Maps were drawn using ARC-Map 10.8.1. Soil samples were taken using an Eijkelkamp auger. A sample for Optically Stimulated Luminescence (OSL) dating was taken from the lower dune horizon in the old pit face. This was done by cutting back and benching out the sand dune before a sample was taken using a PVC tube hammered vertically into a dug bench approximately 5 m below the top of the dune.




*Map 2: Soil sample sites and survey route (yellow tracks) taken during fieldwork.*

# 4. OBSERVATIONS

## BEDROCK GEOLOGY OF THE SITE

### Granite

The general geomorphology of the mine lease is presented in Map 3. The Marshall Rock and other granite outcrops located within the sand dunes 150 m to the east of the pit and just within the lease (see Image 1) were visited during the survey. Both are unmapped on geological sheets and feature large, rounded outcrops of white crystalline granite. While the granites are not the focus of proposed operations on the mine lease their presence on the coast and in particularly within the foredunes indicates the likelihood that granite outcrops are present beneath the sand dunes on the property. Granite bedrock rarely forms flat surfaces but rather undulates quite substantially over short distances hence it is impracticable to define the depth of the dunes and further east Tertiary limestones above the granite contact. Exploration could help assess the depth of the lime sands. However, it would be costly over large areas, and possibly yield little additional information.

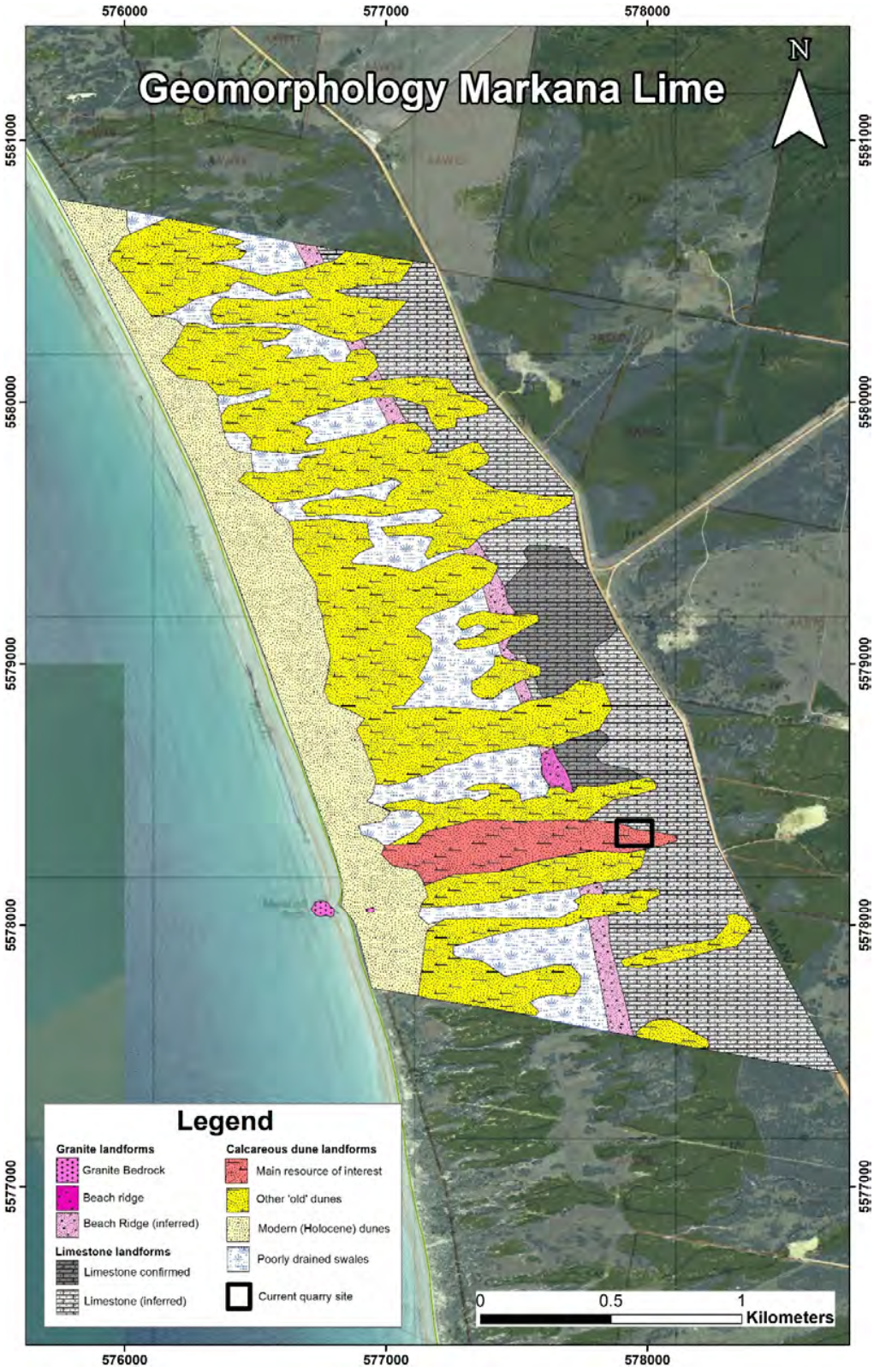
### Limestone

A continuous flat bench approximately 15 m above sea level is present in the eastern section of the study area. In places this bench is overlain by dune sands. Significant lag deposits of fossiliferous limestone in the form of boulders and cobbles are found on this bench associated with a distinctive open vegetation community in contrast to the thicker vegetation associated with the younger dune sequences (Image 4). The bench appears to be the western edge of the limestone outcrop and its western margin may have once been a shoreline open to Bass Strait. It now forms a paleo-shoreline. Areas of outcropping limestone are very limited as most of the edges of the limestone plain appear to be buried by Quaternary coastal and dune deposits. Only one small in-situ outcrop of limestone was observed at 577509mE: 5579301mS. This was associated with the blowout of a low 1 m tall sand dune.



*Image 4: Flat limestone bench in the east of the property.*

*Geomorphology and soils of the Markana Grazing Company Pty Ltd Property*




*Map 3: Geomorphology summary map.*

## KARST LANDFORMS

### WEATHERING LANDFORMS (KARREN)

Very minor but sharp solutional karren weathering forms were located at the larger limestone outcrop (Image 5) and other smaller blocks in the area but no significant solutional karst landforms were observed.



*Image 5: Small limestone outcrop*

### SINKHOLES

Large, elongated depressions are a feature of the property. Some of these are large enough to have warranted definition as enclosed basins on the 1:25,000 topographic map sheets of the area and the largest are defined as lagoons (e.g. Curves Lagoons to the immediate south of the proposed resource). These depressions are elongated. They are not flat floored but have rather undulating forms. Although a small intermittent pond appears to be present in the lowest basin of the northern Curves Lagoon, elsewhere flowing and pooling surface water appears to be very limited; surface water accumulation may be confined to times of intense rainfall. In contrast to enclosed rounded basins associated with limestone bedrock, outcrops interpreted to be probable sinkholes have been described by the author and others near the Palana Road/Fairhaven Road intersection and further south in paddocks north of Trousers Point. The depressions at the study site appear to be all related to either broad west-east oriented interdune swales or (closer to the coast) roughly square

depressions developed behind the active Marshall Beach foredune complex. Depressions of conclusive karstic origin were not identified and are considered unlikely to be present within the study area.

### SPRINGS

No obvious streams or springs were located on the property. A possible very small spring rises from beneath Marshall Beach immediately east of Marshall Rock. Here at low tide a small stream flows for approximately 20 m to the ocean, dropping 20–40 cm in altitude. The scale and location of the spring does not imply karstic drainage in the Tertiary limestone several hundred meters inland but rather small-scale subsurface drainage out of the local beach-bordering Holocene dunes. The lack of surface streams is interesting as there are no inlets or obvious streams entering the ocean for the length of Marshall Beach between the outflow of Arbothnots Lagoon to the south and a small inlet to the north at 574850mE: 5582000mN. A series of disappearing stream channels are mapped in the limestone hills southeast and northeast of the study area. The absence of defined stream channels flowing off the limestone in the area does suggest subsurface drainage is occurring in karst.

### SUMMARY OF KARST LANDFORMS

An extensive Tertiary dune limestone bench is present in the eastern section of the study area. This bench is overlain in locations by the Quaternary dunes and has open predominantly *Leptospermum laevigatum* dominated forest. The lack of streams (and channels) flowing from the higher limestone hills to the east of the property may indicate that a karst aquifer is present in the area. However, no obvious springs were noted. No sinkholes were observed on the property, and as the largest limestone outcrop observed covered only a few square meters, caves are unlikely to be present in the priority study area. However, the author did not cover the entire mining lease and LiDar coverage is not available for the area so the presence of isolated karst landforms including bedrock bluffs with karren, sinkholes or small caves cannot be entirely ruled out.

### OLD BEACH RIDGE

North Curves Lagoon is a large dune swale basin. It is surrounded to the west, south and north by Quaternary and Holocene dune ridges and to the east by the low Tertiary limestone bench. On the eastern margin of the basin at 577625mE: 5578543mN approximately 6–10 m above sea level (asl) white sandy gravels are exposed (Image 6). These are not typical fine sands associated with the beach ridges in the area but are rounded coarse quartz sands that appear to mantle the lower western slopes of the limestone bench. The quartz-rich nature of the sediments suggests two potential sources

1. That granite bedrock is shallowly buried in the vicinity of the eastern end of north Curves Lagoon and the soils at the site are primary granitic soils (known as gruss) formed from weathered granite.

2. That the coarse quartzite sands that contain some shelly carbonate fragments carbonate were deposited on the western edge of the limestone bench in a high energy coastal environment (surf beach).

The latter explanation appears to be more likely as no granite bedrock was observed at the site. It can be assumed that the coastline of Bass Strait was once a high energy environment supplied with coarse sands sourced from offshore granite outcrops such as Marshall Rock or reworked sands from upslope granite sources east of Palana Road. The presence of this beach ridge indicates that the coastline has prograded (advanced) >900 m to the west while becoming a lower energy environment. Given the altitude of the beach it appears likely that it could have formed during the penultimate interglacial high stand, approximately 130,000 years ago when sea levels were 6-8 m higher than today. The presence of granitic soils in this area defines the northern margin of the economic resource in lime-rich dune sands to the south. It is likely that the beach ridge extends beneath the overlying Quaternary carbonate-rich sand dunes, as the dunes appear to have formed over the top of the older granite sands and Tertiary limestones in the east of the property. If this is the case a contact between the carbonate sand resource and the quartz sands may be encountered during mining.



*Image 6: Beach ridge composed of quartzite gravel sands (inset) derived from granite bedrock immediately east of North Curves Lagoon.*

## SAND DUNES

Extensive sand dunes cover most of the mining lease. Except for the granitic sediments east of North Curves Lagoon described on page 8, the sand dunes are composed of fine-grained white quartz and carbonate deposits. Two significant sand dune assemblages are present. In the west are the modern foredune and back dunes behind Marshall Beach. Inland are a series of elongated west-to-east trending parallel dunes that rise up to 24 m above sea level.

These inland dunes are largely vegetated and stable in comparison to the foredunes that have fewer woody and tree species, instead being dominated by grasses, herbs, wind-pruned shrubs and sedges. The coastal foredunes climb onto the older dunes but can be broadly demarcated by their hummocky forms and presence of sand blow-outs that contrast to the more elongated uniform stabilised ridges of the older dunes.

### MAIN DUNE

The 1:25000 topographic map of the main dune (resource) shows a single large dune approximately 180 m wide and 10–25 m high. Two large internal depressions are present west of the current sand pit. The actual landscape is more complex than the contours suggest with at least 8 dune crests identified between North Curves Lagoon and South Curves Lagoon. The dune ridges have narrow rounded tops and steep side slopes, generally >30°. The multi-peaked nature of the dune ridges and the deep wide interdune swales are not well expressed on the 1:25000 topographic map.

The existing pit is located near the narrowest and easternmost part of the dune sequence. Here past pit operations have exposed a cutting through the main dune that has some scientific interest as described in the next section of this report.

### EXISTING PIT

The existing pit is located at 577936mE: 5578343mN, 350 m west of Palana Road and is accessible by an overgrown FWD track. The pit exposes a 75 m wide section through the eastern limb of the main dune. Most of the exposure is either overgrown or of limited interest. The floor of the pit appears to be in solid Tertiary limestone bedrock. Some of the floor material could have been brought in by past operations to provide a solid working base. The best exposure through the dune is on the upper southern face of the pit where an approximately 5.5 m deep section is exposed. A modern topsoil and two buried paleosols are exposed in this face while calcified tree roots (rhizoliths) and branches are present within the dune below the lower of the two paleosols. The dune profile was described and photographed (Table 1 and Image 7) and samples were taken from the main horizons.

**Table 1. Description of soil profile at the pit site.**

| Unit 1 | Depth (cm) | Description |
|---|---|---|
| **1** | **0 – 20** | Grey sandy topsoil with abundant modern root mats |
| **2** | **20 – 95** | Yellow sands with abundant animal burrows |
| **3** | **95 – 110** | Dark grey / brown horizon in sands – paleosol 1 |
| **4** | **110 – 260** | Light yellow to white sands |
| **5** | **260 – 280** | Grey / Brown horizon laterally extensive and forming a stratigraphic bench – paleosol 2. |
| **6** | **280 – 550 (approx.)** | White sands, predominantly carbonate; prominent surface carbonate cementation highlighting stratigraphic beds, calcified tree root and possible calcified small tree stump. |
| **7** | **Pit Floor** | Fossiliferous limestone (Tertiary) |




*Image 7: Annotated view looking east over the southern wall of the old pit showing dune and paleosol horizons.*

## PALEOSOLS

The term 'paleosol' refers to a buried soil horizon within a sedimentary profile. Paleosols are darker band of sediment which may or may not contain woody debris, organic matter and charcoal surrounded by lighter and less charcoal-rich sediments. Paleosols can be important indicators of past stability between depositional events. In this case organic topsoils (indicating stability) have been buried by a non-organic deposits (sand dunes). Two prominent paleosols are present in the exposure. The upper paleosol 1 (Image 8) lies between 95 cm and 115 cm depth and forms a prominent but laterally patchy dark brown organic-rich layer in the upper dune profile. The lower paleosol at 260 cm depth is a thinner and lighter compact sand unit that appears to not be as organic rich. However, this paleosol is laterally extensive and forms a prominent grey bench on the mid slope of the cutting. In the case of the dune systems the presence of paleosols indicates a substantial time of dune stability, allowing an organic topsoil to form prior to renewed dune instability resulting in topsoil burial. At the pit site at least three periods of dune stability can be inferred as indicated by the two buried paleosols and the darker modern topsoil associated with thick root mats on the crest of the dune.



*Image 8: Top 1.5 m of the pit face showing prominent brown paleosol at about 1 m depth.*

## RHIZOLITHS

A feature of the main pit exposure is the rhizoliths located in Unit 6 of the profile (Table 1; Images 9 and 10) formed by dissolution of carbonate by percolating water and its subsequent precipitation around roots.

Rhizoliths observed at the pit include narrow straw-like tree root rhizoliths up to 20 cm long and 1–5 cm across many of which still contain inner woody root material and larger cylindrical-shaped rhizoliths up to 30 cm long and 15 cm thick, which may have formed around tree branches. Small columns are present at other locations in locations suggesting calcification of the stumps of *Melaleuca* and other small trees found at the site.



*Images 9 and 10: Tree root rhizoliths exposed in the lower dune horizon in the pit face. These rhizoliths form from leached calcium carbonate which has precipitated around rough surfaces such as tree roots.*

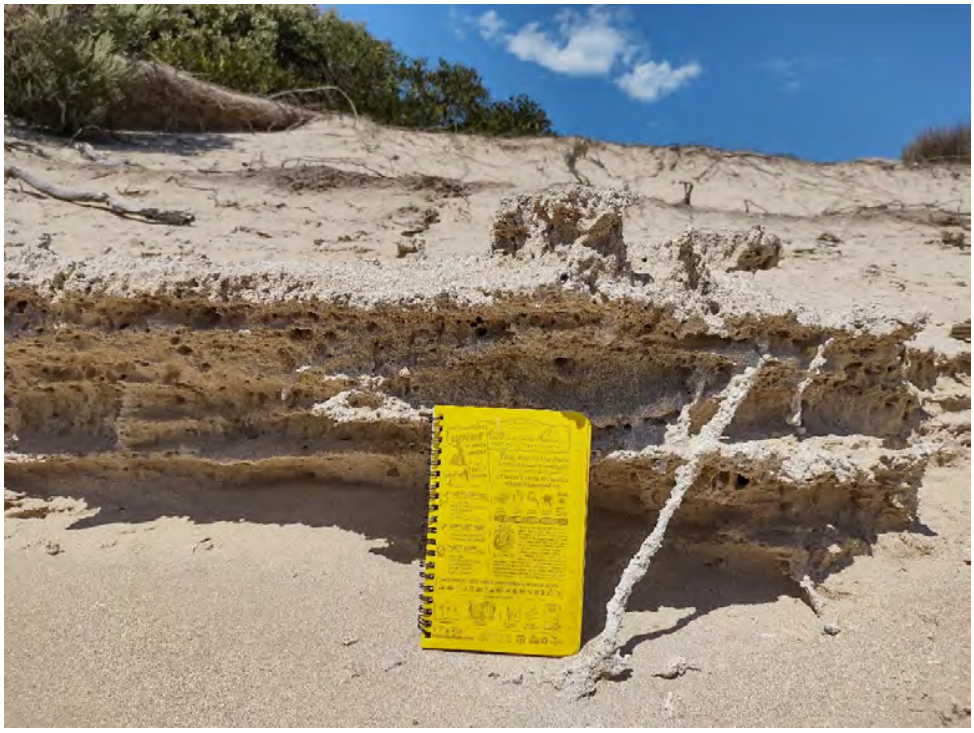


*Image 11: Small carbonate benches have formed in the lower dune horizon but unlike the rhizoliths appear to have formed since the pit last operated.*

The cut sand bank also features several distinct carbonate layers (poorly developed calcretes) that indicate slight differences in the carbonate content of the sand dune horizons (Image 11). These layers stand out as hard surfaces in the dune but on cutting back the surface exposure no stratigraphic difference was noted between these layers and those above and below (Image 12). It was concluded that these layers form by surface hardening by carbonate precipitation on the exposed surface since sediment exposure by past pit operations.



*Image 12: A cut through the weakly developed calcrete on the cut surface of the pit revealed compact fairly uniform bedded sands.*

## DATING

A sample for Optically Stimulated Luminescence (OSL) dating was taken from a freshly cut bench in the lowermost dune unit, 1.5 m below the lower paleosol (Images 13 and 14). This sample will be submitted to the OSL laboratory at the University of Wellington (New Zealand) for dating. The date will provide a maximum age for the formation of the lower paleosol and will help establish whether the dunes formed during glacial or interglacial periods.



*Image 13: Taped transect of the face from the top of the dune horizon to the sample site for OSL dating on the cut bench. Image 14: The sample was taken by hammering a sample tube into the cut bench vertically and then removing the sediment for extraction.*

## MODERN (LATE HOLOCENE DUNES)

Modern dune ridges run parallel to Marshall Beach for the length of the mining lease. They consist of an almost continuous elongated beach foredune backed by a complex of hummocky back dunes separated by roughly bowl-shaped dune swales (depressions). At the western margin of the main resource area these dunes intercept the older west – east longitudinal dunes considered above. The modern dunes are composed of fine loose sands with no evidence of significant calcite crust or rhizolith development; however the carbonate content of the dunes is high. No paleosols were observed in these dunes but thin buried soil horizons may be present. The lack of calcite cementation in the modern dunes suggests a significantly younger age for these deposits as may be expected from their near-coastal setting. Cuttings through the coastal foredune and a low back dune deposit on the main central access track were investigated. The coastal foredune (beach dune) was exposed in a blowout (Images 15 and 16) and displays a uniform profile composed of unconsolidated loose sands. The inland back dune was exposed where the access track cuts through the dune (images 17 and 18). The dune has three horizons: a slightly brown upper 55 cm: a white layer at approximately 55–70 cm and a yellowish layer at >70 cm depth. The profile development indicates a period of dune stability possibly extending back ~1000 years. The brown upper layer is an A1 horizon. The middle white layer is a leached A2 horizon. The deeper yellowish zone is a B horizon. Inappropriate track development and other activities associated with operations on the mining lease could lead to re-activation of these young dunes, which are more exposed to coastal winds than dunes further inland.



*Image 15: Steep modern Marshall Beach foredune looking south from Marshall Rock.*



*Image 16: Natural windblow exposure through the foredune at soil sample site 6 map 2.*



*Image 17: The modern semi-stabilised back dune.*



*Image 18: The dune has a similar composition to the active foredune however has been stabilised for some time as a soil profile has developed.*

## SOIL SURVEY

Soils were sampled and bagged for transport from several locations in the vicinity of the main resource deposit (Map 2). Soils were sampled at depths of 30 cm, 50 cm and where possible 1 m using either natural cuttings or the Eijkelkamp soil auger. This was to identify any unusual characteristics of the soils and to sample for laboratory assessment of soil acidity (pH). pH was measured after shaking soils and water (1:25 ratio) and allowing the mixture to stand for 2 hours A Milwaukee MW 100 pH meter was used, calibrated at the time of analysis using standard solutions at pH 4 and pH 7.

### Dune swale: Site 1

The centre of a low dune swale southwest of the pit was augered. Soil samples at 30 cm and 50 cm depth were taken from this site. No peat deposits were noted.

### South Curved Lagoons Dune swale 2: Site 2

Soils were augered at the lowest point of South Curved Lagoons on a marsupial grazed lawn that appears to hold water at times forming a small pond. The upper 30 cm and 50 cm samples contained yellow white carbonate sands while dark brown swampy organic rich lacustrine sediments were encountered below about 80 cm.

### Dune Swale 3: Site 3

The deepest part of the large dune swale that is visible on topographic maps (as an enclosed depression) was sampled at depths of 30, 50 cm and 1 m. The entire profile displayed fine white sands beneath a slightly browner topsoil and no sign of dark organic horizons or peat.

### Modern active foredune Site 4:

A grab sample of a cutting in an active foredune exposed in a blowout was sampled at approximately 2.5m depth in a uniform unconsolidated sand with no topsoil.

### Main dune exposure: Site 5

Grab samples were taken of the upper dune deposit, Paleosol 1, middle dune deposit, paleosol 2 and the lower dune deposit (Image 7).

### Modern (Holocene) back dune Site 6

Three samples were taken from a track cutting through a low dune in the Marshall Beach back dune complex.

### Limestone Bench Site 7

Two samples were taken from a thin soil developed on the Tertiary limestone bench.

## pH RESULTS

The results of the pH analysis are presented in Table 2. Results for all samples indicated alkaline soil conditions with no indications of highly acidic soil horizons or acid sulphate soils being present in the vicinity of the proposed mining operations. The samples varied in pH between 7.4 and 8.6 with most soils sampled being classified as moderately to strongly alkaline (Blakemore et al. 1987). The topsoil at the large interdune swale (Site 3) returned a

pH of 7.4 that classifies as slightly alkaline (Acid soils have a pH of below 6.5 with strongly acidic soils having pH of <5.2 (Blakemore et al. 1987)).

**Table 2. Results of pH determinations**

| Site | Description | Depth | pH |
|---|---|---|---|
| **Site 1** | Small swale in older dune Southwest of Pit Face | 30 cm | **8.1** |
| | Small swale in older dune Southwest of Pit Face | 50 cm | **8.2** |
| **Site 2** | Lowest point of South Curves Lagoon | 30 cm | **8.0** |
| | Lowest point of South Curves Lagoon | 50 cm | **8.0** |
| | Lowest point of South Curves Lagoon – Organic brown muds | 100 cm | **7.7** |
| **Site 3** | Lowest point of large elongate dune swale brown topsoil | 30 cm | **7.4** |
| | Lowest point of large elongate dune swale - gradational | 50 cm | **7.9** |
| | Lowest point of large elongate dune swale – white sands | 100 cm | **8.4** |
| **Site 4** | Holocene Foredune | ~250 cm | **8.0** |
| **Site 5** | Course quartz rich sands (rocky base) | 30 cm | **8.2** |
| | Course quartz rich sands | 45 cm | **8.3** |
| **Site 6** | Main Pit profile – Upper sand unit | 60 cm | **8.5** |
| | Main Pit profile – Paleosol 1 | 100 cm | **8.2** |
| | Main Pit profile – Middle sand unit | 120 cm | **8.3** |
| | Main Pit profile – Paleosol 2 | 270 cm | **7.8** |
| | Main Pit profile – Lower sand unit (dating sample site) | 430 cm | **8.1** |
| **Site 7** | Holocene dune – Upper topsoil | 15 cm | **8.3** |
| | Holocene dune – Gradational soil (A2) | 60 cm | **8.3** |
| | Holocene dune – Lower yellow / white sands | 95 cm | **8.6** |
| **Site 8** | Shallow limestone soil profile | 30 cm | **8.1** |
| | Shallow limestone soil profile (rocky base) | 50 cm | **8.1** |

The high pH values obtained from the soil samples indicate an alkaline environment where extensive acidic soils are unlikely to be present. The reason for this is that the entire region is buffered by the abundance of dissolved calcium carbonate within the soil profiles and sand dunes and the underlying Tertiary limestone. Low pH conditions are usually associated with deep organic soils or forested areas. While topsoil development is present within the dune fields, they are weakly developed and do not have a significant organic component capable of producing acidic soils, particularly in a carbonate dominated environment. This can be clearly seen by the gradation of pH in the site 3 dune swale samples (Table 2). Here weakly developed topsoil has a pH of 7.4 and pH rises to 7.9 at 50 cm and 8.4 in the white dune sands at >80 cm.

It is notable that although both the site 2 dark organic soil at 100 cm in South Curves Lagoon and the granite-derived soils at site 5 are in locations that should potentially have low pH soils at neither site do pH values drop below pH 7. This is due to the abundance of carbonate in the environment. The lack of deep well-developed topsoils indicate that since the dune formation wet forests or large eucalypt dominated forests may have never been present in this dry landscape. Although the Holocene dune (site 7) clearly shows a period of stability and soil development, the soil is thin and low in organic content. It is notable that at the main pit face (site 5) the two paleosols are also poorly developed and show very limited changes in pH. Previous eucalypt forest cover at these sites is unlikely.

# 5. SUMMARY AND MANAGEMENT RECOMMENDATIONS

## SCIENTIFIC VALUES

The dune field within the study site is a landscape of geoscientific interest which can be and should be managed appropriately to limit the footprint of any extraction activities. The main dune resource identified for extraction under the current development application (not the entire mining lease) is actually a series of up to 8–10 dunes formed between South and North Curves lagoons mapped on the 1:25000 map sheets of the area. Two dune ridges rising to altitudes of around 24 m asl are dominant in the centre of the resource site. The dune ridges have steep profiles and sharp crests indicative of their fairly young age. A central deep elongate depression (mapped as a sinkhole on topographic maps) is a dune swale around 15 m deep. The large dunes and their lower-relief companions (generally 2–4 m high) are oriented west-to-east across the lowland plain. On the eastern margins of the study area they climb onto a bench of Tertiary limestone. The existing pit is near the easternmost end of the two main dunes which at this location have combined into one ridge.

The current face of the old pit provides an interesting profile of dune stratigraphy and is of local scientific interest as it provides evidence of the history of formation of the dunes in this part of Flinders Island and could potentially be used to indicate paleoclimate conditions prevalent on the Island. While this is an interesting exposure, many of the other unimpacted dunes in the region are likely to host similar paleosols and rhizoliths and therefore the features of the pit face are likely to be fairly common within the landscape. The exposure is only visible because of past sand mining operations and has been photographed, sampled and described during this study. Obscuring of the exposure by erosion and tree overturn means that this exposure has a limited lifetime; formal preservation of this site is likely to be impractical.

Resumption of sand mining extending west from the current pit face will destroy and remove the studied deposits but equally it is likely that the mining activities will expose further paleosols and tree root and stump rhizoliths in the sand dune. There is also a remote potential for archaeological deposits to be found within the dune particularly owing to its carbonate-rich nature which is conducive to preserving organic material such as bones (e.g. there is a possibility that large bones associated with megafauna could be exhumed as could ancient human remains or evidence of occupation (fire hearths etc)). Therefore, I suggest that contractors keep an eye out for unusual deposits or large bones during operations. In summary I recommend the following:

Contractors should look out for:

- Thick dark continous bands within the dunes.
- Buried tree stumps or large calcareous deposits that appear to be parts of a tree.
- Stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand.

- Large accumulations of shells.
- Large bones and accumulations of smaller bones buried >1m under he surface.

In the event notable examples of these deposits are encountered the first task should be to photograph the area and move operations away from the immediate working face until a suitably qualified person (in the context of the item/items discovered) can assess any values.

## KARST MANAGEMENT (GENERAL)

While bedrock Tertiary Limestone is present in the east of the mine lease no karst landforms apart from very minor surface solution sculpture (karren) landforms have been identified during this survey. Given the extensive nature and relief of the limestone on the hills east of the mining lease subsurface water flow through karst aquifers is likely but significant karst landforms are unlikely to be present. In the absence of evidence for significant karst formulation of mitigation measures is unnecessary.

### SINKHOLES

It is difficult to differentiate shallow sinkhole depressions from dune swales and this is particularly so in the area of the mining lease. However, all the depressions noted were identified as dune swales so I do not believe they should be treated as karst.

Collapse sinkholes form steep sided depressions and are a sign of significant active karst erosion. In the event a steep sided depression forms during operations work should stop at this location and the area should be avoided during operations until expert advice is obtained. Collapse sinkholes can occur in random locations and are potentially hazardous to machinery and the environment as they may continue to expand following the initial collapse and could indicate changes in subsurface karst aquifer conditions.

### CAVES

While highly unlikely, if any caves are located within the sand dune or in the mining lease, operations should avoid the area, advice from a suitably qualified person should be obtained before operations resume.

**Karst recommendations**

- In the event a steep sided depression forms during operations that has signs of collapse these should be recorded and avoided during operations until expert advice is obtained.
- In the event a cave is located on site operations should avoid the area and seek expert advice.

## EROSION RISKS

Blowouts of the coastal dunes backing the beach are quite common within the mine lease area. However, away from the coast most of the larger dunes appear to be stable. The blowout on the southern edge of the pit face has resulted in minor sand deposition and tree burial south of the highest point of the dune (Image 19). The current location of the pit in the leeward side of the main dune reduces the ability of westerly winds to significantly erode the exposed sands in the pit through deflation, although some loss of sand by wind deflation is likely to have occurred (and may still be occurring). There is a risk that once the operations extend to more of a windward face of the dune, dominant westerly winds may deflate (erode) the dune. This could lead to loss of resource and transport of the sediment. Maintaining a high vegetation cover above the working face and active efforts to revegetate the site away from the working face are key to minimising wind erosion. While easterly winds are common on Flinders Island, they are generally less strong than the westerly winds as evidenced by the strongly deformed vegetation caused by westerlies present at exposed locations on the mining lease (Image 20). Also, easterly winds are generally linked to low pressure systems in the Tasman Sea and rainfall, the wet conditions act to stabilise sand dunes and inhibit wind deflation. Deflation of the sand towards the Marshall Beach Conservation area to west of the proposed pit appears to be unlikely.

**Recommendations to minimise wind erosion.**

- Avoid, if possible, but otherwise minimise working on faces exposed to westerly winds.
- Maintain vegetation above and to the west of any active face
- Re-establish vegetation on a progressive basis, this could include stockpiling cleared tea tree for covering exposed surface as operations progress.



*Image 19: Sand blow deposition burying tree trunks immediately south of the old working face of the sand pit.*



*Image 20: Vegetation growth strongly impacted by the dominant westerlies.*

## SOIL MANAGEMENT

Well drained soils in the area of the Markarna lime sands mining lease in the vicinity of the main proposed resource are strongly alkaline Calcarosols. Acidic soils are unlikely to be present over extensive areas and may be totally absent. While organic topsoils, buried paleosols and lake/swamp sediments are present, none of these soils contain adequate organic material to significantly reduce the pH within the dune sands. However, it should be noted that this survey was not comprehensive, and it is possible that the some swampy depressions could host thicker organic horizons having a lower pH. These horizons however will not be directly impacted by sand mining of the high-relief dune ridges.

## WETLANDS

The extent of wetlands at both North and South Curves Lagoons are significantly smaller than indicated on the topographic map and the TASVEG mapping. Significant areas of these features are undulating grassy dune fields. No wetlands (swamps) as defined by the Forest Practices Code 2020 (Forest Practices Authority 2020, page 98) were documented in the main resource area.

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**ATTACHMENT 6 AMENDMENT**

# Flinders Local Provisions Schedule

## Amendment RZ […….]

The Flinders Local Provisions Schedule is amended as follows:

To amend the planning scheme map to rezone the land at:

I. Part of Certificates of Title 120064/1, 215120/1 and 230282/1 (part of 'MARKANA PARK' - 368 FIVE MILE JIM RD MEMANA TAS 7255) from Landscape Conservation Zone to the Rural Zone, as shown in **Annexure 1**.

**Annexure 1.**



# DEVELOPMENT APPLICATION

## SUPPORTING INFORMATION

### MARKARNA GRAZING COMPANY PTY LTD

**EXTRACTION PIT (SAND), STORAGE SHED, SEPTIC SYSTEM AND ANCILLARY INFRASTRUCTURE**

**PALANA ROAD, FLINDERS ISLAND**



**1 JANUARY 2026**

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This document does not purport to provide legal advice. Readers should engage professional legal advisers for this purpose.

## ACRONYMS

| | |
|---|---|
| **DA** | Development Application |
| **DNRET** | Department of Natural Resources and Environment Tasmania |
| **DPIPWE (now DNRE)** | Department of Primary Industries, Parks, Water and Environment |
| **ENV** | Effective Neutralising Value (used in relation to the ability of a substance to neutralise acidity) |
| **EMPCA** | *Environmental Management and Pollution Control Act 1994* |
| **EPA** | Environment Protection Authority |
| **LUPAA** | *Land Use Planning and Approvals Act 1993* |
| **ML** | Mining Lease 2117P/M |
| **MRT** | Mineral Resources Tasmania |
| **QCP** | Tasmanian *Quarry Code of Practice 2017* |
| **RMPS** | Resource Management and Planning System objectives to be found in Schedule 1 of EMPCA |

## DEFINITION OF TERMS

| | |
|---|---|
| **the 'Activity'** | All use and development associated with the lime sand extraction pit in the Development Area including the screening of extracted sands and ancillary infrastructure such as the storage shed (including crib room), sediment ponds and drains, road and access tracks, hardstand, and wastewater (septic) infrastructure. |
| **Development Area** | The area used to extract, screen, and store lime sand (ready to be collected and delivered to land in agricultural use) and installation and use of associated infrastructure: the storage shed (including crib room), sediment ponds and drains, road and access tracks, hardstand, and wastewater (septic) infrastructure. |
| **(the) Land** | The land covered by ML 2117 P/M – **Figures 1 and 2** |
| **(the) Scheme** | Tasmanian Planning Scheme - Flinders |

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**PREFACE**

This document contains supporting information for a Development Application (DA) that seeks a permit under the *Land Use Planning and Approvals Act 1993* for an Extraction Pit (lime sand) at Marshall Bay, Flinders Island. The lime sand deposits at Marshall Bay are well known and proven in their ENV[1] on agricultural lands.

The DA is made, and permit under LUPAA sought, on the basis that the planning scheme amendment for the zone change to Rural from Landscape Conservation is approved by the Tasmanian Planning Commission.

Mining Lease 2117P/M is in force.

The Extraction Pit includes two activities defined within Schedule 2 of the *Environmental Management and Pollution Control Act 1994* (EMPCA) –

- '5. Extractive Industries.

  (b) Extractive pits: the extraction of 5,000 cubic metres or more of sand or clay per year if the extraction is the subject of, or requires, a mining lease under the *Mineral Resources Development Act 1995* [ie. Maximum 10,000 cubic metres per annum]; and

- '6. Materials Handling.

  (a) Crushing, Grinding or Milling: processing (by crushing, grinding, milling or separating into different sizes by sieving, air elutriation or in any other manner) of … (ii) rock, ores or minerals at a rate in excess of 1 000 cubic metres per year' [ie. Maximum 10,000 cubic metres per annum].

Level 2 Activities must be referred by the Planning Authority (in this case, Flinders Council) to the Environment Protection Authority (the EPA), for assessment under EMPCA. Pursuant to s25(2), given the Activity includes Level 2 Activities prescribed by Schedule 2 of EMPCA, the following is noted for the assessment of environmental matters, such as noise, dust, biodiversity etc.:

> '(f) the planning authority, notwithstanding any enactment to the contrary, is not required to assess any matter addressed in the Board's assessment under paragraph (a) ; and
>
> (g) if, despite paragraph (f) , the planning authority does its own assessment of a matter addressed in the assessment under paragraph (a) , it is not entitled to recover the cost of its assessment from the applicant, the Crown or any other person.'

The EPA assessed the submitted EIS (**Attachments 10**) and concluded the Activity could be approved with conditions. The EPA's Environmental Assessment Report (EAR) produced from its assessment of the EIS is in **Attachment 11**.

[1] Everard, G. (1950). THE LIMESTONE RESOURCES AND GENERAL GEOLOGY AND GEOMORPHOLOGY OF FLINDERS ISLAND.

# PART A – INTRODUCTION

## A.1 DETAILS OF APPLICANT AND LANDOWNER

| | |
|---|---|
| **Name of Applicant and Landowner** | Markarna Grazing Company Pty Ltd |
| **Registered address of Applicant** | 129 Wellington Parade South, East Melbourne VIC 3002 |
| **Postal address of Applicant** | 129 Wellington Parade South, East Melbourne VIC 3002 |
| **ACN** | 063 634 444 |
| **Contact person's details** | Mr George Adams (Director)<br>Phone: (03) 9333 2400, Fax: (03) 9333 1258<br>cynthia.adams@adamsgroup.com.au |
| **Consultant engaged to prepare the DA** | Dr Richard Barnes, Van Diemen Consulting Pty Ltd<br>0438 588 695, rwbarnes73@gmail.com |

## A.2 PURPOSE OF REPORT

This report supports a request by Markarna Grazing Pty Ltd to the Planning Authority to issue a planning permit for extractive industry, storage shed, and ancillary infrastructure.

## A.3 PLANNING INSTRUMENT

Tasmanian Planning Scheme – Flinders Island Local Provisions Schedule

# PART B – DEVELOPMENT OVERVIEW

This section provides information about the development and use associated with the Extraction Pit.

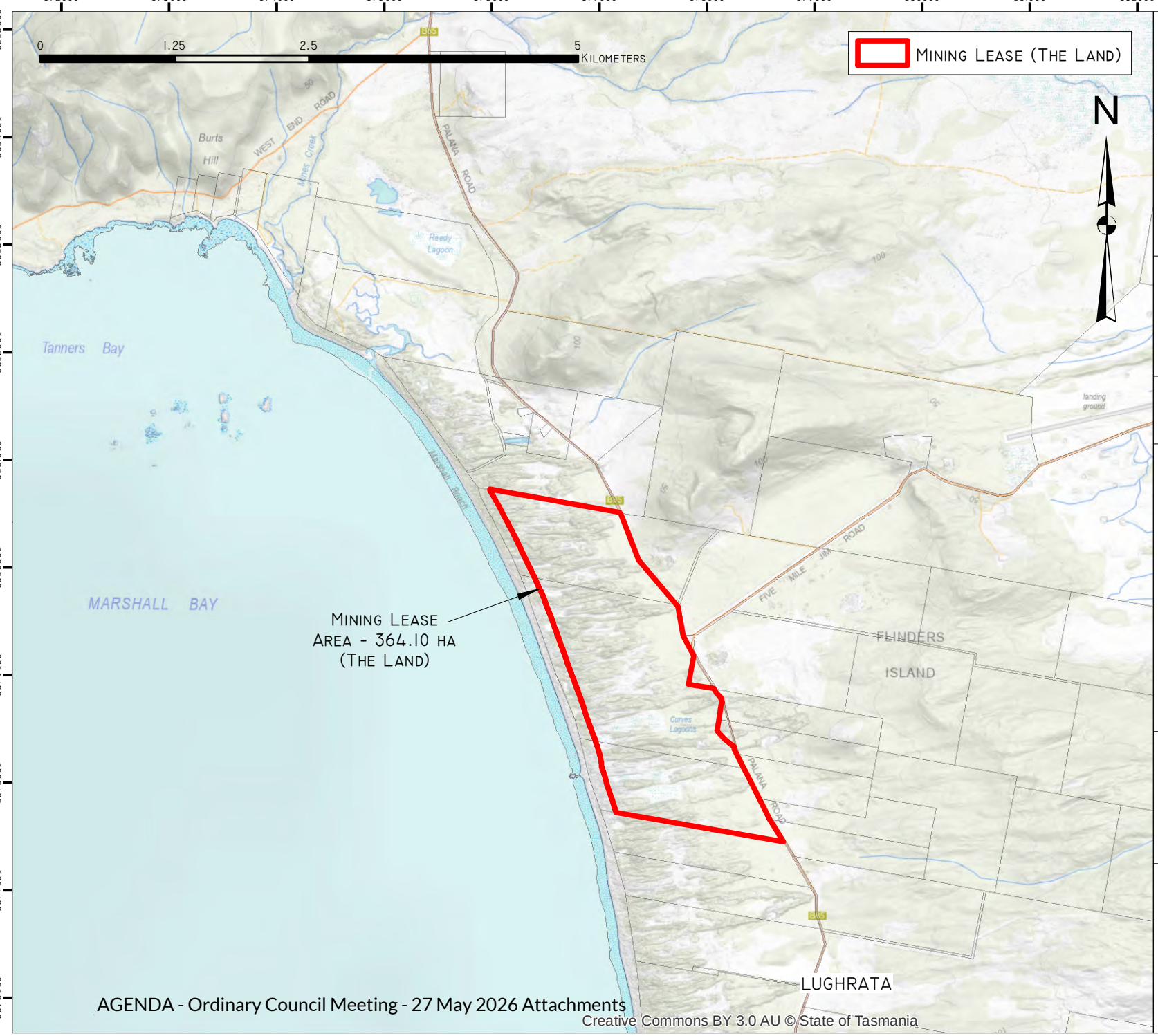
### B.1. PROPOSED ACTIVITY

| | |
|---|---|
| **New Activity**<br>Figures 1 and 2 | The application is for a new Activity; Extractive Industry per the Use Class classifications in the Tasmanian Planning Scheme - Flinders.<br>The application for a permit to extract, screen, and store lime sand (ready to be collected and delivered to land in agricultural use) applies to the Land shown in **Figures 1 and 2, and further spatially defined as the Development Area mapped in Figure 3.**<br>The following Certificates of Title apply to the development and use associated with the Activity –<br>• CT 215120/1, CT 230282/1 – private freehold (PID 3513143)<br>• Reserved Road (Part of CID 1182402) – The Crown (vehicular access only) |
| **Material to be extracted** | The material to be extracted is lime sand destined for an agricultural use (soil ameliorant). Extracted (raw) sand will be screened if necessary to remove organic matter and contaminants (e.g., shells, rocks, and stones). Additional agricultural soil ameliorants/additives such as boron may be mixed (by screening) with some of the lime sands prior to carting to the location of use (i.e., spreading on paddocks). |
| **Maximum extraction quantity** | 10,000 cubic metres per annum (equivalent is 15,000 tonnes per annum). Loose bulk density ratio is 1.5.<br>Material is likely to be transported in greater volumes in summer and autumn because these seasons coincide with the peak activity periods for agricultural pasture improvement, maintenance, and establishment. |
| **Maximum Extraction Area**<br>Figures 2 and 3 | The Maximum Extraction Area from where lime sands will be extracted is the *Initial Resource Area* depicted in **Figures 2 and 3.**<br>The MEA is a part of the Development Area (the Development Area includes the ancillary infrastructure including the shed, laydown area, car park, access to Palana Road etc.).<br>The MEA has an estimated 30-year supply if full production levels are achieved every year from the commencement of the Activity.<br>The indicative location of the lime sand resource more broadly in the Land (Mining Lease 2117P/M) is shown in **Figure 2.** |

| | |
|---|---|
| **Maximum processing quantity** | Screening of up 10,000 cubic metres per annum (equivalent is 15,000 tonnes per annum). Loose bulk density ratio is 1.5. |
| **Material extraction and processing** | The **extraction and handling of material** will be in accordance with the following:<br>• surface site preparation by vegetation and topsoil stripping and stockpiling;<br>• excavation of material with a bulldozer and/or excavator;<br>• transport of sands to the storage shed for screening/storage and occasional mixing with other soil ameliorants/additives (e.g., additional micro-nutrients and essential plant nutrients such as boron). Some sand will be loaded at the pit into trucks for immediate delivery to agricultural lands;<br>• screening (up to 10,000 cubic metres per annum) to remove any vegetative/root debris and/or rocks and stones;<br>• loading trucks with wheel loader from the pit face and/or stockpile area; and the<br>• transport of material by truck. |
| **Transport**<br>Figures 3 and 5A | The maximum extraction volume of 15,000 tonnes equates to about 1,500 truckloads per annum based on 10 tonne loads (smaller loads are used given the material is to be spread on pastures and ploughed land).<br>Lime sands are mainly required in summer and autumn (January to May) which coincide with the peak activity period of agricultural pasture improvement, maintenance, and establishment.<br>Approximately 300 truck movements per week (150 truckloads) is expected for an 8 to 10-week period of carting (March to May). Over 5 days each week this equates to about 30 truckloads per day (or 60 truck movements per day).<br>All traffic would enter and exit onto the sealed section of Palana Road using the now disused reserved road (unsealed) section of Palana Road – **Figures 3 and 5A**. |
| **Stockpiling**<br>Figures 5A and 5B | Raw sand will be stockpiled in the pit, adjacent to the pit or at the storage shed ready for screening.<br>Screened sands will be stored in the shed or on the hardstand ready for collection by trucks for transport to the delivery location. |
| **Maximum area of disturbance** | The removal of vegetation will occur as an area is required for pit expansion or the establishment of specific infrastructure, such as a cut-off drain, stockpile location etc. The management of vegetation removed to extract the resource will be in accordance with the QCP.<br>The maximum area of disturbance, without any rehabilitation, is 5 hectares. |

| | |
|---|---|
| | To place this into perspective, given the size of the Mining Lease (364.1 hectares), the maximum area of disturbance at any one time represents 1.4% of the Mining Lease. |
| **Major equipment** | The equipment likely to be used at some stage (i.e., not all the below listed equipment would be used concurrently) of the Activity is as follows:<br>• Vibratory screen<br>• Wheel Loader<br>• Excavator<br>• Dozer D9N<br>• Off-road haul truck<br>• Transport trucks (medium combination truck & trailer)<br>• 15,000L capacity water cart truck<br>• Light vehicles for worker transport |
| **Infrastructure**<br>Figures 3, 5A and 5B | An existing road off Palana Road (**Figure 3**) is to be used to access the pit and shed.<br>The reserved road is held under licence with the Crown for use to access the Land.<br>The junction with Palana Road will be sealed for a minimum distance of 25 m, measured from the current sealed road surface. Maintenance activities will be conducted on the unsealed section of the access road to improve table drains and the road surface (e.g., pothole filling).<br>A shed (15000 x 60300 x 7700 mm) is proposed – see **Attachment 2** for design and **Attachments 3 and 4** for the layout of the shed internal crib room and amenities.<br>Drains and a sediment pond will be installed to manage surface water flows. As the pit extends westwards additional sediment ponds will be constructed to collect and treat (for sand removal) surface flows prior to their discharge to the environment. The free draining nature of the sands means it is unlikely that sediment ponds would need to be very large, but they will be sized to suit the catchment size.<br>A septic wastewater system (grey and black water) will be installed to dispose of toilet, shower, and crib room waste. The approximate location of the trenches is shown in **Figure 5A.**<br>Tanks will be installed (likely to be 2 x 50,000 litre) to capture rainwater from the shed and to receive water from a groundwater bore. |
| **Proposal timeline** | It is anticipated that the activity will commence in the 2025-26 financial year. |

| | |
|---|---|
| **Operating hours** | 0700 – 1900 hrs Monday to Friday |
| **Workforce** | The activity will utilise up to 5 staff per day when fully operational plus truck drivers.<br>Most days will see only 2-3 staff at the site who would be loading trucks and carting lime sands from the active face to the shed. |
| **Wastewater (septic) system** | New on-site wastewater management system to treat and apply wastewater derived from workforce toilets and ablution facilities. It is proposed to install a septic tank absorption bed discharging to an in-ground absorption bed.<br>The on-site wastewater management system design caters for a daily design loading of up to 5 persons with a per capita loading of 40L/person/day.<br>The wastewater discharge from the premises will be broadly like domestic wastewater; there will be no industrial or trade-waste discharge to the installation; this is consistent with Clause 1.2.1 of *AS/NZS 1547:2012 Domestic on-site waste-water management*.<br>The site is underlain by Quaternary deposits of windblown sand of marine origin (coastal sand dunes); this is consistent with soil profiles observed on-site. The marine sands contain a high proportion of calcareous material (marine mollusc shell derived), which makes them attractive for extraction for agricultural usage, for soil pH modification.<br>Calcium carbonate from shell grit present in the wind-blown beach sand id subject to solution by rainwater and redeposition as a calcareous matrix, cementing sand grains together, forming discrete layers of hardpan, which is considerably less permeable than the unconsolidated sands.<br>This was encountered at a depth of 1100-1200mm (**Attachment 5**); however, it is likely that this hard pan could be present at varying depths, therefore, soil profile modifications to ensure uniform permeability under the land application area basal area will be required. This will be achieved by excavating absorption beds to a minimum depth of 1500mm and backfilling with loose, unconsolidated sand, prior to installing the absorption bed infrastructure. |




Annexure: 16.2.3

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 1: LOCATION OF MARKARNA PARK SAND PIT

| TASMAP: | LGA: FLINDERS |
|---|---|

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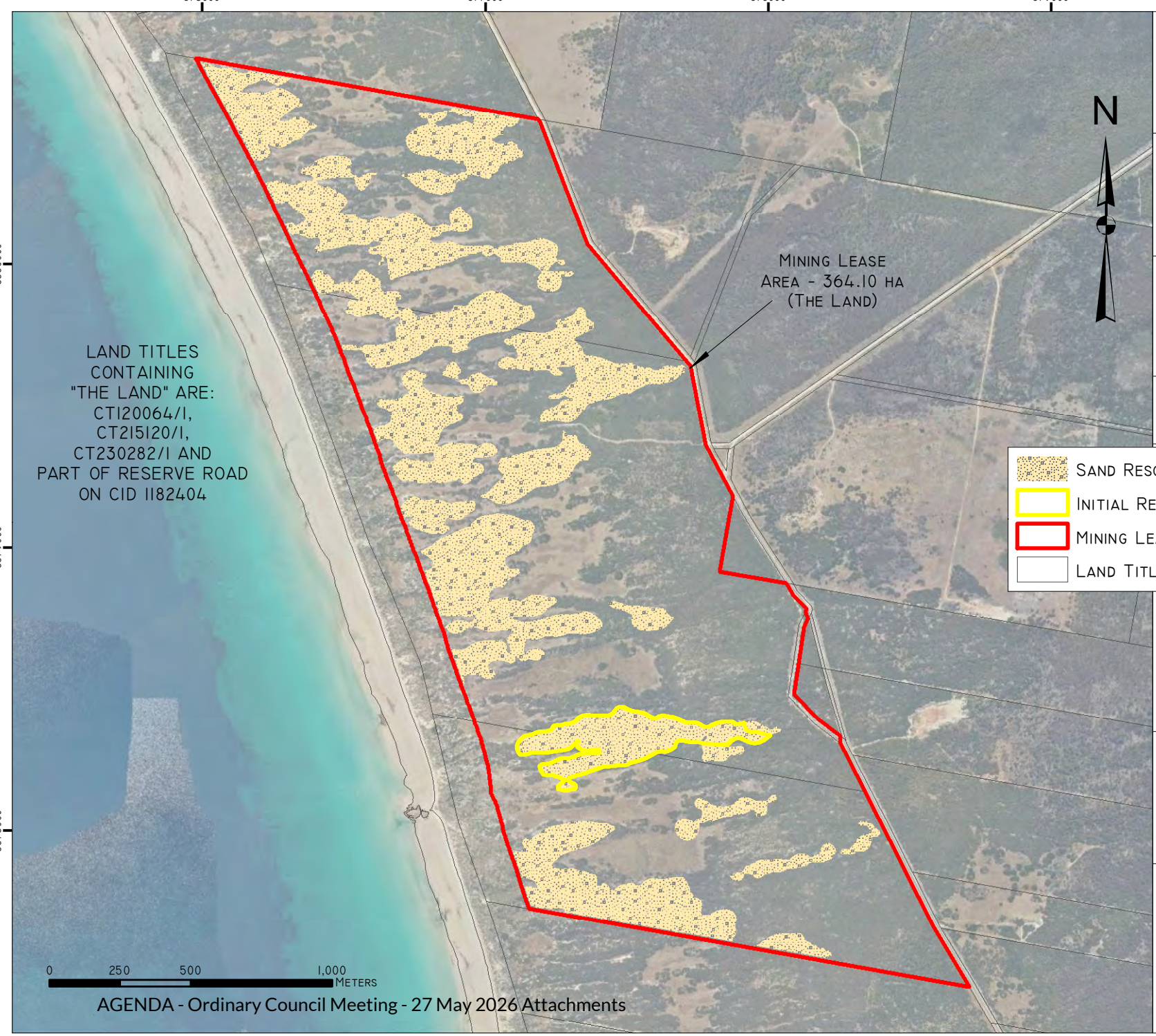
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GRID: MGA ZONE 55
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CLIENT:
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DATE: 10 APRIL 2023



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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 2: LOCATION OF MARKARNA PARK SAND PIT DEVELOPMENT AREA AND LAND TITLES

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

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Annexure: 16.2.3

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

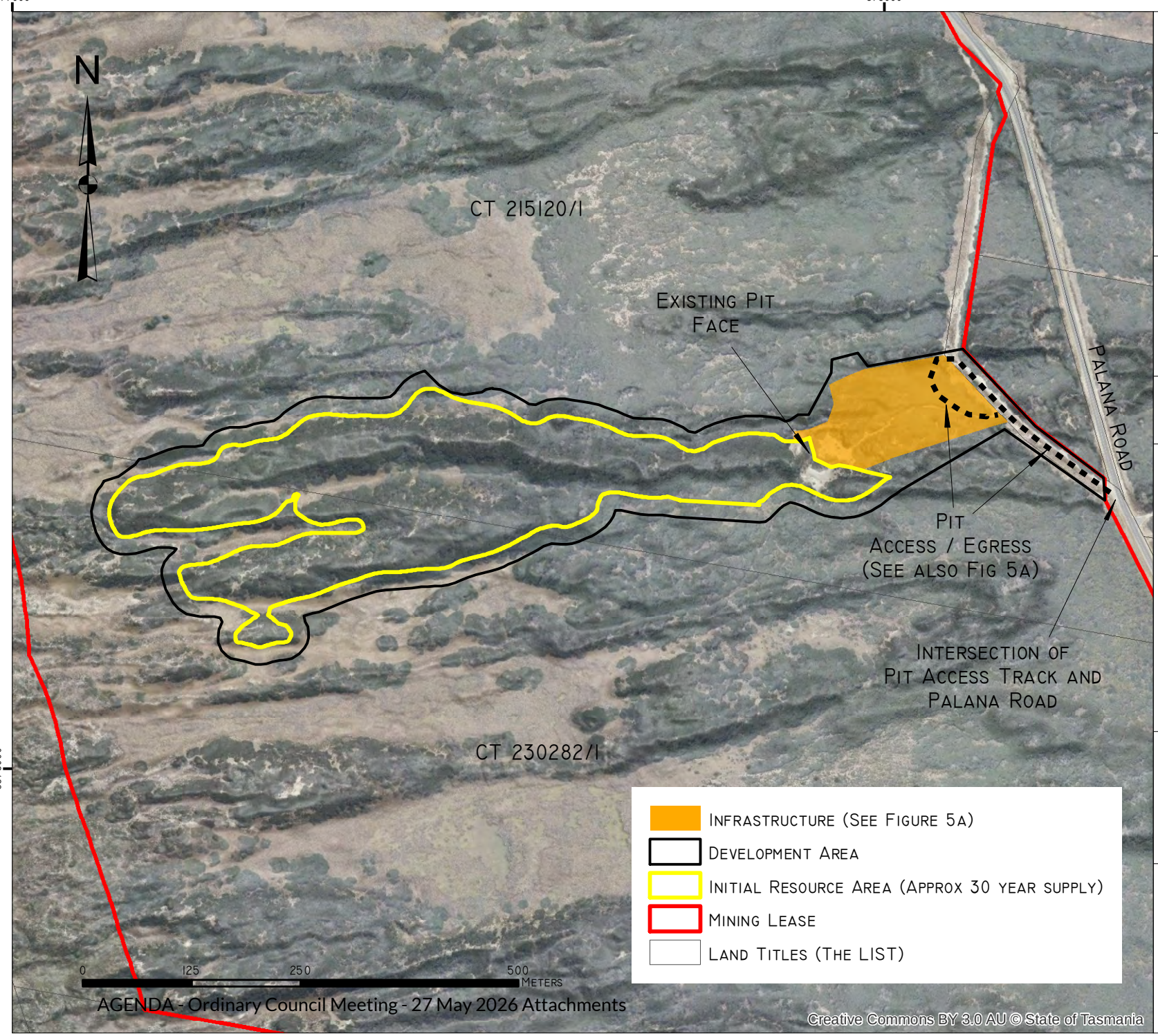



Figure 3: Markarna Park Sand Pit Development Area and Access/Egress

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

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**B.2 LOCATION AND PLANNING CONTEXT**

| | |
|---|---|
| **Location and Access**<br>Figures 1 to 3 | The address for the Activity is –<br>'MARKANA PARK' - 368 FIVE MILE JIM RD MEMANA TAS 7255<br>Access is from Palana Road (sealed road section). |
| **The Land**<br>Figures 1 and 2 | Mining Lease 2117P/M which spatially includes the reserved road under licence with the Crown |
| **Land Titles and PID**<br>Figure 2 | The following Certificates of Title apply –<br>• CT 215120/1, CT 230282/1 – private freehold (PID 3513143)<br>• Reserved Road (Part of CID 1182402) – The Crown (vehicular access only) |
| **Land tenure**<br>Figure 2 | The Land is private freehold other than the Reserved Road at the eastern extent of the Land. The Reserved Road is under licence by the proponent, and is also spatially covered by ML2117P/M. |
| **Land zoning**<br>Figures 4A and 4B | Tasmanian Planning Scheme – Flinders<br>• Rural zone<br>• Landscape Conservation zone (reserved road section only; only for vehicular access) |
| **Planning overlays**<br>Figures 4B, 4-C1 to C4 | Tasmanian Planning Scheme – Flinders<br>• Waterway and Coastal Protection Area<br>• Landslip Hazard<br>• Priority Vegetation Area<br>• Scenic Protection Code<br>• Coastal Inundation |
| **Use Class and Permissibility** | The activity is consistent with the Extractive Industry Use Class.<br>An Extractive Industry is listed as Permitted in Clause 20.2 Use Table for the Rural zone. |
| **Mining Lease**<br>Figure 1 | 2117P/M (in force) |
| **Mining Lease area** | 364.1 hectares |

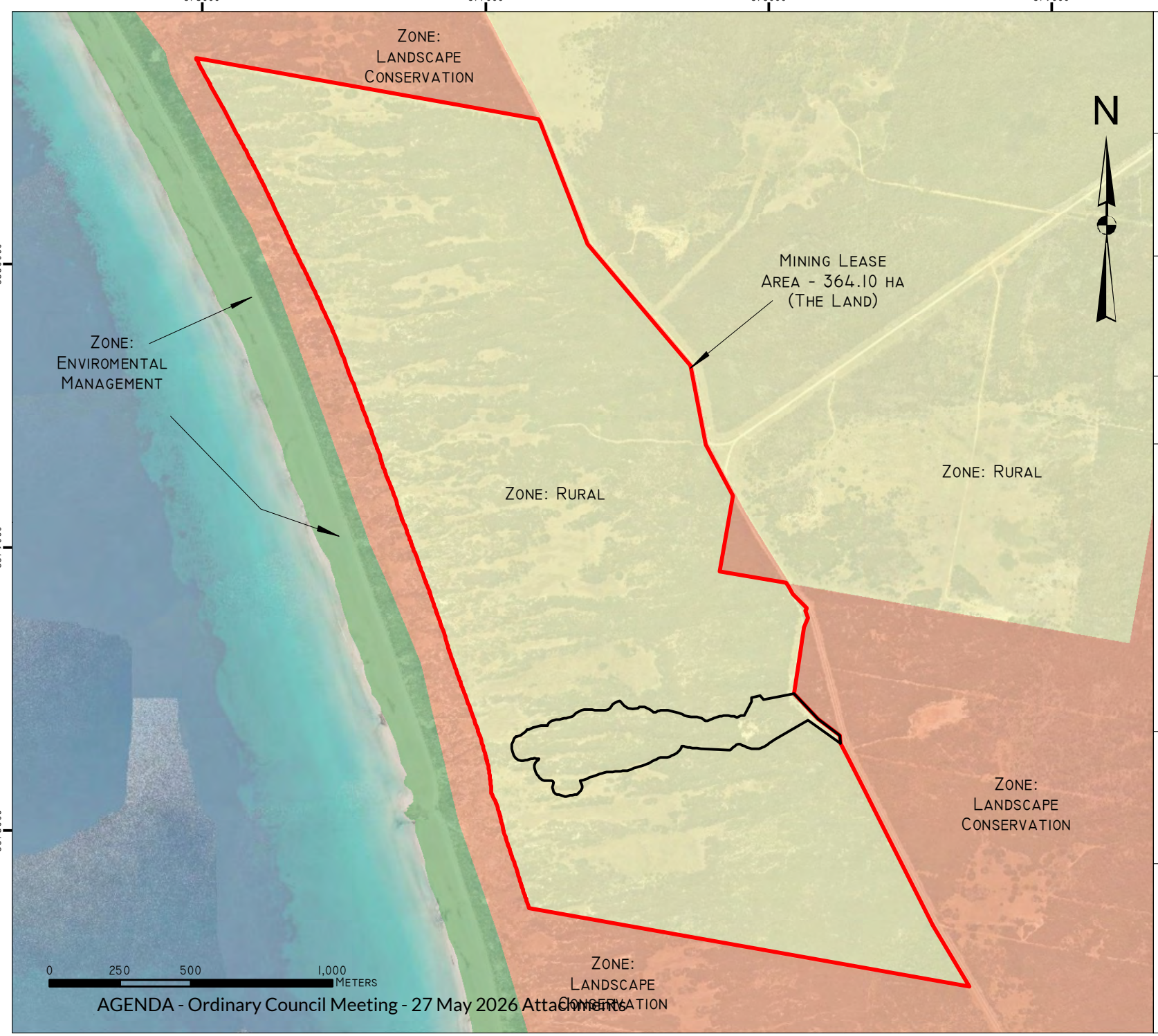
**B.3 RATIONALE FOR PROPOSAL AND ALTERNATIVES**

| | |
|---|---|
| **Rationale** | Soil acidification is a naturally occurring process which is influenced by soil type, organic matter, fertiliser usage, rainfall and farming practices. Most of Tasmania's soils are naturally acidic, which compounds the problem of acidification.<br><br>Over time soil pH decreases, with the rate of pH decline being quicker in light textured soils that have low organic matter.<br><br>The processes which reduce pH levels in agricultural soils are primarily –<br><br>1. Organic matter accumulation which causes organic acids;<br>2. Removal of plant and animal material containing large amounts of cations (calcium, magnesium and potassium);<br>3. Leaching of cations due to high rainfall;<br>4. Leaching of nitrate and nitrogen from the root zone; and<br>5. The application of soil-acidifying fertilisers.<br><br>The acidification of agricultural land is potentially a serious land degradation issue and without addressing the issue, agricultural productivity and sustainability will be negatively affected.<br><br>The key soil productivity issues that are caused by soil acidification are:<br><br>• A decrease in the availability of nutrients to plants;<br>• Increasing the toxicity of aluminium and manganese;<br>• Decreasing soil biological functions;<br>• Reduce the ability for legumes to fix nitrogen; and<br>• Make the soil more vulnerable to soil structure decline and erosion.<br><br>Lime sands (material rich in calcium carbonate – $CaCO_3$) reduce acidity by neutralising the acid reaction in soils. The carbonate component of lime consumes hydrogen ions present in the soil solution and in doing so raises soil pH. The higher the Effective Neutralising Value (ENV) the more reactive the lime product is within the soil and the greater its ability for unit volume to neutralise acidity.<br><br>'Liming' is the only cost-effective way to manage low soil pH. It prevents loss of production and profitability in farming systems and reverses acidification. Lime is usually applied on the surface several months before sowing pasture or crops to allow time for the lime to react in the soil. Incorporation of the lime into the soil is recommended for the quickest results, as lime does not move readily down through the soil profile.<br><br>Commonly used liming materials include for example –<br><br>1. Agricultural lime - Crushed and sieved natural limestone is mainly calcium carbonate. It is safe, cheap and effective. |

| | |
|---|---|
| | 2. Lime sand - Lime sand is mined from natural deposits and is mainly calcium carbonate. It is safe and cheap but can on occasion be coarser and slower reacting than agricultural lime.<br>3. Dolomite - A mixture of calcium and magnesium carbonates. It is particularly valuable where magnesium is low.<br>4. By-product lime - This is a by-product from the production of soda ash. It contains mostly calcium carbonate, but with some calcium oxide and hydroxide.<br><br>An RMCG report (2022)[2] recognised that soils on Flinders Island are highly variable ranging from acidic sandy loams to sandy alkaline, with limited organic matter. This variability and its impact on pasture and subsequent meat production and profitability, present a range of soil management challenges to maintaining their economic and environmental sustainability. One key consideration is the challenge and high cost of bringing farm inputs, such as lime, to the Island. By not applying lime to the soil a lessening of soil fertility and optimal growth characteristics will occur in the medium and to the long term undermining the productivity and viability of agriculture on the island.<br><br>Agriculture is a critical employment and income generation activity on Flinders Island, so its longevity is of paramount importance to the social and economic well-being of the island.<br><br>The Marshall Bay land parcels owned by Markarna Park were specifically purchased to provide ongoing lime sands for the agricultural lands on the property and associated properties, and to also provide some for sale to other agricultural enterprises on the island. The existing but now disused pit (which is the starting location for the new pit) was once used by many islanders to access lime sand due to its ease of access, extraction of high ENV. Sands will also be used to supply concrete production activities because most sand for such a purpose is brought to the island.<br><br>Off-island supplies of lime are costly due to high freight charges which in the medium to long-term undermines the economic viability of agriculture on the island. That is, if lime is expensive then it is likely that inadequate levels would be used by agricultural operators (due to cost) that then has a long-term negative impact to the overall soil health and potential of agricultural lands to produce food. |
| **Alternatives** | The lime sand deposits at Marshall Bay are well known and proven in their ENV[3] on agricultural lands.<br><br>No alternatives were considered as the lime sands are spatially limited on Flinders Island, are of very high quality, extensive in their geographic extent at Marshall Bay and can be extracted in a way and a rate that is sensitive to the Marshall Bay environment. |

[2] RMCG (2022). Flinders LPS Rural Enterprise Concept Report. 5 January 2022.

[3] Everard, G. (1950). THE LIMESTONE RESOURCES AND GENERAL GEOLOGY AND GEOMORPHOLOGY OF FLINDERS ISLAND.




Annexure: 16.2.3

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 4A: ZONE MAP
TASMANIAN PLANNING SCHEME
LPS ZONES

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

DEVELOPMENT AREA

MINING LEASE (THE LAND)

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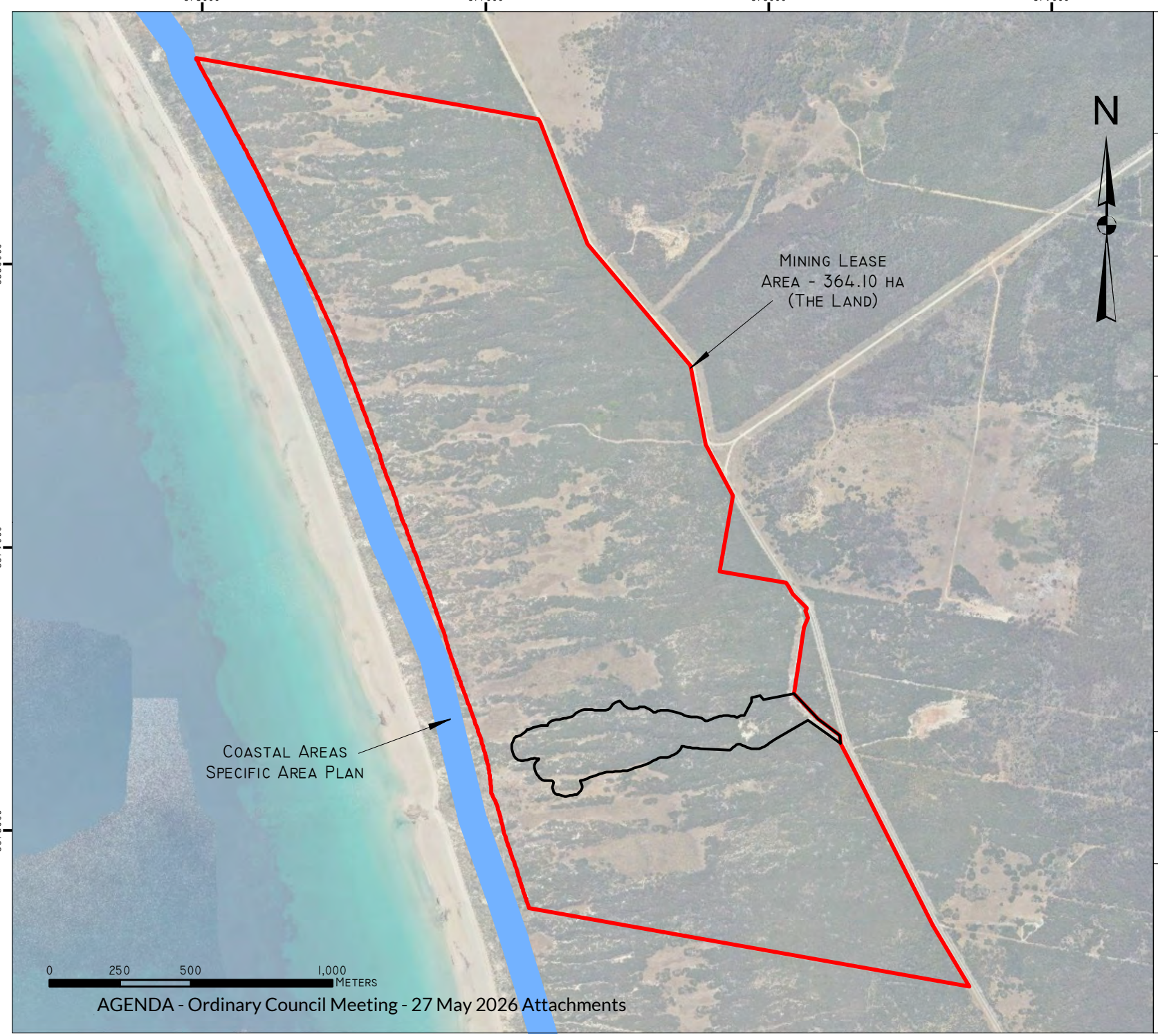
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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 4B: GENERAL OVERLAY MAP - TASMANIAN PLANNING SCHEME - FLINDERS

| TASMAP: | LGA: |
|---|---|
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Development Area

Mining Lease (The Land)

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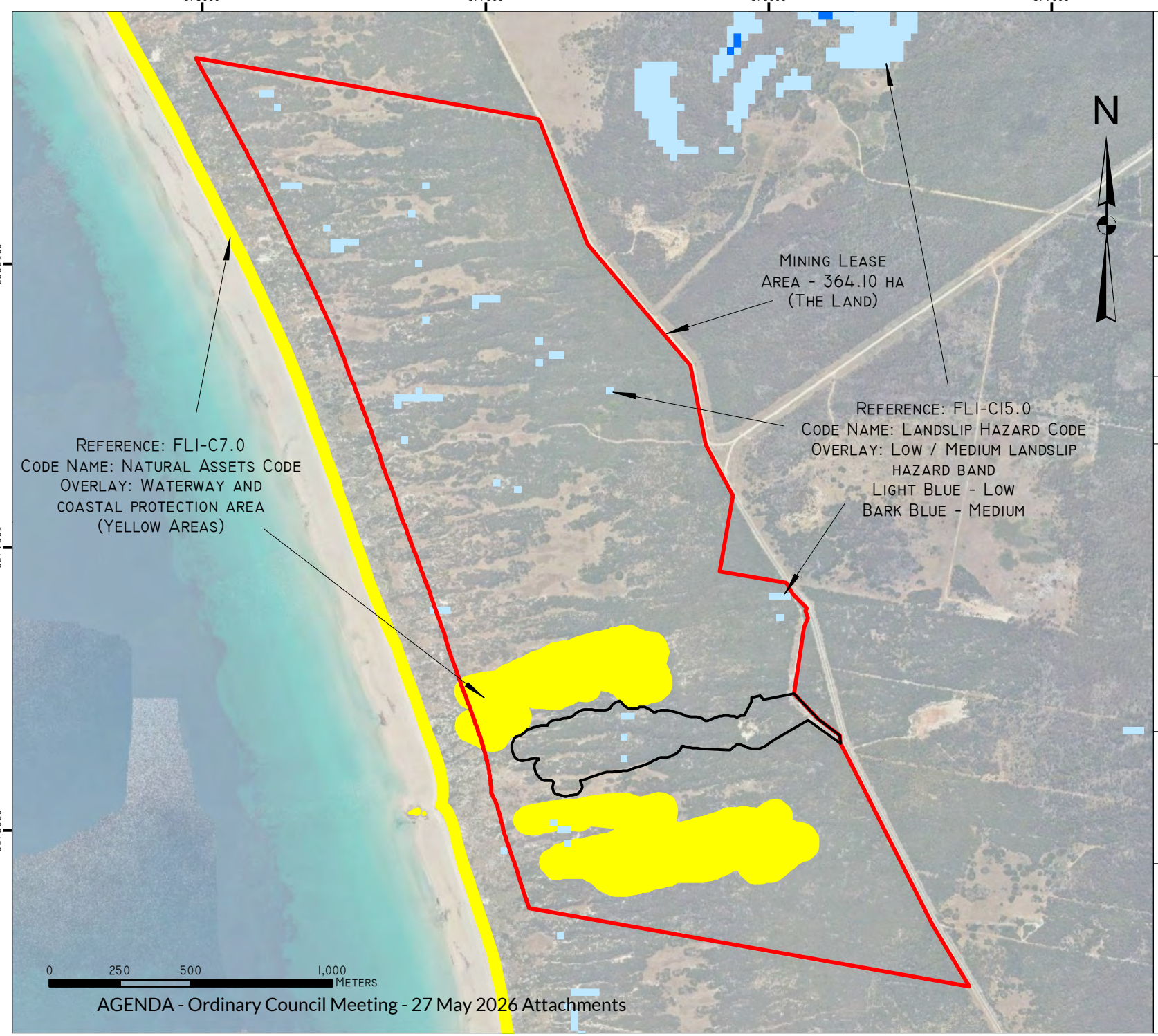
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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 4C-1: CODE OVERLAY MAP - TASMANIAN PLANNING SCHEME - FLINDERS

| TASMAP: TANNER EMITA | LGA: FLINDERS |
|---|---|

Development Area

Mining Lease (The Land)

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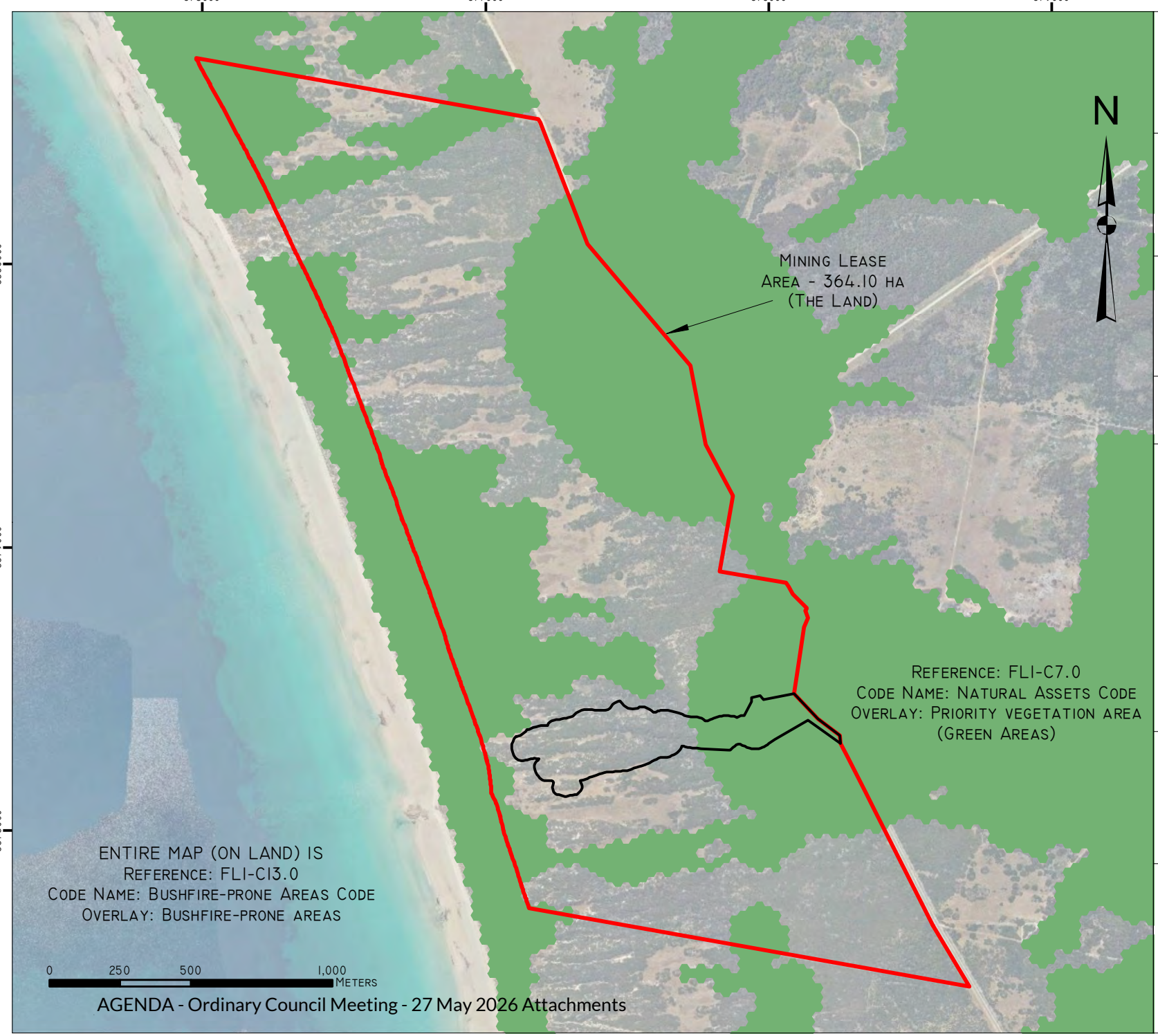
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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 4C-2: CODE OVERLAY MAP - TASMANIAN PLANNING SCHEME - FLINDERS

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area

Mining Lease (The Land)

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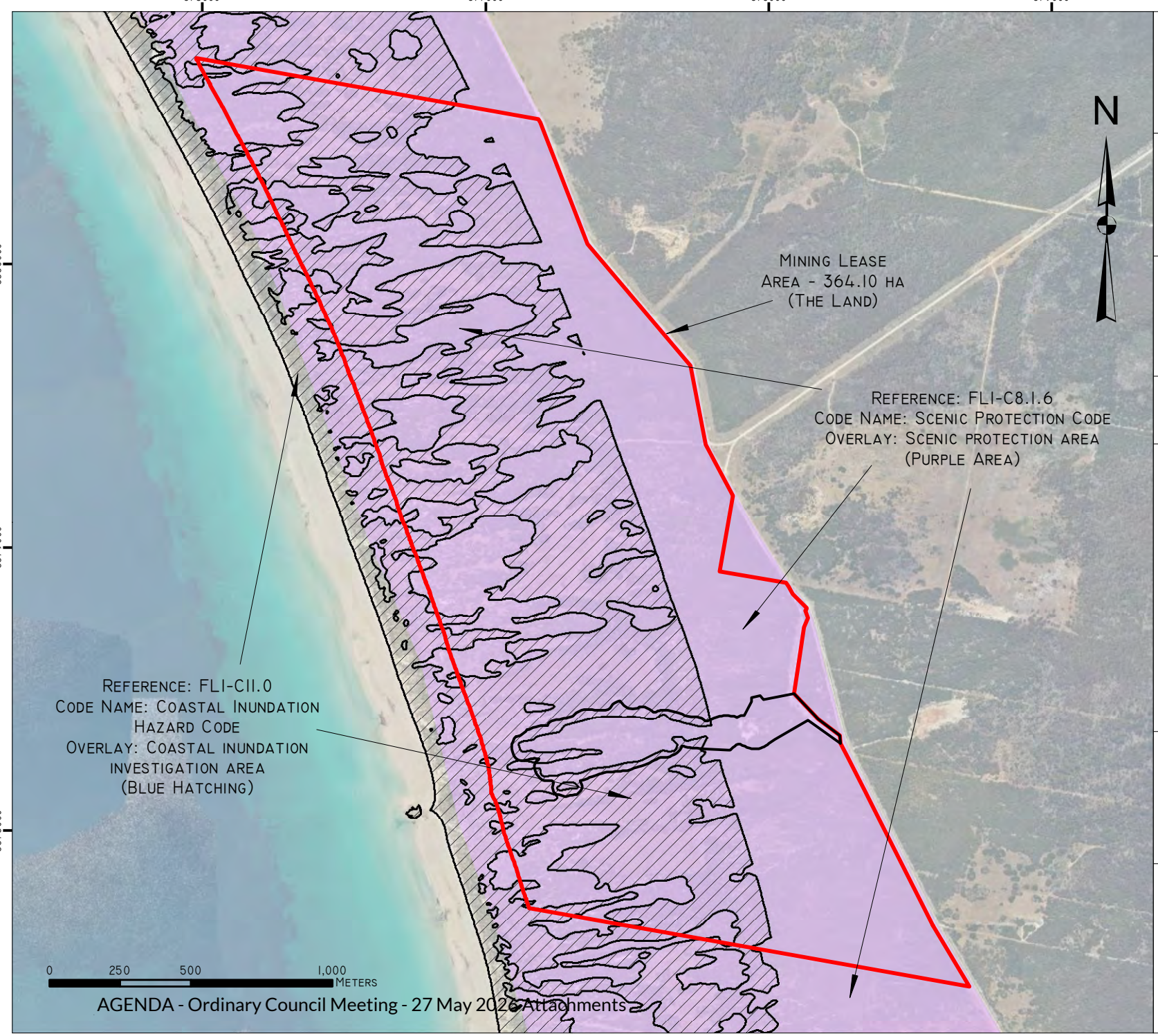
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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 4C-3: CODE OVERLAY MAP - TASMANIAN PLANNING SCHEME - FLINDERS

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area

Mining Lease (The Land)

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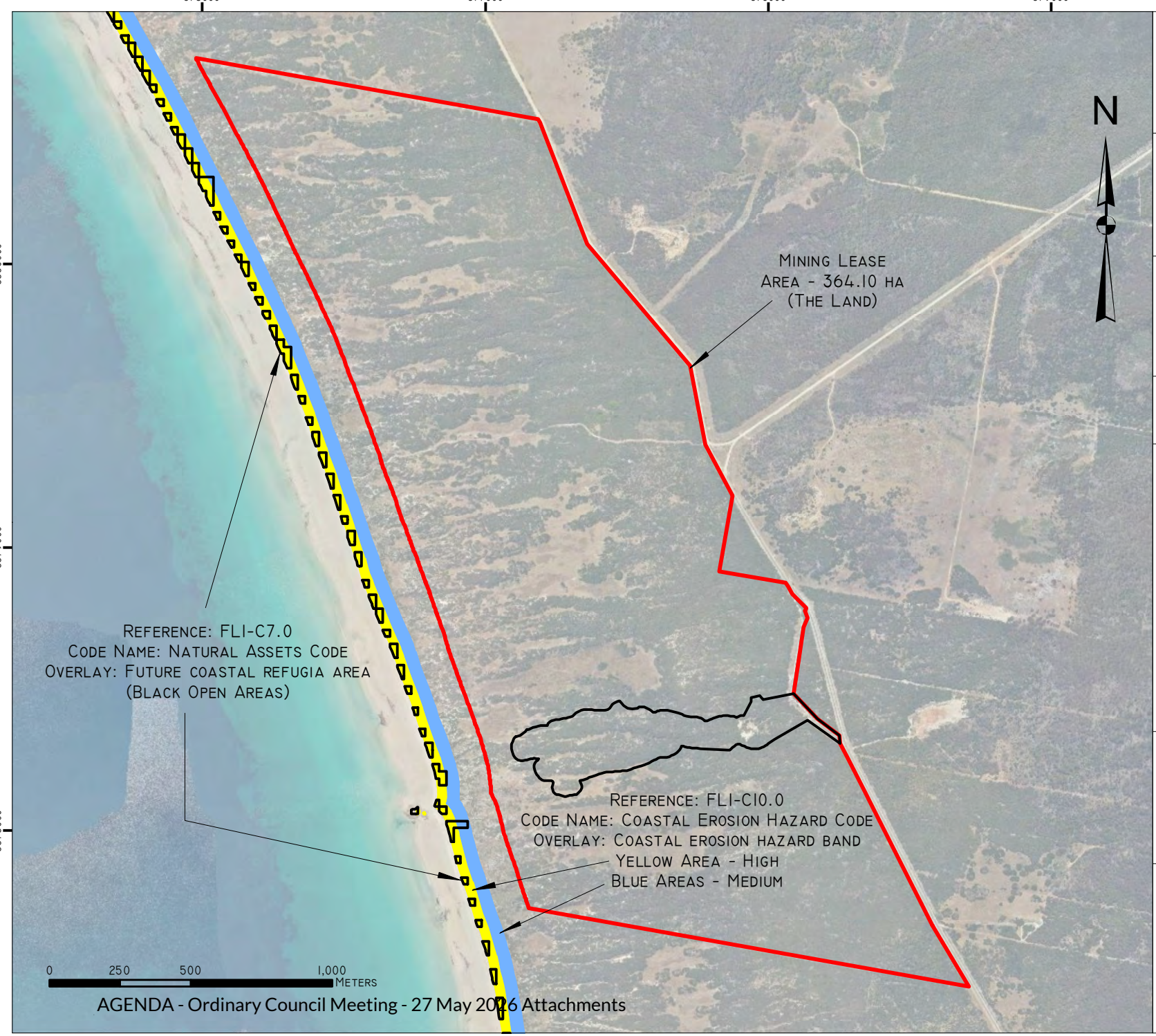
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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 4C-4: CODE OVERLAY MAP - TASMANIAN PLANNING SCHEME - FLINDERS

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area

Mining Lease (The Land)

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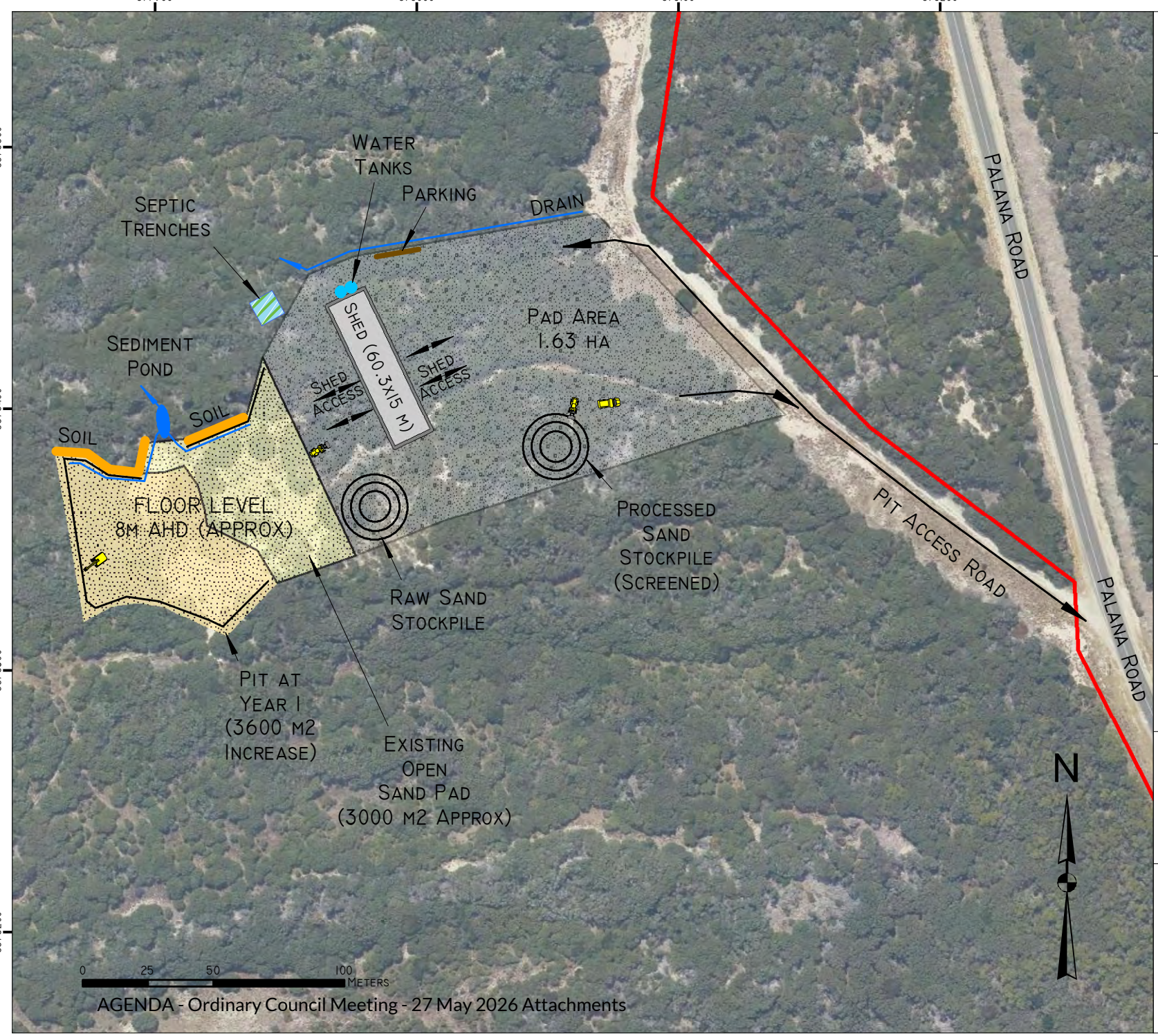
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DATE: 10 APRIL 2023

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

### FIGURE 5A: MINE PLAN SITE SET UP AND EXTRACTION TO YEAR 1




TASMAP: TANNER EMITA

LGA: FLINDERS

- CLEAR GRAVEL SURFACE
- EXISTING SAND SURFACE
- SHED (60.3 X 15 M)
- CLEAR GRAVEL SURFACE
- MINING LEASE

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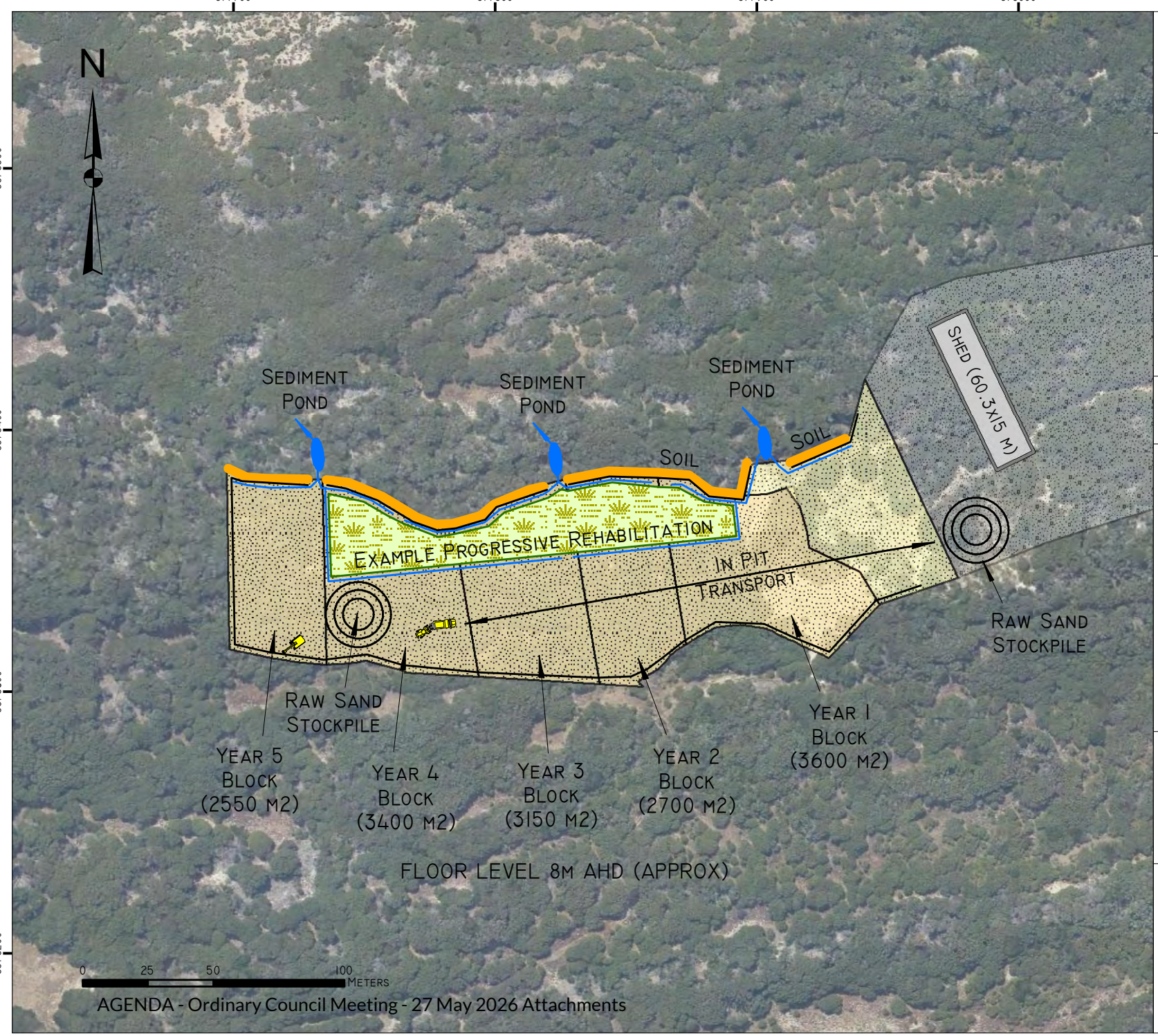
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DATE: 10 APRIL 2023




Annexure: 16.2.3

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 5B: MINE PLAN EXTRACTION (YEAR 1 TO 5)

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

- CLEAR GRAVEL SURFACE
- EXISTING SAND SURFACE
- SHED (60.3 X 15 M)
- CLEAR GRAVEL SURFACE

BASE DATA BY TASMAP. © STATE OF TASMANIA
BASE IMAGE BY TASMAP. © STATE OF TASMANIA

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PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
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DATE: 10 APRIL 2023

## PART C - PROJECT AREA

### C.1 CLIMATE PARAMETERS

The nearest Bureau of Meteorology weather recording station is at Flinders Island Airport to the south of the Land.

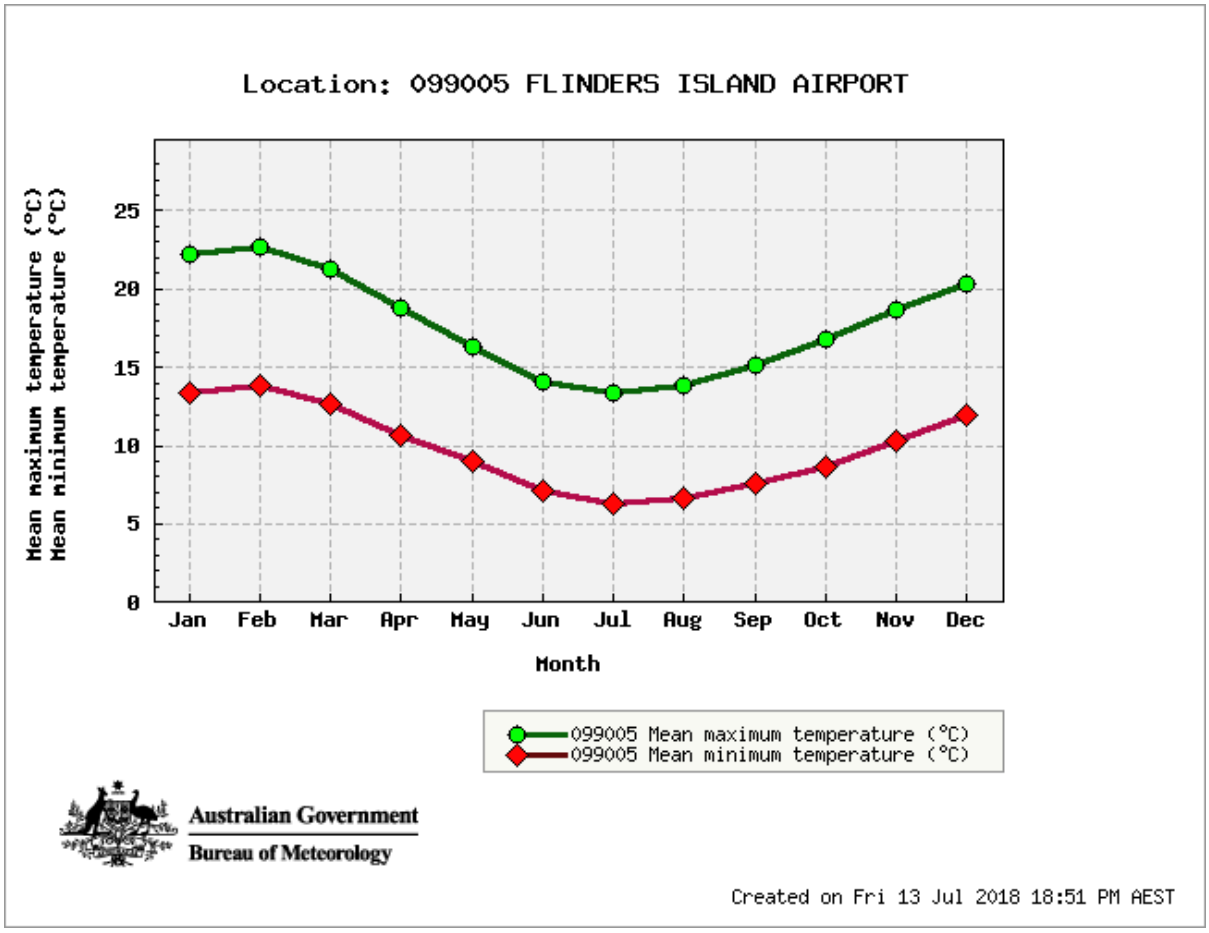
The station details for the Flinders Island Airport weather station are -

- **Site number:** 099005
- **Latitude:** 40.09 °S **Longitude:** 148.00 °E
- **Elevation:** 9 m

The development and use occur in a region with cool winters and warm summers (**Graph 1**), with most precipitation occurring in the winter and spring period (**Graph 2**).

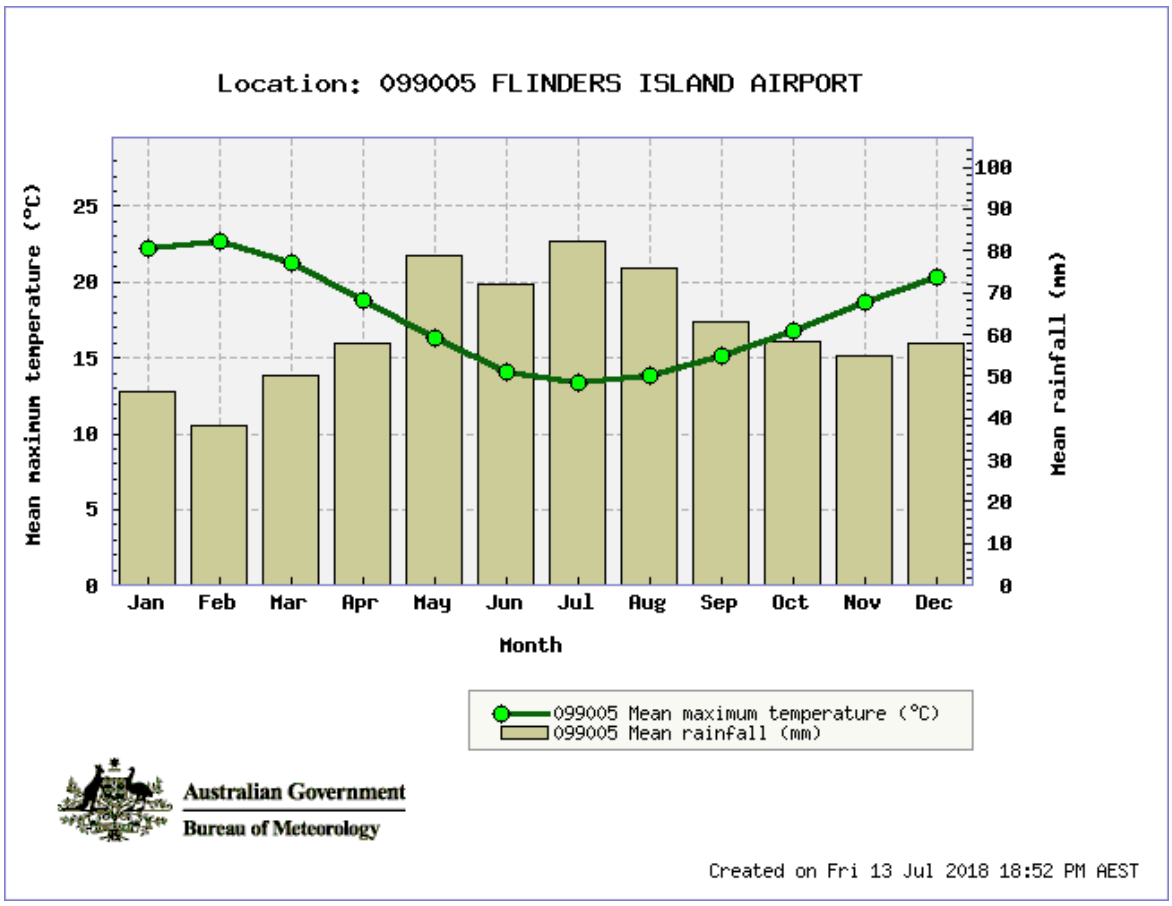
**Graph 1. Mean minimum and maximum temperature for Flinders Island Airport**

Source: Bureau of Meteorology 2018



**Graph 2. Mean annual rainfall and mean maximum temperature for Flinders Island Airport**

Source: Bureau of Meteorology 2018




## C.2 GEOLOGY, SOILS AND LAND CAPABILITY

### Base Geology

The geology of the Mining Lease (proposed) is sand, gravel, and mud of lacustrine and littoral origin (**Figure 6**). The sands to be extracted are of littoral origin and are highly calcareous in nature.

The underlying geology is a mosaic of lacustrine/littoral gravels and sands compacted/cemented in situ by the overlaying dune sequences. The base geology is highly fossiliferous (marine shells), compacted and easily distinguished from the dune sands (**Plate 1B**). The sands are white to yellow-white and unconsolidated generally with scrub dominated vegetation typical of alkaline sands.

**Plate 1A** illustrates the previously worked area of the existing but disused pit. All overlaying lime sand was extracted from the base geology at the now disused pit; there are no podsols present between the base sediments and overlaying sands.

The general and approximate location of the dunes that are the resource in the Mining Lease is shown in **Figure 2**.

The dunes formed by lime and other sands are of a **linear** type[4] based on the transgressive dune types described by Short and Nicholas (2011) (see also Plate 2). Linear dunes (e.g., **Figure 2 and 3**) are longer than they are wide with prominent snakelike ridges. Linear dunes do not migrate; they get longer over time, often up to several kilometres.

As noted by Slee (2024) (pp. 12-13 of **Attachment 9**), at the west of the Mining Lease are the modern foredune and back dunes behind Marshall Beach while inland are a series of elongated west-to-east trending parallel dunes that rise to 24 m above sea level. These inland dunes are largely vegetated and stable in comparison to the foredunes which are dominated by grasses, herbs, wind pruned shrubs and sedges. The coastal foredunes climb onto the older dunes but can be broadly demarcated by their hummocky forms and presence of sand blow-outs that contrast to the more elongated uniform stabilised ridges of the older dunes.

The Development Area does not include beach, foredune, back dune, or modern dunes (**Attachment 9**).

**Plate 1. Base geological formation and dune system at the disused sand pit**

A – basement geology is a compacted/cemented mosaic of gravel, sand, and mud

B – a vegetated dune dominated by white to yellow-white lime dominated sands overlays the base geological formation

**A**



**B**



Karst

No karst landforms apart from very minor surface solution sculpture (karren) landforms were identified during the survey by Slee (**Attachment 9**). Given the extensive nature and relief of the limestone on the hills east of the mining lease subsurface water flow through karst aquifers is likely but significant karst landforms

[4] Short & Nicholas 2011, Karst/Lacustrine/Aeolian/ Landforms, in Section 17 Use of Remote Sensing in Basic Science Studies I – Mega Geomorphology, viewed 24 August 2011,

are unlikely to be present. In the absence of evidence for significant karst formulation, mitigation measures are unnecessary.

**Soils**

A soil layer is absent, or simply represented by a slightly discoloured (grey, to grey brown) upper layer in the sandy soil profile. Dune systems of recent age tend not to be old enough to have formed a substantial or distinguishable topsoil layer, and even with a low to moderate fire frequency any organic matter that has accumulated may be quickly lost or substantially depleted during fire events.

There is a Low to Extremely Low likelihood of Potential Acid Sulfate Soils (coastal) in the Marshall Bay area (Figure 7) based on DPIPWE test pitting and sampling that generated the mapping layer.

The shoreline waterbodies mapped in **Figures 4-B and 8** are deflation basins dominated by native and exotic grasses and herbs. *Poa poiformis* and to a lesser degree *P. labillardierei* are the dominant species. They are not wetlands; however, they may be seasonally inundated in the winter months which keeps trees and other woody vegetation from colonising and dominating the shallow sand deposit environment. Unlike 'Arbothnots Lagoon' these deflection basins lack an organic underlying geology and sit over limestone bedrock and shallow sands – they are not PASS.

Well drained soils in the mining lease and specifically in the vicinity of the main proposed resource are strongly alkaline Calcarosols (Slee 2024). Acidic soils are unlikely to be present over extensive areas and may be totally absent from the mining lease. While organic topsoils, buried palaeosols and lake/swamp sediments are present in the Pit location, none of these soils contain adequate organic material to significantly reduce the pH within the dune sands due to the abundance of acid neutralising carbonates. No further investigation of acid sulfate soils was deemed to be necessary by Slee (2024; **Attachment 9**).

**Plate 2. Dune descriptions from Short & Nicholas 2011 noting (b) Linear dune form**

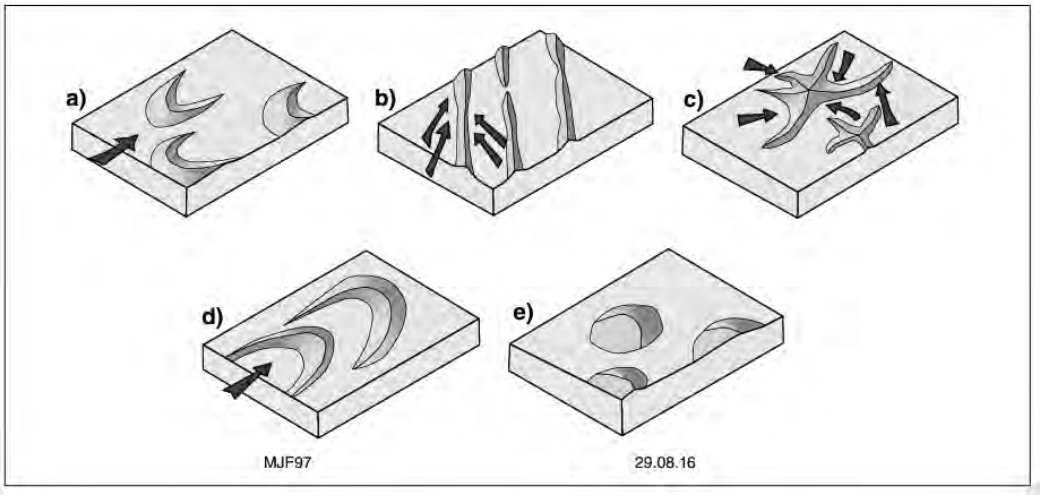


**Plate 3. Coastal grasslands between linear dunes**



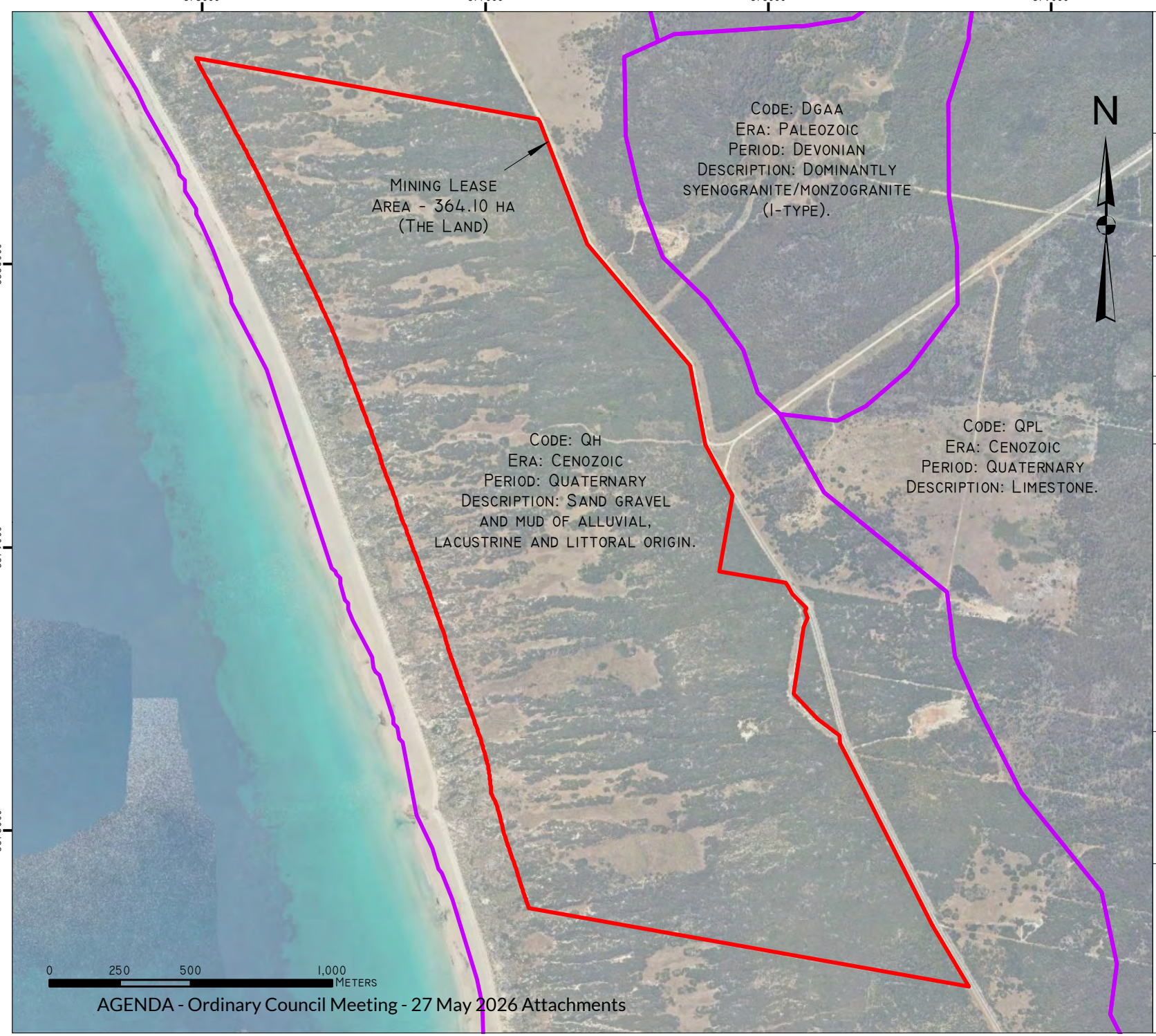
**Land Capability**

The Land Capability is not recorded by DPIPWE however the sandy alkaline sands are likely to qualify as Land Class 5 to 6.

## C.3 WATERCOURSES

There are no defined watercourses within the Land (see **Figure 8**). The sands to be extracted from the Mining Lease are well drained being formed by Quaternary sands.

The deflection basins are dominated by coastal grasslands (**Plate 3**) with any minor dune formation in the basins, even those of only 1-2 m high, are dominated by scrub or ex-pasture vegetation.




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## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 6: GEOLOGY (1:250,000 – MRT) AROUND THE DEVELOPMENT AREA

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

GEOLOGY (1:250,000)

MINING LEASE (THE LAND)

BASE DATA BY TASMAP. © STATE OF TASMANIA
BASE IMAGE BY TASMAP. © STATE OF TASMANIA

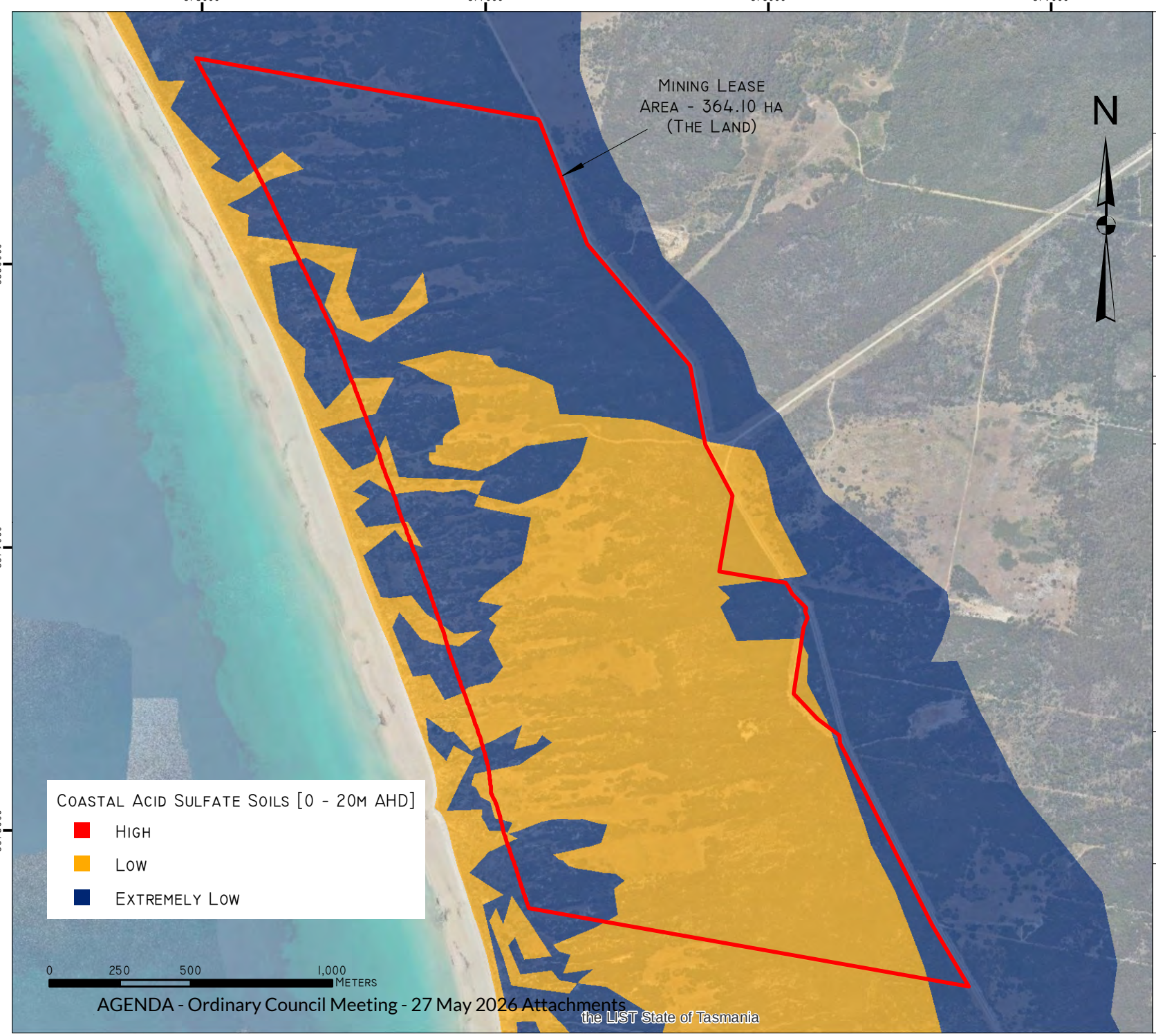
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CLIENT:
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COMPANY PTY LTD

DATE: 10 APRIL 2023




# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

FIGURE 7: COASTAL ACID SULFATE SOILS (0-20M AHD)

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Mining Lease (The Land)

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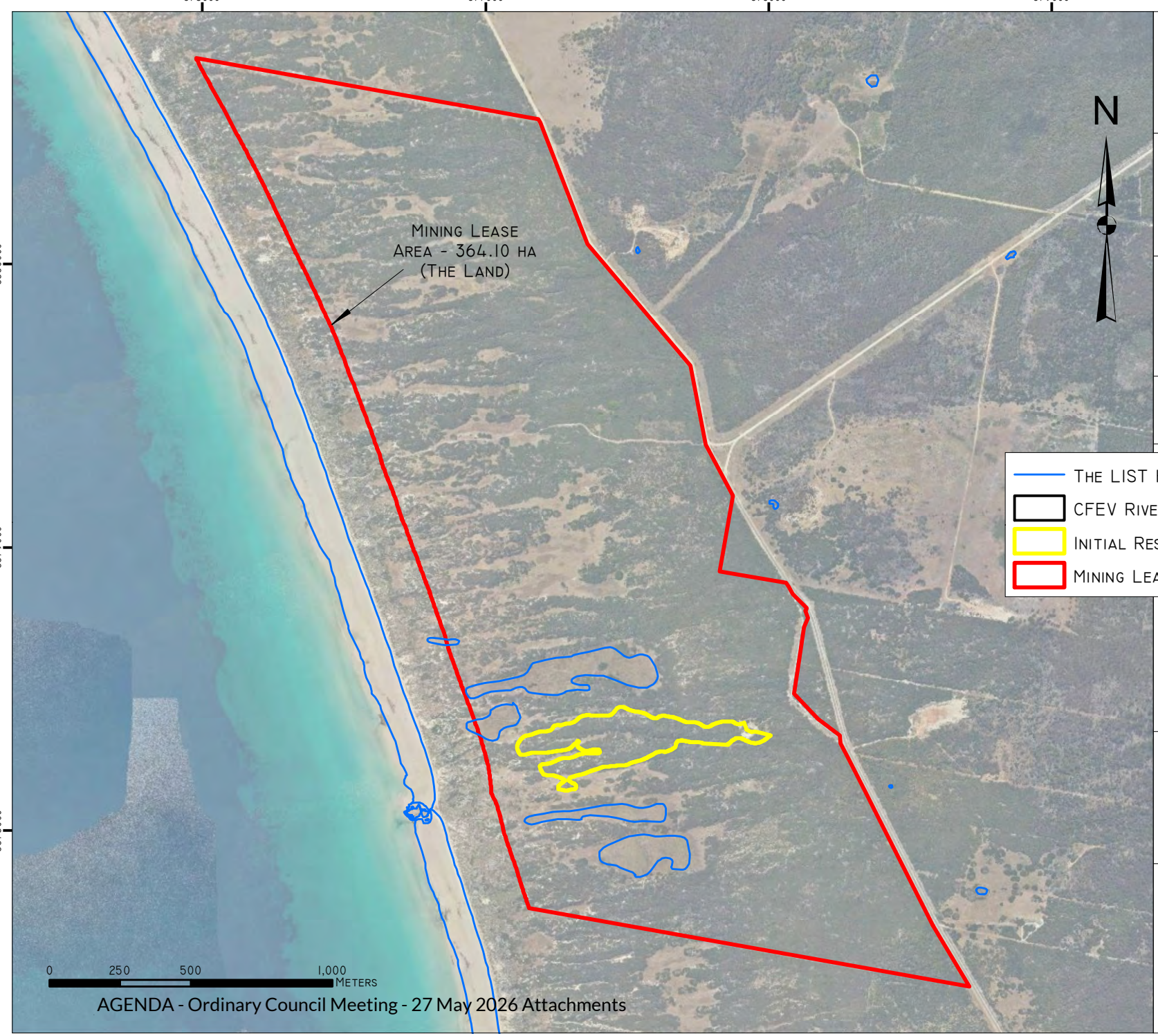
CLIENT:
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DATE: 10 APRIL 2023

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

### FIGURE 8: DRAINAGE AND CATCHMENT BOUNDARIES




TASMAP: TANNER EMITA

LGA: FLINDERS

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BASE IMAGE BY TASMAP. © STATE OF TASMANIA

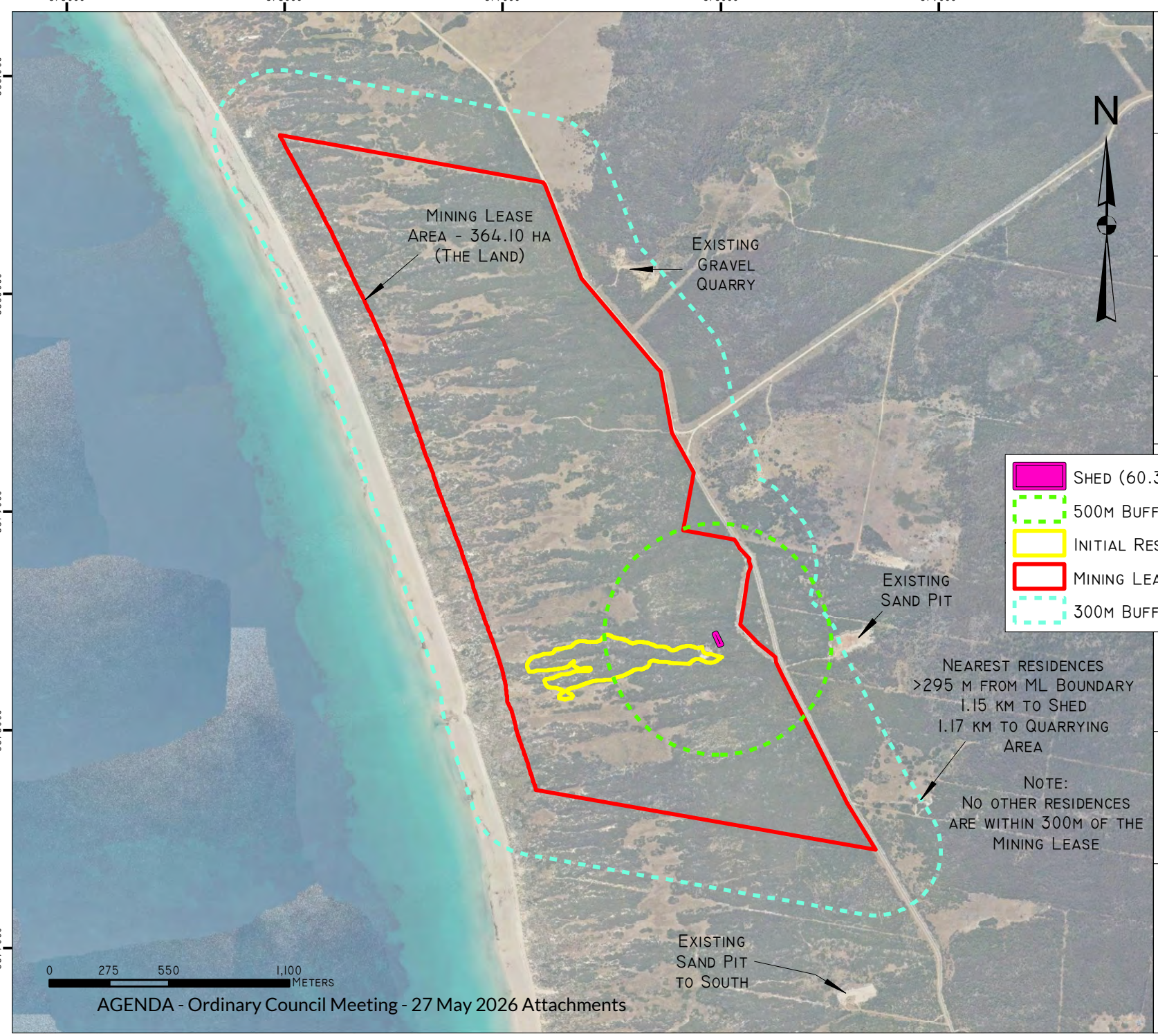
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Annexure: 16.2.3

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT DEVELOPMENT APPLICATION

### Figure 9: Residences near to the Development Area

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

- Shed (60.3 x 15 m)
- 500m Buffer on Shed (Sand Screening)
- Initial Resource Area (Approx 30 year supply)
- Mining Lease (The Land)
- 300m Buffer on ML

Base data by TASMAP. © State of Tasmania
Base image by TASMAP. © State of Tasmania

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## PART D - PLANNING SCHEME REQUIREMENTS

### D.1 CATEGORISATION OF USE/DEVELOPMENT

The Extraction Pit is best categorised into the *Extractive Industry* Use Class –

> '…. use of land for extracting or removing material from the ground, other than Resource Development, and includes the treatment or processing of those materials by crushing, grinding, milling or screening on, or adjoining the land from which it is extracted. Examples include mining, quarrying, and sand mining.'

### D.2 ZONING

The Land upon which the lime sand extraction pit occurs is in the Rural Zone[5] of the Scheme (**Figure 4A**). Extractive Industry is listed in the Permitted Use section of the Clause 20.2 Use Table.

The access from Palana Road is over land in the Landscape Conservation zone and is already a lawful access to the Land (it is under licence with the Crown for that purpose).

#### Zone Purpose

The purpose of the Rural Zone is:

| | |
|---|---|
| **20.1.1** | To provide for a range of use or development in a rural location:<br>(a) where agricultural use is limited or marginal due to topographical, environmental or other site or regional characteristics;<br>(b) that requires a rural location for operational reasons;<br>(c) is compatible with agricultural use if occurring on agricultural land;<br>(d) minimises adverse impacts on surrounding uses. |
| **20.1.2** | To minimise conversion of agricultural land for non-agricultural use. |
| **20.1.3** | To ensure that use or development is of a scale and intensity that is appropriate for a rural location and does not compromise the function of surrounding settlements. |

The quality of the land for agricultural purposes is low, evident by the soil type and historical use of limited stock grazing.

The location of extractive industry is resource based that in this instance is in a rural area.

[5] The Rural zone is the basis of the assessment and assumes that the planning scheme amendment initiated to rezone land from Landscape Conservation to Rural was successful.

The proposed Activity will support the economic feasibility of the important rural industry found on Flinders Island. Because of the location and management controls of the Activity there will be no adverse impact on surrounding areas.

The areas where sand is extracted will be rehabilitated on a rolling basis to the extent that the land will revert to native vegetation.

No surrounding settlements will be affected. The nearest sensitive receptor is located 1.15 kms south-east of the area proposed to be initially extracted for lime sands and the associated shed, and approximately 295m east of the mining lease boundary (**Figure 9**). All other sensitive receptors are more than 2 km from the proposed activity.

**The following Scheme Use Standards are reviewed.**

Use Standard Clause 20.3.1 Discretionary use - as the Activity is a Permitted Use, no assessment is required.

**Development Standards for Buildings and Works**

Clause 20.4.1 Building height

| **Objective**: | To provide for a building height that:<br>(a) is necessary for the operation of the use; and<br>(b) minimises adverse impacts on adjoining properties. | **Assessment of Development against Provision** |
|---|---|---|
| **Acceptable Solution (A)** | **Performance Criterion (P)** | |
| **A1**<br>Building height must be not more than 12m. | **P1**<br>Building height must be necessary for the operation of the use and not cause an unreasonable impact on adjoining properties, having regard to:<br>(a) the proposed height of the building;<br>(b) the bulk and form of the building;<br>(c) the separation from existing uses on adjoining properties; and<br>(d) any buffers created by natural or other features. | **Complies with A1**<br>Building height is 7.7m. |

Clause 20.4.2 Setbacks

| **Objective**: | That the siting of buildings minimises potential conflict with use on adjoining sites. | **Assessment of Development against Provision** |
|---|---|---|
| **Acceptable Solution (A)** | **Performance Criterion (P)** | |
| **A1**<br>Buildings must have a setback from all boundaries of: | **P1**<br>Buildings must be sited to provide adequate vehicle access and not cause an unreasonable impact on existing use on adjoining properties, having regard to: | **Complies with A1**<br>Building is setback more than 5m from all boundaries. |

| | | |
|---|---|---|
| (a) not less than 5m; or<br>(b) if the setback of an existing building is within 5m, not less than the existing building. | (a) the bulk and form of the building;<br>(b) the nature of existing use on the adjoining properties;<br>(c) separation from existing use on the adjoining properties; and<br>(d) any buffers created by natural or other features. | |
| **A2**<br>Buildings for a sensitive use must be separated from an Agriculture Zone a distance of:<br>(a) not less than 200m; or<br>(b) if an existing building for a sensitive use on the site is within 200m of that boundary, not less than the existing building. | **P2**<br>Buildings for a sensitive use must be sited so as not to conflict or interfere with an agricultural use within the Agriculture Zone, having regard to:<br>(a) the size, shape and topography of the site;<br>(b) the prevailing setbacks of any existing buildings for sensitive uses on adjoining properties;<br>(c) the location of existing buildings on the site;<br>(d) the existing and potential use of adjoining properties;<br>(e) any proposed attenuation measures; and<br>(f) any buffers created by natural or other features. | Provision not relevant, no sensitive use is proposed.<br>**No assessment required.** |

Clause 20.4.3 Access for new dwellings

| **Objective**: | That new dwellings have appropriate vehicular access to a road maintained by a road authority. | **Assessment of Development against Provision** |
|---|---|---|
| **Acceptable Solution (A)** | **Performance Criterion (P)** | |
| **A1**<br>New dwellings must be located on lots that have frontage with access to a road | **P1**<br>New dwellings must have legal access, by right of carriageway, to a road maintained by a road authority that is appropriate, having regard to: | Provision not relevant, no dwelling is proposed.<br>**No assessment required.** |

| | | |
|---|---|---|
| maintained by a road authority. | (a) the number of users of the access;<br>(b) the length of the access;<br>(c) the suitability of the access for use by the occupants of the dwelling;<br>(d) the suitability of the access for emergency services vehicles;<br>(e) the topography of the site;<br>(f) the construction and maintenance of the access;<br>(g) the construction, maintenance and usage of the road; and<br>(h) any advice from a road authority. | |

## D.3 CODES

**Table 1** provides a summary of which Codes apply to the Activity. The location of overlays associated with Codes are presented in **Figures 4C-1 to 4-C4.**

**Table 1. Activity applicable Codes in the *Tasmanian Planning Scheme – Flinders***

| Code Number | Code Name | Application to the Activity |
|---|---|---|
| **C1.0** | Signs | Not applicable; no signage proposed. |
| **C2.0** | **Parking and Sustainable Transport** | **Applies** |
| **C3.0** | **Road and Railway Assets** | **Applies** |
| **C4.0** | Electricity Transmission Infrastructure Protection | Not applicable; use and development not within the stipulated buffer areas |
| **C5.0** | Telecommunications | Not applicable; no telecommunications infrastructure is proposed. |
| **C6.0** | Local Historic Heritage | Not applicable; use or development of land is not:<br>a) within a Heritage Precinct;<br>b) a local heritage place; or<br>c) a place of identified archaeological significance. |
| **C7.0** | Natural Assets | Exempt; the activity is development assessed as a Level 2 Activity by the Environmental Protection Authority. |
| **C8.0** | **Scenic Protection** | **Applies** |
| **C9.0** | Attenuation | Exempt; the Level 2 activity is to be assessed by the Environmental Protection Authority. |
| **C10.0** | Coastal Erosion Hazard | Not applicable; use and development does not intersect the overlay. |
| **C11.0** | Coastal Inundation Hazard | Not applicable; C11.2.3 applies (see **Attachment 6** for land survey; low hazard band is 3m AHD). |
| **C12.0** | Flood-Prone Areas Hazard | Not applicable; Sensitive use or conversion of a building into a habitable building are not proposed. |
| **C13.0** | Bushfire-Prone Areas | Not applicable; not a hazardous or vulnerable use and subdivision not proposed. |

| | | |
|---|---|---|
| **C14.0** | Potentially Contaminated Land | Not applicable; sensitive use is not proposed. |
| **C15.0** | Landslip Hazard | Exempt; Mining Lease 2117P/M is in force. |
| **C16.0** | Safeguarding of Airports | Not applicable; use and development is not a sensitive use within an airport noise exposure area; and development within an airport obstacle limitation area. |

**Applicable Codes**

As noted in **Table 1**, the following Codes apply –

C2.0 Parking and Sustainable Transport Code

C3.0 Road and Railway Assets Code

C8.0 Scenic Protection

**C2.0 Parking and Sustainable Transport Code**

The purpose of the Parking and Sustainable Transport Code is:

| | |
|---|---|
| **C2.1.1** | To ensure that an appropriate level of parking facilities is provided to service use and development. |
| **C2.1.2** | To ensure that cycling, walking and public transport are encouraged as a means of transport in urban areas. |
| **C2.1.3** | To ensure that access for pedestrians, vehicles and cyclists is safe and adequate. |
| **C2.1.4** | To ensure that parking does not cause an unreasonable loss of amenity to the surrounding area. |
| **C2.1.5** | To ensure that parking spaces and accesses meet appropriate standards. |
| **C2.1.6** | To provide for parking precincts and pedestrian priority streets. |

Unless stated otherwise in a particular purpose zone, or sub-clause C2.2.2, C2.2.3 or C2.2.4, this code applies to all use and development.

**Clause 2.5.3, 2.5.4 and 2.5.5** do not apply as the Use Class is Extractive Industry.

Use Standards

Clause C2.5.1 Car parking numbers

| **Objective**: | That an appropriate level of car parking spaces are provided to meet the needs of the use |
|---|---|

| **Acceptable Solution (A)** | **Comments in relation to Activity** |
|---|---|
| **A1**<br>The number of on-site car parking spaces must be no less than the number specified in Table 2.1, less the number of car parking spaces that cannot be provided due to the site including container refund scheme space, excluding if:<br>(a) the site is subject to a parking plan for the area adopted by council, in which case parking provision (spaces or cash-in-lieu) must be in accordance with that plan;<br>(b) the site is contained within a parking precinct plan and subject to Clause C2.7;<br>(c) the site is subject to Clause C2.5.5; or<br>(d) it relates to an intensification of an existing use or development or a change of use where:<br>(i) the number of on-site car parking spaces for the existing use or development specified in Table C2.1 is greater than the number of car parking spaces specified in Table C2.1 for the proposed use or development, in which case no additional on-site car parking is required; or<br>(ii) the number of on-site car parking spaces for the existing use or development specified in Table C2.1 is less than the number of car parking spaces specified in Table C2.1 for the proposed use or development, in which case on-site car parking must be calculated as follows:<br>N = A + (C- B)<br>N = Number of on-site car parking spaces required<br>A = Number of existing on-site car parking spaces<br>B = Number of on-site car parking spaces required for the existing use or development specified in Table C2.1<br>C= Number of on-site car parking spaces required for the proposed use or development specified in Table C2.1. | **Complies.**<br>Car parking requirements in Table C2.1. for Extractive Industry are one per 2 employees. There may be up to 5 staff at the activity at any one time.<br>Three car spaces will be provided as per **Figure 5A** and drawings VDC/MSP/A/102 and VDC/MSP/A/104 in **Attachment 8.** |

C2.5.2 Bicycle parking numbers

| **Objective**: | That an appropriate level of bicycle parking spaces are provided to meet the needs of the use. |
|---|---|

| Acceptable Solution (A) | Comments in relation to Activity |
|---|---|
| **A1**<br>Bicycle parking spaces must:<br>(a) be provided on the site or within 50m of the site; and<br>(b) be no less than the number specified in Table C2.1. | **Provision not relevant.**<br>There are no bicycle parking requirements for Extractive Industry in Table C2.1. |

Development Standards

C2.6.1 Construction of parking areas

| **Objective**: | That an appropriate level of bicycle parking spaces are provided to meet the needs of the use. |
|---|---|

| Performance Criterion | Comments in relation to Activity |
|---|---|
| **P1**<br>All parking, access ways, manoeuvring and circulation spaces must be readily identifiable and constructed so that they are useable in all weather conditions, having regard to:<br>(a) the nature of the use;<br>(b) the topography of the land;<br>(c) the drainage system available;<br>(d) the likelihood of transporting sediment or debris from the site onto a road or public place;<br>(e) the likelihood of generating dust; and<br>(f) the nature of the proposed surfacing. | **Complies with P1.**<br>The pad area around the shed will be formed of gravel (a hard aggregate likely to be sourced from The Gums Quarry) over compacted road base to provide a suitable surface for the movement of trucks and machinery – see drawing VDC/MSP/A/102 in **Attachment 8.**<br>The low relief topography of the land where the shed and hardstand are proposed to be installed is conducive to minimising earthworks and controlling drainage via spoon drains and a sediment pond.<br>Sediment will not be transported off the site because sediment ponds will be installed and maintained for the life of the Activity.<br>The lime sands being extracted are not dust generating. The hardstand surface and unsealed road access may generate dust, but this can be managed by the application of water when conditions are dry or windy. |

C2.6.2 Design and layout of parking areas

| **Objective**: | That parking areas are designed and laid out to provide convenient, safe and efficient parking. |
|---|---|

| Performance Criterion (P) | Comments in relation to Activity |
|---|---|
| **P1** | **Complies with P1.** |

| | |
|---|---|
| All parking, access ways, manoeuvring and circulation spaces must be designed and readily identifiable to provide convenient, safe and efficient parking, having regard to:<br>(a) the characteristics of the site;<br>(b) the proposed slope, dimensions and layout;<br>(c) useability in all weather conditions;<br>(d) vehicle and pedestrian traffic safety;<br>(e) the nature and use of the development;<br>(f) the expected number and type of vehicles;<br>(g) the likely use of the parking areas by persons with a disability;<br>(h) the nature of traffic in the surrounding area;<br>(i) the proposed means of parking delineation; and<br>(j) the provisions of Australian Standard AS 2890.1:2004 Parking facilities, Part 1: Off-street car parking and AS 2890.2 -2002 Parking facilities, Part 2: Offstreet commercial vehicle facilities. | The pad area around the shed will be formed of gravel (a hard aggregate likely to be sourced from The Gums Quarry over compacted road base to provide a suitable surface for the movement of trucks and machinery. This will facilitate access in all weather conditions.<br>The low relief topography of the land where the shed and hardstand are proposed to be installed is conducive to minimising earthworks and controlling drainage via spoon drains and a sediment pond.<br>Only truck drivers familiar with the site will be used to collect and deliver lime sands. The site is not open to the public so there would be no<br>The access is onto Palana Road which is the main arterial road connecting northern and southern areas of Flinders Island. The use generally overlaps with the autumn months which is after tourist season has peaked which means fewer road users would be around on the road network.<br>Formal parking spaces (3 at the shed, see **Figure 5A** and drawings VDC/MSP/A/102, VDC/MSP/A/104 and VDC/MSP/A/106 in **Attachment 8**) will be delineated with signage and road markers. Informal parking areas will be delineated by signage only. |

## C2.6.3 Number of accesses for vehicles

| | |
|---|---|
| **Objective**: | That:<br>(a) access to land is provided which is safe and efficient for users of the land and all road network users, including but not limited to drivers, passengers, pedestrians and cyclists by minimising the number of vehicle accesses;<br>(b) accesses do not cause an unreasonable loss of amenity of adjoining uses; and<br>(c) the number of accesses minimise impacts on the streetscape. |

| **Acceptable Solution (A)** | **Comments in relation to Activity** |
|---|---|
| **A1**<br>The number of accesses provided for each frontage must:<br>(a) be no more than 1; or<br>(b) no more than the existing number of accesses,<br>whichever is the greater. | **Complies.**<br>There are already two access to the frontage of CT215120/1 (see drawings VDC/MSP/A/107 and VDC/MSP/A/108 in **Attachment 8**).<br>No further accesses are proposed. |
| **A2**<br>Within the Central Business Zone or in a pedestrian priority street no new access is provided unless an existing access is removed. | **Provision not relevant.**<br>The Central Business Zone is not present. |

## C2.6.4 Lighting of parking areas within the General Business Zone and Central Business Zone

| | |
|---|---|
| **Objective**: | That parking and vehicle circulation roads and pedestrian paths within the General Business Zone and Central Business Zone, which are used outside daylight hours, are provided with lighting to a standard which:<br>(a) enables easy and efficient use;<br>(b) promotes the safety of users;<br>(c) minimises opportunities for crime or anti-social behaviour; and<br>(d) prevents unreasonable light overspill impacts. |

| Acceptable Solution (A) | Comments in relation to Activity |
|---|---|
| **A1**<br><br>In car parks within the General Business Zone and Central Business Zone, parking and vehicle circulation roads and pedestrian paths serving 5 or more car parking spaces, which are used outside daylight hours, must be provided with lighting in accordance with Clause 3.1 "Basis of Design" and Clause 3.6 "Car Parks" in Australian Standard/New Zealand Standard AS/NZS 1158.3.1:2005 Lighting for roads and public spaces Part 3.1: Pedestrian area (Category P) lighting – Performance and design requirements. | **Provision not relevant.**<br><br>There are no relevant zones present. |

## C2.6.5 Pedestrian access

| | |
|---|---|
| **Objective**: | That pedestrian access within parking areas is provided in a safe and convenient manner. |

| Acceptable Solution (A) | Comments in relation to Activity |
|---|---|
| **A1.1**<br><br>Uses that require 10 or more car parking spaces must:<br>(a) have a 1m wide footpath that is separated from the access ways or parking aisles, excluding where crossing access ways or parking aisles, by:<br>(i) a horizontal distance of 2.5m between the edge of the footpath and the access way or parking aisle; or<br>(ii) protective devices such as bollards, guard rails or planters between the footpath and the access way or parking aisle; and<br>(b) be signed and line marked at points where pedestrians cross access ways or parking aisles.<br><br>**A1.2**<br><br>In parking areas containing accessible car parking spaces for use by persons with a disability, a footpath having a width not less than 1.5m and a gradient not steeper than 1 in 14 is required from those spaces to the main entry point to the building. | **Provision not relevant.**<br><br>There is no requirement to provide 10 or more car parking spaces nor a parking area containing accessible car parking spaces for use by persons with a disability. |

## C2.6.6 Loading bays

| **Objective**: | That the area and dimensions of loading bays are adequate to provide safe and efficient delivery and collection of goods. |
|---|---|

| **Acceptable Solution (A)** | **Comments in relation to Activity** |
|---|---|
| **A1**<br><br>The area and dimensions of loading bays and access way areas must be designed in accordance with Australian Standard AS 2890.2–2002, Parking facilities, Part 2: Offstreet commercial vehicle facilities, for the type of vehicles likely to use the site. | **Provisions not relevant.**<br><br>There is no requirement to provide loading bays. |
| **A2**<br><br>The type of commercial vehicles likely to use the site must be able to enter, park and exit the site in a forward direction in accordance with Australian Standard AS 2890.2 – 2002, Parking Facilities, Part 2: Parking facilities Offstreet commercial vehicle facilities. | |

## C2.6.7 Bicycle parking and storage facilities within the General Business Zone and Central Business Zone

| **Objective**: | That the area and dimensions of loading bays are adequate to provide safe and efficient delivery and collection of goods. |
|---|---|

| **Acceptable Solution (A)** | **Comments in relation to Activity** |
|---|---|
| **A1**<br><br>Bicycle parking for uses that require 5 or more bicycle spaces in Table C2.1 must:<br>(a) be accessible from a road, cycle path, bicycle lane, shared path or access way;<br>(b) be located within 50m from an entrance;<br>(c) be visible from the main entrance or otherwise signed; and<br>(d) be available and adequately lit during the times they will be used, in accordance with Table 2.3 of Australian/New Zealand Standard AS/NZS 1158.3.1: 2005 Lighting for roads and public spaces Pedestrian area (Category P) lighting Performance and design requirements. | **Provisions not relevant.**<br><br>The development and use associated with the Activity is not in the relevant zone for the provision. |
| **A2**<br><br>Bicycle parking spaces must:<br>(a) have dimensions not less than: | |

| | |
|---|---|
| (i) 1.7m in length;<br>(ii) 1.2m in height; and<br>(iii) 0.7m in width at the handlebars;<br>(b) have unobstructed access with a width of not less than 2m and a gradient not steeper than 5% from a road, cycle path, bicycle lane, shared path or access way; and<br>(c) include a rail or hoop to lock a bicycle that satisfies Australian Standard AS 2890.3-2015 Parking facilities Part 3: Bicycle parking. | |

Clause C2.6.8 Siting of parking and turning areas

| **Objective**: | That the siting of vehicle parking and access facilities in an Inner Residential Zone, Village Zone, Urban Mixed Use Zone, Local Business Zone, General Business Zone or Central Business Zone does not cause an unreasonable visual impact on streetscape character or loss of amenity to adjoining properties. |
|---|---|
| **Acceptable Solution (A)** | **Comments in relation to Activity** |
| **A1**<br>Within an Inner Residential Zone, Village Zone, Urban Mixed Use Zone, Local Business Zone or General Business Zone, parking spaces and vehicle turning areas, including garages or covered parking areas must be located behind the building line of buildings, excluding if a parking area is already provided in front of the building line. | **Provisions not relevant.**<br>The development and use associated with the Activity is not in the Inner Residential Zone, Village Zone, Urban Mixed Use Zone, Local Business Zone, General Business Zone, or Central Business Zone. |
| **A2**<br>Within the Central Business Zone, on-site parking at ground level adjacent to a frontage must:<br>(a) have no new vehicle accesses, unless an existing access is removed;<br>(b) retain an active street frontage; and<br>(c) not result in parked cars being visible from public places in the adjacent roads. | |

**C3.0 Road and Rail Assets Code**

The purpose of this provision is to:

| | |
|---|---|
| **C3.1.1** | To protect the safety and efficiency of the road and railway networks; and |
| **C3.1.2** | To reduce conflicts between sensitive uses and major roads and the rail network. |

This code applies to a use or development that (see Traffic Impact Assessment, **Attachment 7**):

(a) will increase the amount of vehicular traffic or the number of movements of vehicles longer than 5.5m using an existing vehicle crossing or private level crossing;

(b) will require a new vehicle crossing, junction or level crossing; or

(c) involves a subdivision or habitable building within a road or railway attenuation area if for a sensitive use.

The Code applies because the Activity will intensify the use of an access in excess of the figures stipulated in Table C3.1.

Use Standards

C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction

| **Objective**: | To minimise any adverse effects on the safety and efficiency of the road or rail network from vehicular traffic generated from the site at an existing or new vehicle crossing or level crossing or new junction. |
|---|---|

| **Performance Criterion (P)** | **Comments in relation to Activity** |
|---|---|
| **P1**<br>Vehicular traffic to and from the site must minimise any adverse effects on the safety of a junction, vehicle crossing or level crossing or safety or efficiency of the road or rail network, having regard to:<br>(a) any increase in traffic caused by the use;<br>(b) the nature of the traffic generated by the use;<br>(c) the nature of the road;<br>(d) the speed limit and traffic flow of the road;<br>(e) any alternative access to a road;<br>(f) the need for the use;<br>(g) any traffic impact assessment; and<br>(h) any advice received from the rail or road authority. | **Complies with P1.**<br>Palana Road is sealed where the existing access enters the road network. Line of sight distances exceed the SISD (see TIA in **Attachment 7**).<br>A seal (2 coat spray seal) will be applied from the current seal to 25m into the existing unsealed road.<br>The traffic generated is seasonal, with most truck movements occurring in the autumn months when lime sands are needed for spreading on agricultural lands as a soil ameliorant.<br>The access is using a reserved road section that was once part of Palana Road – it is well formed and fit for purpose with some widening and maintenance. It provides the most efficient access to the road network. |

| | |
|---|---|
| | Drawings of turning of rigid trucks and light vehicles are provided in VDC/MSP/A/107 and VDC/MSP/A/108 (**Attachment 8**) respectively.<br><br>The use is necessary to provide sufficient cost-effective lime sands for the management of agricultural lands to achieve optimal pasture growth for stock grazing. |

Development Standards

C3.6.1 Habitable buildings for sensitive uses within a road or railway attenuation area

| **Objective**: | To minimise the effects of noise, vibration, light and air emissions on sensitive uses within a road or railway attenuation area, from existing and future major roads and the rail network. |
|---|---|
| **Acceptable Solution** | **Comments in relation to Activity** |
| **A1**<br><br>Unless within a building area on a sealed plan approved under this planning scheme, habitable buildings for a sensitive use within a road or railway attenuation area, must be:<br><br>(a) within a row of existing habitable buildings for sensitive uses and no closer to the existing or future major road or rail network than the adjoining habitable building;<br><br>(b) an extension which extends no closer to the existing or future major road or rail network than:<br><br>(i) the existing habitable building; or<br><br>(ii) an adjoining habitable building for a sensitive use; or<br><br>(c) located or designed so that external noise levels are not more than the level in Table C3.2 measured in accordance with Part D of the *Noise Measurement Procedures Manual, 2nd edition, July 2008*. | **Provision not relevant.**<br><br>No habitable buildings for sensitive use are proposed. |

**C8.0 Scenic Protection Code**

The purpose of this provision is to:

| | |
|---|---|
| **C8.1.1** | To recognise and protect landscapes that are identified as important for their scenic values. |

This code applies to development on land within a scenic protection area or scenic road corridor and only if within the following zones:

(a) Rural Living Zone;

(b) Rural Zone;

(c) Agriculture Zone;

(d) Landscape Conservation Zone;

(e) Environmental Management Zone; or

(f) Open Space Zone.

The Marshall Bay area is the subject of FLI-C8.1.6 which is described in Table C8.1. The information extracted from the Scheme below is specifically for the Marshall Bay area and is to be used in conjunction with the applicable standards for the Activity.

| **Description** | **Scenic Value** | **Management Objectives** |
|---|---|---|
| The area is prominent from the Emita lookout, from Port Davies Road at Emita, and from allotments at Leeka and West End.<br><br>The area is a thin strip of ancient dune system running at right angles to the coast overlain with a later parallel system of mobile dunes. The entire area is exceptionally prone to wind erosion.<br><br>There are several significant wetlands and only one public access to Marshall Bay beach. | • The undeveloped nature of the vista.<br><br>• The largely intact native vegetation across the entire expanse links directly to the foreshore. This vegetation provides an uninterrupted panorama of the horseshoe-shaped bay, which has exceptional scenic qualities particularly when the tide is out and the vast expanse of sandy beach contrasts with the turquoise waters of the bay. | To:<br><br>(a) retain the natural appearance of native vegetation and undisturbed landform, when viewed from public roads, the foreshore and coastal waters;<br><br>(b) minimise visual the impact of development and works on native vegetation, the landform and the scenic values of the area, particularly by use of external building materials of a colour and reflectivity that minimise contrast with the natural environment;<br><br>(c) minimise the extent of the footprint of development and works, and impacts to the integrity of the wider landscape; and<br><br>(d) retain and restore (where possible) the natural vegetation cover. |

Development Standards

C8.6.1 Development within a scenic protection area

| | |
|---|---|
| **Objective**: | That:<br>(a) destruction of vegetation does not cause an unreasonable reduction of the scenic value of a scenic protection area; and<br>(b) buildings and works do not cause an unreasonable reduction of the scenic value of a scenic protection area. |

| Performance Criterion (P) | Comments in relation to Activity |
|---|---|
| **P1.1**<br><br>Destruction of vegetation within a scenic protection area must not cause an unreasonable impact on the scenic value of a scenic protection area, having regard to:<br>(a) the nature of the vegetation to be removed;<br>(b) the area of vegetation to be removed;<br>(c) the topography of the site;<br>(d) any visual impact on a skyline;<br>(e) the nature of the reduction of the scenic value; and<br>(f) the purpose of any management objectives identified in the relevant Local Provisions Schedule. | **Complies with P1.1**<br><br>The maximum area of disturbance, without any rehabilitation, is 5 hectares. To place this into perspective, given the size of the Mining Lease (364.1 hectares), the maximum area of disturbance at any one time represents 1.4% of the Mining Lease.<br><br>Vegetation will be removed and rehabilitated as the extraction pit progresses through the resource.<br><br>The vegetation is scrub on deep lime sands typical of the Marshall Bay area; it is not a listed threatened community on the *Nature Conservation Act 2002* or a listed ecological community on the *Environment Protection and Biodiversity Conservation Act 1999*.<br><br>The State threatened 'heathland on calcareous substrates' community (Community 26 – on Schedule 3A *Nature Conservation Act 2002*) in the Marshall Bay area is not lime sand producing, it is a community on shallow to rocky/broken calcareous substrates and not deep lime sands.<br><br>The extraction area is not skyline.<br><br>There is no reduction in scenic value: the vista will still appear as undisturbed, and the small area of vegetation to be impacted at any one time is so small it would not be perceivable when the bay is viewed from even the most obvious vantage point – for example, the lookout near Port Davie Road (**Plate 4**) or Emita. |
| **P1.2**<br><br>Buildings or works within a scenic protection area must not cause an unreasonable reduction of the scenic value of a scenic protection area, having regard to:<br>(a) the topography of the site;<br>(b) the location of, and materials used in construction of, driveways or access tracks;<br>(c) proposed reflectance and colour of external finishes;<br>(d) design and proposed location of the buildings or works;<br>(e) the extent of any cut or fill required;<br>(f) any visual impact on a skyline;<br>(g) any existing or proposed screening; and<br>(h) the purpose of any management objectives identified in the relevant Local Provisions Schedule. | **Complies with P1.2**<br><br>The maximum area of disturbance, without any rehabilitation, is 5 hectares. To place this into perspective, given the size of the Mining Lease (364.1 hectares), the maximum area of disturbance at any one time represents 1.4% of the Mining Lease. Vegetation will be removed and rehabilitated as the extraction pit progresses through the resource.<br><br>The vegetation is scrub on deep lime sands typical of the Marshall Bay area; it is not a listed threatened community on the *Nature Conservation Act 2002* or a listed ecological community on the *Environment Protection and Biodiversity Conservation Act 1999*.<br><br>The State threatened 'heathland on calcareous substrates' community (Community 26 – on Schedule 3A *Nature Conservation Act 2002*) in the Marshall Bay area is not lime sand producing, it is a community on shallow to rocky/broken calcareous substrates and not deep lime sands.<br><br>The extraction area is not skyline.<br><br>There is no reduction in scenic value: the vista will still appear as undisturbed, and the small area of vegetation to be impacted at any one time is so small it would not be perceivable when the bay is viewed from even the most obvious vantage point – for example, the lookout near Port Davie Road (**Plate 4**) or Emita.<br><br>Vegetation is to be retained along Palana Road so the pit and shed will be unseen from the Marshall bay section of the road. |

The obvious location for any visual assessment is at the lookout (coordinates 578057E, 5571384N) just south of the junction of Palana and Port Davies Road.

**Plate 4** is taken from the lookout with Marshall Bay at left of image. Within this viewfield are two existing lime sand extraction pits on Mining Leases – 2056P/M (CT's 141842/2 and 141842/1) and 2059P/M (CT's 154620/2 and 160313/1).

Existing lime sand pits

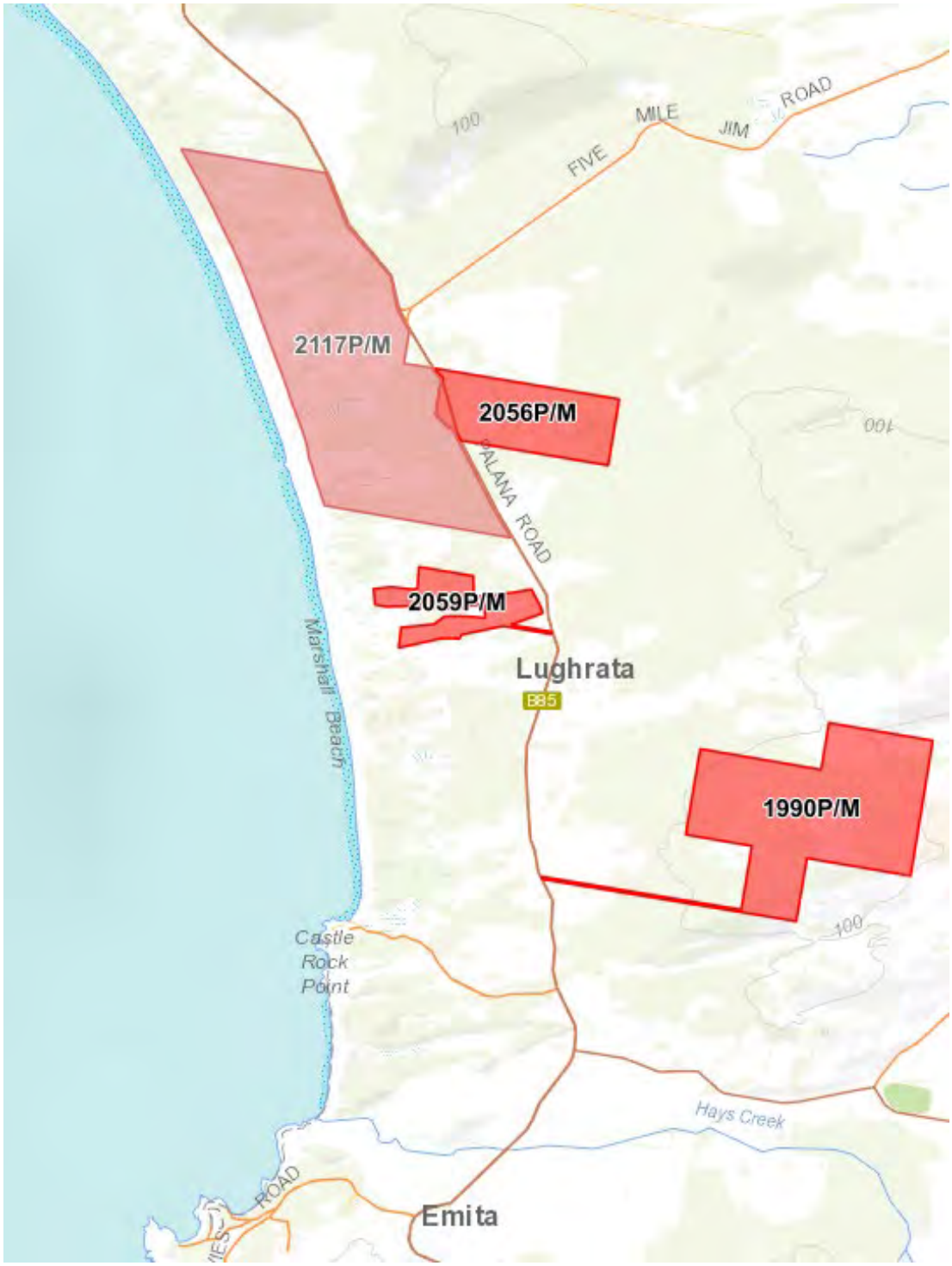
**Plate 5** shows the Marshall Bay topographic area and the Mining Lease layer from TheLIST. It specifically shows the relative location of ML2117P/M which is the subject of this application (within which the 30-year supply of lime sands is further defined at **Figure 5B**), and the other Mining Leases.

The extraction of the 30 year supply the subject of this application is directly opposite the Nichols Pit (ML 2056P/M). That pit appears to not be visible from the lookout nor along Palana Road towards. Once on Palana Road at Memana and northwards to Tanners Bay the road sits low in the landscape, and nothing can be seen of the 'uninterrupted panorama of the horseshoe-shaped bay' because the vegetation is close to the road and even when vegetation is of low form the bay cannot be seen at all.

**Plate 4. View from lookout near Port Davies Road looking towards Marshall Bay**



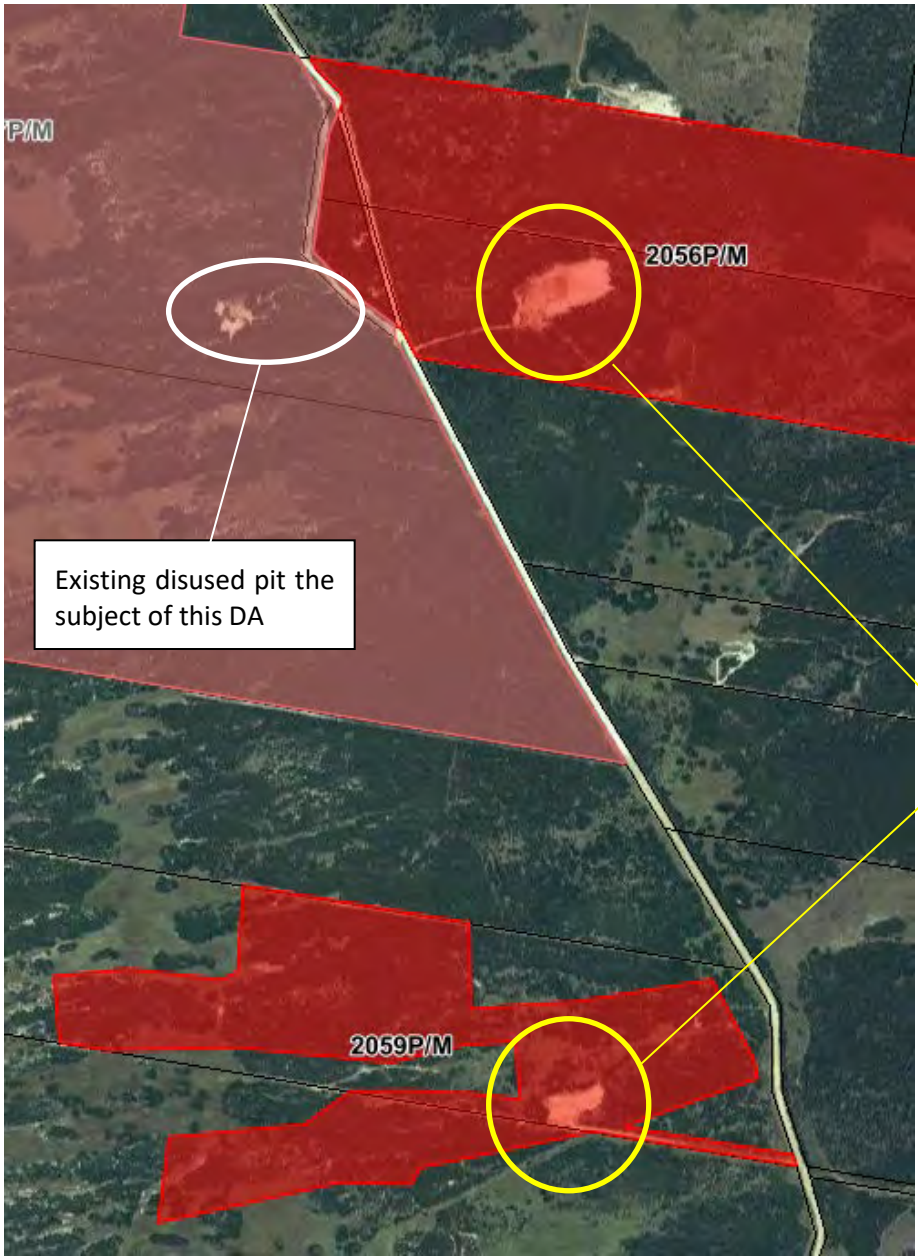
**Plate 5. Mining Leases (applications and granted) at Marshall Bay**




Source: The LIST (6 May 2022).

**Plate 6** illustrates the existing disturbed areas (those open without rehabilitation underway) at the other two Mining Leases. The Activity is proposed to have a maximum of 5 hectares disturbed; however this includes those areas which are under rehabilitation – the disturbed area without rehabilitation underway is to be about 3 hectares (of which 1.6 hectares is the hardstand and shed).

**Plate 6. Mining Leases (applications and granted) at Marshall Bay with State orthophoto**




Source: The LIST (6 May 2022).

C8.6.2 Development within a scenic road corridor

| | |
|---|---|
| **Objective**: | That:<br>(a) destruction of native vegetation or exotic vegetation does not cause an unreasonable loss of scenic value of scenic road corridors; and<br>(b) buildings and works do not cause an unreasonable loss of the scenic value of scenic road corridors. |

| Acceptable Solution (A) | Comments in relation to Activity |
|---|---|
| **A1**<br><br>Destruction of exotic trees with a height more than 10m, native vegetation, or hedgerows within a scenic road corridor must not be visible from the scenic road. | **Provision not relevant.**<br><br>No scenic road corridor is intersected by the Activity. |
| **A2**<br><br>Buildings or works within a scenic road corridor must not be visible from the scenic road. | |

## PART E – SUMMARY

The proposed Activity is permitted in the Rural Zone and meets the requirements of the Scheme and zone.

Several specialist reports, including traffic management, environmental assessment, waste water, and geology and soils were conducted. None of the reports identified any reason for rejecting the request for a planning permit to conduct the use and development.

As the proposed Activity is a level 2 activity it was assessed by the EPA that concluded the Activity could be approved with conditions (see **Attachment 11**).

It is requested the Planning Authority grants approval for the site to be used as Extractive Industry where up to 10,000 cubic metres of material, per annum can be won.

**ATTACHMENTS**

**ATTACHMENT 1. CERTIFICATES OF TITLE**

R.P. 312

2580 64

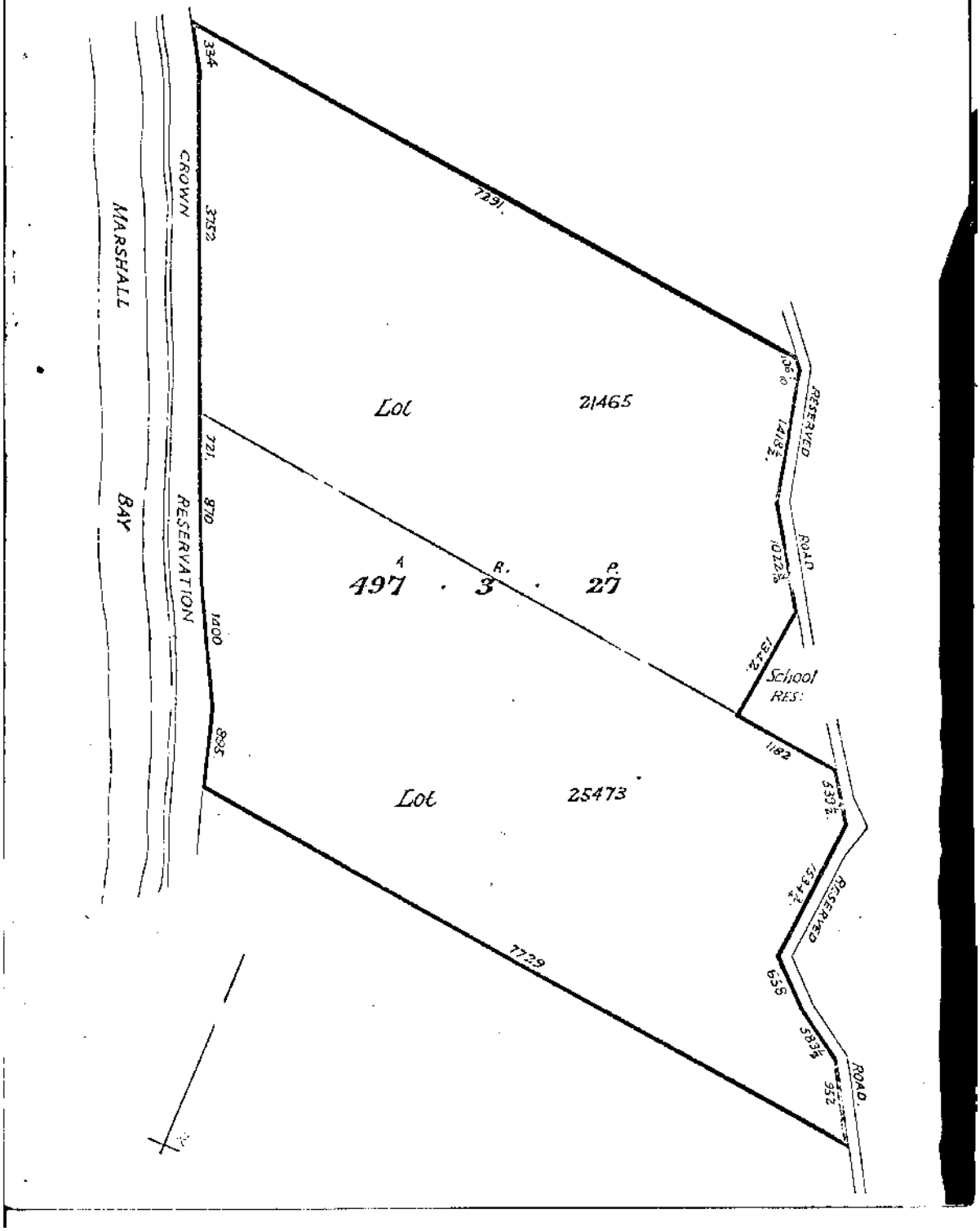
**ANNEXURE TO CERTIFICATE OF TITLE VOL. FOL.**

REGISTERED NUMBER

**215120**

Recorder of Titles

**Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register.**





Search Date: 10 Apr 2023 Search Time: 04:47 PM Volume Number: 215120 Revision Number: 01 Page 1 of 1
Department of Natural Resources and Environment Tasmania
www.thelist.tas.gov.au

# RESULT OF SEARCH

RECORDER OF TITLES

*Issued Pursuant to the Land Titles Act 1980*

SEARCH OF TORRENS TITLE

| VOLUME | FOLIO |
|---|---|
| 215120 | 1 |
| EDITION | DATE OF ISSUE |
| 4 | 14-May-2015 |

SEARCH DATE : 10-Apr-2023
SEARCH TIME : 04.47 PM

## DESCRIPTION OF LAND

Parish of LUGHRATA, Land District of FLINDERS
Lot 1 on Plan 215120
Derivation : Whole of Lots 21465 and 25473 Gtd. to C.J. Robinson & J.H. Thompson respectively.
Prior CT 2580/64

## SCHEDULE 1

C829114 TRANSFER to MARKARNA GRAZING COMPANY PTY LTD
Registered 27-Nov-2007 at noon

## SCHEDULE 2

Reservations and conditions in the Crown Grant if any
E10087 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 14-May-2015 at 12.05 PM

## UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

VOL. FOL.

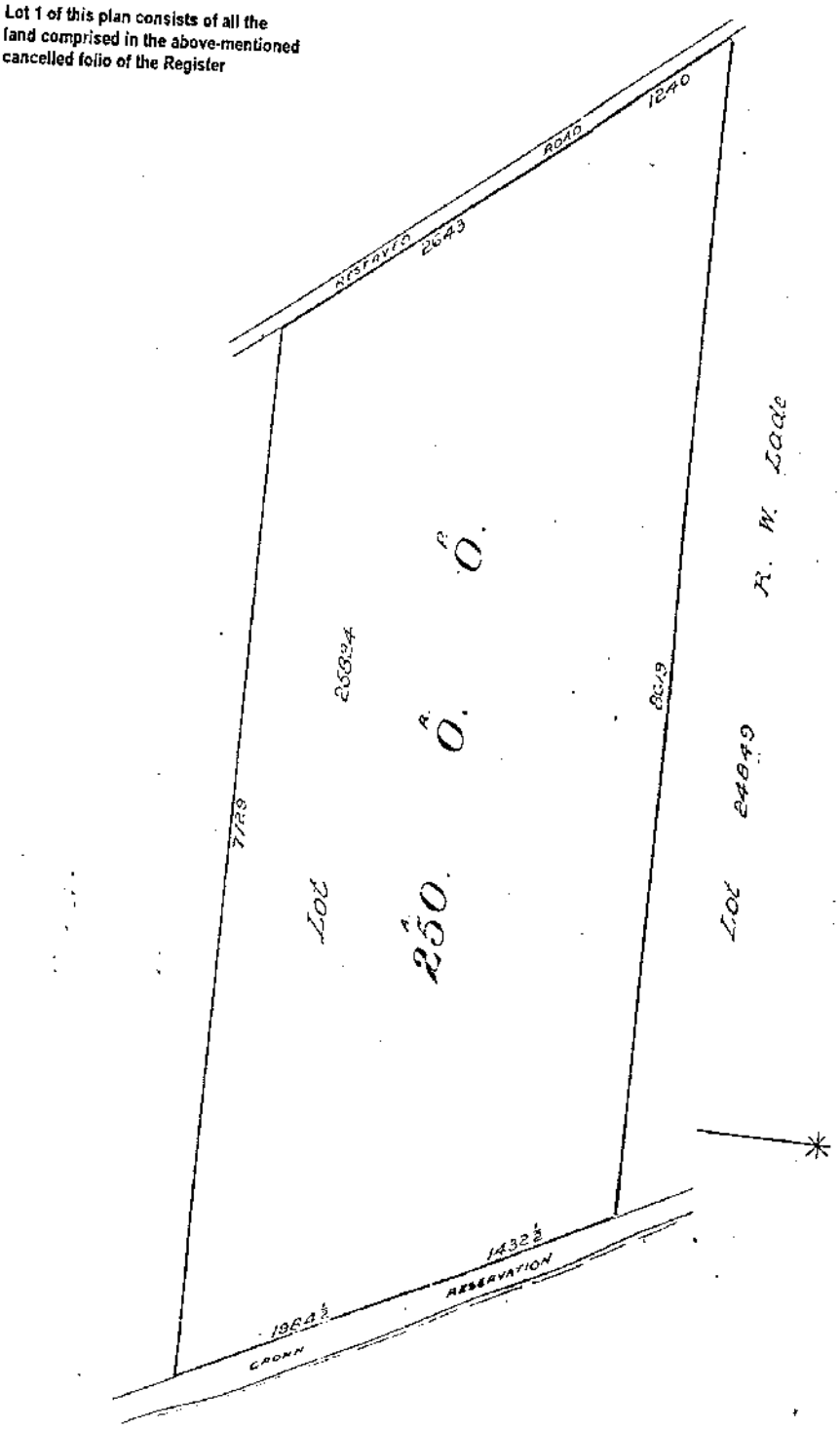
## ANNEXURE TO CERTIFICATE OF TITLE

REGISTERED NUMBER

230282

*Recorder of Titles*

Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register




NOTE

# RESULT OF SEARCH

RECORDER OF TITLES

*Issued Pursuant to the Land Titles Act 1980*

SEARCH OF TORRENS TITLE

| VOLUME | FOLIO |
|---|---|
| 230282 | 1 |
| EDITION | DATE OF ISSUE |
| 4 | 14-May-2015 |

SEARCH DATE : 10-Apr-2023
SEARCH TIME : 04.47 PM

## DESCRIPTION OF LAND

Parish of LUGHRATA, Land District of FLINDERS
Lot 1 on Plan 230282
Derivation : Whole of Lot 25824 Gtd. to J.R. Robinson.
Prior CT 2992/93

## SCHEDULE 1

C829114 TRANSFER to MARKARNA GRAZING COMPANY PTY LTD
Registered 27-Nov-2007 at noon

## SCHEDULE 2

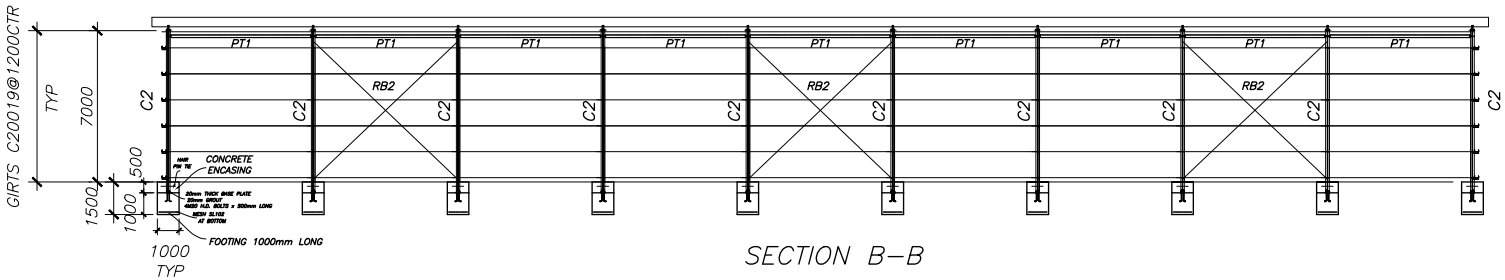
Reservations and conditions in the Crown Grant if any
E10087 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 14-May-2015 at 12.05 PM

## UNREGISTERED DEALINGS AND NOTATIONS

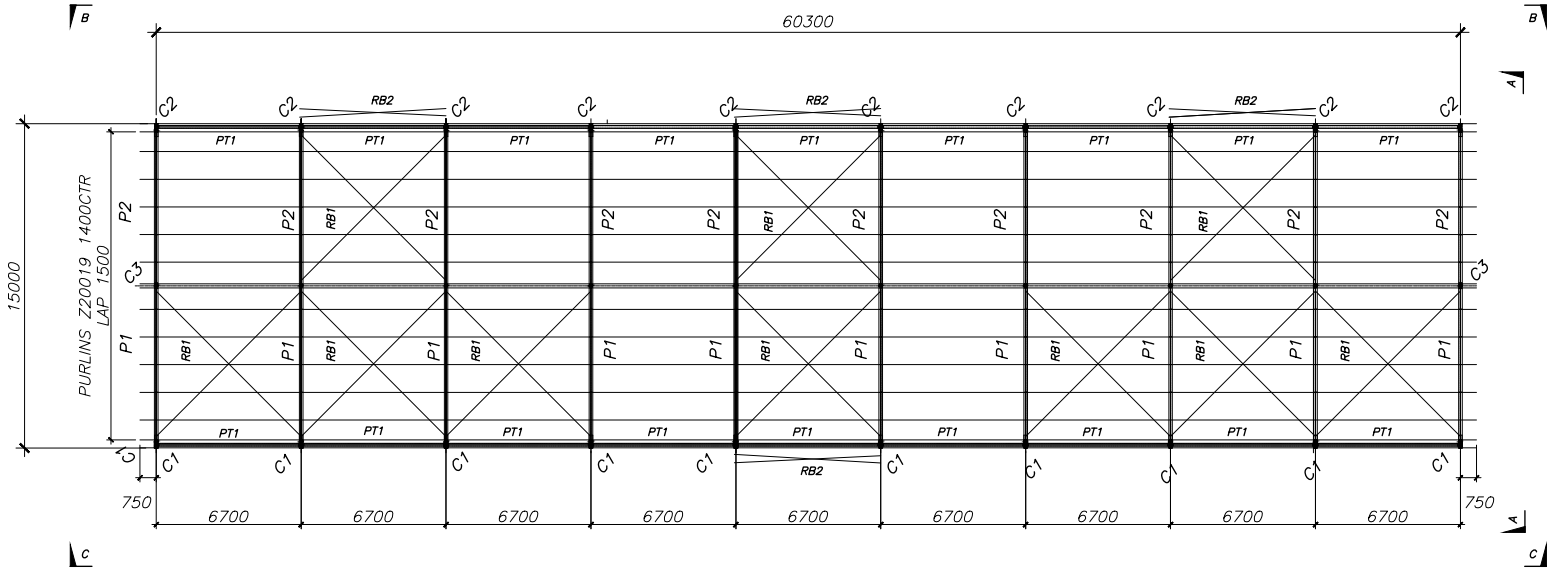
No unregistered dealings or other notations

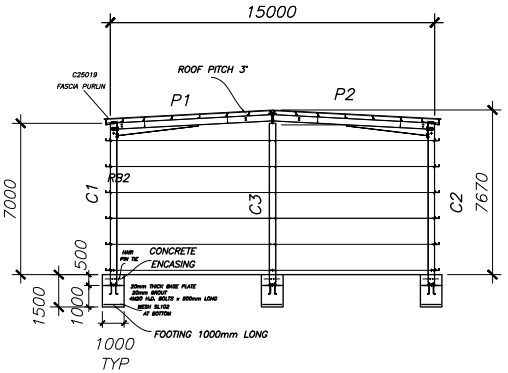
**ATTACHMENT 2. SHED DESIGN AND INTERNAL LAYOUT**

| STEEL SCHEDULE | |
|---|---|
| MEMBER | SIZE |
| C1 | 310UB40 |
| C2 | 310UB40 |
| C3 | 250UB31 |
| P1 | 310UB40 |
| P2 | 310UB40 |
| RB1–RB2 | 20 ROD |
| PT1 | 125X125X5 SHS |
| HAUNCH | 360UB50 – 3800mm min |
| PURLINS | Z20019 1400 CTRL @ LAP 1500 |
| GIRTS | C20019 1200 CTRL |
| | |

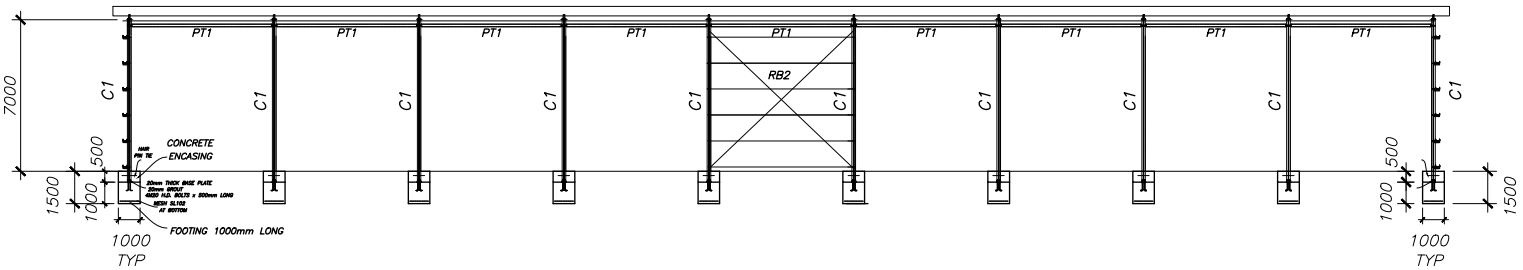



SECTION B–B




SECTION A–A




SECTION C–C

PRELIMINARY
FOR APPROVAL

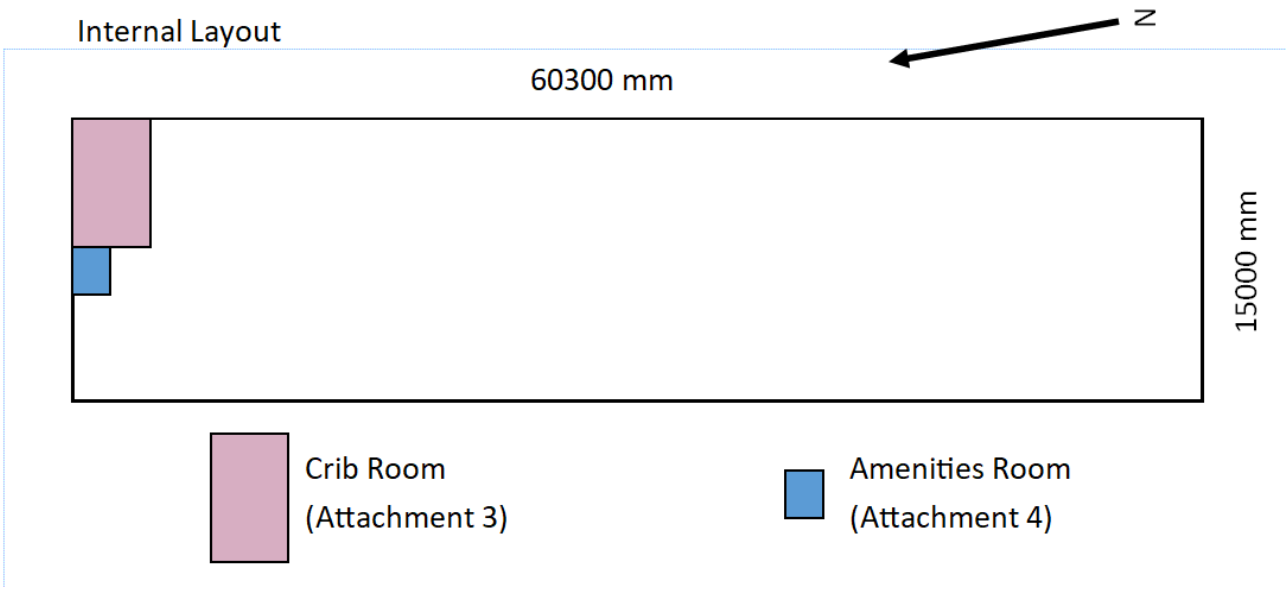
Factory 2, 22a GALLI COURT
DANDENONG SOUTH 3175 VIC.
PH 03 9799 9922 FAX 03 9799 9913

| | | |
|---|---|---|
| P1 | PRELIMINARY | 27.02.2019 |
| P | PRELIMINARY | 21.02.2019 |
| AMENDMENTS | | |

CLIENT: MARKANA PARK
PROJECT: MACHINERY & HAY SHED
FLINDERS ISLAND

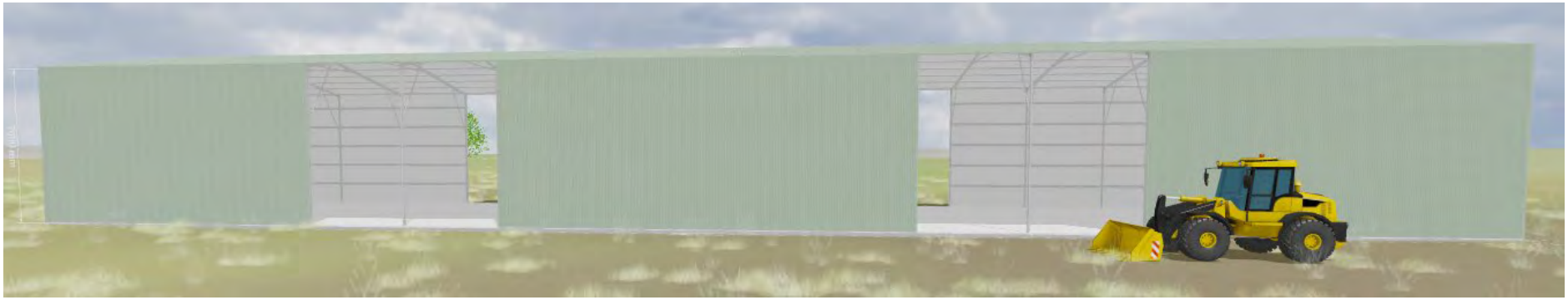
JOB:

WELD: 6FW PAINT: DRN: CT DATE: FEB 19
HOLES: ø22 PRIMER CKD: DM
DWG No: MP01 REV P1

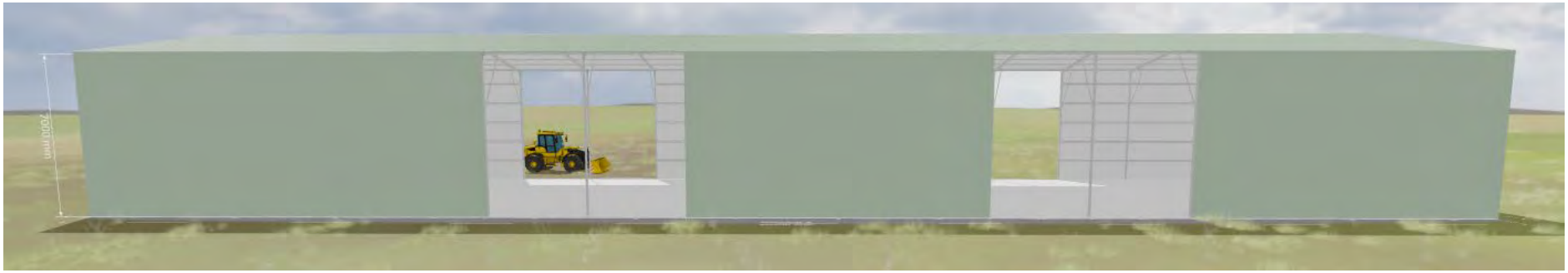

Internal Layout
N
60300 mm
15000 mm
Crib Room
(Attachment 3)
Amenities Room
(Attachment 4)

**Elevations**

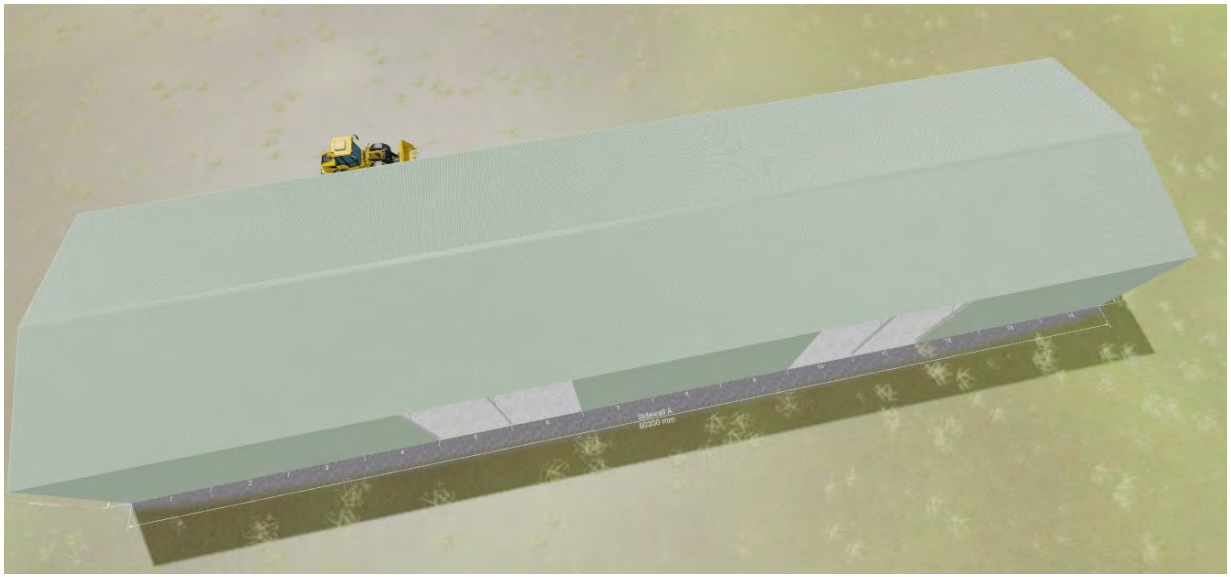
East view



West view



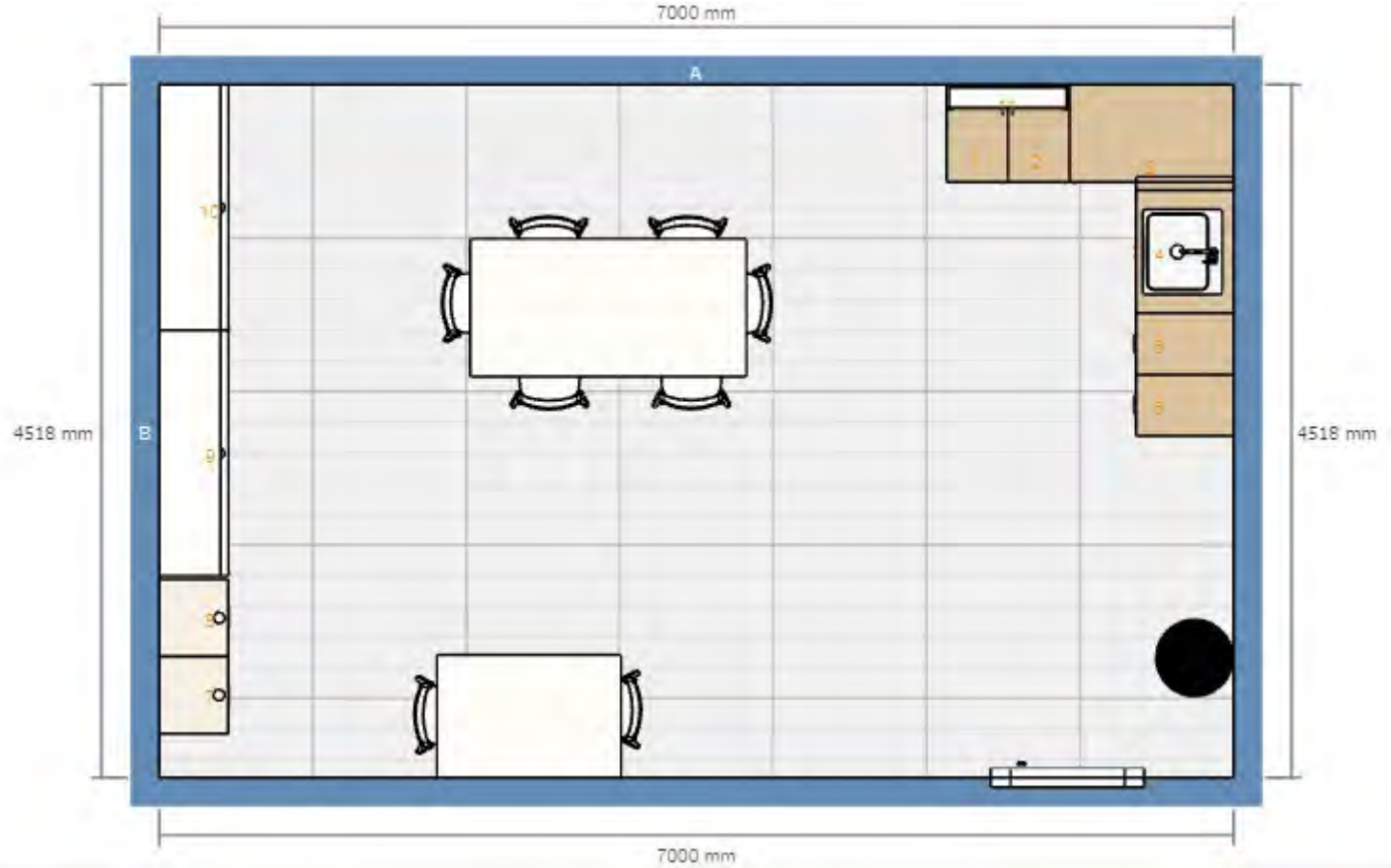
Overviews





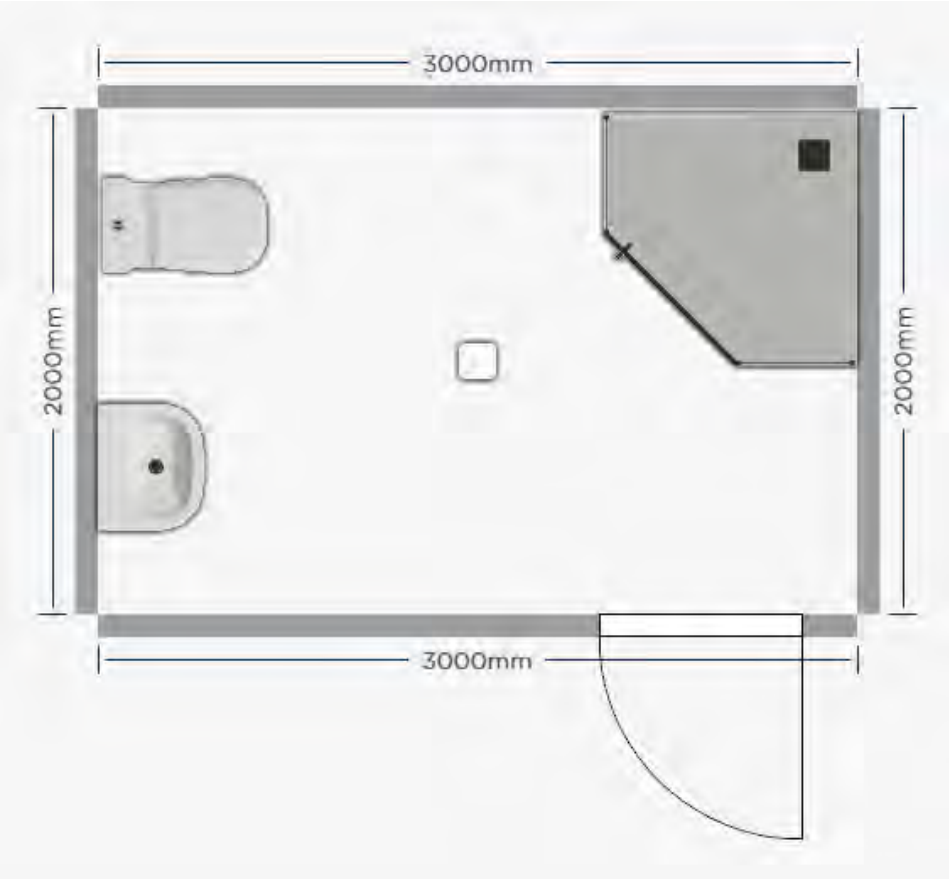
**ATTACHMENT 3. CRIB ROOM DESIGN**




7000 mm
A
4518 mm
B
4518 mm
7000 mm

**ATTACHMENT 4. AMENITIES ROOM DESIGN**

2D Layout




3D Render



**ATTACHMENT 5. SITE & SOIL EVALUATION AND DESIGN REPORT**

# Site & soil evaluation and design report.

## New onsite wastewater management system at “Markana Park,” 368 Five Mile Jim Road, Memana TAS 7255. (Sand mine - Southern site)

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**Mobile 0418 589309**

## BACKGROUND

The information provided in this Report provides Design Information, Plans and Specifications suitable for inclusion in supporting documentation for a Plumbing Permit for installation of an on-site wastewater management system servicing a new machinery shed proposed to support an existing agricultural operation and proposed sand mining development on the site.

## Part 1. Site and soil evaluation (S&SE)

**Location:** 368 Five Mile Jim Road, Memana, TAS 7255 (Sand mine - Southern site)

**Developer:** Markarna Grazing Company Pty Ltd

**PID:** 3513143

**Title Ref:** 215120/1

**Project Summary:** New on-site wastewater management system to treat and apply wastewater derived from workforce toilets and ablution facilities.

This assessment is for a machinery shed with cribroom and sanitary/ablution facilities located 220m to the East of Palana Road, at 39°56'25"S 147°54'45"E .

The building will service an expanded sand mine on the site.

It is proposed to install a septic tank absorption bed discharging to an in-ground absorption bed.

Soil profile sampling and assessment was undertaken using a 350mm diameter tractor PTO driven auger.

**Site Area:** 200+Ha.

**Dominant Soil Categories:**

*(as per AS/NZS 1547-2012)*

**1**,….2,…3,…4,….5,….6

Modified Emerson Test Required? **No**

If Yes, Emerson Class No:

**Soil Profile:**

A horizon: 0-1000mm; sand, yellow 10YR 7/6, loose, damp, massive, Category 1

B horizon: 1100-1200mm; consolidated sand (calcareous cement) sand, yellow 10YR 7/6, damp, massive, Category 1

C horizon: 1200-2000mm+, sand, yellow 10YR 7/6, loose, damp, massive, Category 1.

Evidence of ground water was not encountered; depth to water table is believed to exceed 3m.

**Measured or Estimated Soil Permeability** (m/d)

Estimated from textural classification.

A Horizon: >3.0mm/day

B Horizon: 0.12-0.5m/day

C Horizon: >3.0mm/day

**Effluent Application Rates**

Absorption trench/bed – 20mm/day (primary treated)
50mm/day (secondary treated)

**Geology:**
The site is underlain by Quaternary deposits of windblown sand of marine origin (coastal sand dunes); this is consistent with soil profiles observed on-site.

The marine sands contain a high proportion of calcareous material (marine mollusc shell derived), which makes them attractive for extraction for agricultural usage, for soil pH modification.

Calcium carbonate from shell grit present in the wind-blown beach sand id subject to solution by rainwater and redeposition as a calcareous matrix, cementing sand grains together, forming discrete layers of hardpan, which is considerably less permeable than the unconsolidated sands.

This was encountered at a depth of 1100-1200mm; however, it is likely that this hard pan could be present at varying depths, therefore, soil profile modifications to ensure uniform permeability under the land application area basal area will be required. This will be achieved by excavating absorption beds to a minimum depth of 1500mm and backfilling with loose, unconsolidated sand, prior to installing the absorption bed infrastructure.

**Topography**

Slopes: Sand dune topography, undulating but uniform gentle slope of less than 2° to east, in vicinity of land application area.

Drainage lines / water courses:
Wetland in swale approximately 335m WNW of the development site.

Vegetation: The site in the vicinity of the proposed land application area comprises coastal heath described as SHW – Scrub, heathland and coastal complexes, by Tas Veg 3.0.

**Site History (land use)**
Subdivided and developed for agriculture several decades ago, including historical sand mining activities; there are no previous known land uses or other activities

which would compromise the suitability of the site for use for onsite wastewater management.

**Site Exposure and Climate.**

Aspect: The site has open northerly aspect, experiencing day-round sun throughout the year.

Pre-dominant wind direction: South-west to north-west.

Climate: Annual rainfall averages 740mm/year (Flinders Airport)), with maximum daily average temperature of 22.7ºC and minimum of 13.4ºC, giving an annual point potential evapotranspiration of 1000mm+ and an annual rainfall deficit of 300mm.

**Environmental Issues**

Location of sensitive vegetation, high water table, swamps, waterways etc.

Disturbed site with coastal heath vegetation; the land application area will lie within vegetation cleared and managed for bushfire protection purposes.

The buffer distance of 350m to the nearest saltmarsh/wetland is consistent with the Acceptable Solutions under the Director's Guidelines for on-site wastewater management systems, for separation from surface water for a land application area for primary treated effluent.

Shallow slopes, significant distance to downslope boundary mitigates against risk of off-site runoff in the event of inground absorption system failure.

**Site Stability**

The site is gently sloping and unaffected by any Landslip Hazard banding on the Interim Planning Scheme overlay.

**Drainage/Groundwater**

Depth to seasonal groundwater (m)

Groundwater depth is believed to exceed 4m; vertical separation from base of land application area is consistent with Acceptable Solutions for application of primary treated effluent under the Director's Guidelines.

The MRT Groundwater Information Access Portal at http://wrt.tas.gov.au/groundwater-info/ indicates that there are no known operating water bores within 1600m of the site.

**Primary and Reserve Land Application Area**

Primary and reserve land application area is to be located 6m west of the NW corner of the serviced building and 10m south of the extant access track which tuns north of the building.

**Water Supply**
Tankwater derived from roof runoff. Any boreholes utilised for potable water extraction should be located at least 75m from the land application area.

**Modification to Development Application Supporting Information Report**
The site plan shown at Page 17 of the above report by Van Diemen Consulting should be modified to show the drain along the northern edge of the site, terminating approximately 40m east of its westerly end point, in order to permit installation of the land application area cross-slope of the ablutions/crib room portion of the machinery shed.

**Existing onsite wastewater management system.**
Not applicable.

## Part 2. Design of on-site wastewater management system.

**Proposed On Site Wastewater Management System.**
Suitable on-site wastewater management systems for this site would include a septic tank discharging to an in-ground absorption bed.

**Loadings.**
The on-site wastewater management system design caters for a daily design loading of up to 5 persons with a per capita loading of 40L/person/day.

Design hydraulic loading - 200L/day.

See “Staff ablutions, workplace installations” in Appendix E “On-site wastewater systems Code” Dept of Health & Ageing, Govt of South Australia.

The premises will be used during periods of sand extraction on the site; this is a sporadic activity with anticipated usage considered to be less than 26 weeks per year.

Design loadings are therefore highly conservative, with actual loadings anticipated as 20% or less, when averaged out through the year.

**Wastewater characteristics**
The wastewater discharge from the premises will be broadly similar to domestic wastewater; there will be no industrial or trade-waste discharge to the installation; this is consistent with Clause 1.2.1 of AS/NZS 1547:2012 Domestic on-site waste-water management.

**DLR**
A DLR of 20mm/day (Category 1 soil – conservative rate) is adopted.

**Wastewater Land Application Area.**

Absorption bed required basal area (minimum)

= daily wastewater loading / Design loading rate for bed/trench on Cat 1 soil

= 200 litres per day / 20mm day

= **10m²**

Design provides for an in-ground absorption bed 10m x 1.0m x 450mm deep, providing 2500mm vertical separation to groundwater.

**Upslope drainage**
Given the characteristics of the site, upslope cut-off drainage is not required, however, care should be taken to ensure that run-off from buildings, hard-standings, roads, rainwater tanks overflows etc do not discharge on or near to the septic tank land application area.

In particular, the proposed drain along the northern edge of the site, should be modified to terminate approximately 40m east of its westerly end point, in order to permit installation of the land application area cross-slope of the ablutions/crib room portion of the machinery shed.

**Compliance with Directors Guidelines for On-Site Wastewater Management Systems (2017)**

A modified onsite wastewater management system on this site can meet the requirements of the above Guidelines as follows:

| **Compliance Table** | **Directors Guidelines for OSWM** | |
|---|---|---|
| Acceptable Solutions | Performance Criteria | Compliance achieved by |
| **5.1 To ensure sufficient land is available for sustainable onsite wastewater management for buildings.** | | |
| A1<br>A new dwelling must be provided with a land application area that complies with Table 3. | P1<br>A new dwelling must be provided with a land application area that meets all of the following:<br><br>a) The land application area is sized in accordance with the requirements of AS/NZS 1547; and<br>b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable. | N/A |
| **5.2 To ensure sustainable onsite wastewater management for commercial and non-residential buildings (Class 3-9).** | | |
| A1<br>An onsite wastewater management system including the land application area for non-residential | P1<br>An onsite wastewater management system including the land application area for non-residential building must | A1(a)<br>Land application area sized to 40L/person/day and |

| | | |
|---|---|---|
| buildings must satisfy all of the following:<br><br>(a) be sized based on the hydraulic and organic loadings contained in Table 4 and design loading or irrigation rates contained in AS/NZS 1547;<br>(b) be located in accordance with clause 7.1 | satisfy all of the following:<br><br>a) A site and soil evaluation and design report prepared by a suitably person determined by the Director demonstrating that the land application area is of sufficient size to treat and manage the wastewater generated from the proposed building within the property boundaries.<br>b) The SSE report and system design demonstrates the design is consistent with AS/NZS 1547 and uses appropriate hydraulic and organic loading rates for the proposed activity.<br>c) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.<br>d) The land application area is to be located in accordance with the acceptable solution or performance criteria specified in clause 7.1. | 15g/BOD/day and AS/NZS1547.2012 Table L1.<br><br>A1(b)<br>Land application area located in accordance with Acceptable Solution under Clause 7.1 |
| **6 Area required for on-site wastewater management – building extensions, alterations or outbuildings (Building Class 1-10)** | | |
| A2<br>An outbuilding, addition or alteration to an existing building, or change of use of that building, must not encroach onto or be within 2m (if upslope) or 6m (if downslope) of an existing land application area (including land reserved for a future land application area) or a wastewater treatment unit and comply with at least one of the following:<br><br>a) not increase the number of bedrooms (or rooms reasonably capable of being used as a bedroom) or otherwise increase the potential volume of wastewater generated onsite; and<br>b) not increase the number of bedrooms (or rooms reasonably capable of being used as a bedroom) or otherwise increase the potential volume of wastewater generated onsite to greater than that allowed for in the design of the existing OWMS. | P2<br>An outbuilding addition or alteration to an existing building or change of use of that building, must be provided with a land application area (including land reserved for a future land application area) that meets all of the following:<br><br>a) The land application area is of sufficient size to comply with the either Appendix L, M or N and setback distances are consistent with Appendix R of AS/NZS 1547; and<br>b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable. | N/A |
| **7. Standards for Wastewater Land Application Areas** | | |

| | | |
|---|---|---|
| A1<br>Horizontal separation distance from a building to a land application area must comply with one of the following:<br>a) be no less than 6m;<br>b) be no less than:<br>(i) 3m from an upslope boundary or level building;<br>(ii) If primary treated effluent to be no less than 4m plus 1m for every degree of average gradient from a downslope building;<br>(iii) If secondary treated effluent and subsurface application, no less than 2m plus 0.25m for every degree of average gradient from a downslope building. | P1<br>The land application area is located so that the risk of wastewater reducing the bearing capacity of a building's foundations is acceptably low. | P1<br>Land application area setback from building is 15m. |
| A2<br>Horizontal separation distance from downslope surface water to a land application area must comply with (a) or (b)<br>(a) be no less than 100m; or<br>(b) be no less than the following:<br>(i) if primary treated effluent 15m plus 7m for every degree of average gradient to downslope surface water; or<br>(ii) if secondary treated effluent and subsurface application, 15m plus 2m for every degree of average gradient to down slope surface water. | P2<br>Horizontal separation distance from downslope surface water to a land application area must comply with all of the following:<br><br>a) Setbacks must be consistent with AS/NZS 1547 Appendix R;<br>b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable. | A2(a)<br>Land application area is 350m from nearest surface water. |
| A3<br>Horizontal separation distance from a property boundary to a land application area must comply with either of the following:<br>(a) be no less than 40m from a property boundary; or<br>(b) be no less than:<br>(i) 1.5m from an upslope or level property boundary; and<br>(ii) If primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or<br>(iii) If secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary. | P3<br>Horizontal separation distance from a property boundary to a land application area must comply with all of the following:<br><br>(a) Setback must be consistent with AS/NZS 1547 Appendix R; and<br>(b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable. | A3(b)(i)<br>90m from eastern (cross-slope) boundary, |
| A4<br>Horizontal separation distance from a downslope bore, well or similar | P4<br>Horizontal separation distance from a downslope bore, well or similar | A4<br>No known bore within 1600m of land |

| | | |
|---|---|---|
| water supply to a land application area must be no less than 50m and not be within the zone of influence of the bore whether up or down gradient. | water supply to a land application area must comply with all of the following:<br><br>(a) Setback must be consistent with AS/NZS 1547 Appendix R; and<br>(b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 demonstrates that the risk is acceptable. | application area. |
| A5<br>Vertical separation distance between groundwater and a land application area must be no less than:<br>(a) 1.5m if primary treated effluent; or<br>(b) 0.6m if secondary treated effluent | P5<br>Vertical separation distance between groundwater and a land application area must comply with the following:<br><br>(a) Setback must be consistent with AS/NZS 1547 Appendix R; and<br>(b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 that demonstrates that the risk is acceptable | A5(a)<br>3500mm+ separation to groundwater. |
| A6<br>Vertical separation distance between a limiting layer and a land application area must be no less than:<br>(a) 1.5m if primary treated effluent; or<br>(b) 0.5m if secondary treated effluent | P6<br>Vertical setback must be consistent with AS/NZS1547 Appendix R. | A6(a)<br>At least 3500mm separation. |
| A7<br>Nil | P7<br>A wastewater treatment unit must be located a sufficient distance from buildings or neighbouring properties so that emissions (odour, noise or aerosols) from the unit do not create an environmental nuisance to the residents of those properties<br><br>Note: Part 6 of the Building Act 2016 specifies | P7<br><br>Septic tanks do not cause odour or other nuisances under normal operation. |

**Date of Site Visit:** 25/05/2022

**Weather Conditions:**
*(on the day of evaluation and during the last week)*
Cool and fine, 75mm of rain fell at Flinders Island Airport since 01/05/2022.

## *Further Information.*

For further detailed assessment and design information, together with operation and maintenance advice, please refer to the Appendices.

# Statement.

I certify that this Site and Soil Evaluation and Design for an on-site wastewater management system at 368 Five Mile Jim Road, Memana (Sand mine - Southern site), has been has been undertaken in accordance with the relevant provisions of AS/NZS 1547:2012. Onsite Domestic Wastewater Management and also the requirements of the Director of Building's Guidelines for On-site Wastewater Management Systems and is therefore compliant with the deemed to satisfy requirements of the NCC Vol 3.

The design of this on-site wastewater system is suitable for the proposed residence referred to in this report.

This report is copyrighted to me as the author. I authorise Markarna Grazing Company Pty Ltd, Flinders Island Council and their respective agents and/or employees to make copies or extracts of this report for the purposes of Planning and/or Building Applications etc for the above-mentioned project on this site by or on behalf of Markarna Grazing Company Pty Ltd. It is not to be otherwise published or reproduced for the benefit of third parties without my explicit permission as author.

**Please Note:**

**It is generally understood that the successful operation of an on-site wastewater disposal system is dependent upon a number of complex, interacting factors and that the operating life of in-ground absorption systems in particular may be limited. This system may require future maintenance or modification to ensure its continued satisfactory operation. The client is advised that such works are the responsibility of the property owner.**

CONDITIONS OF INVESTIGATION

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This report should not be used for submission for Building or Development Application until OAT has been paid in full for its production. OAT accepts no liability for the contents of this report until full payment has been received.

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Due to the possibility of variation in subsurface conditions & materials, the characteristics of materials can vary between sample & observation sites. OAT takes no responsibility for changed or unexpected variations in ground conditions that may affect any aspect of the project. The classifications in this report are based on samples taken from specific sites. The information is not transferable to different sites, no matter how close (ie if the development site is moved from the original assessment site an additional assessment will be required).

It is recommended to notify the author should it be revealed that the sub-surface conditions differ from those presented in this report, so additional assessment & advice may be provided.

Investigations are conducted to standards outlined in relevant Australian Standards, codes and guidelines, including:

- AS1547-2012: Onsite Domestic Wastewater Management
- AS3959.2009: Construction of Buildings in Bushfire Prone Areas
- Director's Guidelines for on-site wastewater management systems. (CBOS)
- Director's Determination – Requirements for Building in Bushfire-Prone Areas. (CBOS)

All new developments should subject to strict site maintenance. Attention is drawn to the relevant appendices of this report.

Any assessment that has included an onsite wastewater system design will require a further site visit once the system has been installed if certification of an installation/works is required (to verify that the system has been installed as per OAT's design). An additional fee may apply for the site visit & issuing the certificate.

OAT is not responsible for the correct installation of wastewater systems. Any wastewater installation is the sole responsibility of the owner/agent and certified plumber. Any variation to the wastewater design must be approved by OAT, and an amended Special Plumbing Permit obtained, if required from the relevant council. The registered plumber must obtain a copy and carefully follow the details in the council issued Plumbing Permit. Certification of completion of works will be based on surface visual inspection only, to verify the location of the system. All underground plumbing works are the responsibility of the certified plumber.

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SITE ASSESSOR AND SYSTEM DESIGNER

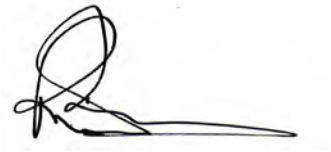
NAME: Richard Mason, Environmental Health Professional and Building Services Designer Hydraulic Restricted.

NAME OF ORGANISATION: Onsite Assessments Tas

ADDRESS: 20 Adelong Drive, Kingston, Tasmania, 7050

CONTACT DETAILS: 0418 589 309; richardmason@iprimus.com.au

SIGNED:

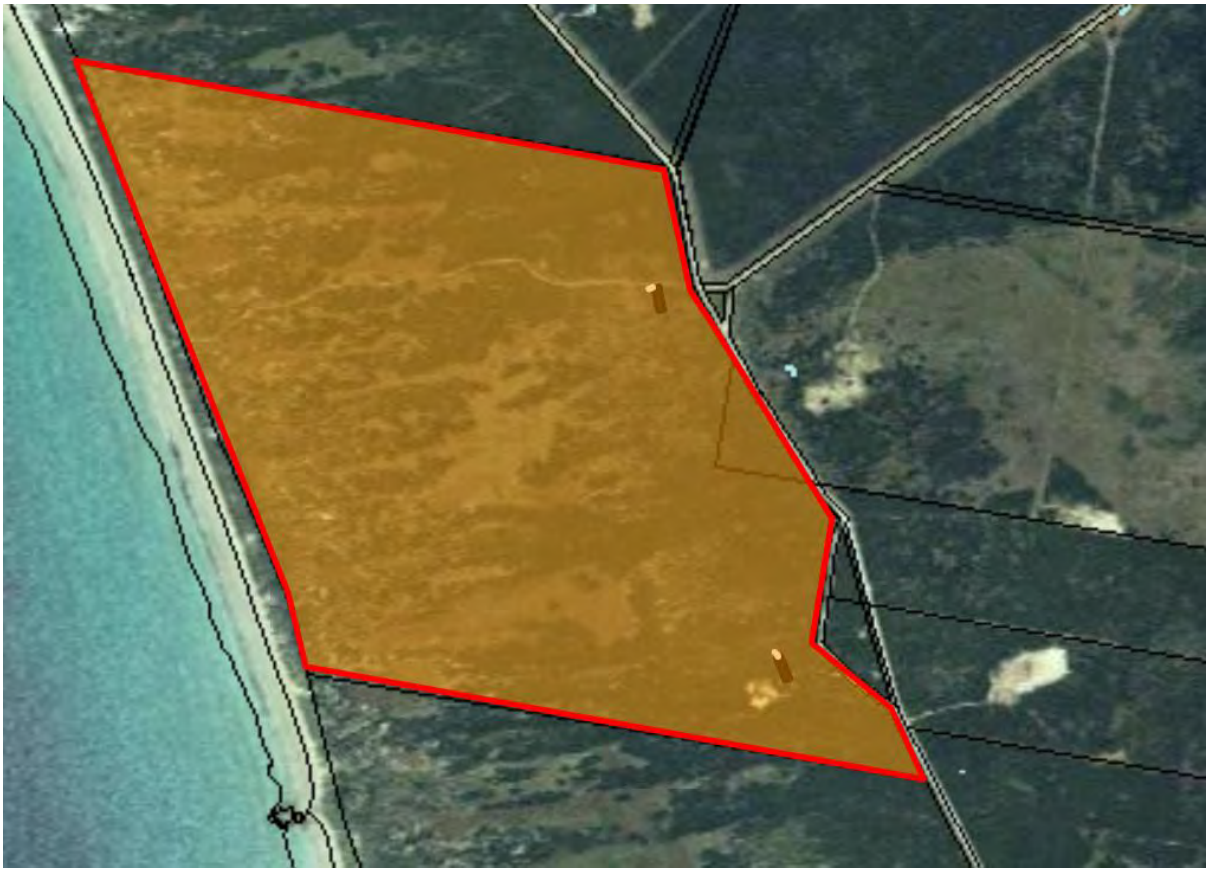


DATED: 22/08/2022

# APPENDICES


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## Appendix 1 - Site Location





## Appendix 2 – Soil testing

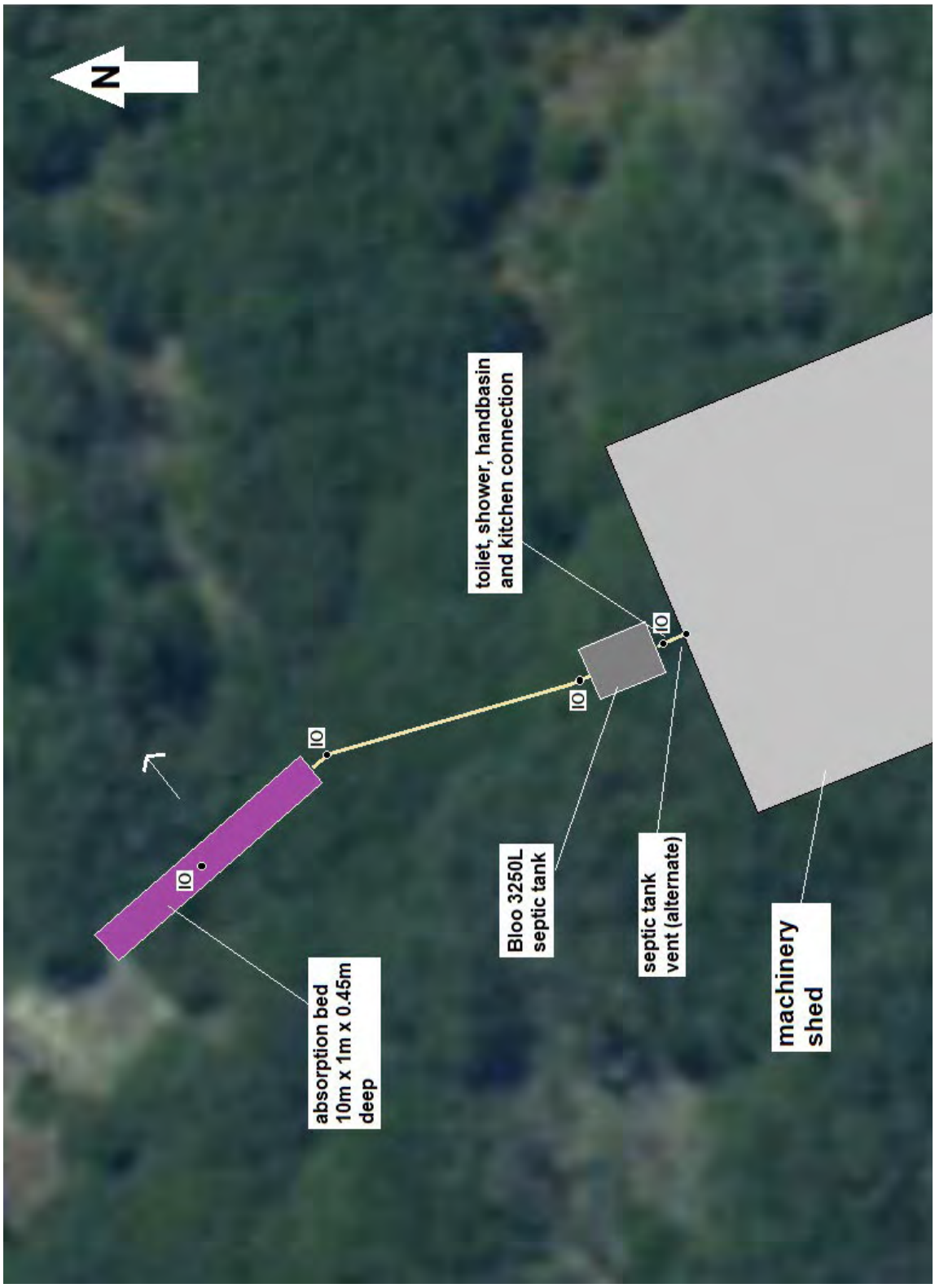



**(above) Soil profile samples on auger.**

## Appendix 3 – Design plans

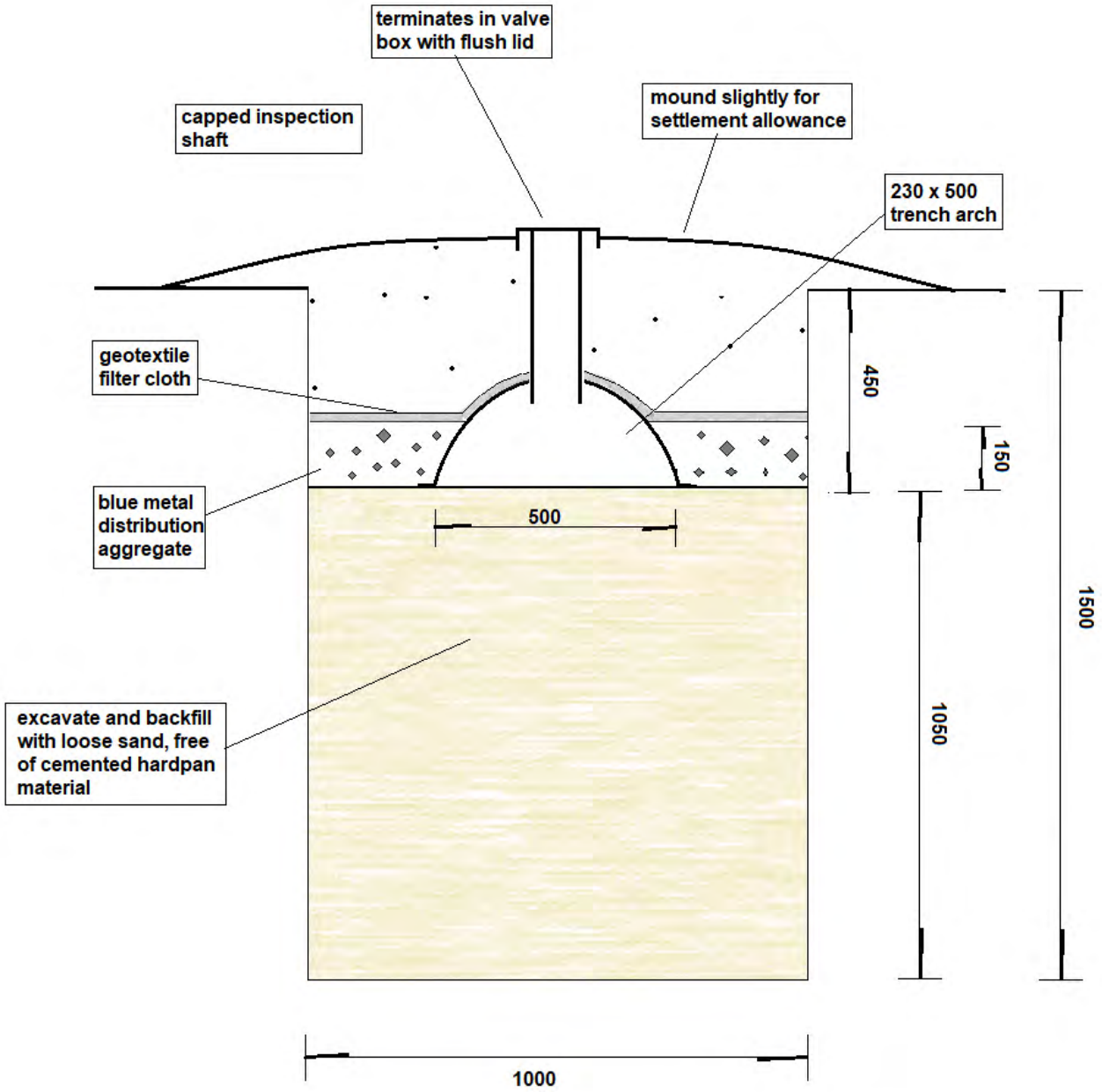



**Site Plan**



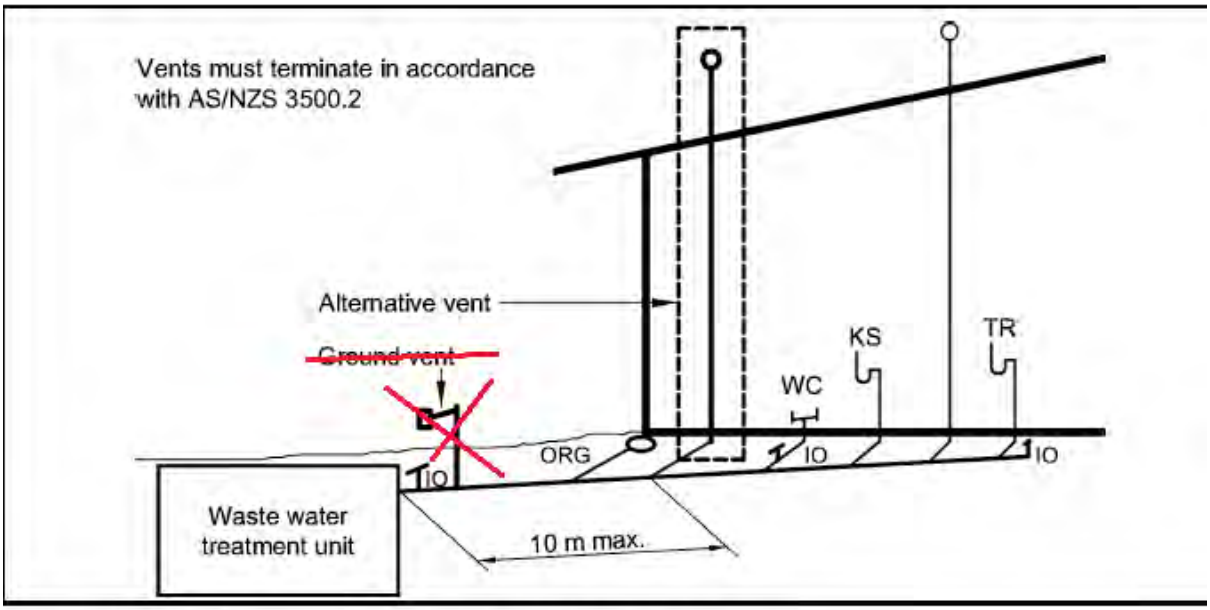

**Drainage plan**

**Please note:** Drain along northern boundary of parking area in Development Proposal Additional Information Report by Van Diemen Consulting is to terminate 40m to the East, well clear of the land application area.




**Cross-section through proposed absorption bed (10m x 1.0m)**

**Note: Installation and venting to be in accordance with NCC Pt 3, Tas H101.2 and Tas Figure H101.2 and Parts C1 and C2**




**Tas Figure H101.2 Alternative venting arrangements**

**Please note: A septic tank ground level vent must not be installed**

**Septic tank venting detail – alternative vent configuration to be used to minimise odour impacts.**

## Appendix 4 – Design specifications.

**Wastewater treatment.**

- 3250L Bloo septic tank to be installed, receiving all wastes from toilet, handbasins, sinks etc.

- Septic tank outlet to discharge to land application area configured as in-ground absorption bed.

**New absorption bed**

- Single absorption bed, 10m long x 1.0m wide x 450mm deep.

- 500mm x 230mm high trench arch, 150mm depth of 20mm diameter blue metal distribution aggregate with geotextile filter cloth over, backfilled with sandy fill sourced on site.

- The land application area is to be excavated to a minimum depth of 1500mm and back-filled with clean, loose sand, free of hard pan or other cemented material, to a depth of 450mm of the surface.

- Capped IO to be provided and brought to surface midway along absorption bed, penetrating to full depth of bed with several 8mm perforations in lower 100mm to enable monitoring of wastewater depth in absorption bed.

**Exclusion of surface/stormwater**

- Cut-off drains are not required; however, care should be taken to ensure that run-off from buildings, hard-standings, roads, rainwater tanks overflows etc do not discharge on or near to the septic tank land application area.

- Drain along northern boundary of parking area in Development Proposal Additional Information Report by Van Diemen Consulting is to terminate 40m to the East, well clear of the land application area.

Attention is drawn to AS/NZS1547.2012 On-site domestic wastewater management, Part L7 Construction techniques which states the following:

**L7 CONSTRUCTION TECHNIQUES**

L7.1 Good construction technique
The following excavation techniques shall be observed so as to minimise the risk of damage to the soil:

- Plan to excavate only when the weather is fine;

- Avoid excavation when the soil has a moisture content above the plastic limit. This can be tested by seeing if the soil forms a ‘wire’ when rolled between the palms;

(c) During wet seasons or when construction cannot be delayed until the weather becomes fine,
smeared soil surfaces may be raked to reinstate a more natural soil surface, taking care to use
fine tines and only at the surface;

(d) When excavating by machine, fit the bucket with ‘raker teeth’ if possible, and excavate in small
‘bites’ to minimise compaction; and

(e) Avoid compaction by keeping people off the finished trench or bed floor.

In particular for trenches and beds:

(f) If rain is forecast then cover any open trenches, to protect them from rain damage;

(g) Excavate perpendicular to the line of fall or parallel to the contour of sloping ground; and

(h) Ensure that the inverts are horizontal.

***CL7.1***
***Damage can be done by:***
***(a) Smearing, where the soil surface is smoothed, filling cracks and pores;***

***(b) Compacting, where the soil porosity is reduced; and***

***(c) Puddling, where washed clay settles on the base of the trench to form a relatively impermeable layer.***

***In particular, cohesive soils, or soils containing a significant quantity of clay, are susceptible to damage by excavation equipment during construction.***

## Appendix 5 – Advice to Project manager and installer

**Important notes for Project Manager**.

It is vitally important to the future of the on-site wastewater management system to avoid damage to soil structure on the site, which would reduce soil permeability, leading to possible early failure of the effluent absorption trenches.

**Actions which may damage soil structure include:**

- Compaction, which reduces soil porosity;

The Effluent Land Application Area must be carefully constructed to ensure its optimal operation.

**Project Manager Responsibilities**.

The Project Manager must ensure that:

- Before project construction work commences, the Effluent Absorption Area is properly identified on site and barricaded, fenced, roped or taped to prevent unauthorised access. This action should be documented both on the site plan and with the local Council.

- Vehicles, earth-moving plant etc do not park or manoeuvre on the Effluent Absorption Area.

- The Effluent Absorption Area is not used for the stockpiling of construction materials, excavated fill or other materials.

- All water runoff resulting from the construction of driveways, cut & fill and other excavations is directed to discharge well away from and downslope of the Effluent Absorption Area.

- The effluent absorption bed excavations etc are not left open and exposed to the weather.

## Appendix 6 – Loading Certificate and Operation & Maintenance Requirements

This loading certificate is provided in accordance with Clause 7.4.2(d) of AS/NZS 1547.2012.

**Loading Certificate for on-site wastewater management system at 368 Five Mile Jim Road, Memana.**

i. **System capacity** (medium-long term) – up to 5 employees
ii. **Design criteria summary**:

- Effluent quality – septic tank, primary treated with septic tank outlet filter fitted.
- Soil category - Category 1 (and)
- Land application system - Absorption bed (see Appendix L of AS/NZS1547.2012)

**iii. Reserve area.**

Approximately 40m$^2$ of land in the vicinity of the proposed primary land application area should be reserved from further development (such as buildings, driveway, paths, paved areas, decks, importation of fill or excavations etc), for use as an alternate land application area in the event of a system failure which cannot be addressed without constructing a duplicate absorption bed. There is sufficient suitably located land available on the site for this purpose.

**iv. Water efficient fittings etc**

Design assumes use of water efficient fixtures and fittings, eg 3L/4.5L flush toilets, 9L/min (max) showerheads, aerator fittings on taps and clothes washing machines/dishwashers with WELSS star ratings of 4.5 stars or above. (See http://www.waterrating.gov.au/)

**v. Variation from design flows etc.**

The system should successfully manage additional peak loadings which may result from up to 10 workers on the site provided that this does not exceed 5 days in any 20 day period.

**vi. Consequences of changing wastewater characteristics.**

The building operator should avoid disposing of wastes which would be additional to those normally disposed in a household sewerage system; in particular increases, in organic loadings such as from the use of sink-waste disposal units are to be avoided.

Use of household disinfectants or bactericides in anything more than small amounts and at recommended rates of dilution should also be avoided, as should the disposal of solvents, antibiotics or antimicrobial pharmaceuticals and other chemicals which may kill bacteria and other microorganisms required for effective wastewater treatment.

**vii.** **Consequences of overloading the system.**

Long term use by more than four residents or equivalent may cause overloading of the system, surfacing of effluent, public and environmental health nuisances, pollution of surface waters etc.

**viii.** **Avoid overloading the system by observing the following:**

Installation of water conserving fittings (eg dual flush 4.5:3 litre toilets; shower flow restrictors; aerator taps and water conserving automatic washing machine).

**ix.** **Consequences of underloading the system.**

Nil.

x. **Consequences of lack of operation, maintenance and monitoring attention.**

The septic tank system requires minimal intervention; however it is not a zero-maintenance system; it will require regular desludging of the septic tank and periodic monitoring of wastewater depth in the absorption bed area.

Consequences of failure to observe these requirements may include any or all of the following:

- Spread of infectious diseases to your family and neighbours.
- Breeding of mosquitos and attraction of flies and rodents.
- Nuisance and unpleasant odours.
- Pollution of waterways.
- Contamination of bores, wells and groundwater.
- Excessive and unsightly weed growth.
- Alteration of local ecology

**Operation & Maintenance Requirements**

- Ensure that the septic tank is desludged by an authorised contractor at five-yearly intervals. Failure to do this at the required frequency may result in carry-over of solids into the absorption bed, causing failure of the land application area, which may then require expensive reconstruction works.
- Discourage access by visitors or pets to the land application area.
- Livestock should not be allowed on or near the absorption bed; if such animals are kept, the land application area should be fenced off to prevent system damage and/or soil compaction.
- Do not allow vehicles on or near the land application area.
- Keep the surface and sub-surface cut-off drain above the land application area open and clear of debris to prevent rainwater flowing into the effluent absorption area.

- Problems can occur with systems which have not been properly maintained and where absorption areas have become blocked or clogged. The warning signs are obvious and include:

- Effluent absorption area is wet or soggy with wastewater ponding on the surface of the ground.
- “Sewage” smells near the absorption bed area.

# Appendix 7 – Form 55

## CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: Markarna Grazing Company Pty Ltd (Owner /Agent)
Address:
Whitemark 7255 (Suburb/postcod)

**Qualified person details:**

Qualified person: Richard Mason
Address: 20 Adelong Drive
Phone No. 0418589309
Kingston 7050
Fax No.
Licence No: CC6157T
Email address: richardmason@iprimus.com.au

Qualifications and Insurance details: BSc Env Sciences (Salford)

Environmental Health Professional

Prof Indemnity Insurance: Arch Insurance Policy No. P0021114PI2022AU0

*(description from Column 3 of the Director of Building Control's Determination)*

Speciality area of expertise: Site and soil evaluation and land application system design.

*(description from Column 4 of the Director of Building Control's Determination)*

**Details of work:**

Address: 368 Five Mile Jim Road
Memana 7255
Certificate of title No: 215120/1

The assessable item related to this certificate:

Onsite wastewater management – Site and soil evaluation for onsite wastewater management capability;

including:

Characterisation of wastewater and predicted hydraulic loadings.

Selection of onsite wastewater treatment system

Selection of land application area.

Determination of design loading rate.

*(description of the assessable item being certified)*
*Assessable item includes –*
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

**Certificate details:**

Certificate type: On-site wastewater management - Site and soil evaluation

*(description from Column 1 of Schedule 1 of the Director of Building Control's Determination)*

Director of Building Control – Date Approved 1 January 2017 — *Building Act 2016* - Approved Form No. 55

This certificate is in relation to the above assessable item, at any stage, as part of - *(tick one)*

building work, plumbing work or plumbing installation or demolition work: ✓

or

a building, temporary structure or plumbing installation:

In issuing this certificate the following matters are relevant –

| | |
|---|---|
| Documents: | AS/NZS 1547. 2012: On-site domestic-wastewater management. |
| Relevant calculations: | |
| References: | AS/NZS 1547.2012: Onsite Domestic Wastewater Management.<br>Directors Guidelines for on-site wastewater management systems - CBOS - 2017 |

*Substance of Certificate: (what it is that is being certified)*

Site & soil evaluation and design report - New onsite wastewater management system at "Markana Park," 368 Five Mile Jim Road, Memana TAS 7255. (Sand mine - Southern site), TAS 7255, by Richard Mason, Onsite Assessments Tas, dated 22/08/2022.

*Scope and/or Limitations*

**I certify the matters described in this certificate.**

| Qualified person: | *Signed:* | *Certificate No:* | *Date* |
|---|---|---|---|
| |  | N/A | 22/08/2022 |

# Appendix 8 – Form 35

## CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form 35

To: Markarna Grazing Company Pty Ltd (Owner name)

(Address)

Whitemark 7255 (Suburb/postcode)

**Designer details:**

Name: Richard Mason
Category: Building Services Designer Hydraulic - Restricted
Business name: Onsite Assessments Tas
Phone No: 0418 589 309
Business address: 20 Adelong Drive
Kingston 7050
Fax No:
Licence No: CC6157T
Email address: richardmason@iprimus.com.au

**Details of the proposed work:**

**Owner/Applicant** Markarna Grazing Company Pty Ltd
Designer's project reference No.
**Address:** 368 Five Mile Jim Road
Lot No: 215120/1
Memana 7255

**Type of work:** Building work ☐ Plumbing work ☒ *(X all applicable)*

**Description of work:**

Onsite wastewater management system

*(new building / alteration / addition / repair / removal / re-erection water / sewerage / stormwater / on-site wastewater management system / backflow prevention / other)*

**Description of the Design Work (Scope, limitations or exclusions):** *(X all applicable certificates)*

| Certificate Type: | Certificate | Responsible Practitioner |
|---|---|---|
| | ☒ Hydraulic design | Building Services Designer |
| | ☐ Other (specify) | |

Deemed-to-Satisfy: ☒ Performance Solution: ☐ *(X the appropriate box)*

Other details:

On site wastewater management system servicing farm buildings.

Director of Building Control - date approved: 2 August 2017 — *Building Act 2016* - Approved Form No 35

**Design documents provided:**

The following documents are provided with this Certificate –

*Document description:*

| | | |
|---|---|---|
| Drawing numbers: Appendix 3 | Prepared by: Richard Mason | Date: 22/08/2022 |
| Schedules: | Prepared by: Richard Mason | Date: |
| Specifications: Appendix 4 | Prepared by: Richard Mason | Date: 22/08/2022 |
| Computations: pages 5-6 | Prepared by: Richard Mason | Date: 22/08/2022 |
| Performance solution proposals: | Prepared by: | Date: |
| Test reports: | Prepared by: | Date: |

**Standards, codes or guidelines relied on in design process:**

AS/NZS1547.2012 On site domestic waste water management

NCC Part 3

Director's Guidelines for On-site Wastewater Management Systems, Director of Building Control (Tasmania).

**Any other relevant documentation:**

Site & soil evaluation and design report - New onsite wastewater management system at "Markana Park," 368 Five Mile Jim Road, Memana TAS 7255. (Sand mine - Southern site), TAS 7255, by Richard Mason, Onsite Assessments Tas, dated 22/08/2022.

Form 55 dated 22/08/2022 certifying Site & Soil Evaluation and design report.

**Attribution as designer:**

I Richard Mason am responsible for the design of that part of the work as described in this certificate;

The documentation relating to the design includes sufficient information for the assessment of the work in accordance with the *Building Act 2016* and sufficient detail for the builder or plumber to carry out the work in accordance with the documents and the Act;

This certificate confirms compliance and is evidence of suitability of this design with the requirements of the National Construction Code.

| | *Name: (print)* | *Signed* | *Date* |
|---|---|---|---|
| Designer: | Richard Mason |  | 22/08/2022 |
| Licence No: | CC6157T | | |

Director of Building Control - date approved: 2 August 2017 *Building Act 2016* - Approved Form No 35

## Assessment of Certifiable Works: (TasWater)

**Note: single residential dwellings and outbuildings on a lot with an existing sewer connection are not considered to increase demand and are not certifiable.**

**If you cannot check ALL of these boxes, LEAVE THIS SECTION BLANK.**

**TasWater must then be contacted to determine if the proposed works are Certifiable Works.**

**I confirm that the proposed works are not Certifiable Works, in accordance with the Guidelines for TasWater CCW Assessments, by virtue that all of the following are satisfied:**

- [X] The works will not increase the demand for water supplied by TasWater
- [X] The works will not increase or decrease the amount of sewage or toxins that is to be removed by, or discharged into, TasWater's sewerage infrastructure
- [X] The works will not require a new connection, or a modification to an existing connection, to be made to TasWater's infrastructure
- [X] The works will not damage or interfere with TasWater's works
- [X] The works will not adversely affect TasWater's operations
- [X] The work are not within 2m of TasWater's infrastructure and are outside any TasWater easement
- [X] I have checked the LISTMap to confirm the location of TasWater infrastructure
- [X] If the property is connected to TasWater's water system, a water meter is in place, or has been applied for to TasWater.

## Certification:

I Richard Mason being responsible for the proposed work, am satisfied that the works described above are not Certifiable Works, as defined within the *Water and Sewerage Industry Act 2008*, that I have answered the above questions with all due diligence and have read and understood the Guidelines for TasWater CCW Assessments.

Note: the Guidelines for TasWater Certification of Certifiable Works Assessments are available at: www.taswater.com.au

| | *Name: (print)* | *Signed* | *Date* |
|---|---|---|---|
| Designer: | Richard Mason |  | 22/08/2022 |

**ATTACHMENT 6. LAND SURVEY (HEIGHTS AHD)**

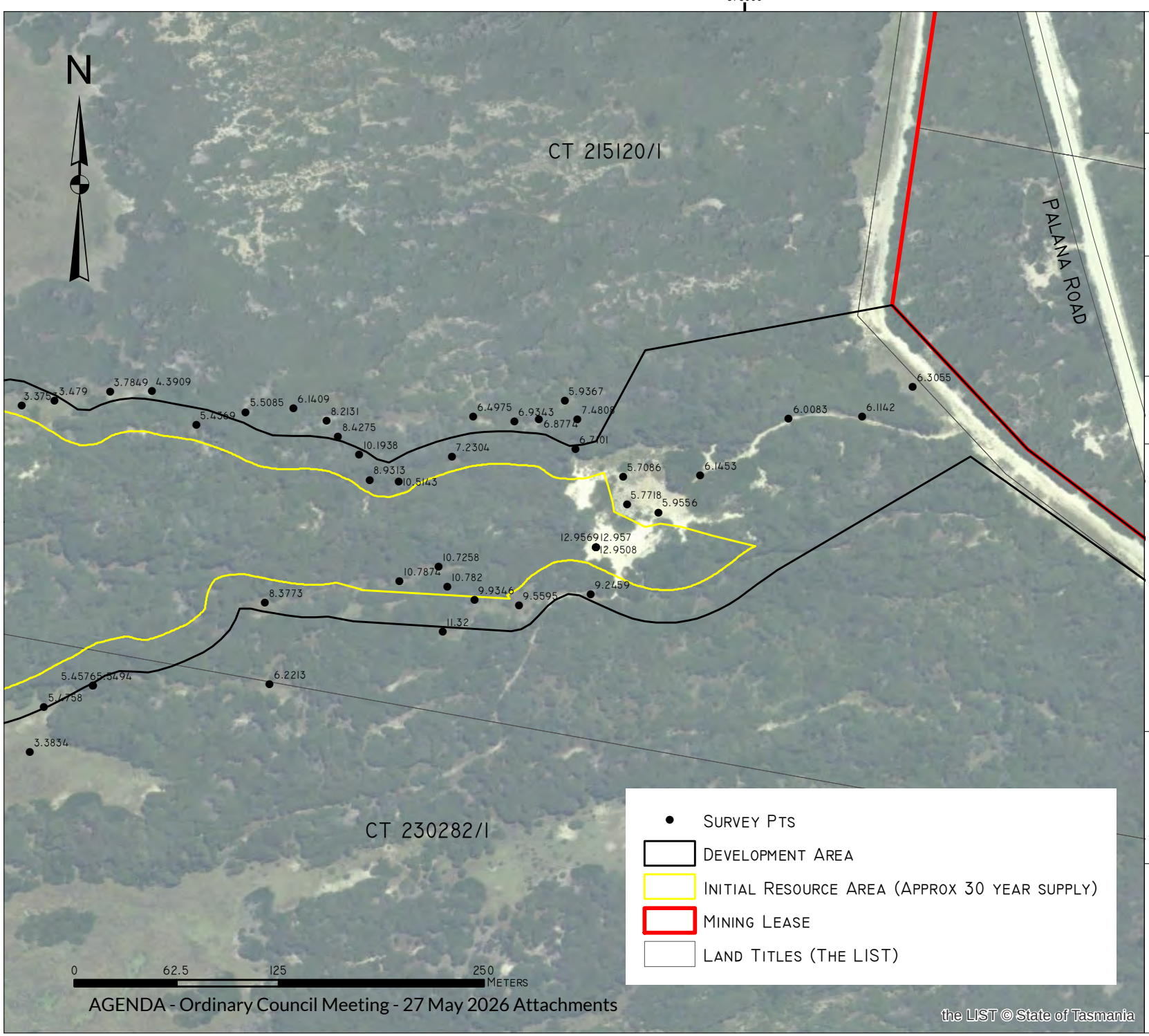
# MARKARNA PARK PTY LTD

## MARKARNA PARK SAND PIT

FIGURE 1: MARKARNA PARK SAND PIT DEVELOPMENT HEIGHT SURVEY (MIN RECORDED HT 2.994 M AHD)

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

NOTE:
SURVEY FOCUSED ON LOW POINT WITHIN AND AROUND THE DEVELOPMENT AREA




BASE DATA BY TASMAP. © STATE OF TASMANIA
BASE IMAGE BY TASMAP. © STATE OF TASMANIA

Van Diemen CONSULTING
PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 16 JUNE 2023



the LIST © State of Tasmania

# MARKARNA PARK PTY LTD

## MARKARNA PARK SAND PIT

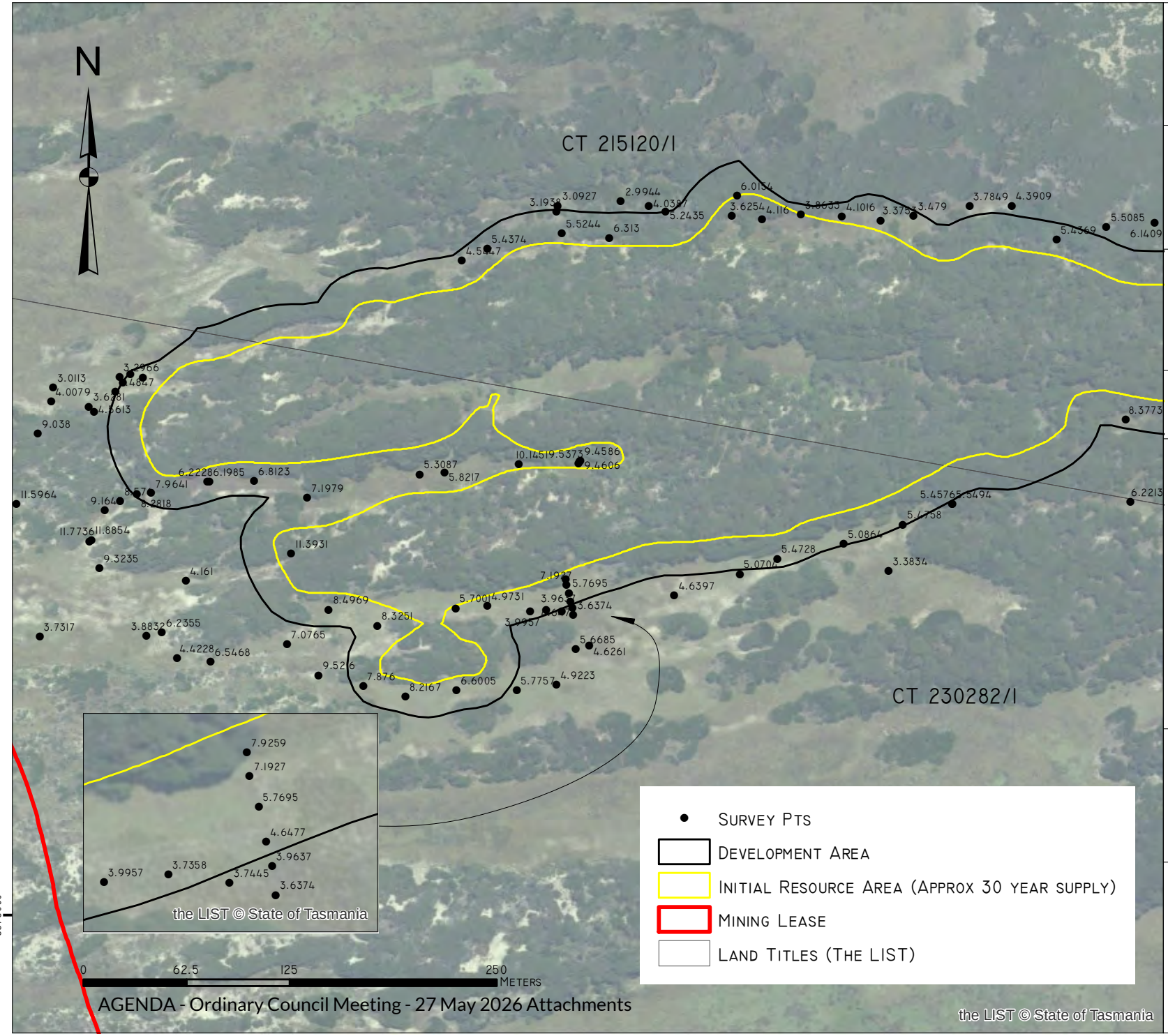



FIGURE 2: MARKARNA PARK SAND PIT DEVELOPMENT HEIGHT SURVEY (MIN RECORDED HT 2.994 M AHD)

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

NOTE:
SURVEY FOCUSED ON LOW POINT WITHIN AND AROUND THE DEVELOPMENT AREA

BASE DATA BY TASMAP. © STATE OF TASMANIA
BASE IMAGE BY TASMAP. © STATE OF TASMANIA

Van Diemen CONSULTING
PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 16 JUNE 2023

**ATTACHMENT 7. TRAFFIC IMPACT ASSESSMENT**

# MARSHALL BAY LIME SAND PIT, PALANA ROAD

## TRAFFIC IMPACT ASSESMENT

**APPLICANT: MARKARNA GRAZING COMPANY PTY LTD**

**FEBRUARY 2025**

**REVISION HISTORY**

| Date | Rev | Prepared By | Reviewed By |
|---|---|---|---|
| 24/02/2025 | 01 | Janitha Senavirathna<br>CPEng MIEAust NER | Sandun Ineshka<br>Eng MIEAust |

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## DEFINITIONS AND ABBREVIATIONS

| | |
|---|---|
| **TIA** | Traffic Impact Assessment |
| **AADT** | Annual Average Daily Traffic (means the number of vehicles per day averaged over all days in a calendar year) |
| **Scheme** | Tasmanian Planning Scheme - Flinders Local Provisions Schedule |
| **(the) Pit** | Marshall Bay Lime Sand Pit |
| **Trip(s)** | A one-way vehicular movement from one point to another |
| **Major Road** | For the purpose of this TIA, the major road is Palana Road |
| **Road Category** | As defined in Tasmanian State Road Hierarchy (DIER2017) |

# 1 INTRODUCTION

The Marshall Bay Lime Sand Pit is located within the Mining Lease ML 2117 P/M on private freehold land (CT 120064/1, CT 215120/1, CT 230282/1) south of Lughrata in the Flinders Municipality.

The Mining Lease (and Pit) is accessed from Palana Road. The proponent of the project is Markarna Grazing Company Pty Ltd.

This Traffic Impact Assessment (herein referred to as TIA) has been prepared as a requirement of the Tasmanian Planning Scheme – Flinders in order to support the Council in assessing the development application.

This report evaluates current traffic, road, and other road use-related conditions along Palana Road and in the vicinity of the Pit. The assessment of trips generated from the activity and the impact on Palana Road was also evaluated.

Further, the site access conditions as well as sight distances to the entrance of the site were also assessed, and due advice is given.

The report has been prepared to satisfy the requirements laid out by –

- Guide to Traffic Management Part 12, Integrated Transport Assessments for Developments – Austroads;
- Traffic Impact Assessment Guidelines, August 2020 – Department of State Growth; and
- TIA Framework, Tasmania 2007 – Department of Infrastructure, Energy and Resources.

The assessment also references to the following information and resources –

- Tasmanian Planning Scheme - Flinders Local Provisions Schedule;
- Department of State Growth Crash database; and
- Google Earth Imagery.

## 2 SITE DESCRIPTION

The Marshall Bay Lime Sand Pit is located within Mining Lease 2117 P/M on private freehold land approximately 1.2 km to the south of Lughrata on Flinders Island. The Pit is accessed via an existing gravel road that branches off Palana Road as shown in **Figure 2.1**. There is approximately 0.4 km between the Pit and Palana Road.

This existing gravel road will be used as the access route to the Pit during the construction of the proposed infrastructure and also when operational.

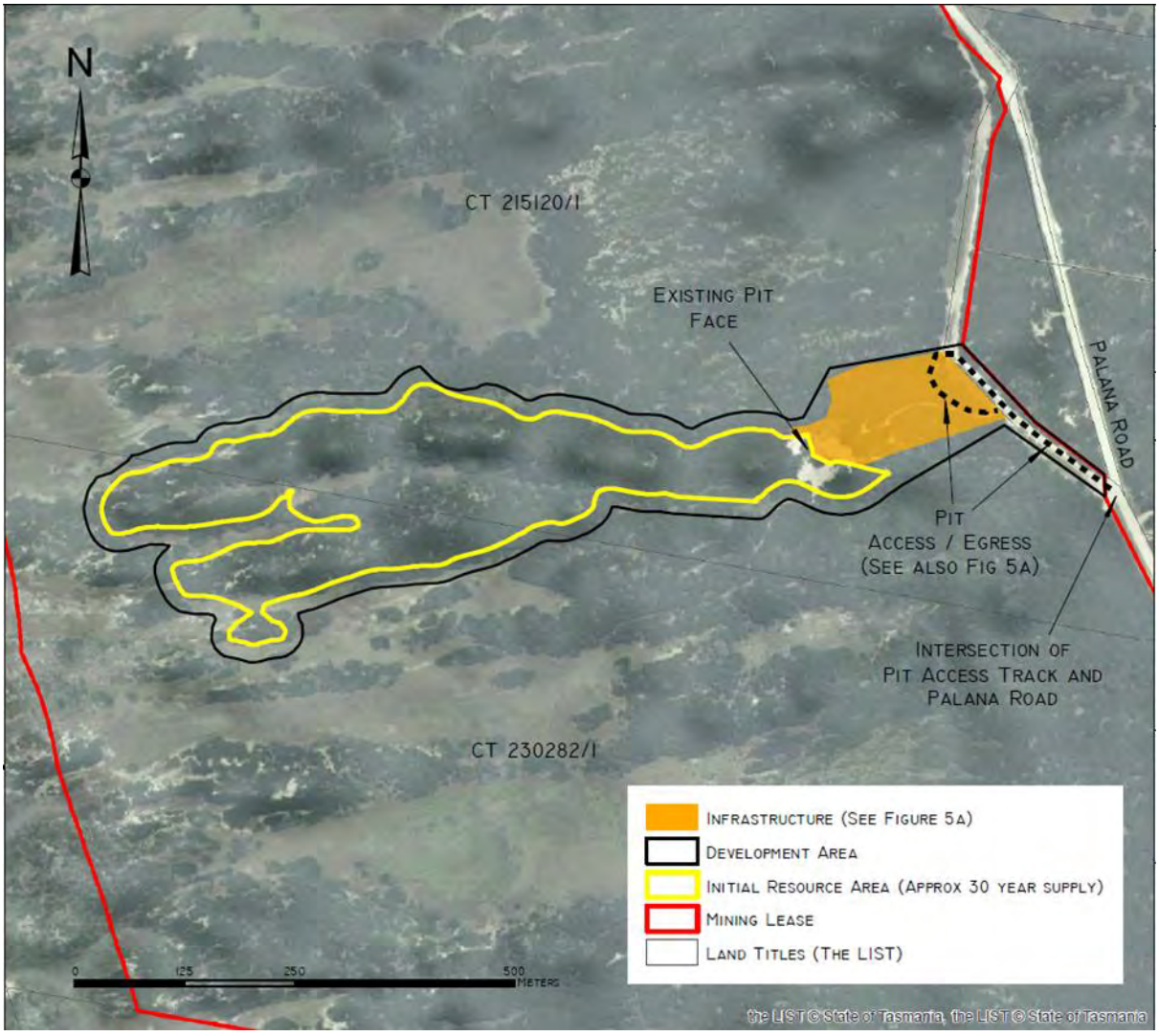



*Figure 2.1: Location of Marshall Bay Lime Sand Pit*

## 3 DEVELOPMENT PROPOSAL

The proposed development involves the extraction of lime sand from an existing dune series, for use as an agricultural soil ameliorant to enhance land (soil) quality.

The raw sand will be screened to remove any organic matter and physical contaminants, such as shells, rocks, and stones, ensuring its suitability for agricultural use. In some cases, additional soil additives, such as boron, may be mixed with the lime sands before transportation to the intended application sites, typically paddocks for spreading.

The extraction is planned at a maximum annual quantity of 10,000 cubic meters, equivalent to 15,000 tons, with a loose bulk density ratio of 1.5.

Due to the seasonal demands for pasture improvement, transportation of the material is expected to peak during the summer and autumn months. The extraction will take place within the designated Maximum Extraction Area (MEA), located within the broader Development Area. This MEA contains a resource estimated to last for up to 30 years at full production levels. Additionally, the processing capacity is set at 10,000 cubic meters per annum, ensuring the efficient preparation of the material for its intended agricultural use.

The use and development includes the following –

- Surface site preparation by vegetation and topsoil stripping and stockpiling;
- Excavation of material with a bulldozer and/or excavator;
- Transport of sands to the storage shed for screening/storage and occasional mixing with other soil ameliorants/additives (e.g., additional micro-nutrients and essential plant nutrients such as boron). Some sand will be loaded at the pit into trucks for immediate delivery to agricultural lands;
- Screening (up to 10,000 cubic metres per annum) to remove any vegetative/root debris and/or rocks and stones;
- Loading trucks with wheel loader from the pit face and/or stockpile area; and
- Transport of material by truck.

## 4 TRIP GENERATION AT THE PROPOSED ACCESS

A Trip in this report is defined as a one-way vehicular movement from one point to another, excluding the return journey. Therefore, a return trip to and from a land use is counted as two trips.

The maximum extraction volume of 15,000 tonnes corresponds to about 1,500 truckloads per annum based on 10-tonne loads (smaller loads are used given the material is to be spread on pastures and ploughed land). Lime sands are mainly required in summer and autumn (January to May) which coincides with the peak activity period of agricultural pasture improvement, maintenance, and establishment.

Approximately 300 Trips per week (150 truckloads) are expected for an 8 to 10-week period of carting (generally within the period March to May). Over 5 days each week this amounts to about 60 Trips per day (or 30 truckloads per day). All traffic would enter and exit onto the sealed section of Palana Road using the currently disused reserved road (unsealed) section of what was Palana Road.

# 5 EXISTING ROAD AND TRAFFIC CONDITIONS

All traffic accessing the Pit will need to travel along Palana Road, and this section of the assessment will examine the current traffic flow and condition.

## 5.1 Road Condition

The Pit is accessed via Palana Road. This part of the road is managed by the DSG. Under the Tasmanian State Road Hierarchy, it is classified as a Category 5 Road, which primarily provides safe access to private properties and some may be used for low frequency heavy freight vehicle transport.

At its junction with the Pit access road, Palana Road –

- is a sealed two-way road with a width of approximately 6m and has gravel shoulders on either side;
- generally has a flat terrain with a posted speed limit of 100 km/h; andhas guideposts on either side, but no other notable traffic controlling measures are in place.

Around 40 m south to Pit access, there is an existing access to an extraction piton the opposite side of Palana Road.

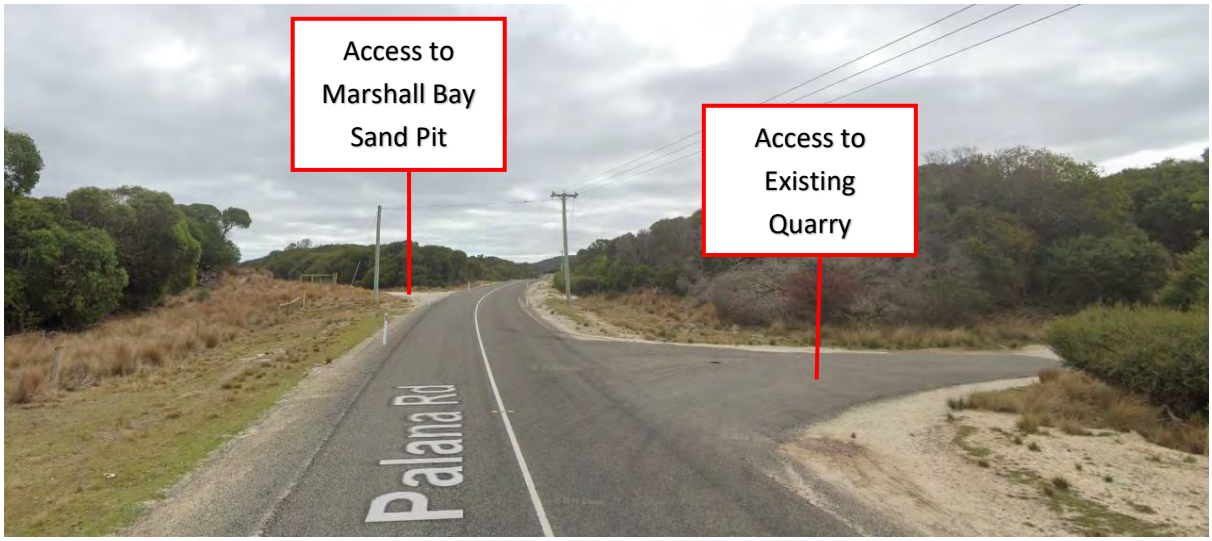



*Figure 5.1: Existing Quarry Access and Marshall Bay Sand Pit Access.*

Figures 5.2 and 5.3 show aerial view and the view of the road respectively.




*Figure 5.2: Aerial view of the Proposed Pit Area*




*Figure 5.3: Access to the Pit*



*Figure 5.4: Existing Gravel Road*

## 5.2 Traffic Condition

Traffic data were obtained from the DSG portal; GEOCOUNTS Traffic and other traffic impact assessment conducted on Flinders Island Road network.

According to the GEOCOUNTS traffic data there was 450 annual average daily traffic recorded in the area with 9.1% heavy vehicle in 2003.

This can be modified to match the current data with the assumption of 1.5% growth rate in the area.

Adjusted AADT=$AADT_{2003}$×(1+Growth Rate)$^{\text{Number of Years}}$

Where:

- $AADT_{2003}$=450
- Growth Rate = 1.5% or 0.015
- Number of Years = 2025 - 2003 = 22 years

Now, applying the values:

Adjusted AADT=450×$(1+0.015)^{22}$ = 624.

The adjusted AADT for 2025, with a growth rate of 1.5% per year, would be approximately 624 vehicles.

Peak hour traffic is calculated based on 12% AADT adjustment and therefore peak hour traffic on Palana Road is; Peak Hour Traffic=AADT×0.12;  Peak Hour Traffic=624×0.12=74.88=75

This number is consistent with Lagoon Road peak hour traffic, which was 78Vph according to Matthew Moore, 2019 June, P 11. (Traffic Impact Assessment – 3 Robert Street Whitemark).

### 5.3 Crash Record

DSG maintains a database of reported road crashes. Crash record data was obtained through this database.

Interrogation of this database found, there has been 1 crash in the past five years since 2020 on the road;8 September 2023 at 2100H.

No crashes have happened involving vehicles leaving or entering the access road into the Pit.

Since the frequency of crashes is on the lower side as per the crash data, it can be concluded that no safety concerns related to crashes due to the proposed development exist.

# 6 IMPACT FROM TRAFFIC GENERATED BY THE DEVELOPMENT

As described in section 4 of this report, this development is expected to generate around 1,500 truck movements (trips) annually which would amount to a total of 3,000 trips per year.

## 6.1 Additional Traffic on Palana Road due to the Development

Average Annual Daily Traffic (two-way) is 624 as per adjusted and historical data available as stated in section 5.2 of this report.

| | |
|---|---|
| Current AADT (vpd) | 624 |
| Average Vehicle Movements per Year (AADT X 365) | 227,760 |
| New Vehicle Movements by Development | 3000 |
| New Total Traffic Movements for Palana Road near Pit | 230760 |
| New AADT (vpd) | 632.2 |
| Increase in AADT (%) | 1.32% |

*Table 6.1: AADT Comparison*

Assuming constant trips between 7.00AM to 5.00PM shift, this will add 6 veh/hr (60 vehicles over 10hrs) to the peak flow. During the peak period of the year, the peak hour traffic flow is expected to rise up to 81 veh/hr on Palana Road including the peak traffic generated from the Pit. The increase in the value due to the traffic generated from the Pit is negligible.

Hence, it can be concluded that the impact of the additional traffic generated by the operation of the Pit on Palana Road is insignificant.

## 6.2 Sight Distance along Palana Road at Junction of Pit Access Road

An investigation was undertaken on Palana Road at the existing junction of the access road to the Pit to confirm the adequacy of available sight distances along Palana Road.

As per Austroads Part 4A, the Safe Intersection Sight Distance (SSID) is the minimum sight distance that should be provided on the major road at any intersection. The maximum posted speed on Palana Road is 100 km/h and the minimum SISD requirement for that speed considering an observation time of 3 seconds and a reaction time of 2.5 seconds, is 262 m on either side of the intersection.

Sight distance towards the Lughrata is approximately 430m while sight distance to the south towards Whitemark Township is about 730m (measured from the access where a truck would sit to check traffic on Palana Road). Hence, the available sight distances in both directions from the Pit access road junction satisfy the SISD requirements.

Figures 6.1 and 6.2 show view Lughrata and Whitemark respectively.




*Figure 6.1: View to the North*




*Figure 6.2: View to the South*

### 6.3 Turn Treatments on Palana Road

Austroads Part 6 provides guidelines and technical requirements that should be met when designing or evaluating a junction. On a rural road where design speed exceeds 100 km/h (≥100 km/h), the requirements for junction treatments are shown in Figure 6.3.

The peak hour vehicle flow on Palana Road is estimated at 81 veh/hr as per historical data. The number of vehicles turning from Palana Road to the pit site at the peak hour is expected to be 6 veh/hr, considering the peak flow traffic generation from the site. According to the graph, the conflicts created by left turning vehicles from Palana Road are insignificant. Hence, the necessity to provide a dedicated turning lane on Palana Road ceases to exist.

Turn volume pertaining to the peak hour traffic flow is shown in a blue circle on Figure 6.3.

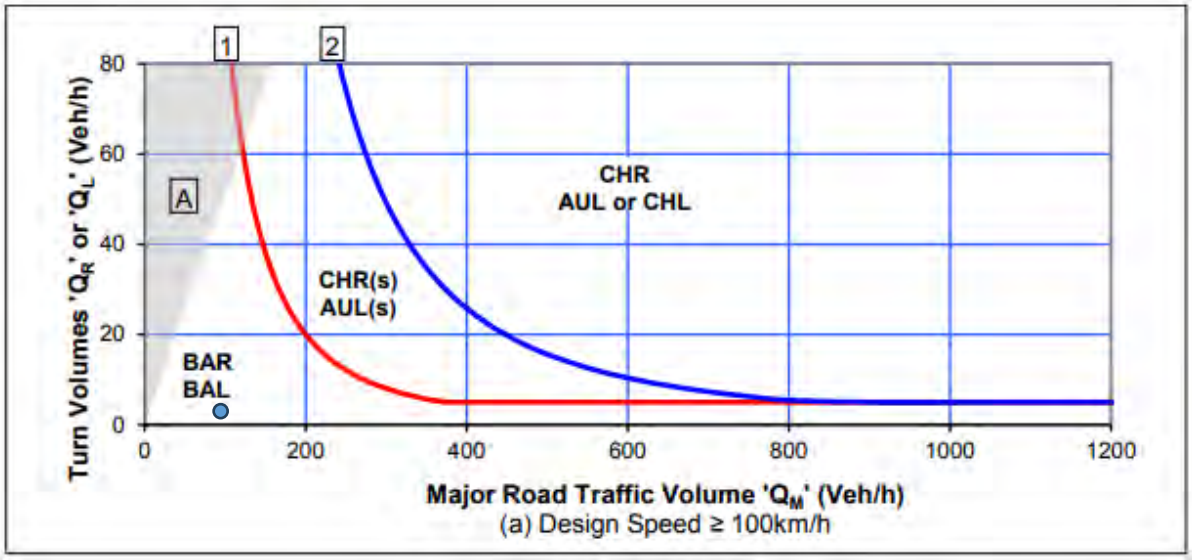



*Figure 6.3: Austroads warrant on turning treatment for high speed rural roads*

### 6.4 Other Considerations

Three (3) car parking bays and circulating arrangements will be provided on-site where the proposed hardstand area is located. Typically, sites like this have more open space for vehicle parking and maneuvering to meet all operational requirements.

Figure 6.4 shows the location of parking bays and truck maneuvering path at the Pit.

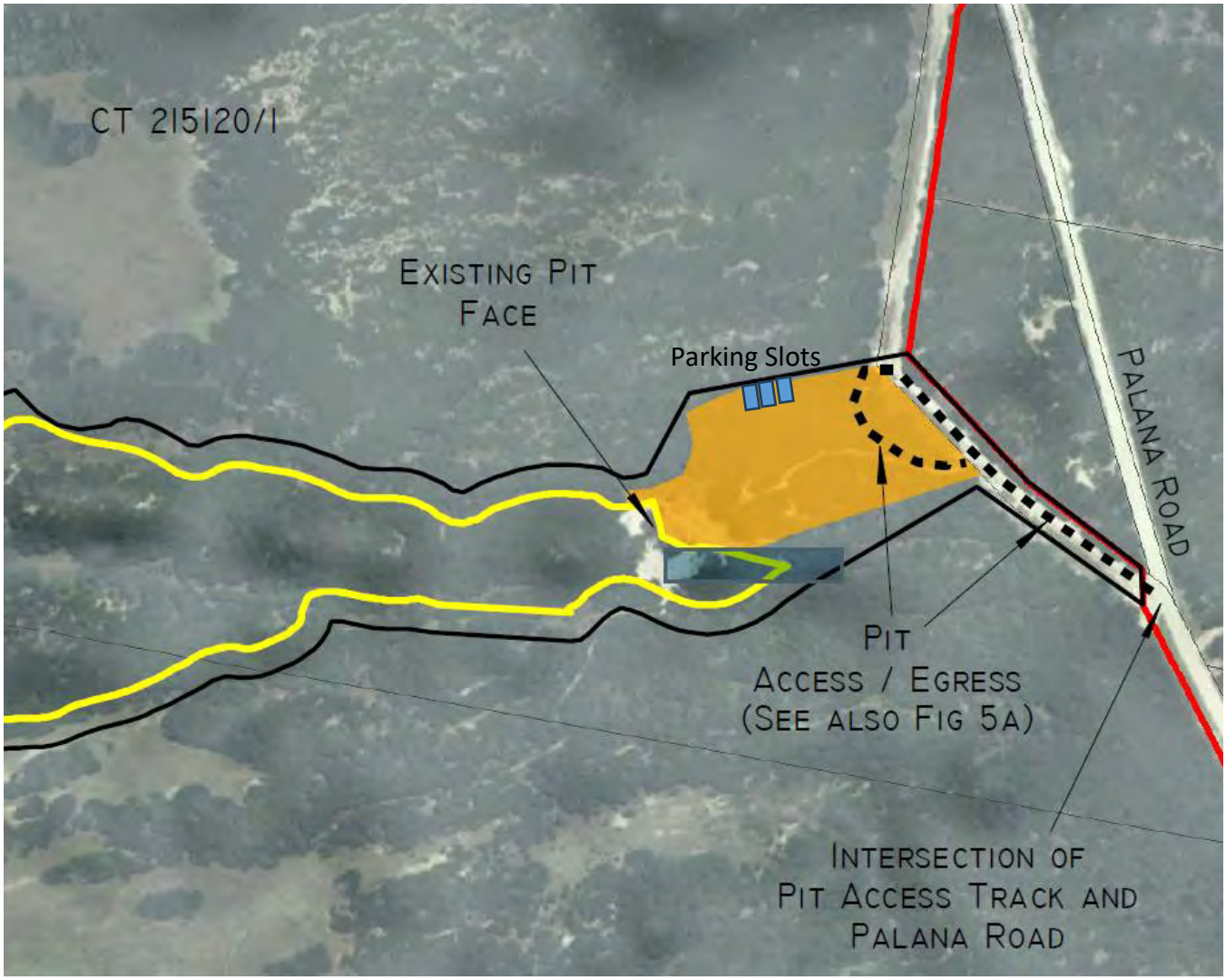



*Figure 6.4: Parking bays and truck route.*

# 7 PLANNING SCHEME

## 7.1 C3.0 Road and Railway Assets Code

C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction.

The property has an existing access to Palana Road which has a speed limit of 100km/h. The vehicle movement generation is not expected to exceed the AADT at the existing access more than by 10%.

<table>
<tr><th>Performance Criteria</th><th>Assessment</th></tr>
<tr><td>A1.4<br>Vehicular traffic to and from the site, using an existing vehicle crossing or private level crossing, will not<br>increase by more than:<br>(a) the amounts in Table C3.1; or<br>(b) allowed by a licence issued under Part IVA of the Roads and Jetties</td><td>Amount of acceptable increase in annual average daily traffic to and from the site (total of ingress and egress) Vehicles up to 5.5m long<br>10% or 10 vehicle movements per day, whichever is the greater<br><table><tr><td>Current AADT</td><td>624</td></tr><tr><td>Average Vehicle Movements per Year (AADT X 365)</td><td>227,760</td></tr><tr><td>New Vehicle Movements by Development</td><td>3000</td></tr><tr><td>New Total Traffic Movements</td><td>230760</td></tr><tr><td>New AADT (vpd)</td><td>632.2</td></tr><tr><td>Increase in AADT (%)</td><td>1.32%</td></tr></table></td></tr>
</table>

*Table 7.1: Performance Criteria C3.5.1*

## 7.2 Car parking and Sustainable Transport Code

The development will not generate a parking demand. However, three (3) parking bays will be provided at the site as showed in Figure 6.4.

The area associated with the Pit working area is of sufficient size to accommodate parking of vehicles and will not cause any parking overflow outside of the property.

The area associated with the Pit working area is of sufficient size to allow turning of vehicles, so that all vehicles entering and leaving the property will travel in a forward direction.

The operation of the Pit, including during its construction phase, will not generate any active transport demands.

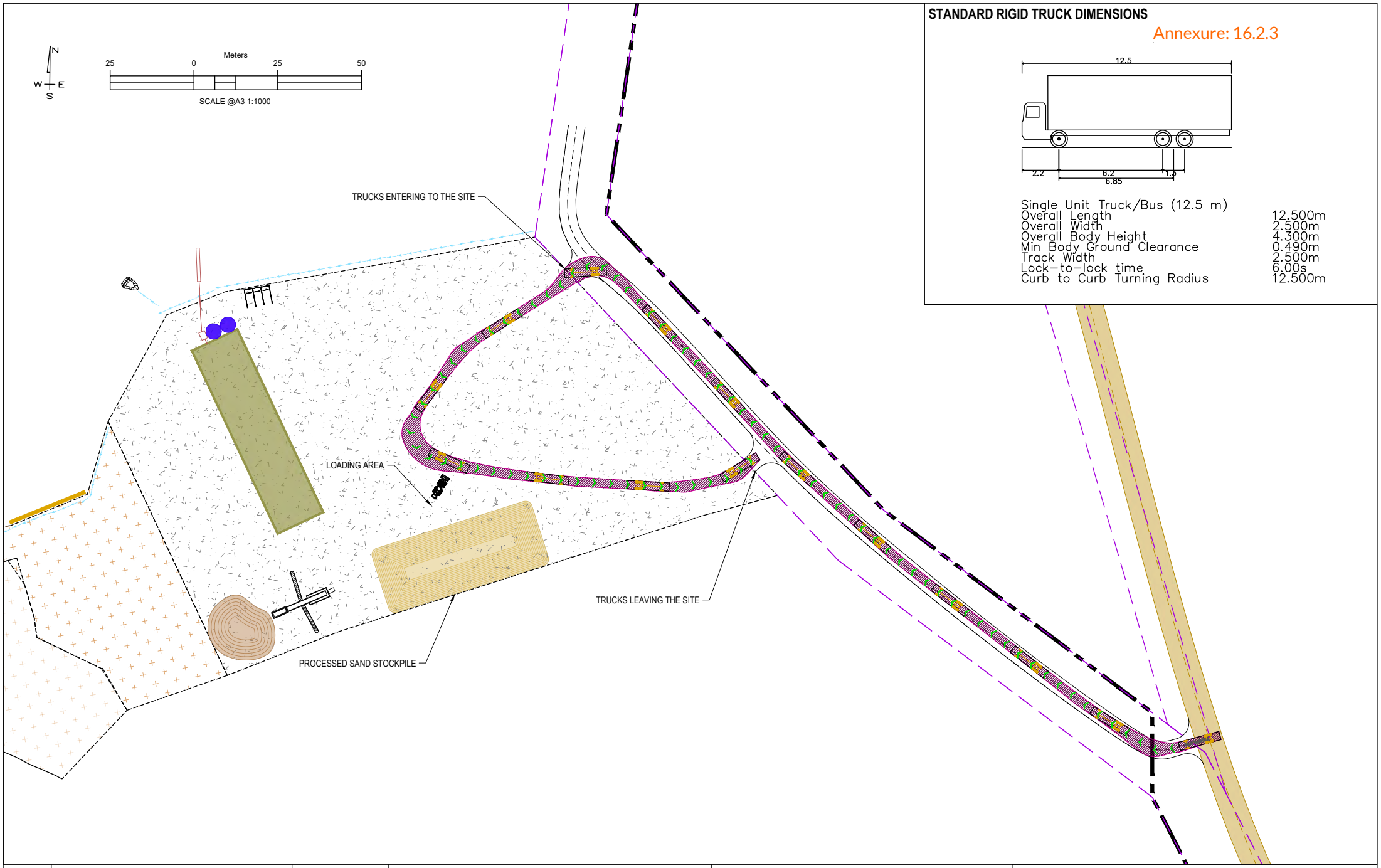
# 8 CONCLUSION

- The traffic generated from the operation of the Pit is insignificant and would not have any adverse impacts on the efficiency and safety of Palana Road, which is the major road connecting to the Pit;
- Traffic on the Palana Road will only be increased marginally due to the traffic generated from the Pit;
- The existing site access will be used to provide safe and efficient access from and to Palana Road;
- The existing Pit access is capable of accommodating heavy articulated vehicles, and a two-coat spray seal will be applied from the current sealed surface for 25 meters into the existing unsealed road, in compliance with Tasmania Standard Drawing TSD-RO5-V2;
- There is sufficient SSID at the Pit access for drivers to enter and leave safely, without adversely impacting other road users; and
- The frequency of the crashes on Palana Road in the vicinity of the site is very low.

This traffic impact assessment was carried out adhering to the relevant traffic engineering principles and available guidelines. It can be concluded that traffic generated from the operation of the Pit (including its construction phase) is not expected to create any adverse traffic related problem or a safety issue on Palana Road. Hence, this TIA found no reason for this development to not proceed further.

# 9 ATTACHMENTS

## 9.1 Internal Layout of the Site




**STANDARD RIGID TRUCK DIMENSIONS**

Annexure: 16.2.3




| Single Unit Truck/Bus (12.5 m) | |
|---|---|
| Overall Length | 12.500m |
| Overall Width | 2.500m |
| Overall Body Height | 4.300m |
| Min Body Ground Clearance | 0.490m |
| Track Width | 2.500m |
| Lock-to-lock time | 6.00s |
| Curb to Curb Turning Radius | 12.500m |

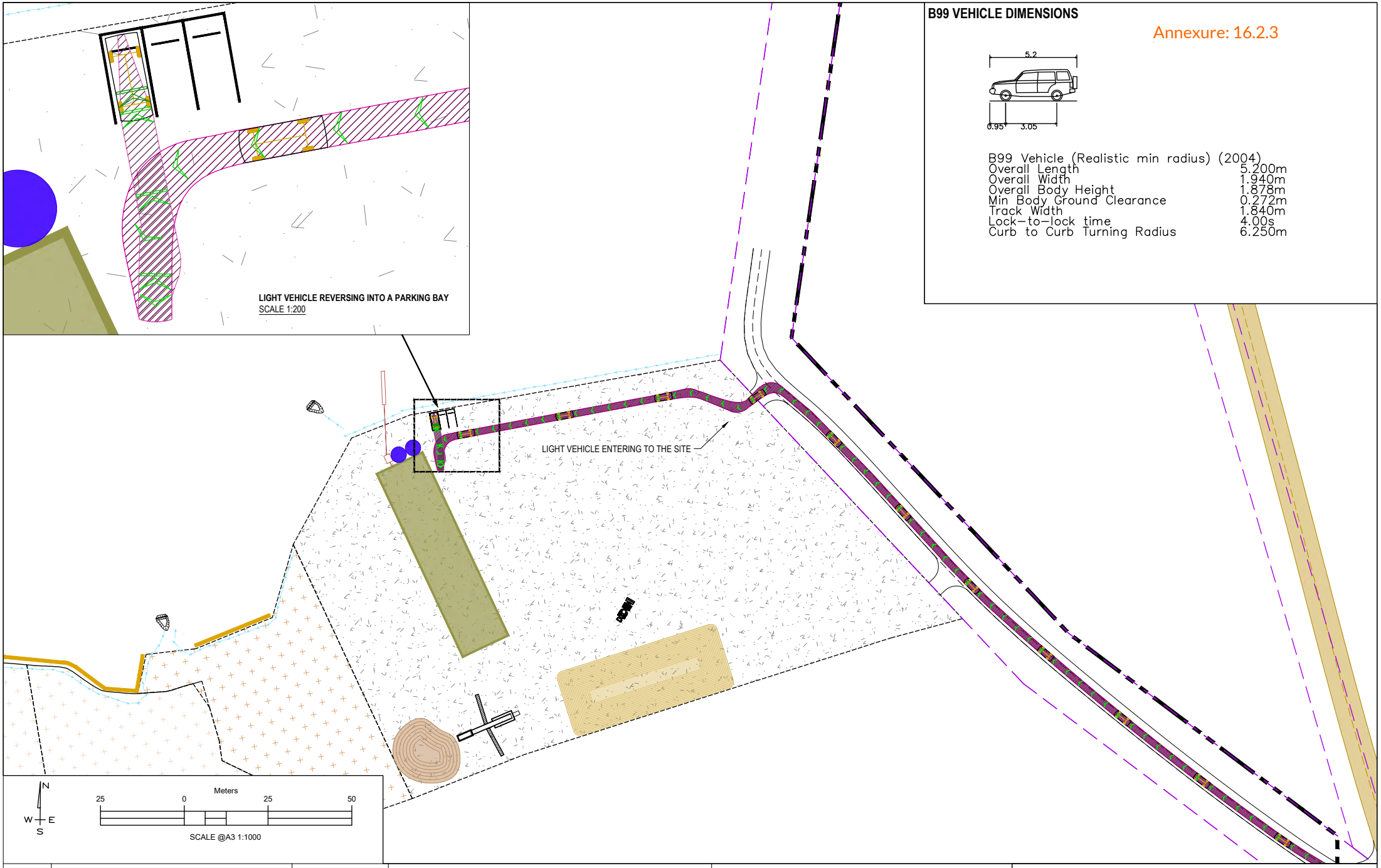
| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**SWEPT PATH ANALYSIS FOR RIGID TRUCK**

DRAWING NUMBER: VDC/MSP/A/107

Van Diemen CONSULTING

AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments




**B99 VEHICLE DIMENSIONS**

Annexure: 16.2.3




| B99 Vehicle (Realistic min radius) (2004) | |
|---|---|
| Overall Length | 5.200m |
| Overall Width | 1.940m |
| Overall Body Height | 1.878m |
| Min Body Ground Clearance | 0.272m |
| Track Width | 1.840m |
| Lock-to-lock time | 4.00s |
| Curb to Curb Turning Radius | 6.250m |

| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**SWEPT PATH ANALYSIS FOR LIGHT VEHICLE**

DRAWING NUMBER: VDC/MSP/A/108

Van Diemen CONSULTING

AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments

**ATTACHMENT 8. SITE LAYOUT AND ANALYSES**

## DRAWING LIST

| | DRAWING NO. | REVISION | DESCRIPTION |
|---|---|---|---|
| 1 | VDC/MSP/A/101 | 1.0 | COVER PAGE |
| 2 | VDC/MSP/A/102 | 0.0 | SITE LAYOUT - PAD AREA AND SITE ENTRANCE |
| 3 | VDC/MSP/A/103 | 0.0 | IMMEDIATE EXTRACTION AREA |
| 4 | VDC/MSP/A/104 | 0.0 | ON-SITE WASTEWATER SYSTEM |
| 5 | VDC/MSP/A/105 | 0.0 | PROPOSED SHED |
| 6 | VDC/MSP/A/106 | 0.0 | LIGHT VEHICLE PARKING BAY |
| 7 | VDC/MSP/A/107 | 0.0 | SWEPT PATH ANALYSIS FOR RIGID TRUCK |
| 8 | VDC/MSP/A/108 | 0.0 | SWEPT PATH ANALYSIS FOR LIGHT VEHICLE |
| 9 | VDC/MSP/A/201 | 0.0 | TITLE BOUNDARIES AND MINING LEASE |
| 10 | VDC/MSP/A/202 | 0.0 | SETBACKS FROM EXTRACTION AREA TO TITLE BOUNDARIES |
| 11 | VDC/MSP/A/203 | 0.0 | SETBACKS TO THE SHED AND PARKING BAY |
| 12 | VDC/MSP/A/204 | 0.0 | EXISTING SURROUNDING PROPERTIES AND USES |
| 13 | VDC/MSP/A/205 | 0.0 | SITE SOIL CONDITIONS AND SURROUNDING GEOLOGY |
| 14 | VDC/MSP/A/301 | 0.0 | TOPOGRAPHY AND HYDROLOGICAL FEATURS |
| 15 | VDC/MSP/A/302 | 0.0 | NATURAL HAZARDS - SULPHATE SOILS AND INUNDATION |
| 16 | VDC/MSP/A/303 | 0.0 | NATURAL HAZARDS - BUSHFIRE AND LANDSLIP |

# MARSHALL BAY SAND PIT

## SITE ANALYSIS AND SITE PLANS




**LOCALITY MAP**
SCALE: N.T.S.

## DRAWING LIST

| | DRAWING NO. | REVISION | DESCRIPTION |
|---|---|---|---|
| 1 | VDC/MSP/A/101 | 1.0 | COVER PAGE |
| 2 | VDC/MSP/A/102 | 0.0 | SITE LAYOUT - PAD AREA AND SITE ENTRANCE |
| 3 | VDC/MSP/A/103 | 0.0 | IMMEDIATE EXTRACTION AREA |
| 4 | VDC/MSP/A/104 | 0.0 | ON-SITE WASTEWATER SYSTEM |
| 5 | VDC/MSP/A/105 | 0.0 | PROPOSED SHED |
| 6 | VDC/MSP/A/106 | 0.0 | LIGHT VEHICLE PARKING BAY |
| 7 | VDC/MSP/A/107 | 0.0 | SWEPT PATH ANALYSIS FOR RIGID TRUCK |
| 8 | VDC/MSP/A/108 | 0.0 | SWEPT PATH ANALYSIS FOR LIGHT VEHICLE |
| 9 | VDC/MSP/A/201 | 0.0 | TITLE BOUNDARIES AND MINING LEASE |
| 10 | VDC/MSP/A/202 | 0.0 | SETBACKS FROM EXTRACTION AREA TO TITLE BOUNDARIES |
| 11 | VDC/MSP/A/203 | 0.0 | SETBACKS TO THE SHED AND PARKING BAY |
| 12 | VDC/MSP/A/204 | 0.0 | EXISTING SURROUNDING PROPERTIES AND USES |
| 13 | VDC/MSP/A/205 | 0.0 | SITE SOIL CONDITIONS AND SURROUNDING GEOLOGY |
| 14 | VDC/MSP/A/301 | 0.0 | TOPOGRAPHY AND HYDROLOGICAL FEATURS |
| 15 | VDC/MSP/A/302 | 0.0 | NATURAL HAZARDS - SULPHATE SOILS AND INUNDATION |
| 16 | VDC/MSP/A/303 | 0.0 | NATURAL HAZARDS - BUSHFIRE AND LANDSLIP |

## LEGEND

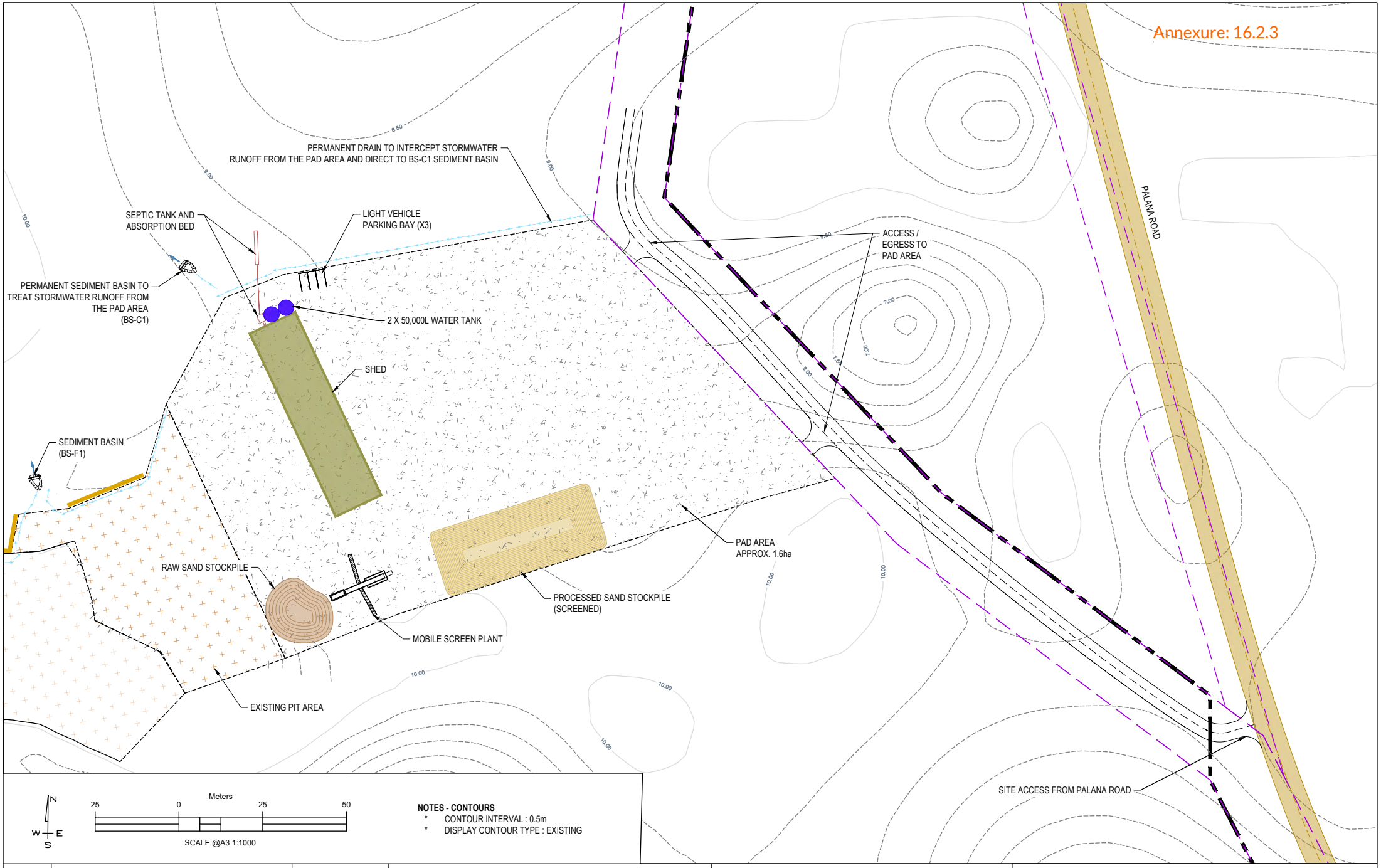
- MINING LEASE
- DEVELOPMENT AREA
- EXTRACTION AREA (APPROX. 30 YEAR SUPPLY)
- EXISTING (DISUSED) PIT
- PROPOSED MINING BLOCKS
- DIVERSION CHANNELS / DRAINS
- STORMWATER FLOW DIRECTION
- CADASTRAL PARCEL BOUNDARIES

| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| REV 1.0 | SETBACK PLANS, HAZARDS PLANS UPDATED | 29/01/2026 | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

**SITE LAYOUTS AND VEHICLE SWEPT PATH ANALYSIS**

DRAWING NUMBER: VDC/MSP/A/101

Van Diemen CONSULTING




**NOTES - CONTOURS**

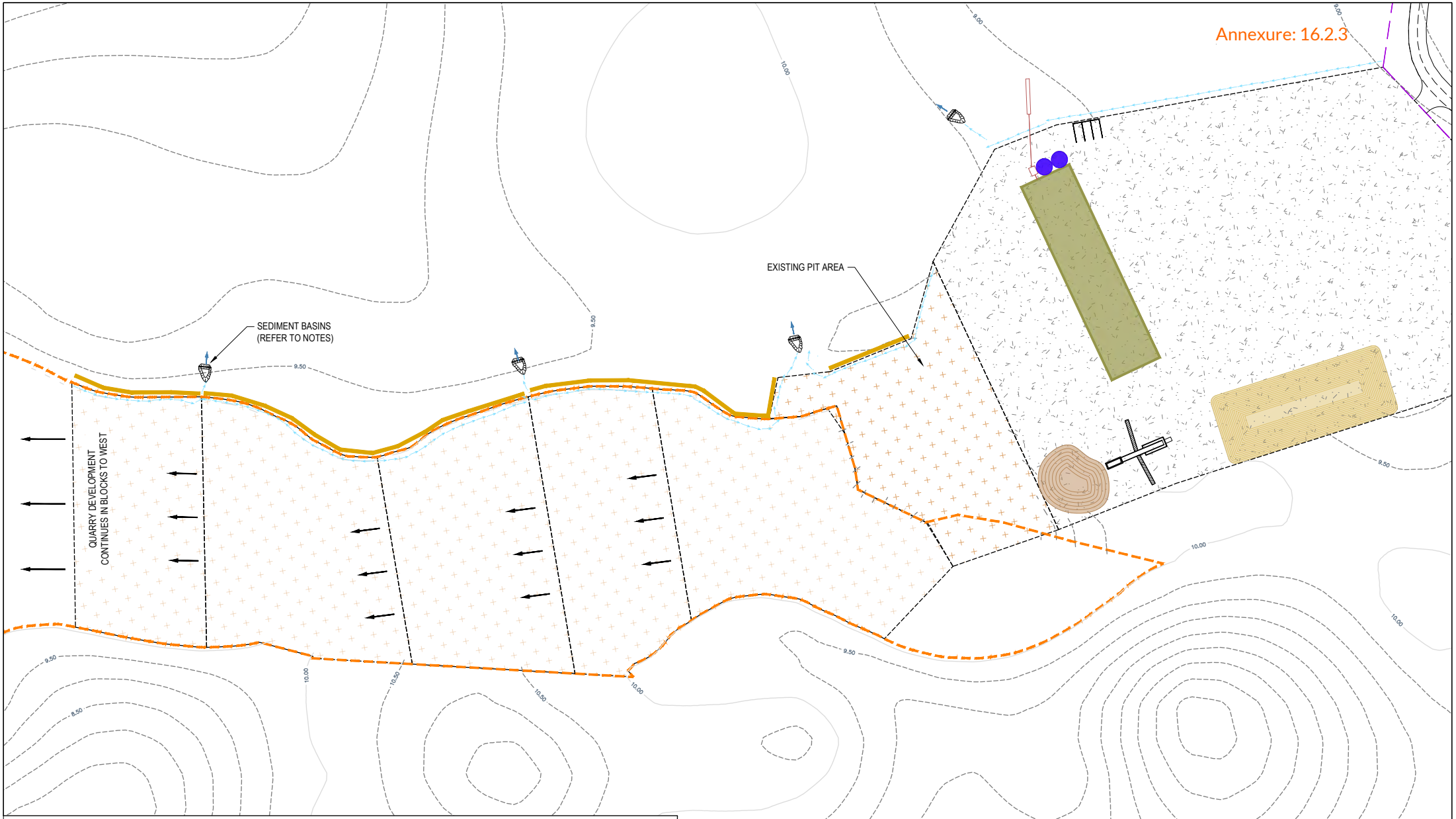
* CONTOUR INTERVAL : 0.5m
* DISPLAY CONTOUR TYPE : EXISTING

| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

# SITE LAYOUT - PAD AREA AND SITE ENTRANCE

DRAWING NUMBER: VDC/MSP/A/102

Van Diemen CONSULTING




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25 0 25 50

SCALE @A3 1:1000

**NOTES - STORMWATER AND SEDIMENT CONTROL STRUCTURES**

* REFER TO DRAWING NUMBERS VDC/MSP/A/001 - VDC/MSP/A/004 FOR STORMWATER AND SEDIMENT CONTROL STRUCTURE DETAILS

| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

# IMMEDIATE EXTRACTION AREA

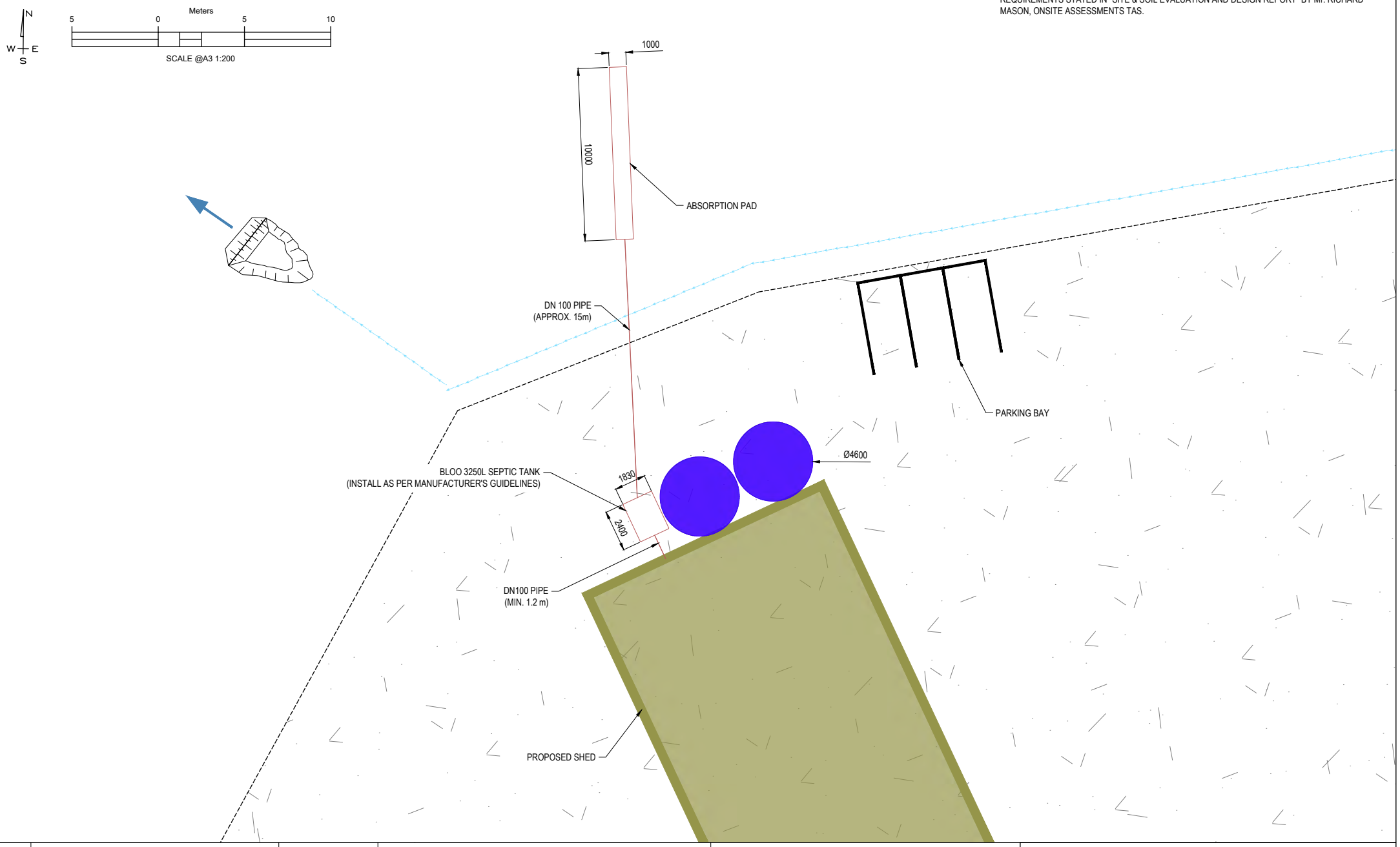
DRAWING NUMBER: VDC/MSP/A/103

Van Diemen CONSULTING

AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments

**NOTES**

* ONSITE WASTEWATER MANAGEMENT SYSTEM MUST BE CONSTRUCTED AS PER THE REQUIREMENTS STATED IN "SITE & SOIL EVALUATION AND DESIGN REPORT" BY Mr. RICHARD MASON, ONSITE ASSESSMENTS TAS.

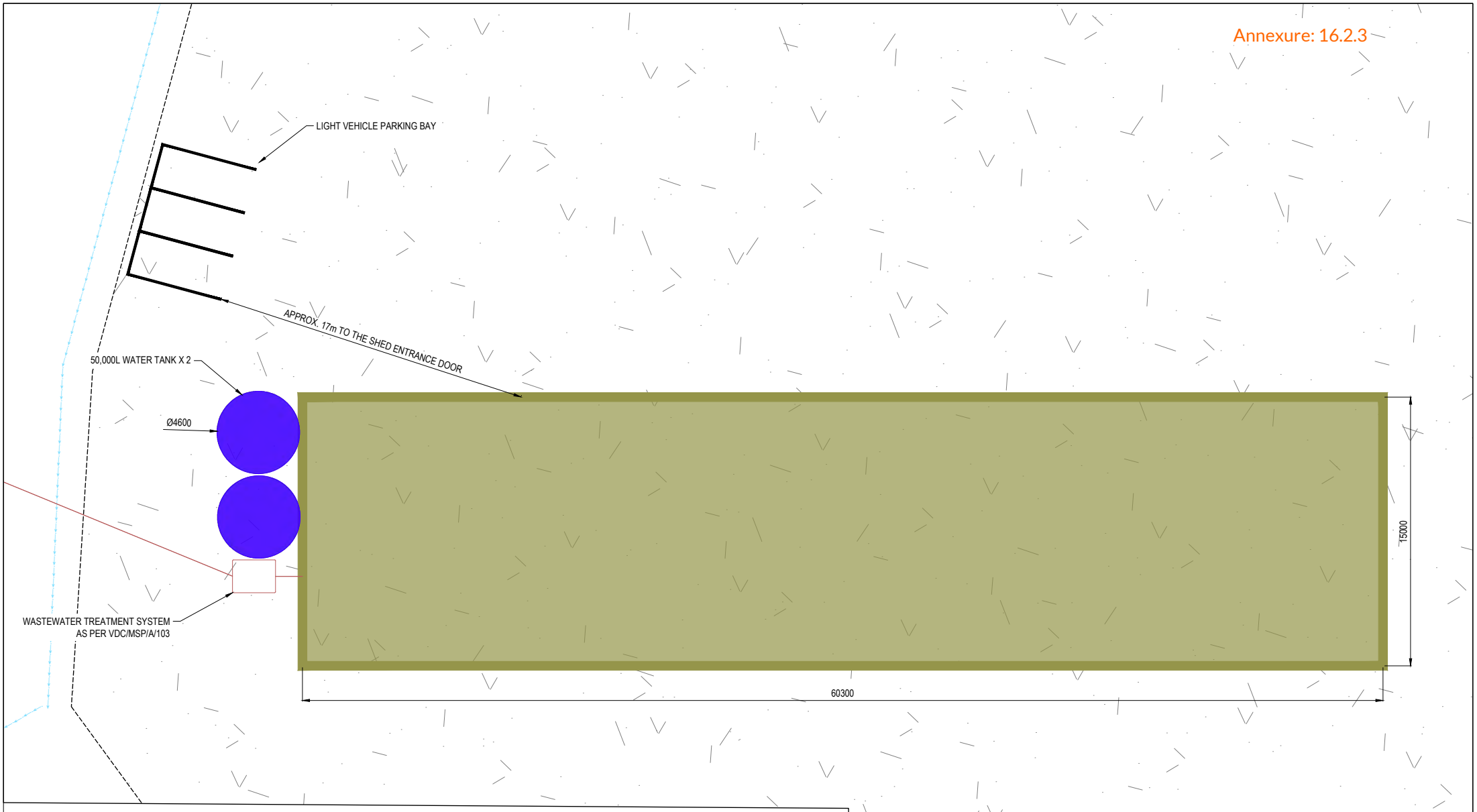



| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

# ON-SITE WASTEWATER MANAGEMENT SYSTEM

DRAWING NUMBER: VDC/MSP/A/104

Van Diemen CONSULTING




Meters
5 0 5 10

SCALE @A3 1:200

**NOTES**

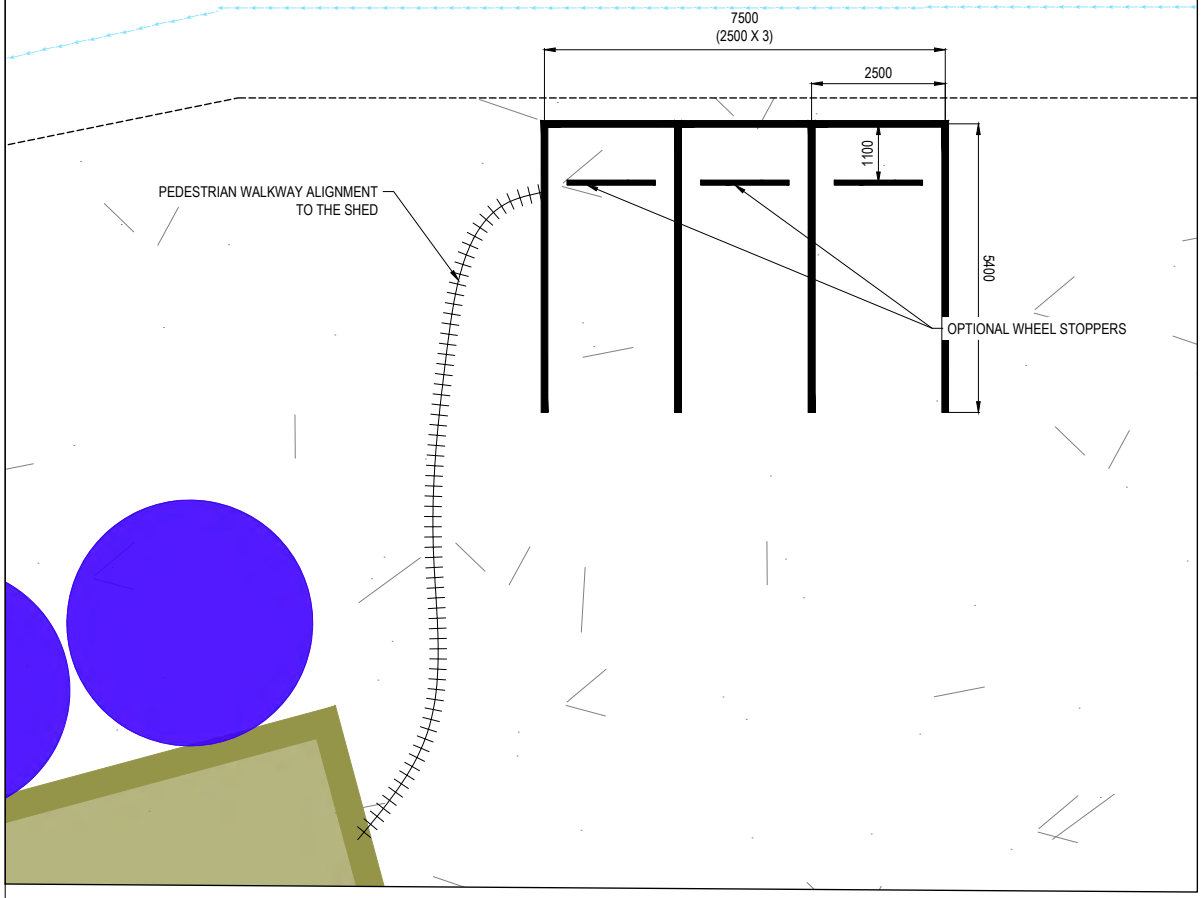
* REFER TO ATTACHMENT 2: SHED DESIGN AND INTERNAL LAYOUT OF "DEVELOPMENT APPLICATION SUPPORTING INFORMATION BY VAN DIEMEN CONSULTING" FOR THE CONCEPTUAL DESIGN OF THE SHED

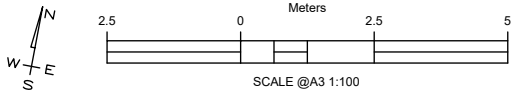
| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**PROPOSED SHED**

DRAWING NUMBER: VDC/MSP/A/105

Van Diemen CONSULTING




SCALE @A3 1:100

**NOTES**

1. PARKING SPACES ARE DESIGNED TO SUIT B99 VEHICLES
2. DESIGN STANDARD: AS 2890.1-2004
3. PARKING FACILITY USER CLASS: CLASS 01 AS PER AS 2890.1-2004 (EMPLOYEE AND COMMUTER PARKING)
4. PARKING ANGLE: 90 DEGREES
5. REVERSE PARKING ONLY
6. WHERE WHEEL STOPS ARE INSTALLED, WHEEL STOPS SHALL BE 100mm IN HEIGHT, AND 1650 ± 50 mm IN LENGTH.
7. PARKING BAYS TO BE DELINEATED USING PHYSICAL MARKERS SUITABLE FOR GRAVEL SURFACES, SUCH AS WHEEL STOPS IN LIEU OF PAINTED LINES AS PER AS 2890.1-4 REQUIREMENTS.
8. GRAVEL HARDSTAND AREA SUBJECT TO RE-GRADING AND COMPACTION AS REQUIRED TO MAINTAIN A LEVEL AND STABLE PARKING SURFACE.

**DEFINITIONS**

1. B99 VEHICLE: DEFINITION AS PER AS 2890.1-2004 (THE DESIGN MOTOR CAR WHOSE PHYSICAL DIMENSIONS REPRESENT THE 99.8$^{TH}$ PERCENTILE CLASS OF ALL CARS AND LIGHT VANS ON THE ROAD.

**REFERENCES**

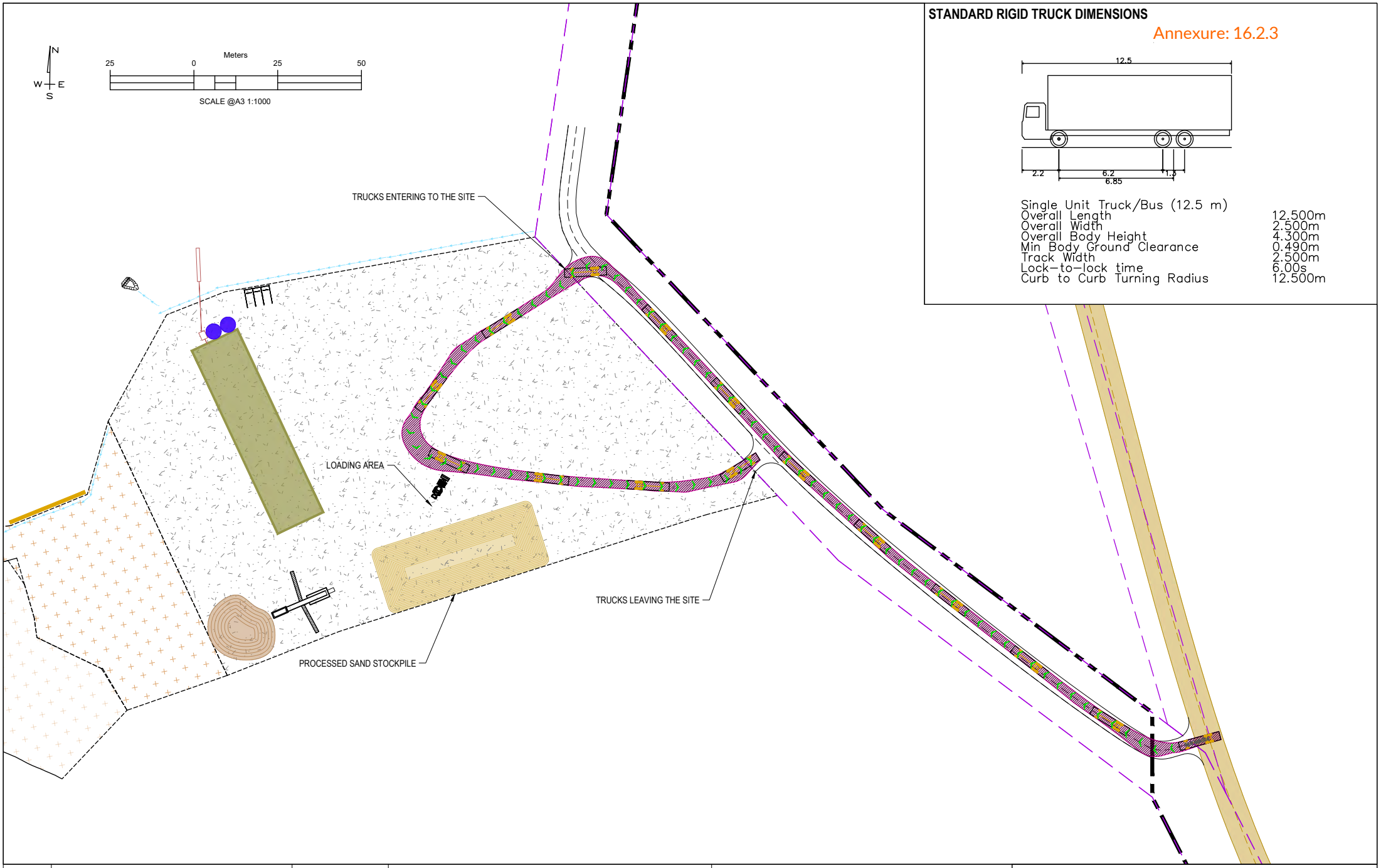
1. AUSTRALIAN STANDARD AS 2890.1-2004 PARKING FACILITIES; OFF STREET CAR PARKING.
2. AUSTROADS GUIDE TO TRAFFIC MANAGEMENT PART 11: PARKING MANAGEMENT TECHNIQUES

| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

**LIGHT VEHICLE PARKING BAY**

DRAWING NUMBER: VDC/MSP/A/106

Van Diemen CONSULTING




**STANDARD RIGID TRUCK DIMENSIONS**

Annexure: 16.2.3




| Single Unit Truck/Bus (12.5 m) | |
|---|---|
| Overall Length | 12.500m |
| Overall Width | 2.500m |
| Overall Body Height | 4.300m |
| Min Body Ground Clearance | 0.490m |
| Track Width | 2.500m |
| Lock-to-lock time | 6.00s |
| Curb to Curb Turning Radius | 12.500m |

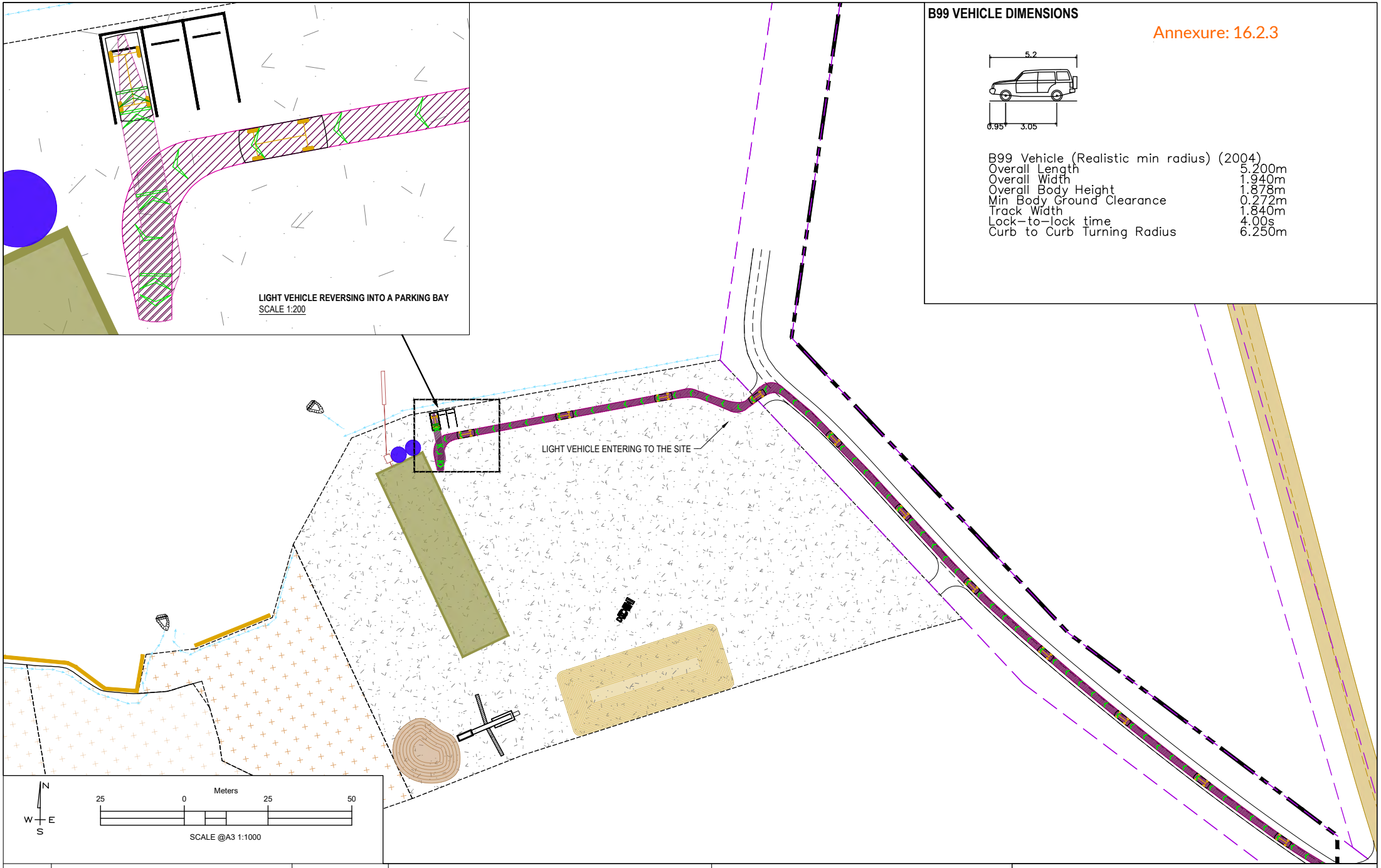
| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**SWEPT PATH ANALYSIS FOR RIGID TRUCK**

DRAWING NUMBER: VDC/MSP/A/107

Van Diemen CONSULTING

AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments




## B99 VEHICLE DIMENSIONS

Annexure: 16.2.3




| B99 Vehicle (Realistic min radius) (2004) | |
|---|---|
| Overall Length | 5.200m |
| Overall Width | 1.940m |
| Overall Body Height | 1.878m |
| Min Body Ground Clearance | 0.272m |
| Track Width | 1.840m |
| Lock-to-lock time | 4.00s |
| Curb to Curb Turning Radius | 6.250m |

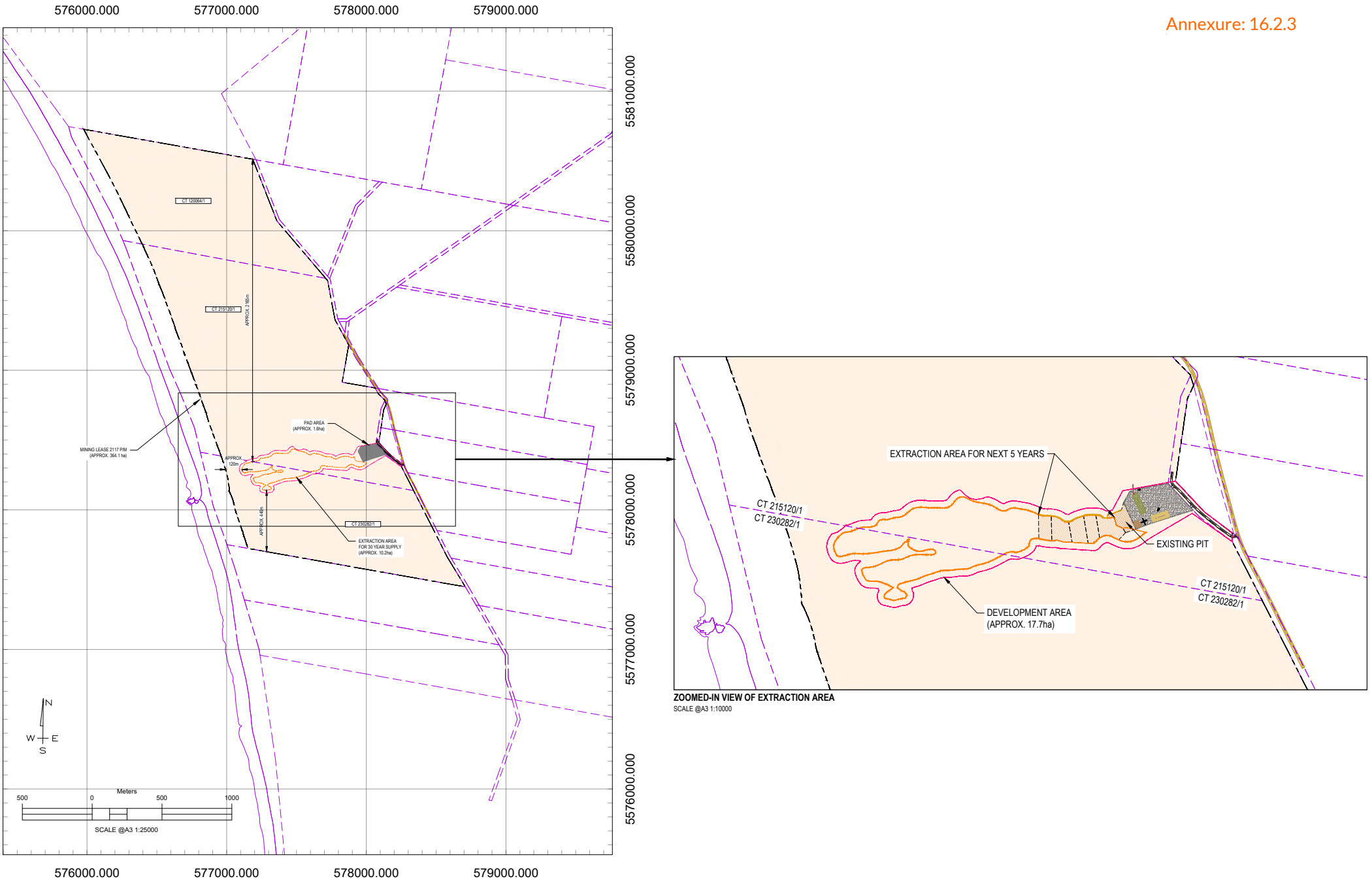
| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

# SWEPT PATH ANALYSIS FOR LIGHT VEHICLE

DRAWING NUMBER: VDC/MSP/A/108

Van Diemen CONSULTING

AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments



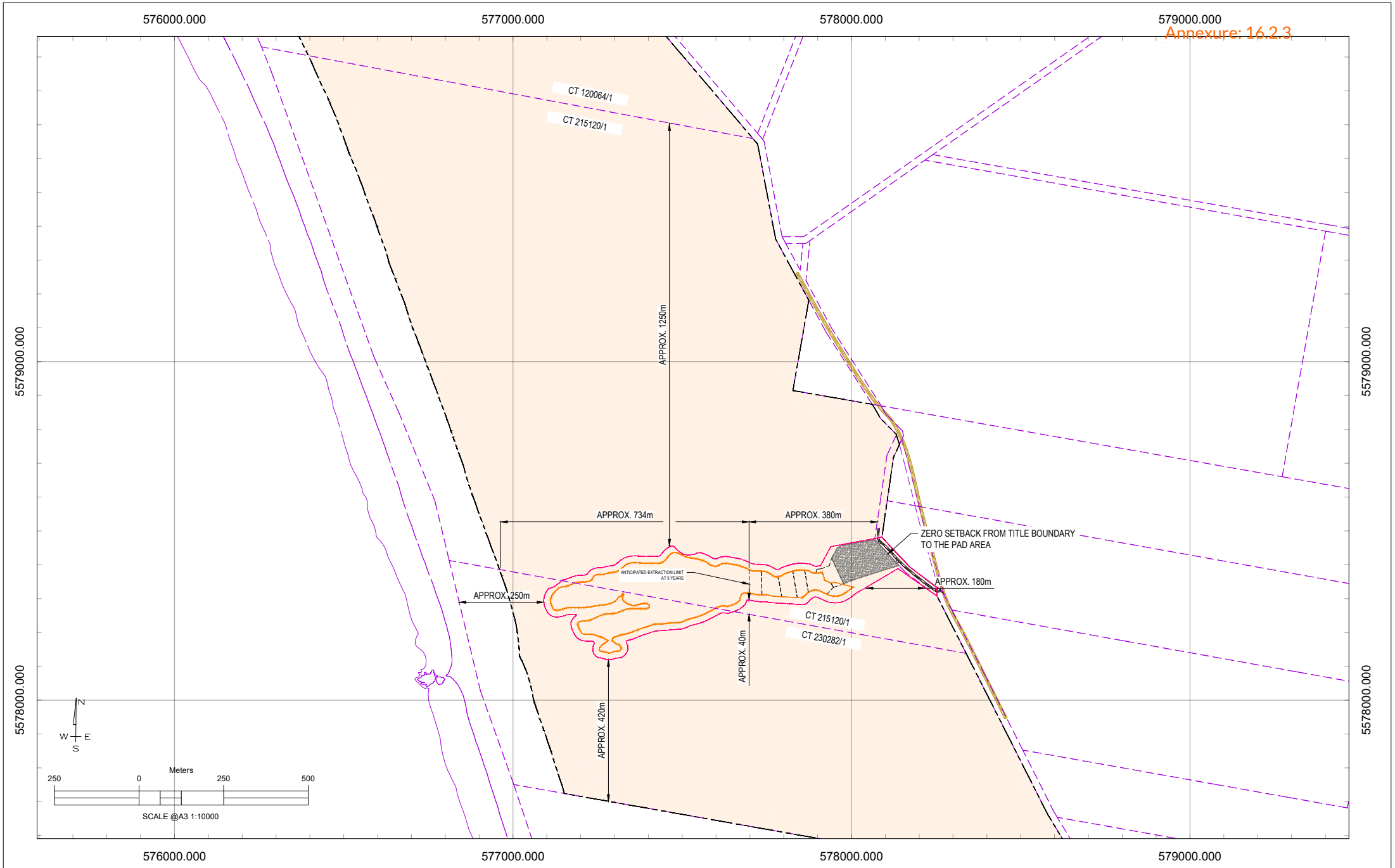

**ZOOMED-IN VIEW OF EXTRACTION AREA**
SCALE @A3 1:10000

| | | | | |
|---|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD | **TITLE BOUNDARIES AND MINING LEASE** |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 | |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD | |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED | |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. | DRAWING NUMBER: VDC/MSP/A/201 |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) | |

AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments



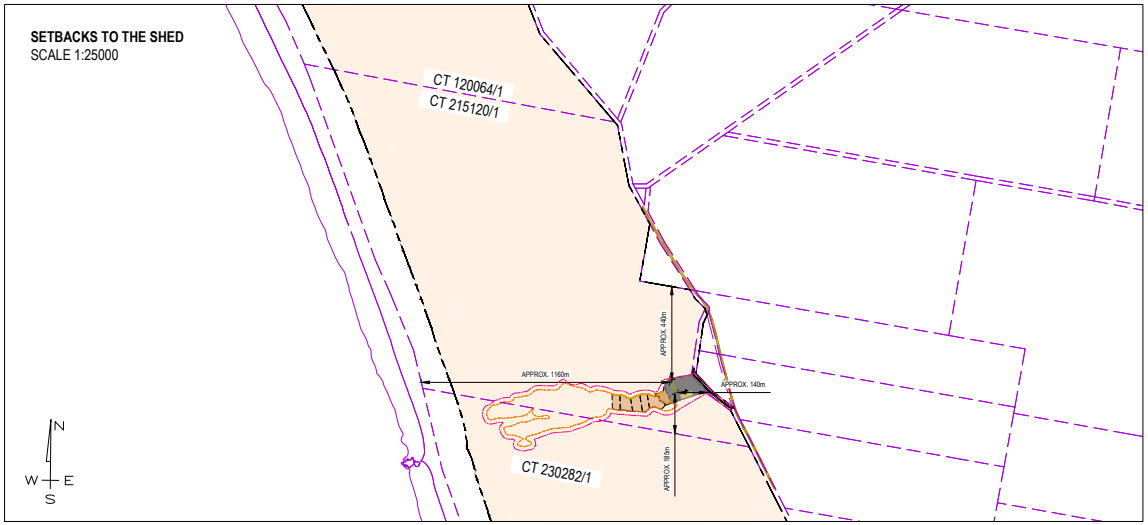
Van Diemen CONSULTING

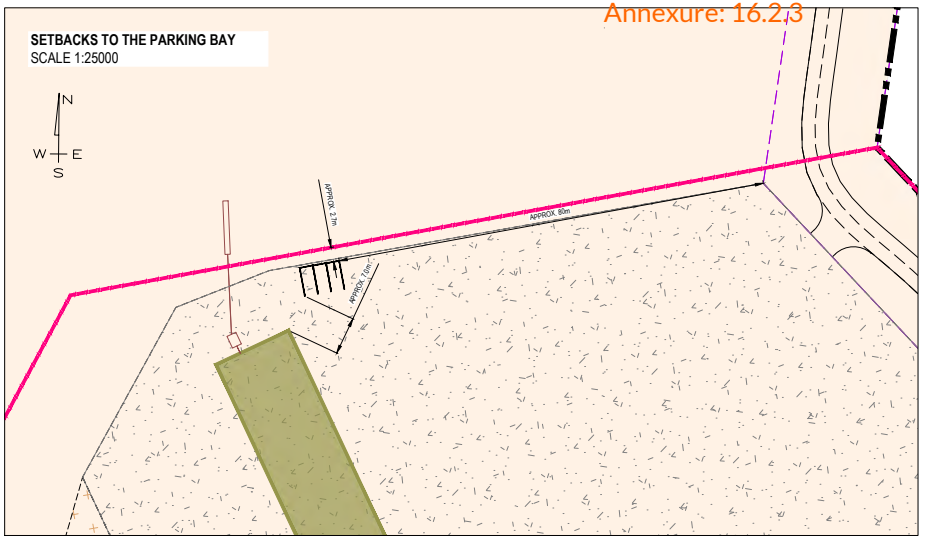


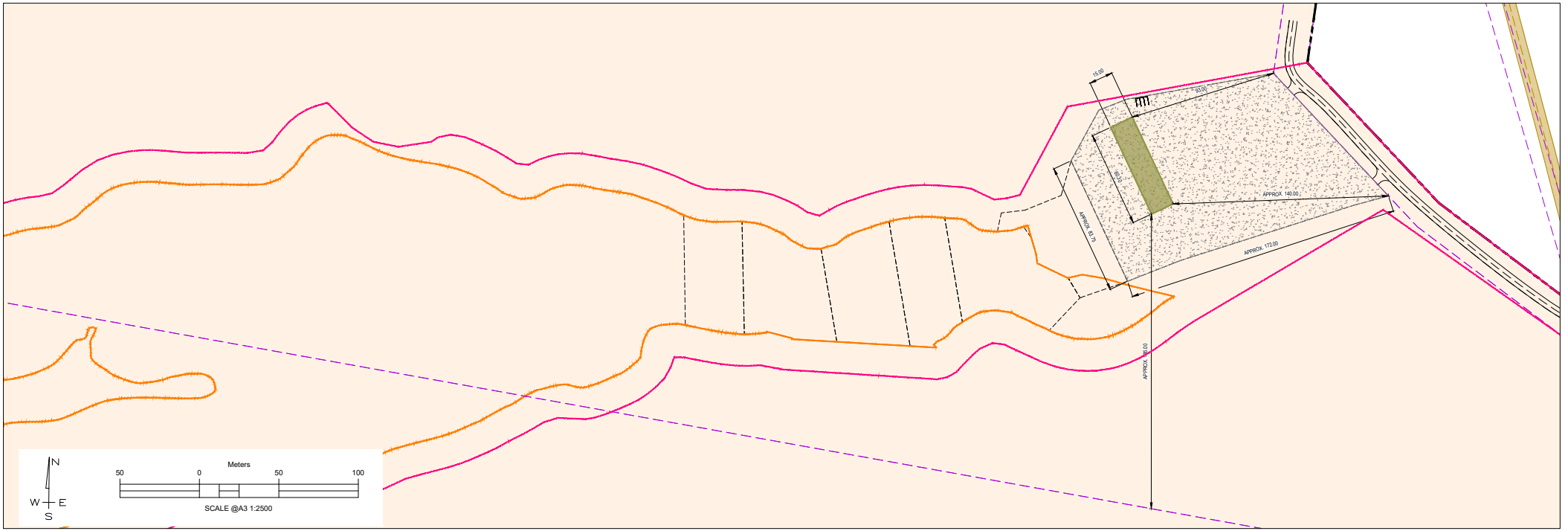

| | | | | |
|---|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD | **SETBACKS FROM DEVELOPMENT AREA TO TITLE BOUNDARIES** |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 | |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD | |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED | |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. | |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) | DRAWING NUMBER: VDC/MSP/A/202 |



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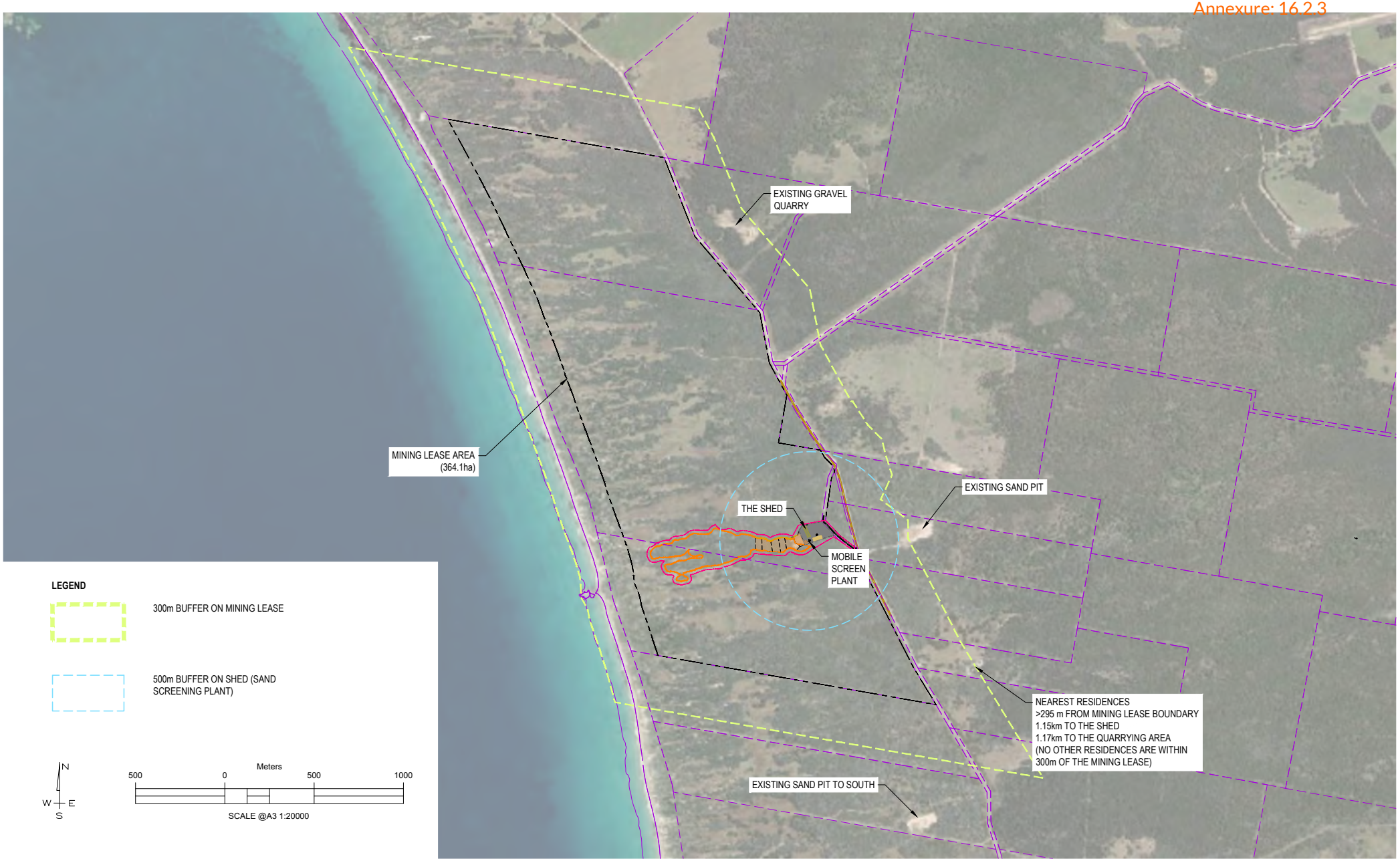




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| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD | **SETBACKS TO THE SHED AND PARKING BAY** |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 | |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD | |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED | |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. | DRAWING NUMBER: VDC/MSP/A/203 |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) | |



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| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
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| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 23/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

# EXISTING SURROUNDING PROPERTIES AND USES

DRAWING NUMBER: VDC/MSP/A/204

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## SITE SOIL CONDITION

SOIL PROFILE DESCRIPTION

1. HORIZON LAYER - THIS LAYER EXTENDS FROM 0 TO 1000MM. IT CONSISTS OF YELLOW SAND (COLOR 10YR 7/6), WHICH IS LOOSE, DAMP, AND MASSIVE.
2. SUBSURFACE LAYER - THIS LAYER SPANS FROM 1100 TO 1200MM AND IS DESCRIBED AS CONSOLIDATED SAND WITH CALCAREOUS CEMENT. IT ALSO HAS A YELLOW SAND COMPOSITION (COLOR 10YR 7/6), IS DAMP, AND MASSIVE.
3. BASE LAYER - EXTENDING FROM 1200 TO 2000MM+, THIS LAYER COMPRISES LOOSE, DAMP, MASSIVE SAND WITH THE SAME COLOR AS THE OTHER HORIZONS.

GEOLOGICAL AND HYDROLOGICAL CONDITIONS

4. THE SITE IS UNDERLAIN BY QUATERNARY DEPOSITS OF WINDBLOWN SAND OF MARINE ORIGIN, FORMING COASTAL SAND DUNES. THE SANDS CONTAIN A HIGH PROPORTION OF CALCAREOUS MATERIAL (MARINE MOLLUSC SHELL DERIVED), WHICH IMPACTS SOIL STRUCTURE AND PERMEABILITY.
5. THERE IS EVIDENCE OF HARDPAN FORMATION AT A DEPTH OF 1100-1200MM, WHICH IS LESS PERMEABLE THAN THE SURROUNDING UNCONSOLIDATED SANDS.
6. THE WATER TABLE IS BELIEVED TO EXCEED 3 METERS

REFERENCE

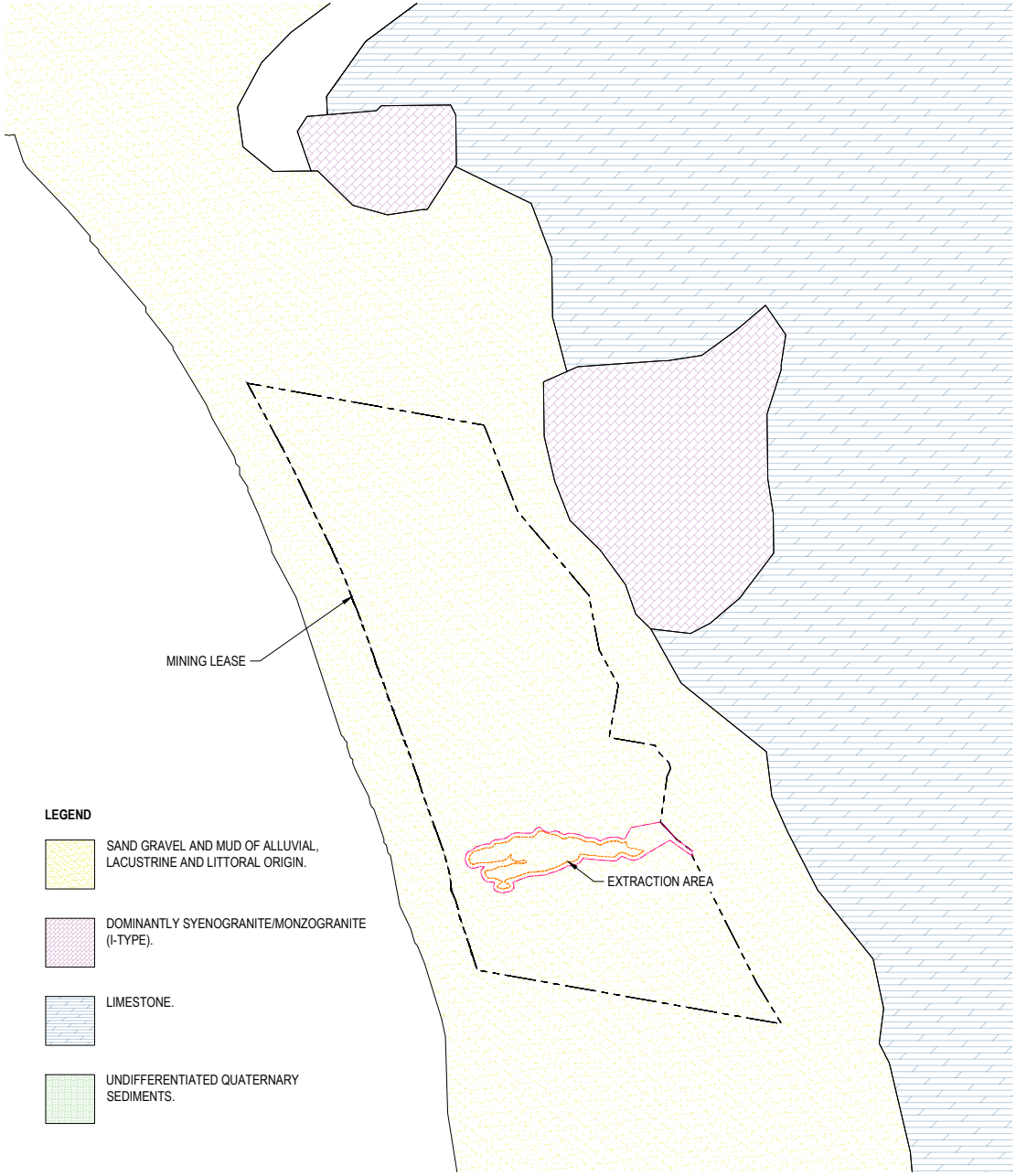
- "SITE & SOIL EVALUATION AND DESIGN REPORT" BY RICHARD MASON, ONSITE ASSESSMENTS TAS.




**FIGURE A: AN IMAGE OF SOIL PROFILE SAMPLES COLLECTED FROM THE SITE**

**LISTMAP OVERLAY - GEOLOGY UNITS 250k**
SCALE 1:25000

Annexure: 16.2.3

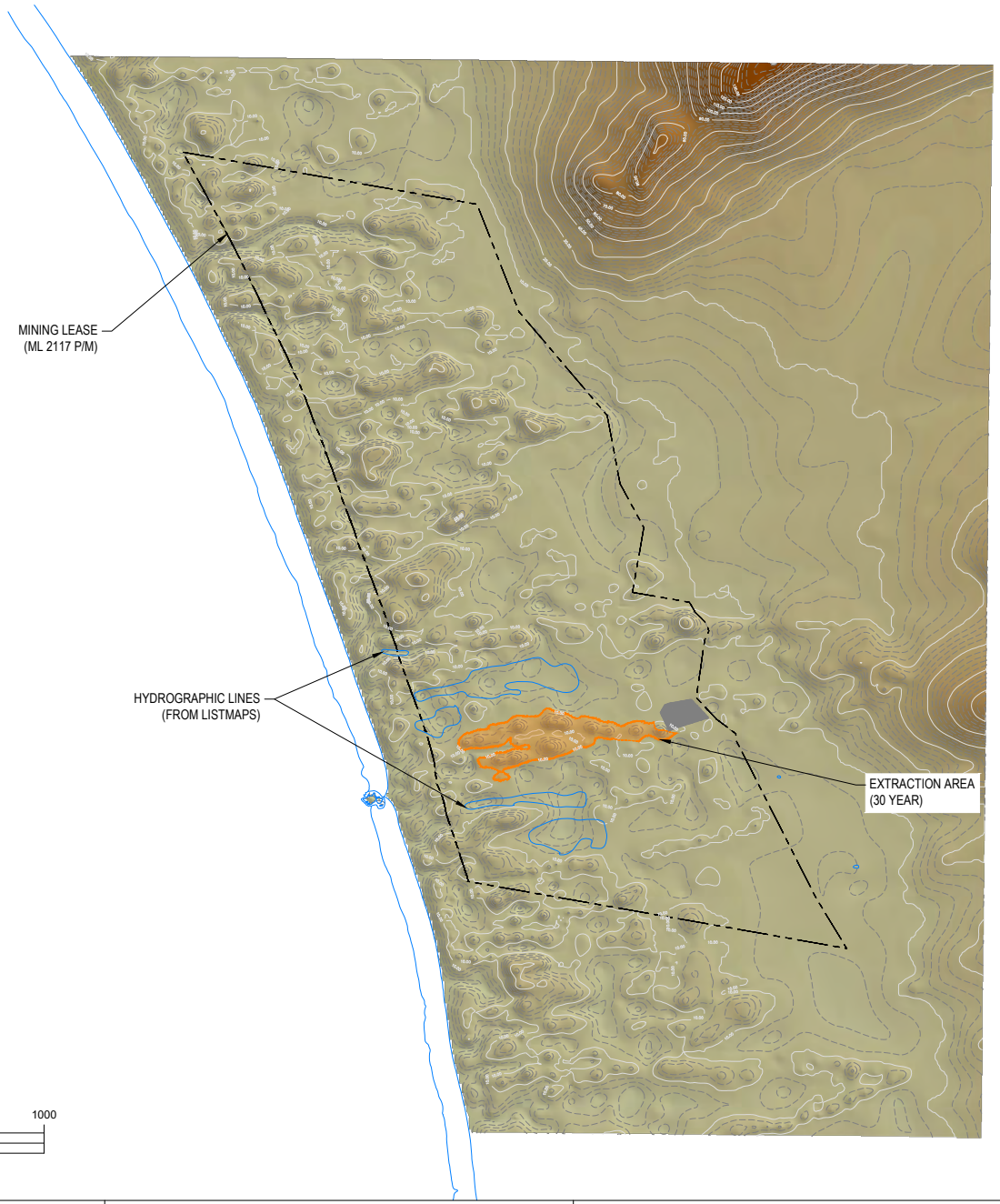



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| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
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| REV 0.0 | INITIAL PLAN | 23/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**SITE SOIL CONDITIONS AND SURROUNDING GEOLOGY**

DRAWING NUMBER: VDC/MSP/A/205

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**NOTES**
1. CONTOUR INTERVAL: 2m
2. VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM (AHD)
3. NO NATURAL DRAINAGE LINES ARE PRESENT IN THE SURROUNDING AREA

N
W E
S

Meters
500 0 500 1000

SCALE @A3 1:20000

| | | | |
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| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 22/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

# TOPOGRAPHY AND HYDROLOGICAL FEATURES

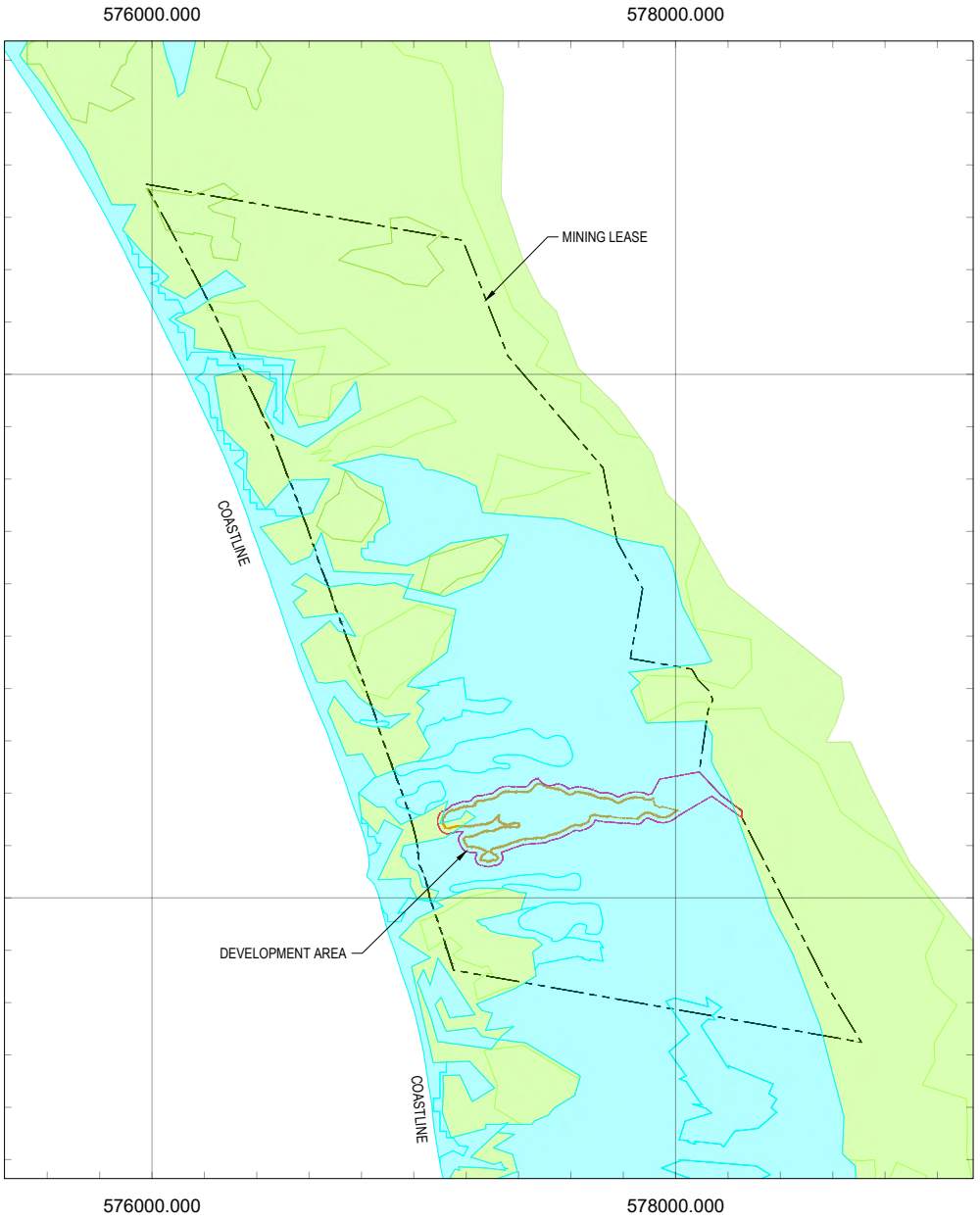
DRAWING NUMBER: VDC/MSP/A/301

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**COASTAL ACID SULPHATE SOIL OVERLAY (LISTMAP)**

LISTMAP NOTES - Extremely low probability of occurance (1-5% of mapping unit). with occurences in small areas. Sandplains and dunes 2-10m AHD, ASS generally below 1m from the surface.

LISTMAP NOTES - Low probability of occurance (6-70% chance of occurrence in mapping unit). Sandplains and dunes >10m AHD, ASS generally below 1m from the surface.

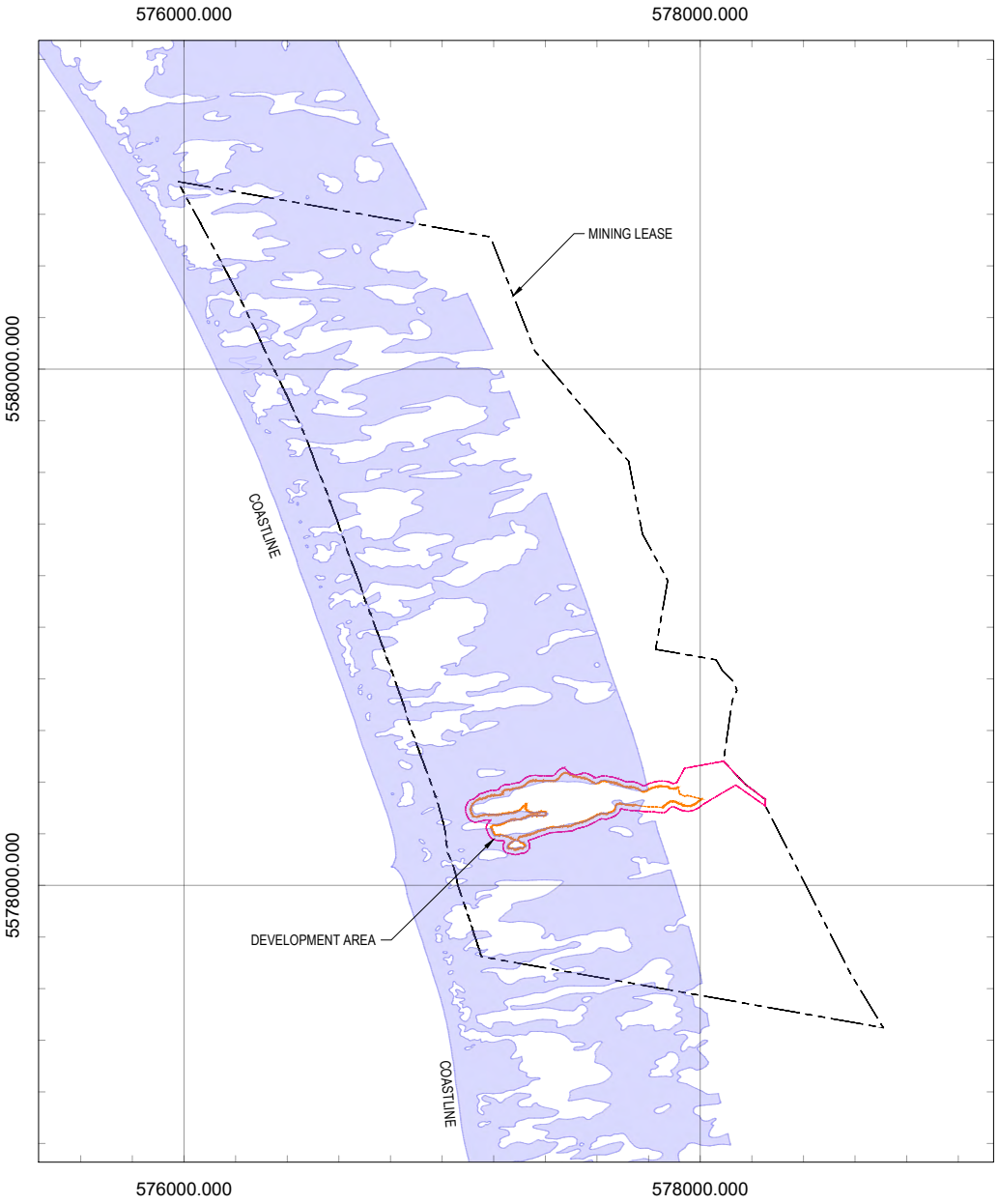



**COASTAL INUNDATION HAZARD OVERLAY (LISTMAP)**

INUNDATION INVESTIGATION AREA

LISTMAP NOTES

This area is outside the LiDAR-mapped area and as it is below the mapped 10 m contour may be partly vulnerable to sea level rise but data used for this analysis were not sufficient to further determine potential inundated areas.




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| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS AND IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 22/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**NATURAL HAZARDS - COASTAL ACID SULPHATE SOILS AND COASTAL INUNDATION HAZARD**

DRAWING NUMBER: VDC/MSP/A/302

Van Diemen CONSULTING

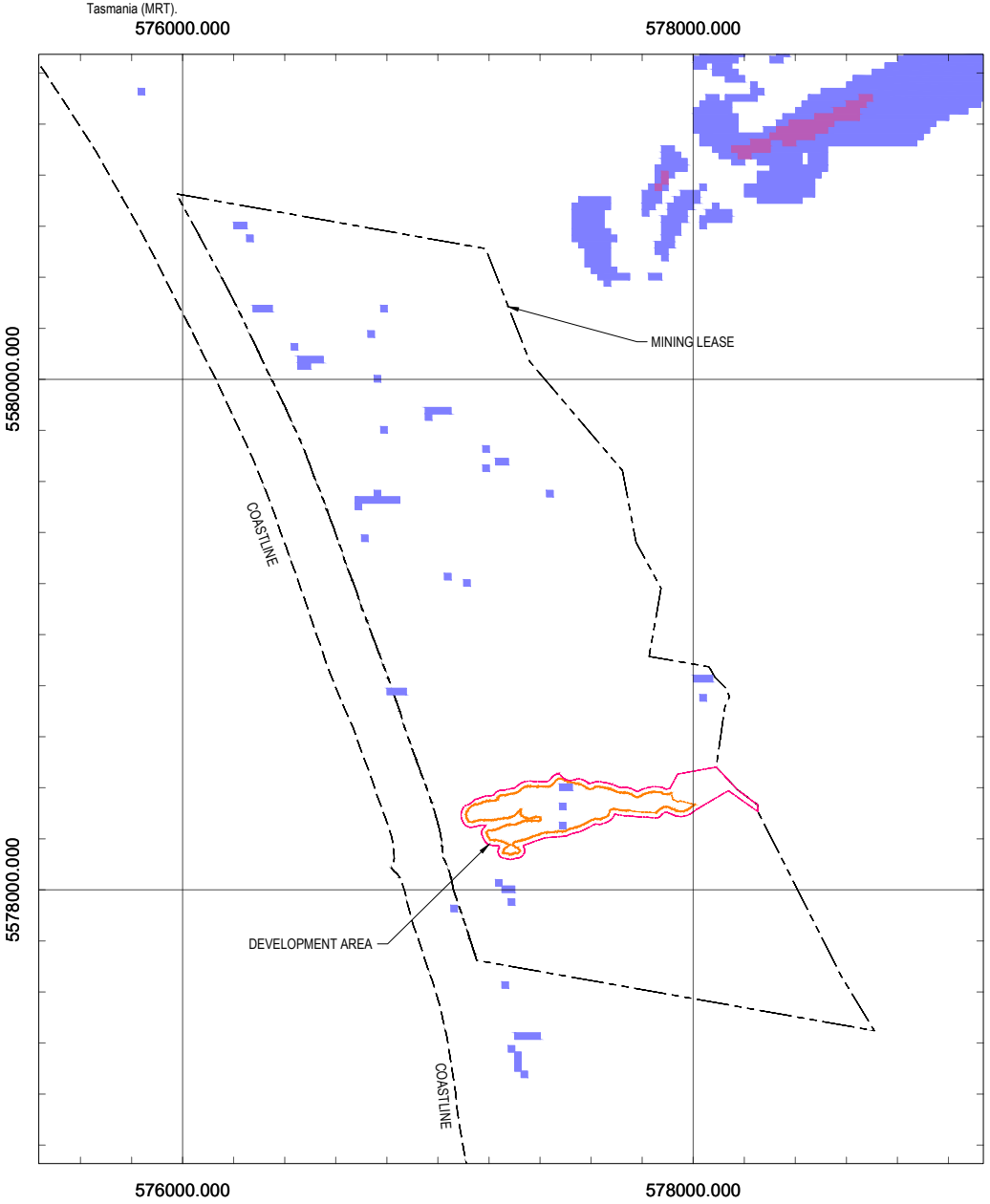
Annexure: 16.2.3

**LANDSLIP HAZARD BAND (LISTMAP)**

LOW

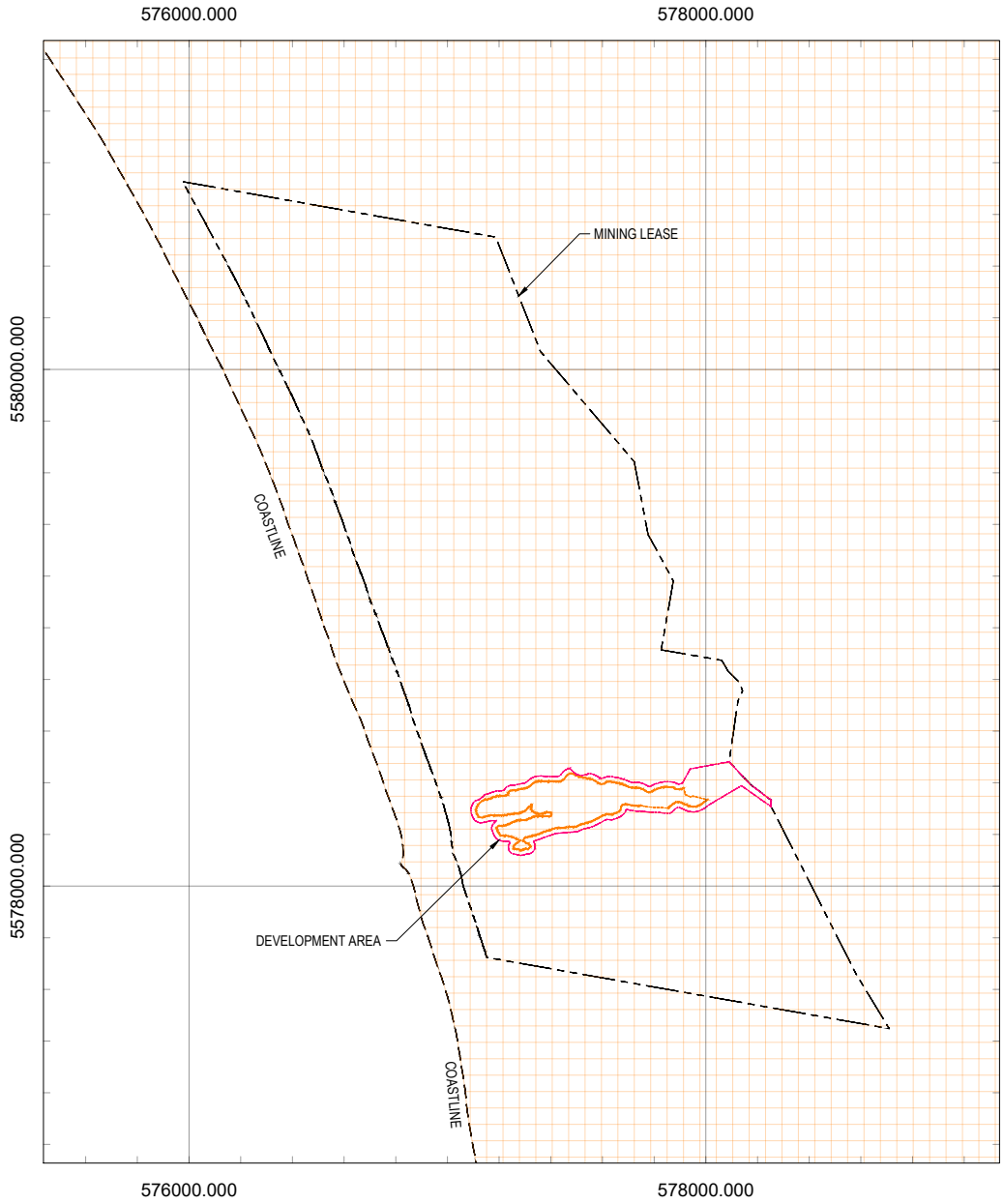
LISTMAP NOTES - This area has no known active landslides, however it has been identified as being susceptible to landslide by Mineral Resources Tasmania (MRT).

MEDIUM




**BUSHFIRE PRONE AREAS (LISTMAP)**

BUSHFIRE PRONE AREA




| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
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| REV 0.0 | INITIAL PLAN | 22/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

**NATURAL HAZARDS - BUSHFIRE HAZARD AND LANDSLIP HAZARD**

DRAWING NUMBER: VDC/MSP/A/303

AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments



Van Diemen CONSULTING

**ATTACHMENT 9. MARKANA LIME SANDS GEOMORPHOLOGY AND SOILS REPORT**

# Survey of the Geomorphology and Soil characteristics of the Markarna Grazing Company Pty Ltd Property, Marshall Beach, Flinders Island

**18 January 2024**



**This report was compiled by Dr Adrian Slee, Earth Sciences and Cultural Heritage, Forest Practices Authority, 30 Patrick Street, Hobart 7000**

**Email:** adrian.slee@fpa.tas.gov.au

**Citation**

Slee, A. 2023. Survey of the Geomorphology and Soil characteristics of the Markarna Grazing Company Pty Ltd Property, Marshall Beach, Flinders Island, November 2023, Forest Practices Authority, Hobart 27p.

**FPA file reference**

D24-20638

**Disclaimer for report**

The advice contained in this document has been prepared for Markarna Grazing Company Pty Ltd and Van Diemen Consulting Pty Ltd only.

Whilst the Forest Practices Authority has used its best endeavours to ensure accuracy, it does not warrant that the material is free of error. Consequently, the advice is provided on the basis that the Forest Practices Authority will not be liable for any error or omission, in contract, tort or otherwise. However, should any error or omission be notified, the Forest Practices Authority will use its best endeavours to correct the advice.

**Disclaimer for maps**

While all reasonable care has been taken to ensure the information contained on the maps contained in this document is accurate and current at time of publication no guarantee is given by the Forest Practices Authority about the accuracy or suitability for use of the data contained in these maps. Consequently, the maps are provided on the basis that the Forest Practices Authority will not be liable for any error or omission. However, should any error or omission be notified, the Forest Practices Authority will use its best endeavours to correct the information.

**Glossary**

*Optically Stimulated Luminescence (OSL) dating*: A method of dating sand grains. This method measures the period of time since burial of the sand grains and therefore indicates the age of the host landform (i.e. dune ridge).

*Tasmanian Geoconservation Database (TGD):* A database that provides a source of information about geodiversity features, systems and processes of conservation significance in the State of Tasmania.

**Cover Image (Image 1)**

*View eastwards from the coastal foredune backing Marshall Beach, looking across isolated outcrops of granite towards the large west-to-east orientated longitudinal dunes forming the main Markarna Lime Sands resource*

# 1. Project scope and Aims

Van Diemen Consulting Pty Ltd engaged the Forest Practices Authority (FPA) to investigate the geomorphology and soils present on a 364.1 ha mining lease owned by the Markarna Grazing Company between Palana Road and Marshall Beach near the settlement of Lughrata on Flinders Island. The proposal by Markarna Grazing Company is to develop and extend an existing old lime sand extraction pit located within the dune fields located between Palana Road and Marshall Beach near the settlement of Lughrata. The priority area is an 800 m long west to east oriented sand dune complex covering approximately 4 ha that forms a lime sand resource immediately west of the current old extraction pit.

The aim of the project was to provide a detailed report on the dune field and other landforms including swamps and potential Tertiary limestone karst features in the vicinity of the proposed extraction pit. Soils were also be investigated in this area. A secondary focus was a general documentation of the dune field and other sites of geomorphic significance in the overall mining lease in the event of expansion of operations in the future.

**The report addresses the following issues:**

- Documentation of any karst features present and management recommendations.
- Overview of the sand dunes present at the proposed pit site and mine lease in general and dune special values management recommendations.
- Comment on sand blow risks and mediation recommendations.
- Documentation of other geomorphic landforms.
- Soil observations and management.

# 2. Previous Work

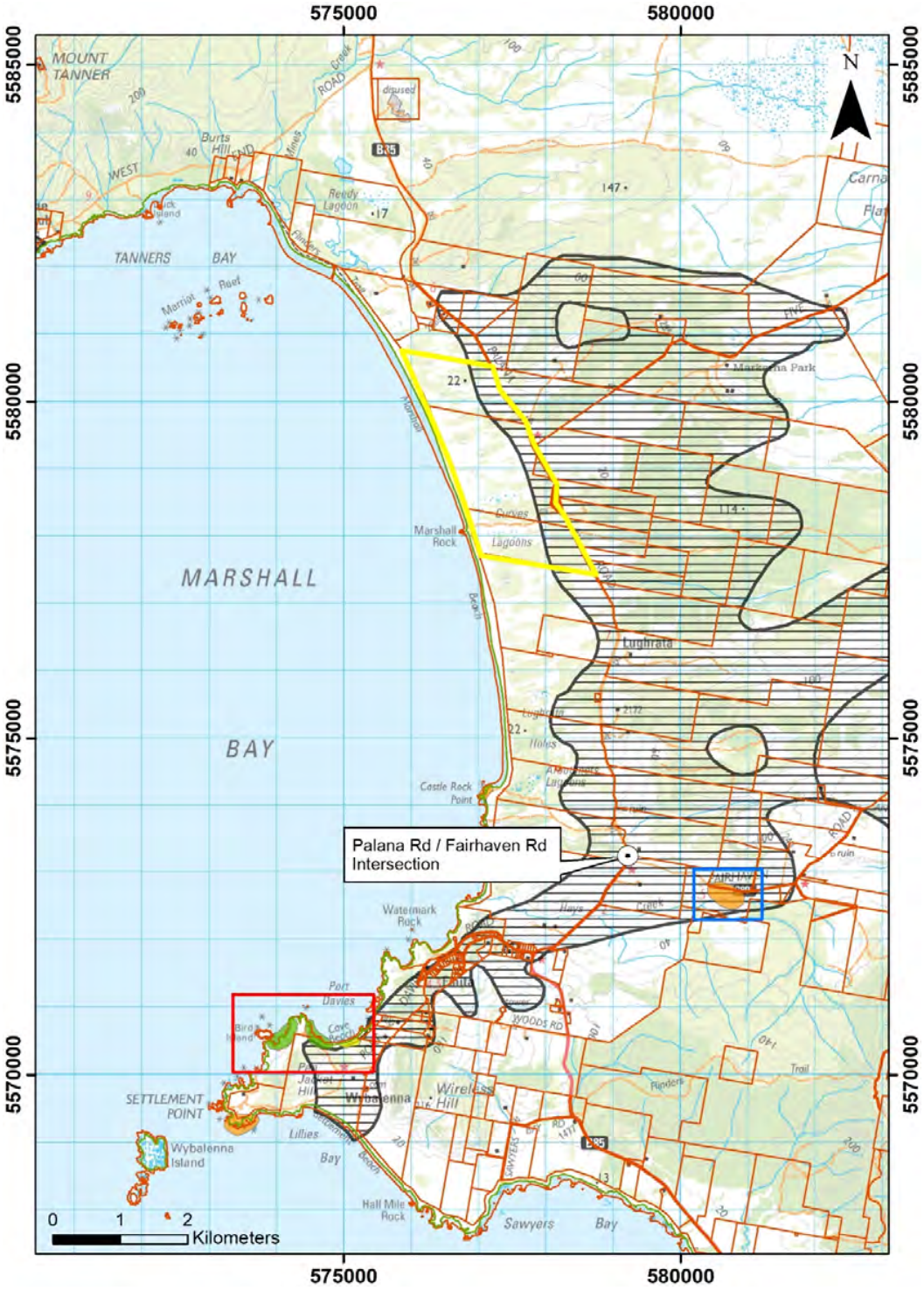
## Granite Bedrock

Devonian granite plutons are the dominant bedrock that floors Flinders Island and upon which the Tertiary Limestone and Quaternary deposits lie. White syenogranite/ monzogranite (I-type) granite outcrops in the vicinity of Five Mile Road immediately east of the study site. No granite was mapped on the 1:250,000 geological map (available on www.theList.tas.gov.au) within the study area (Mineral Resources Tasmania 2023). However aerial photographs clearly show that Marshall Rock (outcropping on Marshall Beach) is granitic.

## Karst

Tertiary dune limestone is mapped on the 1:250,000 Tasmanian geological maps. It forms the hills rising east of Palana Road immediately inland of the Markarna Lime Sands mining lease. The hills are part of an extensive belt of limestone extending from the vicinity of Five Mile Road in the north, inland to the Memana district and south along the coast to Wybalenna. The area is listed as a category B karst area (Emita-Memana BS17) (Kiernan 1995; see also map 1, below). The karst B classification indicates that karst processes are active in the area. The area has received limited attention from geoscientists and cavers. Limestone has been mapped on the hills to the east of the study site to altitudes approaching 130 m asl. The limestone is likely to be mantling granite and possibly sedimentary rock at depth and may be quite thin i.e., in the order of tens of metres. However, the topographic relief of the limestone here is more than 100 m which is more than enough for significant karst landforms and processes to develop. Kiernan and the author have observed subtle sinkholes in the vicinity of Palana Road/Fairhaven Road intersection (Map 1 and Image 2). Some of these depressions could be dune swales, but the presence of exposed limestone outcrops around others suggest sinkhole development.

A low hill north of Hays Creek has limestone cliff outcrops. The most notable karst landforms occur at Cave Beach where significant limestone exposures in a coastal setting display very rugged limestone weathering pinnacles and solutional forms (karren) associated with several notches and small caves formed at or near the contact between the limestone and the underlying granite (Image 3). The karst landforms in the vicinity of Cave Bay (red box on map 1) and the sinkholes along Fairhaven Road (Blue box on map 1) are listed as Geoconservation sites ID:2254 and ID:2298 in the Tasmanian Geoconservation Database (TGD) accessible on the Tasmanian Natural Values Atlas (NVA.tas.gov.au).




*Map 1: Marshall Bay. The striped area is the mapped extent of the Emita – Memana (BS17) karst according to Kiernan 1995; yellow square is the lease area; red and blue squares highlight TGD sites with notable karst development.*



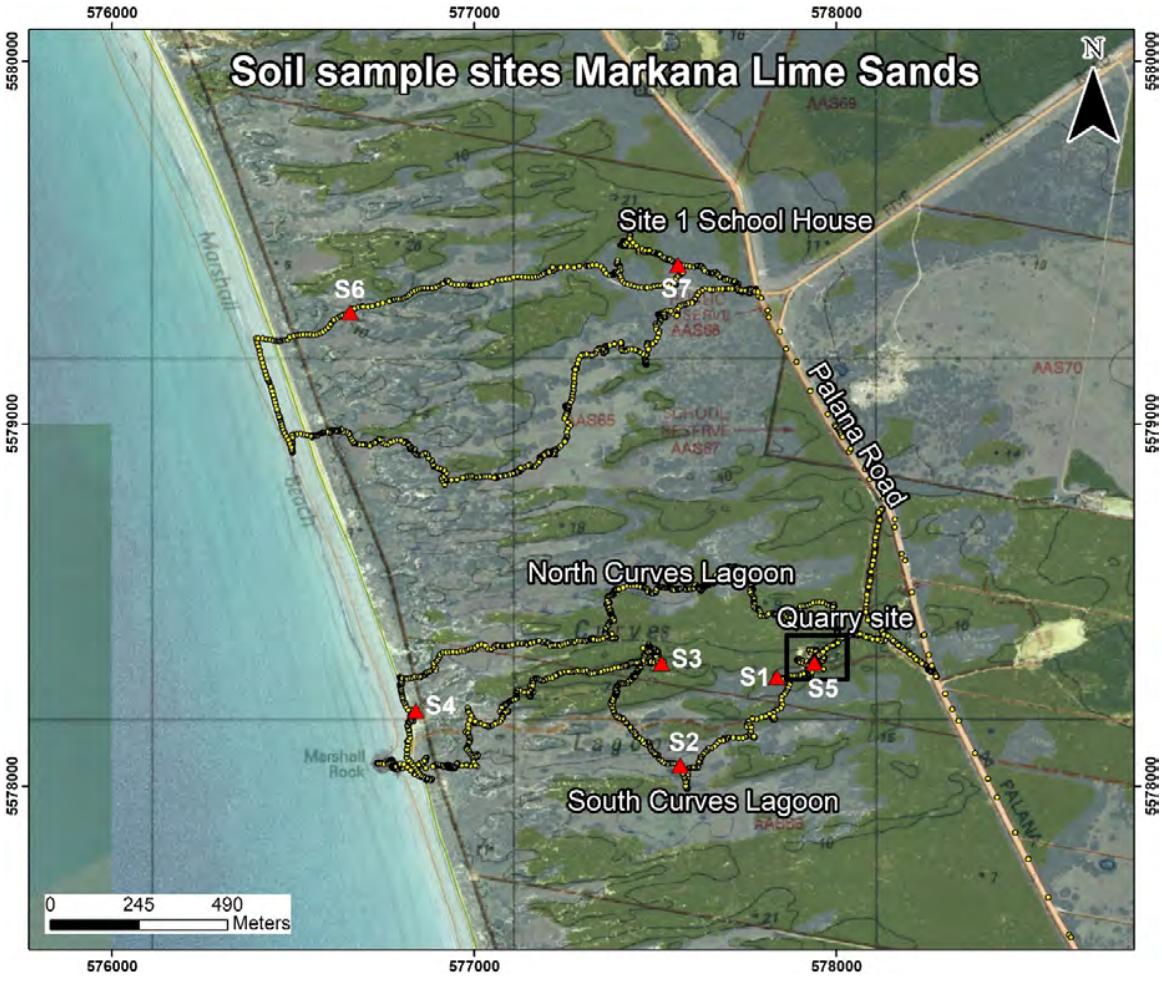
*Image 2: One of a large number of shallow basins (circled) associated with limestone outcrops (foreground and background) in the vicinity of the Palana Road/Fairhaven Road intersection (Map 1). The lack of dune cover and exposed outcrops suggest shallow soils and that these depressions are solution sinkholes associated with a subsurface karst aquifer.*



*Image 3: The Tertiary Limestone at Cave Bay features significant karst landforms including small caves, notches and solutional (karren) surface weathering forms. The area is a listed TGD site and the limestone outcrops are contiguous with the limestone bedrock in the vicinity of the mine lease.*

## 3. METHODS

Observations of the site were made over two days of fieldwork on the 7th and 8th of November 2023. Waypoints and route tracking were recorded using a Garmin Etrex 22s. The route taken during the field work and the location of the soil samples taken are shown in Map 2. Maps were drawn using ARC-Map 10.8.1. Soil samples were taken using an Eijkelkamp auger. A sample for Optically Stimulated Luminescence (OSL) dating was taken from the lower dune horizon in the old pit face. This was done by cutting back and benching out the sand dune before a sample was taken using a PVC tube hammered vertically into a dug bench approximately 5 m below the top of the dune.




*Map 2: Soil sample sites and survey route (yellow tracks) taken during fieldwork.*

# 4. OBSERVATIONS

## BEDROCK GEOLOGY OF THE SITE

### Granite

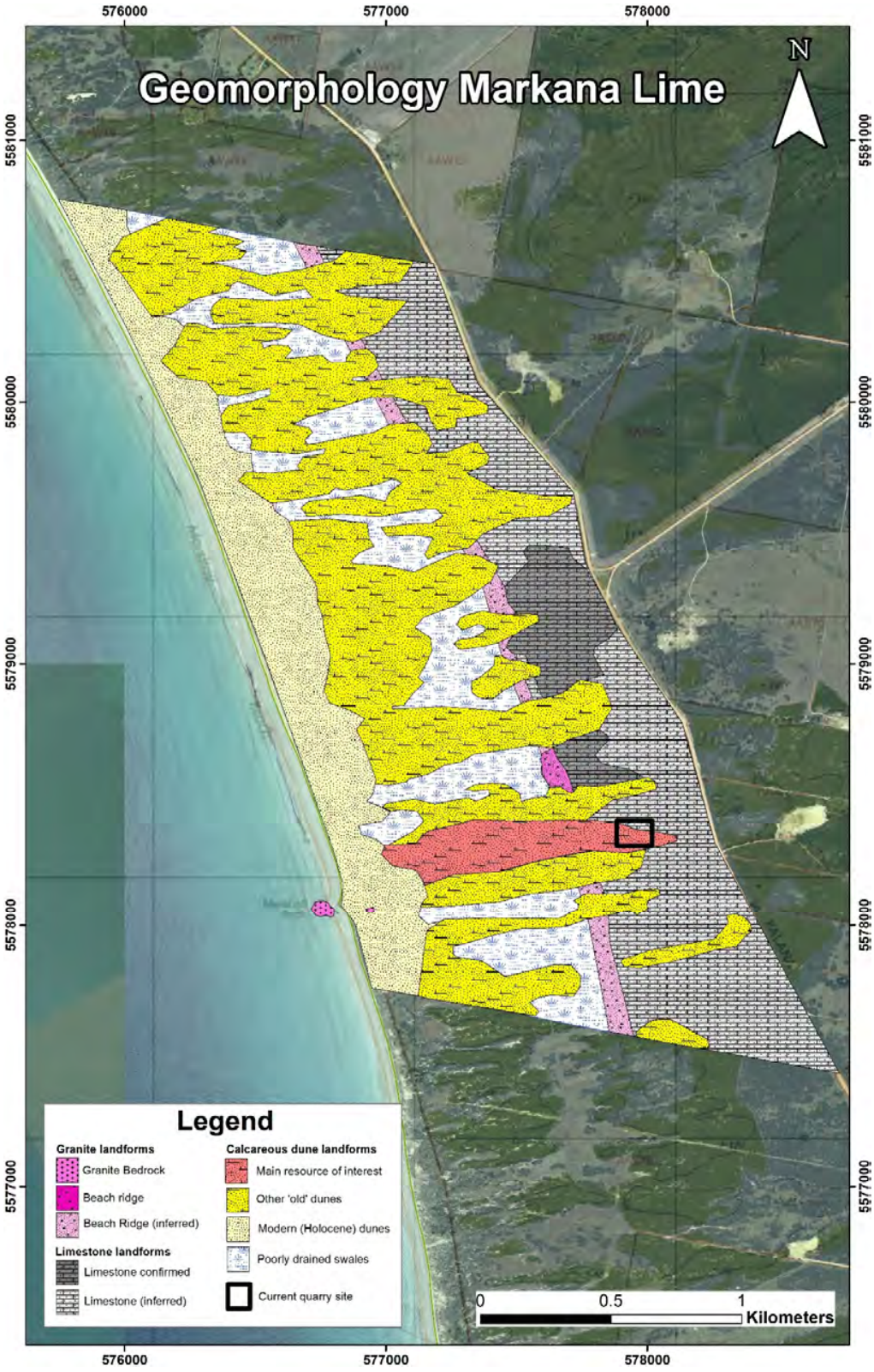
The general geomorphology of the mine lease is presented in Map 3. The Marshall Rock and other granite outcrops located within the sand dunes 150 m to the east of the pit and just within the lease (see Image 1) were visited during the survey. Both are unmapped on geological sheets and feature large, rounded outcrops of white crystalline granite. While the granites are not the focus of proposed operations on the mine lease their presence on the coast and in particularly within the foredunes indicates the likelihood that granite outcrops are present beneath the sand dunes on the property. Granite bedrock rarely forms flat surfaces but rather undulates quite substantially over short distances hence it is impracticable to define the depth of the dunes and further east Tertiary limestones above the granite contact. Exploration could help assess the depth of the lime sands. However, it would be costly over large areas, and possibly yield little additional information.

### Limestone

A continuous flat bench approximately 15 m above sea level is present in the eastern section of the study area. In places this bench is overlain by dune sands. Significant lag deposits of fossiliferous limestone in the form of boulders and cobbles are found on this bench associated with a distinctive open vegetation community in contrast to the thicker vegetation associated with the younger dune sequences (Image 4). The bench appears to be the western edge of the limestone outcrop and its western margin may have once been a shoreline open to Bass Strait. It now forms a paleo-shoreline. Areas of outcropping limestone are very limited as most of the edges of the limestone plain appear to be buried by Quaternary coastal and dune deposits. Only one small in-situ outcrop of limestone was observed at 577509mE: 5579301mS. This was associated with the blowout of a low 1 m tall sand dune.



*Image 4: Flat limestone bench in the east of the property.*




*Map 3: Geomorphology summary map.*

## KARST LANDFORMS

### WEATHERING LANDFORMS (KARREN)

Very minor but sharp solutional karren weathering forms were located at the larger limestone outcrop (Image 5) and other smaller blocks in the area but no significant solutional karst landforms were observed.



*Image 5: Small limestone outcrop*

### SINKHOLES

Large, elongated depressions are a feature of the property. Some of these are large enough to have warranted definition as enclosed basins on the 1:25,000 topographic map sheets of the area and the largest are defined as lagoons (e.g. Curves Lagoons to the immediate south of the proposed resource). These depressions are elongated. They are not flat floored but have rather undulating forms. Although a small intermittent pond appears to be present in the lowest basin of the northern Curves Lagoon, elsewhere flowing and pooling surface water appears to be very limited; surface water accumulation may be confined to times of intense rainfall. In contrast to enclosed rounded basins associated with limestone bedrock, outcrops interpreted to be probable sinkholes have been described by the author and others near the Palana Road/Fairhaven Road intersection and further south in paddocks north of Trousers Point. The depressions at the study site appear to be all related to either broad west-east oriented interdune swales or (closer to the coast) roughly square

depressions developed behind the active Marshall Beach foredune complex. Depressions of conclusive karstic origin were not identified and are considered unlikely to be present within the study area.

### SPRINGS

No obvious streams or springs were located on the property. A possible very small spring rises from beneath Marshall Beach immediately east of Marshall Rock. Here at low tide a small stream flows for approximately 20 m to the ocean, dropping 20–40 cm in altitude. The scale and location of the spring does not imply karstic drainage in the Tertiary limestone several hundred meters inland but rather small-scale subsurface drainage out of the local beach-bordering Holocene dunes. The lack of surface streams is interesting as there are no inlets or obvious streams entering the ocean for the length of Marshall Beach between the outflow of Arbothnots Lagoon to the south and a small inlet to the north at 574850mE: 5582000mN. A series of disappearing stream channels are mapped in the limestone hills southeast and northeast of the study area. The absence of defined stream channels flowing off the limestone in the area does suggest subsurface drainage is occurring in karst.

### SUMMARY OF KARST LANDFORMS

An extensive Tertiary dune limestone bench is present in the eastern section of the study area. This bench is overlain in locations by the Quaternary dunes and has open predominantly *Leptospermum laevigatum* dominated forest. The lack of streams (and channels) flowing from the higher limestone hills to the east of the property may indicate that a karst aquifer is present in the area. However, no obvious springs were noted. No sinkholes were observed on the property, and as the largest limestone outcrop observed covered only a few square meters, caves are unlikely to be present in the priority study area. However, the author did not cover the entire mining lease and LiDar coverage is not available for the area so the presence of isolated karst landforms including bedrock bluffs with karren, sinkholes or small caves cannot be entirely ruled out.

### OLD BEACH RIDGE

North Curves Lagoon is a large dune swale basin. It is surrounded to the west, south and north by Quaternary and Holocene dune ridges and to the east by the low Tertiary limestone bench. On the eastern margin of the basin at 577625mE: 5578543mN approximately 6–10 m above sea level (asl) white sandy gravels are exposed (Image 6). These are not typical fine sands associated with the beach ridges in the area but are rounded coarse quartz sands that appear to mantle the lower western slopes of the limestone bench. The quartz-rich nature of the sediments suggests two potential sources

1. That granite bedrock is shallowly buried in the vicinity of the eastern end of north Curves Lagoon and the soils at the site are primary granitic soils (known as gruss) formed from weathered granite.

2. That the coarse quartzite sands that contain some shelly carbonate fragments carbonate were deposited on the western edge of the limestone bench in a high energy coastal environment (surf beach).

The latter explanation appears to be more likely as no granite bedrock was observed at the site. It can be assumed that the coastline of Bass Strait was once a high energy environment supplied with coarse sands sourced from offshore granite outcrops such as Marshall Rock or reworked sands from upslope granite sources east of Palana Road. The presence of this beach ridge indicates that the coastline has prograded (advanced) >900 m to the west while becoming a lower energy environment. Given the altitude of the beach it appears likely that it could have formed during the penultimate interglacial high stand, approximately 130,000 years ago when sea levels were 6-8 m higher than today. The presence of granitic soils in this area defines the northern margin of the economic resource in lime-rich dune sands to the south. It is likely that the beach ridge extends beneath the overlying Quaternary carbonate-rich sand dunes, as the dunes appear to have formed over the top of the older granite sands and Tertiary limestones in the east of the property. If this is the case a contact between the carbonate sand resource and the quartz sands may be encountered during mining.



*Image 6: Beach ridge composed of quartzite gravel sands (inset) derived from granite bedrock immediately east of North Curves Lagoon.*

## SAND DUNES

Extensive sand dunes cover most of the mining lease. Except for the granitic sediments east of North Curves Lagoon described on page 8, the sand dunes are composed of fine-grained white quartz and carbonate deposits. Two significant sand dune assemblages are present. In the west are the modern foredune and back dunes behind Marshall Beach. Inland are a series of elongated west-to-east trending parallel dunes that rise up to 24 m above sea level.

These inland dunes are largely vegetated and stable in comparison to the foredunes that have fewer woody and tree species, instead being dominated by grasses, herbs, wind-pruned shrubs and sedges. The coastal foredunes climb onto the older dunes but can be broadly demarcated by their hummocky forms and presence of sand blow-outs that contrast to the more elongated uniform stabilised ridges of the older dunes.

### MAIN DUNE

The 1:25000 topographic map of the main dune (resource) shows a single large dune approximately 180 m wide and 10–25 m high. Two large internal depressions are present west of the current sand pit. The actual landscape is more complex than the contours suggest with at least 8 dune crests identified between North Curves Lagoon and South Curves Lagoon. The dune ridges have narrow rounded tops and steep side slopes, generally >30°. The multi-peaked nature of the dune ridges and the deep wide interdune swales are not well expressed on the 1:25000 topographic map.

The existing pit is located near the narrowest and easternmost part of the dune sequence. Here past pit operations have exposed a cutting through the main dune that has some scientific interest as described in the next section of this report.

### EXISTING PIT

The existing pit is located at 577936mE: 5578343mN, 350 m west of Palana Road and is accessible by an overgrown FWD track. The pit exposes a 75 m wide section through the eastern limb of the main dune. Most of the exposure is either overgrown or of limited interest. The floor of the pit appears to be in solid Tertiary limestone bedrock. Some of the floor material could have been brought in by past operations to provide a solid working base. The best exposure through the dune is on the upper southern face of the pit where an approximately 5.5 m deep section is exposed. A modern topsoil and two buried paleosols are exposed in this face while calcified tree roots (rhizoliths) and branches are present within the dune below the lower of the two paleosols. The dune profile was described and photographed (Table 1 and Image 7) and samples were taken from the main horizons.

**Table 1. Description of soil profile at the pit site.**

| Unit 1 | Depth (cm) | Description |
|---|---|---|
| **1** | **0 – 20** | Grey sandy topsoil with abundant modern root mats |
| **2** | **20 – 95** | Yellow sands with abundant animal burrows |
| **3** | **95 – 110** | Dark grey / brown horizon in sands – paleosol 1 |
| **4** | **110 – 260** | Light yellow to white sands |
| **5** | **260 – 280** | Grey / Brown horizon laterally extensive and forming a stratigraphic bench – paleosol 2. |
| **6** | **280 – 550 (approx.)** | White sands, predominantly carbonate; prominent surface carbonate cementation highlighting stratigraphic beds, calcified tree root and possible calcified small tree stump. |
| **7** | **Pit Floor** | Fossiliferous limestone (Tertiary) |




*Image 7: Annotated view looking east over the southern wall of the old pit showing dune and paleosol horizons.*

## PALEOSOLS

The term 'paleosol' refers to a buried soil horizon within a sedimentary profile. Paleosols are darker band of sediment which may or may not contain woody debris, organic matter and charcoal surrounded by lighter and less charcoal-rich sediments. Paleosols can be important indicators of past stability between depositional events. In this case organic topsoils (indicating stability) have been buried by a non-organic deposits (sand dunes). Two prominent paleosols are present in the exposure. The upper paleosol 1 (Image 8) lies between 95 cm and 115 cm depth and forms a prominent but laterally patchy dark brown organic-rich layer in the upper dune profile. The lower paleosol at 260 cm depth is a thinner and lighter compact sand unit that appears to not be as organic rich. However, this paleosol is laterally extensive and forms a prominent grey bench on the mid slope of the cutting. In the case of the dune systems the presence of paleosols indicates a substantial time of dune stability, allowing an organic topsoil to form prior to renewed dune instability resulting in topsoil burial. At the pit site at least three periods of dune stability can be inferred as indicated by the two buried paleosols and the darker modern topsoil associated with thick root mats on the crest of the dune.



*Image 8: Top 1.5 m of the pit face showing prominent brown paleosol at about 1 m depth.*

## RHIZOLITHS

A feature of the main pit exposure is the rhizoliths located in Unit 6 of the profile (Table 1; Images 9 and 10) formed by dissolution of carbonate by percolating water and its subsequent precipitation around roots.

Rhizoliths observed at the pit include narrow straw-like tree root rhizoliths up to 20 cm long and 1–5 cm across many of which still contain inner woody root material and larger cylindrical-shaped rhizoliths up to 30 cm long and 15 cm thick, which may have formed around tree branches. Small columns are present at other locations in locations suggesting calcification of the stumps of *Melaleuca* and other small trees found at the site.





*Images 9 and 10: Tree root rhizoliths exposed in the lower dune horizon in the pit face. These rhizoliths form from leached calcium carbonate which has precipitated around rough surfaces such as tree roots.*

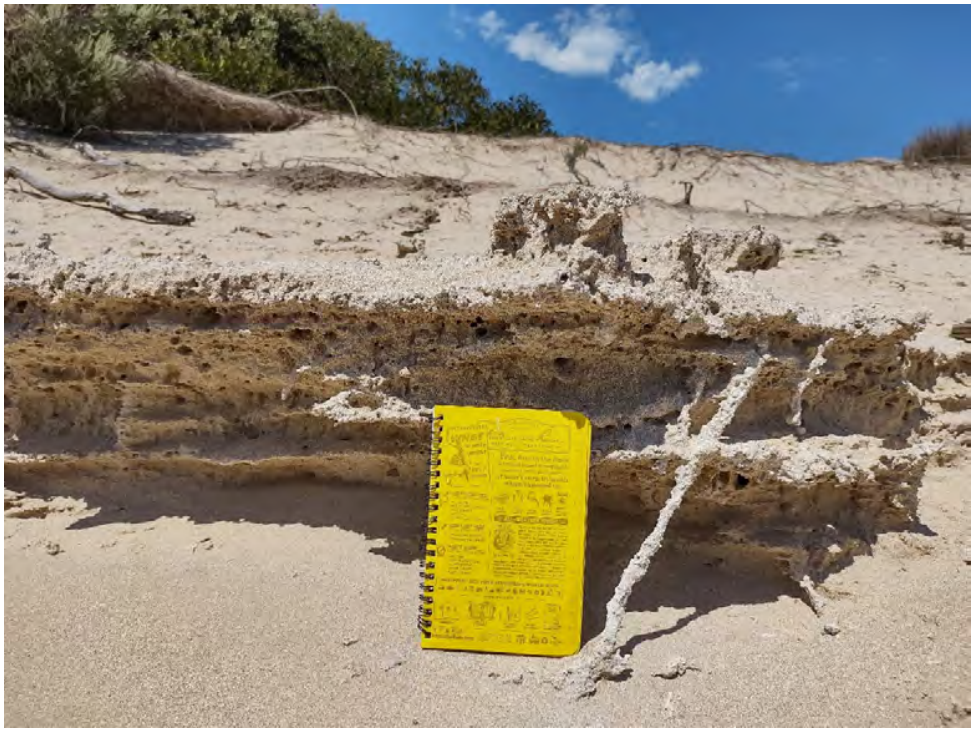


*Image 11: Small carbonate benches have formed in the lower dune horizon but unlike the rhizoliths appear to have formed since the pit last operated.*

The cut sand bank also features several distinct carbonate layers (poorly developed calcretes) that indicate slight differences in the carbonate content of the sand dune horizons (Image 11). These layers stand out as hard surfaces in the dune but on cutting back the surface exposure no stratigraphic difference was noted between these layers and those above and below (Image 12). It was concluded that these layers form by surface hardening by carbonate precipitation on the exposed surface since sediment exposure by past pit operations.



*Image 12: A cut through the weakly developed calcrete on the cut surface of the pit revealed compact fairly uniform bedded sands.*

## DATING

A sample for Optically Stimulated Luminescence (OSL) dating was taken from a freshly cut bench in the lowermost dune unit, 1.5 m below the lower paleosol (Images 13 and 14). This sample will be submitted to the OSL laboratory at the University of Wellington (New Zealand) for dating. The date will provide a maximum age for the formation of the lower paleosol and will help establish whether the dunes formed during glacial or interglacial periods.



*Image 13: Taped transect of the face from the top of the dune horizon to the sample site for OSL dating on the cut bench. Image 14: The sample was taken by hammering a sample tube into the cut bench vertically and then removing the sediment for extraction.*

## MODERN (LATE HOLOCENE DUNES)

Modern dune ridges run parallel to Marshall Beach for the length of the mining lease. They consist of an almost continuous elongated beach foredune backed by a complex of hummocky back dunes separated by roughly bowl-shaped dune swales (depressions). At the western margin of the main resource area these dunes intercept the older west – east longitudinal dunes considered above. The modern dunes are composed of fine loose sands with no evidence of significant calcite crust or rhizolith development; however the carbonate content of the dunes is high. No paleosols were observed in these dunes but thin buried soil horizons may be present. The lack of calcite cementation in the modern dunes suggests a significantly younger age for these deposits as may be expected from their near-coastal setting. Cuttings through the coastal foredune and a low back dune deposit on the main central access track were investigated. The coastal foredune (beach dune) was exposed in a blowout (Images 15 and 16) and displays a uniform profile composed of unconsolidated loose sands. The inland back dune was exposed where the access track cuts through the dune (images 17 and 18). The dune has three horizons: a slightly brown upper 55 cm: a white layer at approximately 55–70 cm and a yellowish layer at >70 cm depth. The profile development indicates a period of dune stability possibly extending back ~1000 years. The brown upper layer is an A1 horizon. The middle white layer is a leached A2 horizon. The deeper yellowish zone is a B horizon. Inappropriate track development and other activities associated with operations on the mining lease could lead to re-activation of these young dunes, which are more exposed to coastal winds than dunes further inland.



*Image 15: Steep modern Marshall Beach foredune looking south from Marshall Rock.*



*Image 16: Natural windblow exposure through the foredune at soil sample site 6 map 2.*



*Image 17: The modern semi-stabilised back dune.*



*Image 18: The dune has a similar composition to the active foredune however has been stabilised for some time as a soil profile has developed.*

## SOIL SURVEY

Soils were sampled and bagged for transport from several locations in the vicinity of the main resource deposit (Map 2). Soils were sampled at depths of 30 cm, 50 cm and where possible 1 m using either natural cuttings or the Eijkelkamp soil auger. This was to identify any unusual characteristics of the soils and to sample for laboratory assessment of soil acidity (pH). pH was measured after shaking soils and water (1:25 ratio) and allowing the mixture to stand for 2 hours A Milwaukee MW 100 pH meter was used, calibrated at the time of analysis using standard solutions at pH 4 and pH 7.

### Dune swale: Site 1

The centre of a low dune swale southwest of the pit was augered. Soil samples at 30 cm and 50 cm depth were taken from this site. No peat deposits were noted.

### South Curved Lagoons Dune swale 2: Site 2

Soils were augered at the lowest point of South Curved Lagoons on a marsupial grazed lawn that appears to hold water at times forming a small pond. The upper 30 cm and 50 cm samples contained yellow white carbonate sands while dark brown swampy organic rich lacustrine sediments were encountered below about 80 cm.

### Dune Swale 3: Site 3

The deepest part of the large dune swale that is visible on topographic maps (as an enclosed depression) was sampled at depths of 30, 50 cm and 1 m. The entire profile displayed fine white sands beneath a slightly browner topsoil and no sign of dark organic horizons or peat.

### Modern active foredune Site 4:

A grab sample of a cutting in an active foredune exposed in a blowout was sampled at approximately 2.5m depth in a uniform unconsolidated sand with no topsoil.

### Main dune exposure: Site 5

Grab samples were taken of the upper dune deposit, Paleosol 1, middle dune deposit, paleosol 2 and the lower dune deposit (Image 7).

### Modern (Holocene) back dune Site 6

Three samples were taken from a track cutting through a low dune in the Marshall Beach back dune complex.

### Limestone Bench Site 7

Two samples were taken from a thin soil developed on the Tertiary limestone bench.

## pH RESULTS

The results of the pH analysis are presented in Table 2. Results for all samples indicated alkaline soil conditions with no indications of highly acidic soil horizons or acid sulphate soils being present in the vicinity of the proposed mining operations. The samples varied in pH between 7.4 and 8.6 with most soils sampled being classified as moderately to strongly alkaline (Blakemore et al. 1987). The topsoil at the large interdune swale (Site 3) returned a

pH of 7.4 that classifies as slightly alkaline (Acid soils have a pH of below 6.5 with strongly acidic soils having pH of <5.2 (Blakemore et al. 1987)).

**Table 2. Results of pH determinations**

| Site | Description | Depth | pH |
|---|---|---|---|
| **Site 1** | Small swale in older dune Southwest of Pit Face | 30 cm | **8.1** |
| | Small swale in older dune Southwest of Pit Face | 50 cm | **8.2** |
| **Site 2** | Lowest point of South Curves Lagoon | 30 cm | **8.0** |
| | Lowest point of South Curves Lagoon | 50 cm | **8.0** |
| | Lowest point of South Curves Lagoon – Organic brown muds | 100 cm | **7.7** |
| **Site 3** | Lowest point of large elongate dune swale brown topsoil | 30 cm | **7.4** |
| | Lowest point of large elongate dune swale - gradational | 50 cm | **7.9** |
| | Lowest point of large elongate dune swale – white sands | 100 cm | **8.4** |
| **Site 4** | Holocene Foredune | ~250 cm | **8.0** |
| **Site 5** | Course quartz rich sands (rocky base) | 30 cm | **8.2** |
| | Course quartz rich sands | 45 cm | **8.3** |
| **Site 6** | Main Pit profile – Upper sand unit | 60 cm | **8.5** |
| | Main Pit profile – Paleosol 1 | 100 cm | **8.2** |
| | Main Pit profile – Middle sand unit | 120 cm | **8.3** |
| | Main Pit profile – Paleosol 2 | 270 cm | **7.8** |
| | Main Pit profile – Lower sand unit (dating sample site) | 430 cm | **8.1** |
| **Site 7** | Holocene dune – Upper topsoil | 15 cm | **8.3** |
| | Holocene dune – Gradational soil (A2) | 60 cm | **8.3** |
| | Holocene dune – Lower yellow / white sands | 95 cm | **8.6** |
| **Site 8** | Shallow limestone soil profile | 30 cm | **8.1** |
| | Shallow limestone soil profile (rocky base) | 50 cm | **8.1** |

The high pH values obtained from the soil samples indicate an alkaline environment where extensive acidic soils are unlikely to be present. The reason for this is that the entire region is buffered by the abundance of dissolved calcium carbonate within the soil profiles and sand dunes and the underlying Tertiary limestone. Low pH conditions are usually associated with deep organic soils or forested areas. While topsoil development is present within the dune fields, they are weakly developed and do not have a significant organic component capable of producing acidic soils, particularly in a carbonate dominated environment. This can be clearly seen by the gradation of pH in the site 3 dune swale samples (Table 2). Here weakly developed topsoil has a pH of 7.4 and pH rises to 7.9 at 50 cm and 8.4 in the white dune sands at >80 cm.

It is notable that although both the site 2 dark organic soil at 100 cm in South Curves Lagoon and the granite-derived soils at site 5 are in locations that should potentially have low pH soils at neither site do pH values drop below pH 7. This is due to the abundance of carbonate in the environment. The lack of deep well-developed topsoils indicate that since the dune formation wet forests or large eucalypt dominated forests may have never been present in this dry landscape. Although the Holocene dune (site 7) clearly shows a period of stability and soil development, the soil is thin and low in organic content. It is notable that at the main pit face (site 5) the two paleosols are also poorly developed and show very limited changes in pH. Previous eucalypt forest cover at these sites is unlikely.

# 5. SUMMARY AND MANAGEMENT RECOMMENDATIONS

## SCIENTIFIC VALUES

The dune field within the study site is a landscape of geoscientific interest which can be and should be managed appropriately to limit the footprint of any extraction activities. The main dune resource identified for extraction under the current development application (not the entire mining lease) is actually a series of up to 8–10 dunes formed between South and North Curves lagoons mapped on the 1:25000 map sheets of the area. Two dune ridges rising to altitudes of around 24 m asl are dominant in the centre of the resource site. The dune ridges have steep profiles and sharp crests indicative of their fairly young age. A central deep elongate depression (mapped as a sinkhole on topographic maps) is a dune swale around 15 m deep. The large dunes and their lower-relief companions (generally 2–4 m high) are oriented west-to-east across the lowland plain. On the eastern margins of the study area they climb onto a bench of Tertiary limestone. The existing pit is near the easternmost end of the two main dunes which at this location have combined into one ridge.

The current face of the old pit provides an interesting profile of dune stratigraphy and is of local scientific interest as it provides evidence of the history of formation of the dunes in this part of Flinders Island and could potentially be used to indicate paleoclimate conditions prevalent on the Island. While this is an interesting exposure, many of the other unimpacted dunes in the region are likely to host similar paleosols and rhizoliths and therefore the features of the pit face are likely to be fairly common within the landscape. The exposure is only visible because of past sand mining operations and has been photographed, sampled and described during this study. Obscuring of the exposure by erosion and tree overturn means that this exposure has a limited lifetime; formal preservation of this site is likely to be impractical.

Resumption of sand mining extending west from the current pit face will destroy and remove the studied deposits but equally it is likely that the mining activities will expose further paleosols and tree root and stump rhizoliths in the sand dune. There is also a remote potential for archaeological deposits to be found within the dune particularly owing to its carbonate-rich nature which is conducive to preserving organic material such as bones (e.g. there is a possibility that large bones associated with megafauna could be exhumed as could ancient human remains or evidence of occupation (fire hearths etc)). Therefore, I suggest that contractors keep an eye out for unusual deposits or large bones during operations. In summary I recommend the following:

Contractors should look out for:

- Thick dark continous bands within the dunes.
- Buried tree stumps or large calcareous deposits that appear to be parts of a tree.
- Stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand.

- Large accumulations of shells.
- Large bones and accumulations of smaller bones buried >1m under he surface.

In the event notable examples of these deposits are encountered the first task should be to photograph the area and move operations away from the immediate working face until a suitably qualified person (in the context of the item/items discovered) can assess any values.

## KARST MANAGEMENT (GENERAL)

While bedrock Tertiary Limestone is present in the east of the mine lease no karst landforms apart from very minor surface solution sculpture (karren) landforms have been identified during this survey. Given the extensive nature and relief of the limestone on the hills east of the mining lease subsurface water flow through karst aquifers is likely but significant karst landforms are unlikely to be present. In the absence of evidence for significant karst formulation of mitigation measures is unnecessary.

### SINKHOLES

It is difficult to differentiate shallow sinkhole depressions from dune swales and this is particularly so in the area of the mining lease. However, all the depressions noted were identified as dune swales so I do not believe they should be treated as karst.

Collapse sinkholes form steep sided depressions and are a sign of significant active karst erosion. In the event a steep sided depression forms during operations work should stop at this location and the area should be avoided during operations until expert advice is obtained. Collapse sinkholes can occur in random locations and are potentially hazardous to machinery and the environment as they may continue to expand following the initial collapse and could indicate changes in subsurface karst aquifer conditions.

### CAVES

While highly unlikely, if any caves are located within the sand dune or in the mining lease, operations should avoid the area, advice from a suitably qualified person should be obtained before operations resume.

**Karst recommendations**

- In the event a steep sided depression forms during operations that has signs of collapse these should be recorded and avoided during operations until expert advice is obtained.
- In the event a cave is located on site operations should avoid the area and seek expert advice.

## EROSION RISKS

Blowouts of the coastal dunes backing the beach are quite common within the mine lease area. However, away from the coast most of the larger dunes appear to be stable. The blowout on the southern edge of the pit face has resulted in minor sand deposition and tree burial south of the highest point of the dune (Image 19). The current location of the pit in the leeward side of the main dune reduces the ability of westerly winds to significantly erode the exposed sands in the pit through deflation, although some loss of sand by wind deflation is likely to have occurred (and may still be occurring). There is a risk that once the operations extend to more of a windward face of the dune, dominant westerly winds may deflate (erode) the dune. This could lead to loss of resource and transport of the sediment. Maintaining a high vegetation cover above the working face and active efforts to revegetate the site away from the working face are key to minimising wind erosion. While easterly winds are common on Flinders Island, they are generally less strong than the westerly winds as evidenced by the strongly deformed vegetation caused by westerlies present at exposed locations on the mining lease (Image 20). Also, easterly winds are generally linked to low pressure systems in the Tasman Sea and rainfall, the wet conditions act to stabilise sand dunes and inhibit wind deflation. Deflation of the sand towards the Marshall Beach Conservation area to west of the proposed pit appears to be unlikely.

**Recommendations to minimise wind erosion.**

- Avoid, if possible, but otherwise minimise working on faces exposed to westerly winds.
- Maintain vegetation above and to the west of any active face
- Re-establish vegetation on a progressive basis, this could include stockpiling cleared tea tree for covering exposed surface as operations progress.



*Image 19: Sand blow deposition burying tree trunks immediately south of the old working face of the sand pit.*



*Image 20: Vegetation growth strongly impacted by the dominant westerlies.*

## SOIL MANAGEMENT

Well drained soils in the area of the Markarna lime sands mining lease in the vicinity of the main proposed resource are strongly alkaline Calcarosols. Acidic soils are unlikely to be present over extensive areas and may be totally absent. While organic topsoils, buried paleosols and lake/swamp sediments are present, none of these soils contain adequate organic material to significantly reduce the pH within the dune sands. However, it should be noted that this survey was not comprehensive, and it is possible that the some swampy depressions could host thicker organic horizons having a lower pH. These horizons however will not be directly impacted by sand mining of the high-relief dune ridges.

## WETLANDS

The extent of wetlands at both North and South Curves Lagoons are significantly smaller than indicated on the topographic map and the TASVEG mapping. Significant areas of these features are undulating grassy dune fields. No wetlands (swamps) as defined by the Forest Practices Code 2020 (Forest Practices Authority 2020, page 98) were documented in the main resource area.

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**ATTACHMENT 10. ENVIROMNMENTAL IMPACT STATEMENT, V3 31 MAY 2025**

# ENVIRONMENTAL IMPACT STATEMENT

## LIME SAND EXTRACTION PIT

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| **Figure E-3d** | Code Overlay Map – Tasmanian Planning Scheme Flinders<br>- Future Coastal Refugia Area<br>- Coastal Erosion Hazard |
| **Figure E-4a** | Current drainage, catchment boundaries and CFEV areas |
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| **Figure E-5** | Land tenure (including reserved) around Markarna Park Sand Pit |
| **Figure E-6** | Geology (1:250,000 – MRT) around the Development Area |

| | |
|---|---|
| **Figure E-7** | Coastal acid sulphate soils (0-20m AHD) |
| **Figure E-8** | Residences near to the Development Area |
| **Figure E-9** | TASVEG 4.0 observed communities within the Development Area |
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| **Figure E-11** | Threatened fauna species within and surrounding the Development Area |

**ABBREVIATIONS**

| | |
|---|---|
| **DA** | Development Application |
| **DNRET** | Department of Natural Resources and Environment Tasmania |
| **DPIPWE (now DNRET)** | Department of Primary Industries, Parks, Water and Environment |
| **EPBC Act** | *Environment Protection and Biodiversity Conservation Act 1999* |
| **EMPCA** | *Environmental Management and Pollution Control Act 1994* |
| **EMPCS** | Environmental Management and Pollution Control System objectives to be found in Schedule 1 of EMPCA |
| **ENV** | Effective Neutralising Value (used in relation to the ability of a substance to neutralise acidity) |
| **EPA** | Environment Protection Authority |
| **LUPAA** | *Land Use Planning and Approvals Act 1993* |
| **ML** | Mining Lease, being ML 25M/2009 |
| **MRT** | Mineral Resources Tasmania |
| **NC Act** | *Nature Conservation Act 2002* |
| **NSP** | Noise Sensitive Premise |
| **PEV** | Protected Environmental Value |
| **QCP** | means the Tasmanian *Quarry Code of Practice 2017 (3rd edition)* |
| **RMPS** | Resource Management and Planning System objectives to be found in Schedule 1 of EMPCA |
| **WSP** | Weed Spraying Program |

**GLOSSARY**

| | |
|---|---|
| **Activity** | 10,000 cubic metres per annum (equivalent is 15,000 tonnes per annum). Loose bulk density ratio is 1.5.<br><br>Material is likely to be transported in greater volumes in summer and autumn because these seasons coincide with the peak activity periods for agricultural pasture improvement, maintenance, and establishment.<br><br>All material won may be screened. The activity includes but is not limited to vegetation removal, soil stripping, ripping, vibratory screening (to blend the product and remove any vegetative matter and stones), stockpiling material, and transportation of material. |
| **Air EPP** | means the Environment Protection Policy (Air Quality) 2004 |
| **Best practice environmental management** | Per EMPCA s(4) -<br><br>(1) For the purposes of this Act, the best practice environmental management of an activity is the management of the activity to achieve an ongoing minimization of the activity's environmental harm through cost-effective measures assessed against the current international and national standards applicable to the activity.<br><br>(2) In determining the best practice environmental management of an activity, regard must be had to the following measures:<br><br>(a) strategic planning by the person carrying out, or proposing to carry out, the activity;<br><br>(b) administrative systems implemented by the person, including staff training;<br><br>(c) public consultation carried out by the person;<br><br>(d) product and process design;<br><br>(e) waste prevention, treatment and disposal.<br><br>(3) Subsection (2) does not limit the measures to which regard may be had in determining the best practice environmental management of an activity. |
| **Controlled Waste** | Per EMPCA s(3) -<br><br>(a) a substance that is controlled waste within the meaning of –<br><br>(i) the National Environment Protection Measure entitled the Movement of Controlled Waste Between States and Territories made by the National Environment Protection Council on 26 June 1998, as amended from time to time; or<br><br>(ii) any National Environment Protection Measure substituted for the Measure referred to in paragraph (a), as amended from time to time; and<br><br>(b) a substance that is prescribed by the regulations to be controlled waste; |
| **diffuse source pollution** | means pollution which enters the receiving waters via a number of entry points or arises from a large number of dispersed sources. |
| **Development Area** | means the spatial area within which the Activity is to occur (excluding sediment basins, drains and the septic system absorption pad). |

| | |
|---|---|
| **Disturbed Area** | means the area disturbed (without rehabilitation) by the operation of the Pit in the Land and includes access roads and tracks. |
| **Extraction Area** | means the spatial area within which lime sands will be extracted, and is fully enclosed within the Development Area. |
| **Groundwater** | means any water contained in or occurring in a geological formation. |
| **Mining Lease** | means Mining Lease 2117P/M or another Mining Lease number(s) for the same spatial extent which may be generated by Mineral Resources Tasmania through the consolidation, or partial surrender, of Mining Lease(s). |
| **Noise EPP** | means the Tasmanian Environment Protection Policy (Noise) 2009 |
| **noise sensitive premise** | means residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation (EPA supplied definition in the PSG's). |
| **Pad Area** | means the gravel hardstand area where the shed is located and the Raw/Processed sand stockpiled |
| **Planning Authority** | Flinders Council |
| **pollutant** | Has the meaning ascribed to it in Section 3 of EMPCA. |
| **Point source pollution** | means pollution, which is emitted at a discrete, identifiable location, usually via a discharge pipe or outfall, and which can be readily measured. |
| **Proponent** | means Markarna Grazing Company Pty Ltd |
| **Protected Environmental Value** | means the value or use for which it has been determined that a given area of the environment should be protected. There can, and often will be, more than one protected environmental value for a given area. A list of potential protected environmental values is given in clause 7.1 of the STATE POLICY ON WATER QUALITY MANAGEMENT 1997. |
| **Rehabilitated** | The result of Rehabilitation; a Disturbed Area deemed to have to a self-sustaining, stable, and non-polluting state, which is suitable for the proposed future land. |

| | |
|---|---|
| **Rehabilitation** | The process that encompasses all those measures, which seek to repair disturbed or degraded land, and to return such land to a self-sustaining, stable, and non-polluting state, which is suitable for the proposed future land. |
| **(the) Scheme** | Tasmanian Planning Scheme and Flinders LPS. |
| **State Policy or State Policies** | means a State Policy made under the *State Policies and Projects Act 1993*. |
| **stormwater** | In the context of stormwater management, means water traversing the surface of the as a result of rainfall but does not include wastewater |
| **treated water** | In the context of stormwater management, wastewater that has been captured and treated (by gravity removal) for sediment removal |
| **Watercourse** | means a natural depression carrying perennial or intermittent flows of surface water for part or all of the year in most years. Consisting of a defined channel, with banks and a bed along which water may flow (QCP definition). |
| **wastewater** | In the context of stormwater management, means water used or contaminated during carrying out the activity, including polluted stormwater |

## INTRODUCTION

This Environmental Impact Statement (EIS) contains supporting information for a Development Application (DA) that seeks a permit under the *Land Use Planning and Approvals Act 1993* for an Extraction Pit (lime sand) at Marshall Bay, Flinders Island.

The lime sand deposits at Marshall Bay are well known and proven in their ENV on agricultural lands.

Mining Lease 2117P/M is in force.

The DA is made, and permit under LUPAA sought, on the basis that the planning scheme amendment for the zone change to Rural from Landscape Conservation is approved by the Tasmanian Planning Commission.

### LEVEL 2 ACTIVITY STATUS

The Pit includes two activities listed Schedule 2 of the *Environmental Management and Pollution Control Act 1994* ('EMPCA') –

- '5. Extractive Industries.

  (b) Extractive pits: the extraction of 5,000 cubic metres or more of sand or clay per year if the extraction is the subject of, or requires, a mining lease under the *Mineral Resources Development Act 1995* [i.e. Maximum 10,000 cubic metres per annum]; and

- '6. Materials Handling. (a) Crushing, Grinding or Milling: processing (by crushing, grinding, milling, or separating into different sizes by sieving, air elutriation or in any other manner) of … (ii) rock, ores or minerals at a rate in excess of 1 000 cubic metres per year'

Level 2 Activities must be referred by the Planning Authority (in this case, Flinders Council) to the Environment Protection Authority (the 'EPA'), for assessment under the EMPCA. The Environmental Impact Statement (EIS) has been prepared to support a Development Application to the Flinders Council (as the Planning Authority) for the establishment and operation of the use.

The EIS and associated assessments have considered impacts from the Activity within the Mining Lease and specifically the extraction of material from within the Development Area.

### FUNCTION OF THE ENVIRONMENTAL IMPACT STATEMENT

The key function of the EIS is to provide sufficient information on the environmental impacts for the Board to make informed decisions about the proposal. The Board considers the EIS, as well as other relevant information, against the objectives of the RMPS and EMPCS objectives. These objectives focus on the concept of sustainable development, which requires consideration of the economic and social needs of people now and in the future, while sustaining the environment and avoiding or mitigating adverse effects.

The Board will consider the objectives and endeavour to make the decision which best furthers them, when considered together. That decision may be to approve the proposal with conditions, or in some cases, the Board may decide the objectives cannot be upheld and the proposal is rejected.

Pursuant to s25(2), given the Activity includes Level 2 Activities prescribed by Schedule 2 of EMPCA, the following is noted for the assessment of environmental matters, such as noise, dust, biodiversity etc.:

'(f) the planning authority, notwithstanding any enactment to the contrary, is not required to assess any matter addressed in the Board's assessment under paragraph (a); and

(g) if, despite paragraph (f), the planning authority does its own assessment of a matter addressed in the assessment under paragraph (a), it is not entitled to recover the cost of its assessment from the applicant, the Crown or any other person.'

**GUIDANCE FROM THE EPA BOARD ON THE CONTENT OF THE EIS**

EMPCA requires the Board of the Environment Protection Authority to provide guidance to an applicant about what should be included in an EIS. The Board has authorised EPA Tasmania (EPA) to establish the information base to inform decision making on its behalf.

The EPA requires the EIS to be prepared using a risk-based approach. Not all issues nominated in the guidelines will have the same degree of relevance to an activity. Depending on the nature of the proposed activity and its location, some of the issues may be more relevant than others, and some may not be applicable at all. The level of detail provided on each issue should be appropriate to the level of significance of that environmental issue to the proposal.

**SPECIALIST STUDIES**

The EIS is supported by specialist studies which are listed below and each document provided as an Attachments to the EIS: -

| Report name and author | EIS Attachment Number |
|---|---|
| **Flora/Fauna** | |
| Lime Sand Extraction Pit, Palana Road, Memana, Flinders Island. Natural Values Report. Markarna Grazing Company Pty Ltd. *Van Diemen Consulting Pty Ltd, 20 October 2024.* | **4** |
| Marshall Bay Lime Sand Pit, Memana. Weed and Disease Management Plan. *Van Diemen Consulting Pty Ltd, November 2024.* | **8** |
| **Wastewater disposal** | |
| Site & soil evaluation and design report. New onsite wastewater management system at "Markarna Park," 368 Five Mile Jim Road, Memana TAS 7255. (Sand mine – Southern site). *Richard Mason, Onsite Assessments Tas, 20 Adelong Drive, Kingston. August 2022.* | **5** |
| **Stormwater and sediment control measures** | |
| Marshall Sand Pit, Memana. Stormwater Management and Sediment Control Measures Assessment Report. *Van Diemen Consulting Pty Ltd, November 2024.* | **7** |

| **Geoconservation, Karst and Geomorphology** | |
|---|---|
| Survey of the geomorphology and soil characteristics of the Markarna Grazing Company Pty Ltd property, Marshall Bay, Flinders Island. *Dr Adrian Slee, Earth Sciences and Cultural Heritage, Forest Practices Authority, 30 Patrick Street, Hobart 7000. January 2024.* | **9** |

**STRUCTURE OF THE EIS**

The EIS contains the following components –

| Part | Description |
|---|---|
| **Part A** | *Proponent information* to the proposed development/activity including details for example of the proponent and activity location, rationale of the proposed activity, relevant environmental legislation standards and guidelines (including State Policies), and consultation conducted so far by the Proponent. |
| **Part B** | *Proposal Description* including details of the volume extracted, extraction process, bunding, machinery, and equipment to be used and timeframe for the activity.<br><br>*Existing environment* information including climatic (temperature, rainfall, wind), catchment, geological and biodiversity information. |
| **Part C** | *Potential environmental impacts and their management* including an assessment of each relevant impact, its likelihood of occurrence, mitigation measures and net impact. |
| **Part D** | *A summary of the proposed management measures* for the activity to avoid or mitigate potential environmental impacts from the activity. |
| **Part E** | *Conclusion* about the proposed activity. |
| **Part F** | *References* cited in the EIS. |
| **Part G** | *Attachments* referenced in the EIS. |

## PART A – INTRODUCTION

### A-1 PROPONENT DETAILS

The proponent is Markarna Grazing Company Pty Ltd which owns the land the subject of the DA. Details of this entity are provided in **Table 1.**

**Table 1. Details of the Proponent**

| Item | Description |
|---|---|
| **Name of proponent** | Markarna Grazing Company Pty Ltd |
| **Registered address of proponent** | Level 3, 302-320 Burwood Road, HAWTHORN VIC 3122 |
| **Postal address of proponent** | 33-41 Agnes Street, East Melbourne VIC 3002 |
| **ACN** | 063 634 444 |
| **ABN** | NA |
| **Contact person's details** | Mr George Adams (Director)<br>Phone: (03) 9333 2400<br>Fax: (03) 9333 1258<br>cynthia.adams@adamsgroup.com.au |

### A-2 CONSULTANT DETAILS

The contact details for the consultant engaged to prepare the assessment are provided in **Table 2.**

**Table 2. Details of the Consultant**

| Item | Description |
|---|---|
| **Van Diemen Consulting Pty Ltd** | Contact – Dr Richard Barnes<br>Postal Address – PO Box 1 New Town 7008<br>Mobile – 0438 588 695<br>Email – rwbarnes73@gmail.com |

**A-3 PIT INFORMATION**

The details for the Pit location, zoning and land tenure are provided in **Table 3.**

**Table 3. Physical details and planning related matters of the Marshall Bay Sand Pit**

| Item | Description | Figure |
|---|---|---|
| **Physical address** | The address for the Activity is –<br>'MARKANA PARK' - 368 FIVE MILE JIM RD MEMANA TAS 7255<br>Access is from Palana Road (sealed road section). | A-4 |
| **Mining Lease** | 2117P/M (in force) - 364.1 hectares | A-1, A-2 |
| **The Land** | Mining Lease 2117P/M which is further refined by the Development Area | A-1, A-2 |
| **Product** | Lime sand (with some blending with soil ameliorants brought to the island) | NA |
| **Services (power and water)** | There is no reticulated water or sewer connections, and none are proposed. There is access to powerlines and poles along its eastern edge. | NA |
| **Land Titles/PID** | The following Certificates of Title apply –<br>• CT 120064/1, CT 215120/1, CT 230282/1 – private freehold (PID 3513143)<br>• Reserved Road (Part of CID 1182402) – The Crown (vehicular access only) | A-2 |
| **Land tenure** | The Land is private freehold other than the Reserved Road at the eastern extent of the Land. The Reserved Road is under licence by the proponent, and is also spatially covered by ML 2117P/M. | E-5 |
| **Current zoning** | Tasmanian Planning Scheme – Flinders<br>- Landscape Conservation zone | E-1a |
| **Proposed zoning** | Tasmanian Planning Scheme – Flinders<br>- Rural zone<br>- Landscape Conservation zone (reserved road section only retained in this zone; only for vehicular access) | E-1b |

| Item | Description | Figure |
|---|---|---|
| **Planning overlays** | Tasmanian Planning Scheme – Flinders<br>- Waterway and Coastal Protection Area<br>- Landslip Hazard<br>- Priority Vegetation Area<br>- Scenic Protection Code<br>- Coastal Inundation | E-2, E-3a to E-3d |
| **Use Class and Permissibility** | The activity is consistent with the Extractive Industry Use Class.<br>An Extractive Industry is listed as Permitted in Clause 20.2 Use Table for the Rural zone (if the planning scheme amendment for the zone change to Rural from Landscape Conservation is approved by the Tasmanian Planning Commission). | NA |

**A-4 TIMEFRAME AND LONGEVITY OF DEVELOPMENT**

It is anticipated that the activity will commence in the third quarter of the 2024-25 financial year (i.e., January to March 2025).

This timeline enables sufficient time for the necessary infrastructure to be installed and extraction to commence in readiness for the autumn 2025 lime sand spreading period. At full production every year, the Pit is expected to have a lifespan of at least 30 years.

**A-5 PROJECT RATIONALE AND ALTERNATIVES**

*A-5-1 PROJECT RATIONALE*

Soil acidification is a naturally occurring process which is influenced by soil type, organic matter, fertiliser usage, rainfall and farming practices. Most of Tasmania's soils are naturally acidic, which compounds the problem of acidification. Over time soil pH decreases, with the rate of pH decline being quicker in light textured soils that have low organic matter.

The processes which reduce pH levels in agricultural soils are primarily –

1. Organic matter accumulation which causes organic acids;
2. Removal of plant and animal material containing large amounts of cations (calcium, magnesium and potassium);
3. Leaching of cations due to high rainfall;
4. Leaching of nitrate and nitrogen from the root zone; and
5. The application of soil-acidifying fertilisers.

The acidification of agricultural land is potentially a serious land degradation issue and without addressing the issue, agricultural productivity and sustainability will be negatively affected. The key issue which are caused by soil acidification are:

- A decrease in the availability of nutrients to plants;
- Increasing the toxicity of aluminium and manganese;
- Decreasing soil biological functions;
- Reduce the ability for legumes to fix nitrogen; and
- Make the soil more vulnerable to soil structure decline and erosion.

Lime sands (material rich in calcium carbonate – $CaCO_3$) reduce acidity by neutralising the acid reaction in soils. The carbonate component of lime consumes hydrogen ions present in the soil solution and in doing so raises soil pH. The higher the Effective Neutralising Value (ENV) the more reactive the lime product is within the soil and the greater its ability for unit volume to neutralise acidity.

'Liming' is the only cost-effective way to manage low soil pH. It prevents loss of production and profitability in farming systems and reverses acidification. Lime is usually applied on the surface several months before sowing pasture or crops to allow time for the lime to react in the soil. Incorporation of the lime into the soil is recommended for the quickest results, as lime does not move readily down through the soil profile.

Commonly used liming materials include for example –

1. *'Agricultural lime'* - Crushed and sieved natural limestone is mainly calcium carbonate. It is safe, cheap and effective.
2. *Lime sand* - Lime sand is mined from natural deposits and is mainly calcium carbonate. It is safe and cheap but can on occasion be coarser such that it is slower reacting than agricultural lime.
3. *Dolomite* - A mixture of calcium and magnesium carbonates. It is particularly valuable where magnesium is low.
4. *By-product lime* - This is a by-product from the production of soda ash. It contains mostly calcium carbonate, but with some calcium oxide and hydroxide.

Agriculture is a critical employment and income generation activity on Flinders Island, so its longevity is of paramount importance to the social and economic well-being of the island.

The Marshall Bay land parcels owned by Markarna Park were specifically purchased to provide ongoing lime sands for the agricultural lands on the property and associated properties, and to also provide some for sale to other agricultural enterprises on the island. The existing but now disused pit (which is the starting location for the new pit) was once used by many islanders to access lime sand due to its ease of access, extraction of high ENV. Sands will also be used to supply concrete production activities because most sand for such a purpose is brought to the island.

Off-island supplies of lime are costly due to high freight charges which in the medium to long-term undermines the economic viability of agriculture on the island. That is, if lime is expensive then it is likely that inadequate levels would be used by agricultural operators (due to cost) that then has a long-term negative impact to the overall soil health and potential of agricultural lands to produce food.

*A-5-2 PROJECT ALTERNATIVES*

The lime sand deposits at Marshall Bay are well known and proven in their ENV on agricultural lands.

No alternatives were considered as the lime sands are spatially limited on Flinders Island, are of very high quality, extensive in their geographic extent at Marshall Bay and can be extracted in a way and a rate that is sensitive to the Marshall Bay environment.

**A-6 ENVIRONMENTAL LEGISLATION, STANDARDS AND GUIDELINES**

The Proponent will conduct the operation in compliance with relevant legislation, policies, codes of practice, and standards.

*A-6-1 STATUTORY REQUIREMENTS*

Relevant or ancillary legislation includes –

- *Environmental Management and Pollution Control Act 1994* (EMPCA)
- *Land Use Planning and Approvals Act 1993*
- *Mineral Resources Development Act 1995*
- *Threatened Species Protection Act 1995*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Road and Jetties Act 1935*
- *State Policies and Projects Act 1993*
- *Local Government (Highways) Act 1982*
- *Nature Conservation Act 2002*
- *Forest Practices Act 1985* and *Forest Practices Regulations 2017*

Relevant regulations made under EMPCA include –

- *Environmental Management and Pollution Control (General) Regulations 2017*
- *Environmental Management and Pollution Control (Noise) Regulations 2016*

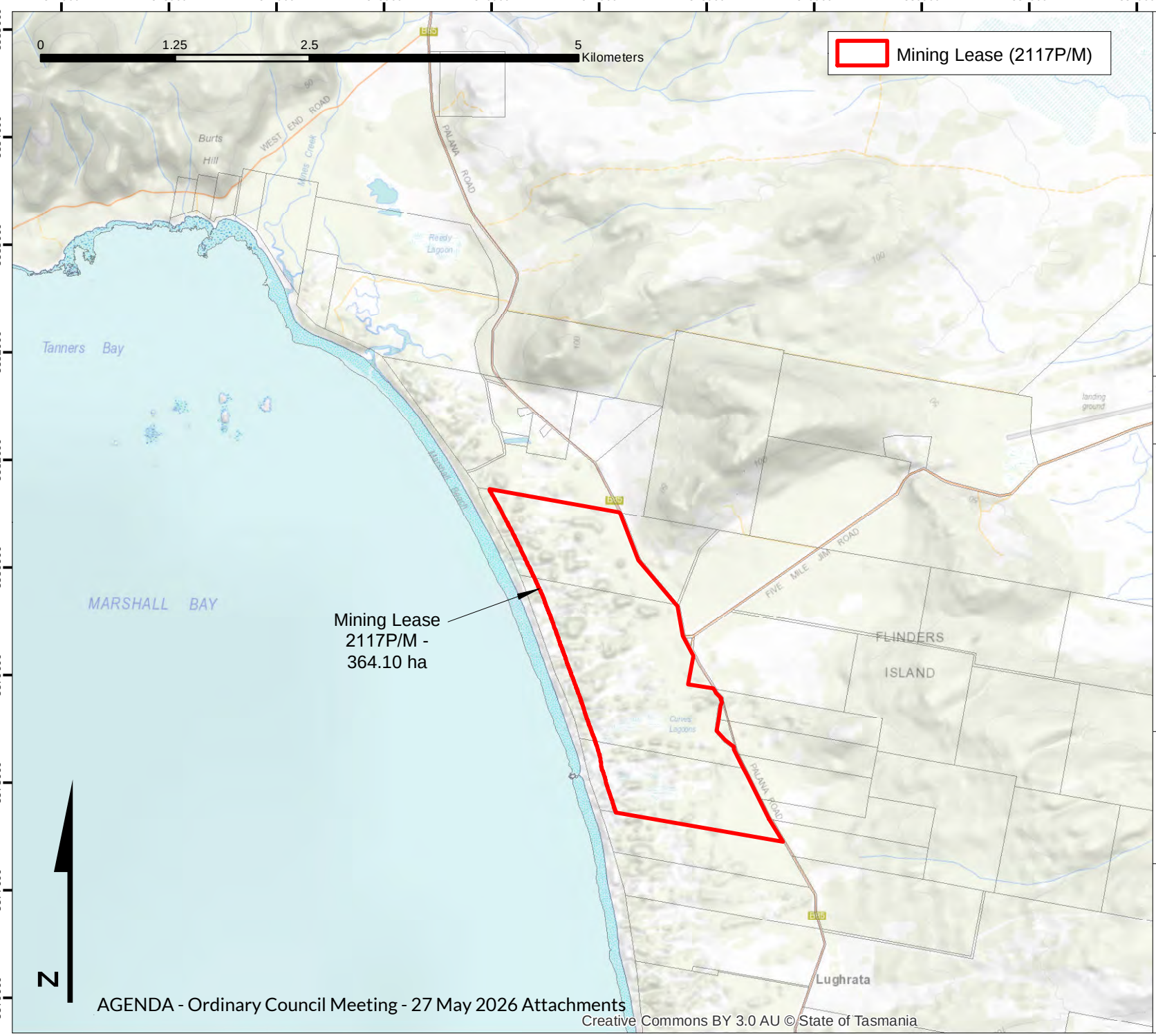
*A-6-2 EXTRACTIVE INDUSTRY RELEVANT GUIDELINES AND BEST PRACTICE PRINCIPLES*

There are several extractive industry relevant guidelines for the management of environmental practices and pollution control. Some of these are guidelines and codes have been developed by industry or the regulatory authorities of extractive industries to provide guidance on the expectations of environmental management and best practice.

**Table 4** provides a summary of the documents considered in the preparation of this EIS.

**Table 4. Extractive Industry relevant best practice guidelines and manuals**

| Document/Name | Focus/Content | Publisher |
|---|---|---|
| **Tasmanian Quarry Code of Practice, 3rd Edition, May 2017** | Provides detailed guidelines for the quarry industry covering planning through to site rehabilitation. | Tasmanian EPA (2017) |
| **Decommissioning & Rehabilitation Plan (DRP)**<br>**A guideline for the Tasmanian mining industry** | A guideline for the preparation of a decommissioning and rehabilitation plan for the Tasmanian mining industry. | Tasmanian EPA (2011) |
| **Bunding and Spill Management Guidelines** | Provides guidance on best practice environmental management to operators of activities likely to store and handle environmentally hazardous substances. | Tasmanian EPA (2015) |
| **Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania.** | These guidelines establish a standard for washdown and a guide to prescribing its application where codes of practice or other environmental management plans are not in place. | DPIPWE (2015) |
| **The Waterways and Wetlands Works Manual**<br>**Primarily Guidelines 1, 2 and 3** | The Waterways and Wetlands Works Manual provides environmental best practice guidelines for undertaking works in these sensitive areas. Guidelines are available on practical strategies to minimise environmental harm when undertaking works on waterways and wetlands in Tasmania. | DPIPWE (2003) |
| **Best Practice Erosion and Sediment Control** | Contains the necessary strategies and techniques to assist erosion and sediment control practitioners to reduce the degradation of land and water from uncontrolled erosion and sedimentation. | International Erosion and Sediment Control (Australasia), IECA (2008) |
| **Forest Practices Code 2020** | Provides a practical set of guidelines and standards for the management of forest practices | Forest Practices Authority, 30 Patrick Street, Hobart |
| **MINE REHABILITATION**<br>**Leading Practice Sustainable Development Program for the Mining Industry** | Provides guidance on best practice environmental management for rehabilitation and mine closure planning, implementation, and monitoring. | Australian Government (2016) |




# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure A-1: Location of Markarna Park Sand Pit Mining Lease

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Base data by TASMAP. © State of Tasmania
Base image by TASMAP. © State of Tasmania

Van Diemen CONSULTING
PO Box 1 New Town TAS 7008



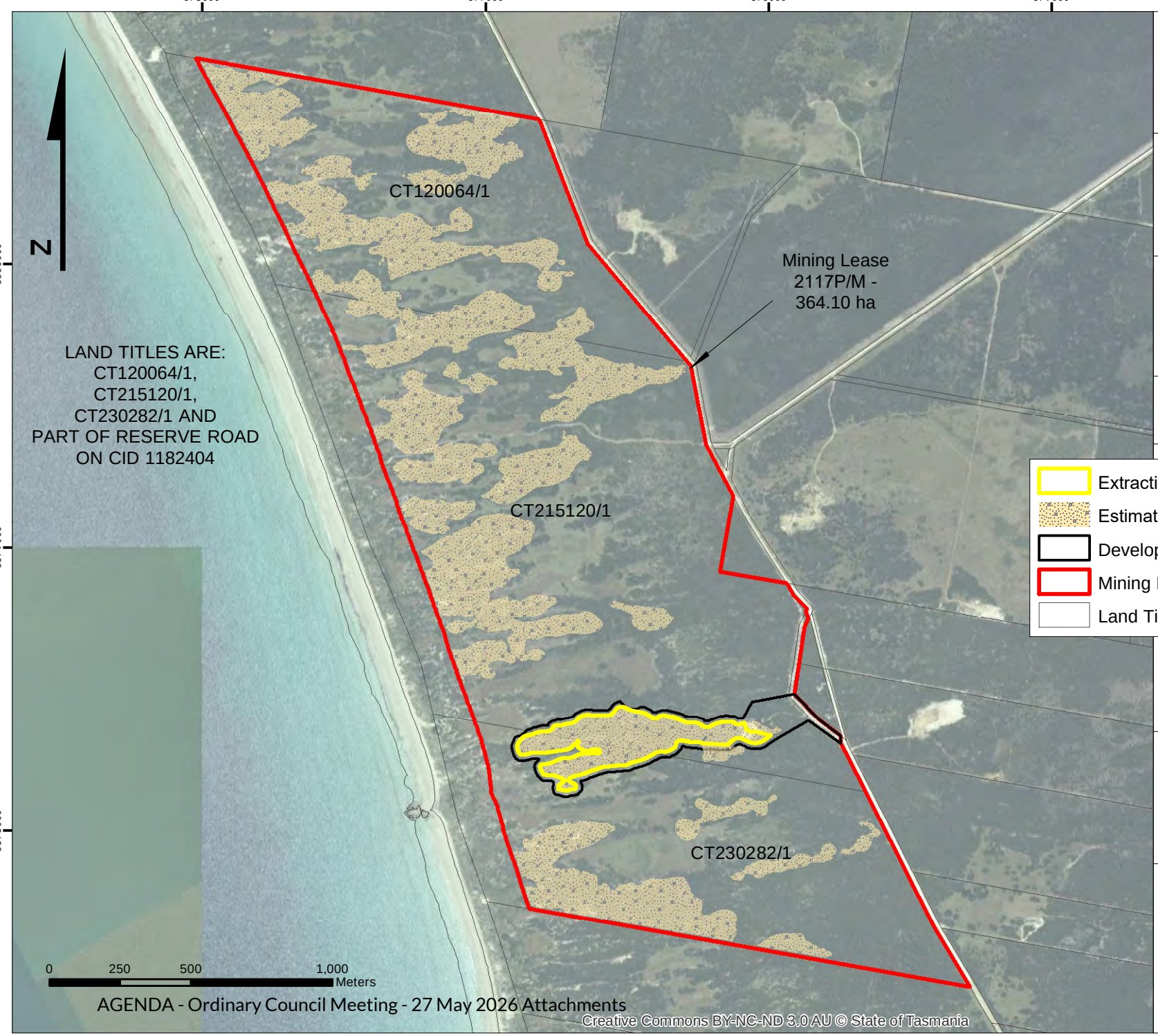
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SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 4 JULY 2024



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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure A-2: Location of Markarna Park Sand Pit Development Area and Land Titles

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

- Extraction Area (Approx 30 year supply)
- Estimated Resource in Mining Lease
- Development Area (The Land)
- Mining Lease (2117P/M)
- Land Titles (The LIST)

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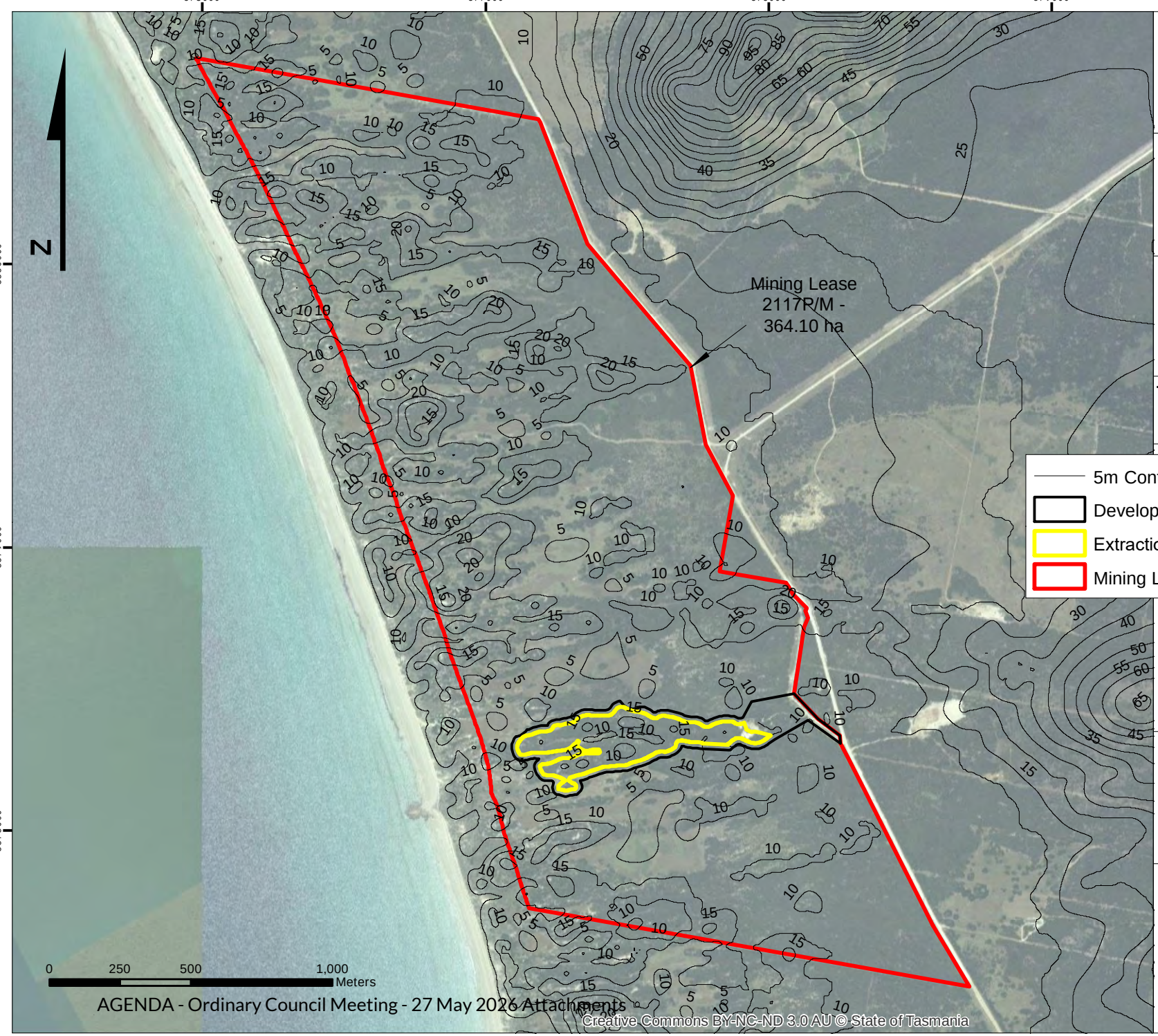
# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure A-3: Topography at the Markarna Park Sand Pit Development Area and surrounds

**TASMAP:** TANNER EMITA

**LGA:** FLINDERS




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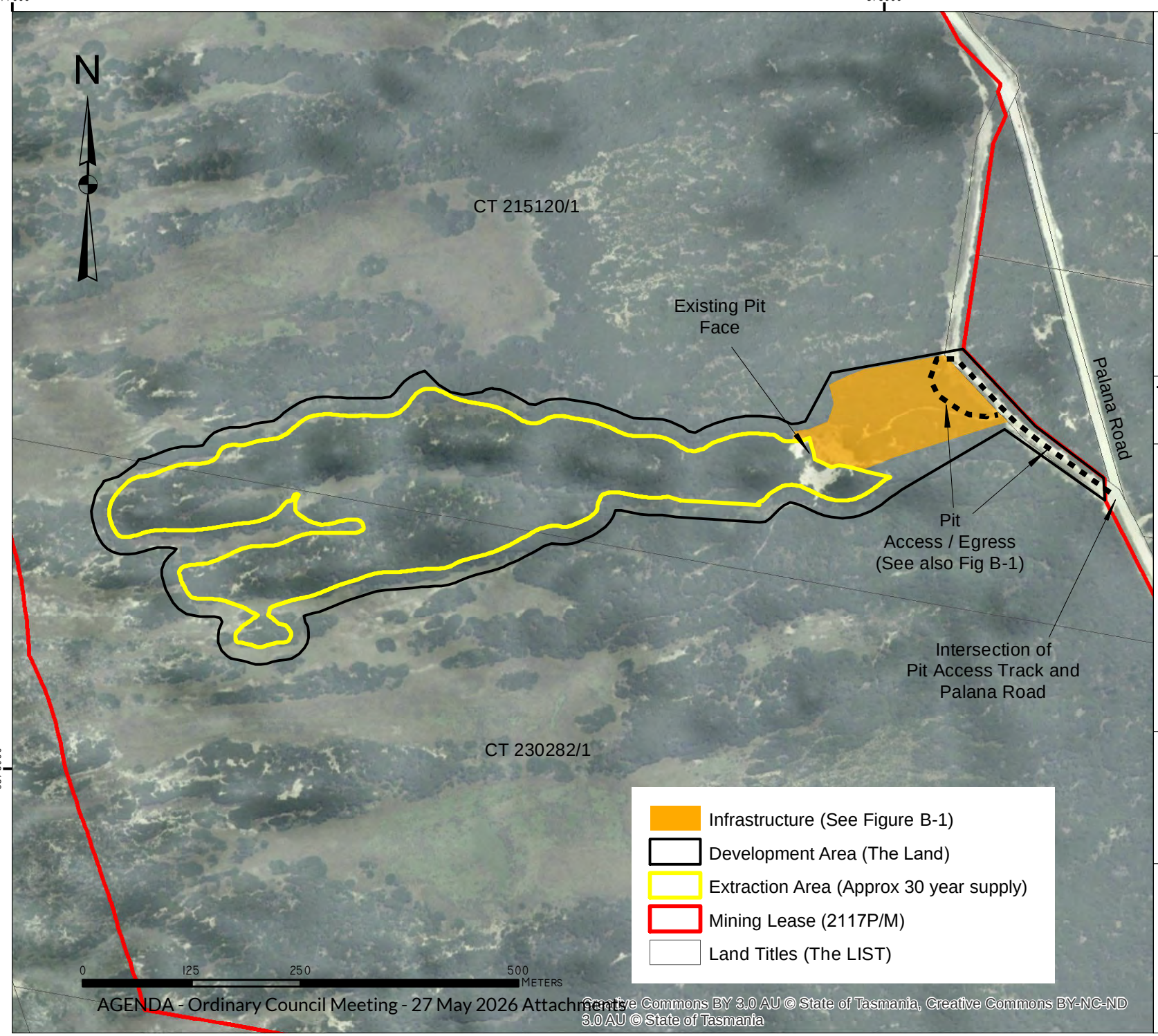
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DATE: 4 JULY 2024



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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure A-4: Markarna Park Sand Pit Development Area and Access/Egress

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

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GRID: MGA ZONE 55
SCALE: @A4 - NA

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MARKARNA GRAZING COMPANY PTY LTD

DATE: 4 JULY 2024



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*A-6-3 STATE POLICIES*

A State Policy is a statutory document which is intermediate between the provisions of an Act and the lesser policies and provisions of planning schemes and other mechanisms identified in the relevant legislation comprising the System.

The *State Policies and Projects Act 1993* determines the functions of a State Policy and what it can contain:

> S.5(1) A State Policy -
>
> (a) must seek to further the objectives set out in Schedule 1; and
>
> (b) may be made only where there is, in the opinion of the Minister, a matter of State significance to be dealt with in the State Policy; and
>
> (c) must seek to ensure that a consistent and coordinated approach is maintained throughout the State with respect to the matters contained in the State Policy; and
>
> (d) must incorporate the minimum amount of regulation necessary to obtain its objectives.

The central objective of any State Policy is sustainable development. This means that it must address the use, development, and protection of natural and physical resources together with the objectives relating to public involvement and the sharing of responsibility in resource management and planning as well as those relating to economic development.

The following State Policies are made under the *State Policies and Projects Act 1993*:

- State Policy on the Protection of Agricultural Land 2009,
- State Policy on Water Quality Management 1997,
- Tasmanian State Coastal Policy 1996, and
- National Environmental Protection Measures (NEPMS).

<u>State Policy on Protection of Agricultural Land 2009</u>

The policy aims to conserve and protect agricultural land so that it remains available for the sustainable development of agriculture, recognising the importance of Prime Agricultural Land[1]. Specific objectives are to enable the sustainable development of agriculture by minimising: (a) conflict with or interference from other land uses; and (b) non-agricultural use or development on agricultural land that precludes the return of that land to agricultural use.

The Land is classified as Agricultural land[2] under the State Policy for the Protection of Agricultural Land. This matter is dealt with by the Scheme because it is not an environmentally relevant consideration for the EIS.

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[1] "Prime agricultural land" means agricultural land classified as Class 1, 2 or 3 land based on the class definitions and methodology from the Land Capability Handbook, Second Edition, C J Grose, 1999, Department of Primary Industries, Water and Environment, Tasmania.

[2] "Agricultural land" means all land that is in agricultural use or has the potential for agricultural use, that has not been zoned or developed for another use or would not be unduly restricted for agricultural use by its size, shape and proximity to adjoining non-agricultural uses.

State Coastal Policy 1996

The purpose of these Policy principles is to guide the outcomes of the Tasmanian State Coastal Policy. The State Coastal Policy applies to the Pit because the Land is within the Coastal Zone to which the policy applies.

**Table 5. Comments about the State Coastal Policy Outcomes and Objectives and the Activity**

| **Document/Name** | |
|---|---|
| **1. PROTECTION OF NATURAL AND CULTURAL VALUES OF THE COASTAL ZONE** | |
| **1.1. NATURAL RESOURCES AND ECOSYSTEMS** | |
| 1.1.1. The coastal zone will be managed to ensure sustainability of major ecosystems and natural processes. | The Activity is in the coastal zone and proposes to extract lime sand for use in agricultural activities on Flinders Island.<br><br>The Activity is to be conducted in a very small area of the coastal zone which does not support threatened native vegetation or under-reserved vegetation communities. The major ecosystem present – inland coastal dunes with scrub vegetation – is extensive in the Mining Lease and the natural processes that occur in the broader Marshall Bay region will be largely unaffected by the small-scale of the Activity.<br><br>The Activity is consistent with this clause. |
| 1.1.2. The coastal zone will be managed to protect ecological, geomorphological and geological coastal features and aquatic environments of conservation value. | A suitably qualified **geomorphologist** has assessed the Activity for hazards associated with acid sulphate soils, geological features, geoconservation values, karst, caves, and wind erosion/blowout potential (**Attachment 9**). No immediate or unmanageable hazards or risks were identified; mitigation and management measures are to be applied.<br><br>Suitably qualified **ecologists** have assessed the Development Area for ecological values (**Attachment 4**); threatened vegetation and threatened fauna will not be impacted. Four threatened flora species will be affected – none of the flora species are listed on the EPBC Act, with most listed as rare on the TSP Act (only a small proportion of the estimated population of each is to be affected). The species to be affected are early colonisers of disturbed ground, so are likely to recolonise Pit rehabilitated areas.<br><br>The Activity is consistent with this clause. |
| 1.1.3. The coastal zone will be managed to conserve the diversity of all native flora and fauna and their habitats, including seagrass and seaweed beds, spawning and breeding areas. Appropriate conservation measures will be adopted for the protection of migratory species and the protection and recovery of rare, vulnerable and endangered | A Natural Values Assessment was completed (**Attachment 4**) which found that there would be nil to negligible impact to any rare, vulnerable and endangered species. Threatened native vegetation communities are absent from the Development Area.<br><br>The marine environment will remain unaffected by the Activity.<br><br>The Activity is consistent with this clause. |

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| species in accordance with this Policy and other relevant Acts and policies. | |
| 1.1.4. Exotic weeds within the coastal zone will be managed and controlled, where possible, and the use of native flora encouraged. | A DRAFT Weed and Disease Management Plan has been developed for the Activity with a focus on the control and eradication of weeds declared under the *Biosecurity Act 2019.*<br>Rehabilitation will be with native indigenous species to reinstate, as far as practicable, comparable native vegetation community's post-closure.<br>The Activity is consistent with this clause. |
| 1.1.5. Water quality in the coastal zone will be improved, protected and enhanced to maintain coastal and marine ecosystems, and to support other values and uses, such as contact recreation, fishing and aquaculture in designated areas. | A stormwater management assessment was completed for the Activity, which provided recommendations for drainage and sediment control measure (**Attachment 7**).<br>The assessment evaluated current drainage patterns, sediment generation potential of the Activity, and describes stormwater and sediment control measures tailored to the site's geological and operational conditions. Strategies were recommended to manage stormwater runoff, mitigate erosion, control sediment dispersion, and ensure compliance with local environmental regulations to minimise the impact of sand extraction operations on surrounding environment.<br>All identified water quality impacts can be mitigated.<br>The Activity is consistent with this clause. |
| 1.1.9. Important coastal wetlands will be identified, protected, repaired and managed so that their full potential for nature conservation and public benefit is realised. Some wetlands will be managed for multiple use, such as recreation and aquaculture, provided conservation values are not compromised. | Coastal wetlands are not being affected by the Activity.<br>The Activity is consistent with this clause. |
| 1.1.10. The design and siting of buildings, engineering works and other infrastructure, including access routes in the coastal zone, will be subject to planning controls to ensure compatibility with natural landscapes. | The design and siting of buildings, engineering works (shed location), and other infrastructure (sediment basins, drainage network), including the access route are subject to planning controls and will be assessed under those controls. |
| **1.2. CULTURAL AND HISTORIC RESOURCES** | |
| 1.2.1. Areas within which Aboriginal sites and relics are identified will be legally protected and conserved where appropriate. | Not an environmental matter assessed under EMPCA. |
| 1.2.2. All Aboriginal sites and relics in the coastal zone are protected and will be identified and managed in consultation with Tasmanian Aboriginal people in accordance | Not an environmental matter assessed under EMPCA. |

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| with relevant State and Commonwealth legislation. | |
| **1.3. CULTURAL HERITAGE** | |
| 1.3.1. Places and items of cultural heritage will be identified, legally protected, managed and conserved where appropriate. | Not an environmental matter assessed under EMPCA.<br>The Activity has conducted an AHT endorsed heritage survey of the Development Area. |
| **1.4. COASTAL HAZARDS** | |
| 1.4.2. Development on actively mobile landforms such as frontal dunes will not be permitted except for works consistent with Outcome 1.4.1. | No frontal dunes are proposed to be extracted as part of the Activity.<br>A suitably qualified geomorphologist assessed the Activity for hazards associated with acid sulphate soils, geoconservation values, karst, caves, and wind erosion/blowout potential (**Attachment 9**). No immediate or unmanageable hazards or risks were identified; therefore, no mitigation and management measures are to be applied. |
| 1.4.1. Areas subject to significant risk from natural coastal processes and hazards such as flooding, storms, erosion, landslip, littoral drift, dune mobility and sea- level rise will be identified and managed to minimise the need for engineering or remediation works to protect land, property and human life. | An Engineers Australia accredited civil/mining engineer has assessed and designed the stormwater and sediment erosion control system for the Pit using IECA (2008) guidelines and the Blue Book (**Attachment 7**).<br>A suitably qualified geomorphologist has assessed the Activity for hazards associated with acid sulphate soils, geoconservation values, karst, caves, and wind erosion/blowout potential (**Attachment 9**). No immediate or unmanageable hazards or risks were identified; mitigation and management measures are to be applied.<br>Landslip risk has been assessed by Mineral Resources Tasmania as part of the granting process for a Mining Lease under the *Mineral Resources Development Act 1995.*<br>Sea-level rise risk has been assessed under the Tasmanian Planning Scheme (Coastal Inundation Hazard Code) with the heights of the land being more than the minimum values prescribed in the Code to trigger a Coastal Inundation Hazard Report.<br>The Activity is consistent with this clause. |
| **2. SUSTAINABLE DEVELOPMENT OF COASTAL AREAS AND RESOURCES** | |
| **2.1. COASTAL USES AND DEVELOPMENT** | |
| 2.1.1. The coastal zone shall be used and developed in a sustainable manner subject to the objectives, principles and outcomes of this Policy. It is acknowledged that there are conservation reserves and other areas within the coastal zone which will not be available for development. | The Activity has been designed, and will be operated, in such a way that the coastal zone is being managed in a sustainable manner, consistent with the RMPS principles. The Marshall Beach Conservation Area will be unaffected by the Activity.<br>The Activity is consistent with this clause. |

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| 2.1.2. Development proposals will be subject to environmental impact assessment as and where required by State legislation including the *Environmental Management and Pollution Control Act 1994.* | The Activity includes two activities on Schedule 2 of the *Environmental Management and Pollution Control Act 1994* ('EMPCA') –<br>• '5. Extractive Industries.<br>(b) Extractive pits: the extraction of 5,000 cubic metres or more of sand or clay per year if the extraction is the subject of, or requires, a mining lease under the *Mineral Resources Development Act 1995* [i.e. Maximum 10,000 cubic metres per annum]; and<br>• '6. Materials Handling. (a) Crushing, Grinding or Milling: processing (by crushing, grinding, milling, or separating into different sizes by sieving, air elutriation or in any other manner) of … (ii) rock, ores or minerals at a rate in excess of 1 000 cubic metres per year'<br>Level 2 Activities are assessed by the EPA under the EMPCA.<br>The Activity is consistent with this clause. |
| 2.1.3. Siting, design, construction and maintenance of buildings, engineering works and other infrastructure, including access routes within the coastal zone will be sensitive to the natural and aesthetic qualities of the coastal environment. | An Engineers Australia accredited civil/mining engineer has assessed and designed the stormwater and sediment erosion control system for the Pit using IECA (2008) guidelines and the Blue Book (**Attachment 7**).<br>The Natural Values Assessment (**Attachment 4**) found that there would be nil to negligible impact to any rare, vulnerable and endangered species. Threatened native vegetation communities are absent from the Development Area.<br>The Activity is consistent with this clause. |
| 2.1.4. Competing demands for use and development in the coastal zone will be resolved by relevant statutory bodies and processes, in particular the Land Use Planning Review Panel, the Resource Management and Planning Appeal Tribunal and the Marine Farming Planning Review Panel. Planning schemes, marine farming development plans and other statutory plans will provide guidance for resource allocation and development in accordance with this Policy. | A Mining Lease granted under the MRD Act is in force, so the sand resource in the Development Area and broader ML area has been confirmed as meeting s78A(1)(a)[3], specifically that '…there is a sufficient quantity of minerals to justify mining'.<br>The statutory planning process underway through the LUPA Act and EMPC Act provides the pathway for the assessment of the development in accordance with the policy.<br>The Activity is consistent with this clause. |
| 2.1.5. The precautionary principle will be applied to development which may pose serious or irreversible environmental damage to ensure that environmental degradation can be avoided, remedied or mitigated. Development proposals shall | The natural values assessment, geomorphological study, stormwater assessment and management plan, and the wastewater disposal system (septic) have confirmed that the Activity is not likely to cause serious or irreversible environmental damage.<br>Measures are proposed in the EIS for the Activity to avoid or mitigate. |

[3] 78A. When Minister may grant application
(1) The Minister may only grant an application for a lease if the Minister is satisfied that the applicant –
(a) has demonstrated that there is a sufficient quantity of minerals to justify mining; and

| | |
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| include strategies to avoid or mitigate potential adverse environmental effects. | The Activity is consistent with this clause. |
| 2.1.6. In determining decisions on use and development in the coastal zone, priority will be given to those which are dependent on a coastal location for spatial, social, economic, cultural or environmental reasons. | The lime sand resource is spatially located in the coastal zone, so the Activity is dependent on this coastal location and will have significant social and economic benefits with minimal impact (mitigation measures are to be applied to further reduce the risk of environmental impact) to the environment.<br>The Activity is consistent with this clause. |
| 2.1.8. Extraction of construction materials, mineral, oil, and natural gas deposits in the coastal zone will be allowed provided access to areas is allowed under the provisions of the *Mining Act 1929*. | A Mining Lease is in force which allows access to the area under the provisions of the *Mineral Resources Development Act 1995* (*Mining Act 1929* has been repealed). |
| 2.1.10. Extraction will be subject to the Quarry Code of Practice and environmental assessment as required by State legislation including the *Environmental Management and Pollution Control Act 1994*. Adequate rehabilitation shall be carried out. | The sand extraction includes two Level 2 Activities which are to be assessed by the EPA under the EMPCA. The Pit will be subject to the Quarry Code of Practice by permit conditions. Rehabilitation requirements will be required through permit conditions and are also required by the terms of the Mining Lease (a security deposit is held by MRT for rehabilitation).<br>The Activity is consistent with this clause. |
| 2.1.11. Extraction of sand will be provided for by zoning of appropriate areas in planning schemes | A PSA is sought with the development application to change the zoning of the Mining Lease (Landscape Conservation to Rural – Tasmanian Planning Scheme Flinders LPS) to one where extraction becomes a permissible use. |
| 2.1.16. Water quality in the coastal zone and in ground water aquifers will accord with the requirements and guidelines established by the *Environmental Management and Pollution Control Act 1994* or the *Environment Protection (Sea Dumping) Act 1987* (as appropriate) and any other relevant State and Commonwealth Policies and statutes. | The quality of water discharged or generated by the Activity was a key aspect for the assessment of stormwater (**Attachment 7**) and the wastewater (septic) disposal system (**Attachment 5**).<br>The Activity is consistent with this clause. |

State Policy on Water Quality Management 1997

The policy is designed to achieve the sustainable management of Tasmania's surface water and groundwater resources by protecting or enhancing their qualities while allowing for sustainable development in accordance with the objectives of Tasmania's Resource Management and Planning System (Schedule 1 of the *State Policies and Projects Act 1993*).

The objectives of the State Policy on Water Quality Management 1997 are to:

> (a) focus water quality management on the achievement of water quality objectives which will maintain or enhance water quality and further the objectives of Tasmania's Resource Management and Planning System;
>
> (b) ensure that diffuse source and point source pollution does not prejudice the achievement of water quality objectives and that pollutants discharged to waterways are reduced as far as is reasonable and practical by the use of best practice environmental management;
>
> (c) ensure that efficient and effective water quality monitoring programs are carried out and that the responsibility for monitoring is shared by those who use and benefit from the resource, including polluters, who should bear an appropriate share of the costs arising from their activities, water resource managers and the community;
>
> (d) facilitate and promote integrated catchment management through the achievement of objectives (a) to (c) above; and
>
> (e) apply the precautionary principle to Part 4 of this Policy.

Clause 12 of the State Policy on Water Quality Management 1997 requires that in giving effect to the policy, governments and other decision-makers must examine the most appropriate mix of regulatory measures, economic instruments, and communications strategies to achieve the objectives of the policy.

The Pit is a *diffuse source pollution*[4] because there are several points of stormwater and treated water discharging to the environment in a dispersive manner. The policy requires that emissions from diffuse sources of pollution should be reduced and managed through the development and implementation of best practice environmental management, and so as not to prejudice the achievement of water quality objectives.

Therefore, the most directly relevant provisions of the policy to the Pit can be found in Division 3 of the policy. **Table 6** provides the Pit relevant policy considerations taken from Division 3 and the associated management source document or guideline.

**Table 6. Pit relevant water quality policy considerations and associated management source**

| **Division 3 item number and description** | **Primary management Document/Guidelines** |
|---|---|
| 31. Control of erosion and stormwater runoff from land disturbance | |
| 31.1 Planning schemes should require that development proposals with the potential to give rise to off-site polluted stormwater runoff which could cause environmental nuisance or material, or serious environmental harm should include, or be required to develop as a condition of approval, stormwater management strategies including appropriate safeguards to reduce the transport of pollutants off-site. | • Planning Scheme<br>• Quarry Code of Practice |

[4] means pollution which enters the receiving waters via a number of entry points, or arises from a large number of dispersed sources.

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| 31.2 Stormwater management strategies required pursuant to clause 31.1 should address both the construction phase and operational phase of the development and use of land and have the maintenance of water quality objectives (where these have been defined) as a performance objective. | • Quarry Code of Practice<br>• Bunding and Spill Management Guidelines<br>• Specialist advice |
| 31.3 To assist with the preparation of stormwater management strategies, the Board should facilitate the development or adoption of a code of practice or guidelines describing best practice environmental management for the control of erosion and stormwater runoff from construction activities, including roadworks. | • Quarry Code of Practice |
| 31.4 Codes of practice or guidelines required by this Policy in respect of specific activities with the potential to impact on stream-side land should pay specific attention to defining appropriate stream-side buffer strips and acceptable management practices within these strips. Strategies and incentives, including economic instruments, to encourage the retention and/or improved management of streamside vegetation should be investigated. | • Quarry Code of Practice<br>• Waterways and Wetlands manual |
| 31.5 Planning schemes must require that land use and development is consistent with the physical capability of the land so that the potential for erosion and subsequent water quality degradation is minimised. | • Planning Scheme |
| <u>35. Road construction, maintenance and drainage</u> | |
| 35.1 Road construction and maintenance operations will be carried out in accordance with the guidelines or code of practice developed pursuant to clause 31.3 of this Policy or employ other measures consistent with best practice environmental management, to prevent erosion and the pollution of streams and waterways by runoff from sites of road construction and maintenance. | • Quarry Code of Practice<br>• Waterways and Wetlands manual<br>• Forest Practices Code |

<u>National Environmental Protection Measures (NEPMs)</u>

In Tasmania, NEPMs are State Policies in accordance with section 12A of the *State Policies and Projects Act 1993*. They are generally not directly enforceable and are implemented using a variety of mechanisms and approaches depending on the contents of each NEPM.

Current NEPMs include:

- Air Toxics NEPM
- Ambient Air Quality NEPM
- Assessment of Site Contamination NEPM
- Diesel Vehicle Emissions NEPM
- Movement of Controlled Waste between States and Territories NEPM
- National Pollutant Inventory (NPI) NEPM
- Used Packaging Materials NEPM

Relevant NEPMs have been considered when addressing matters of air quality, diesel vehicle emissions and site contamination.

**Relevant Environment Protection Policies (EPP's)**

EPPs are designed specifically to give effect to the objectives of EMPCA and define environmental objectives with programs to achieve them.

The following EPPs have been made and apply –

- Environment Protection Policy (Air Quality) 2004, and
- Environment Protection Policy (Noise) 2009.

No specialist studies were conducted for the Pit in respect of an EPP.

## A-7 PUBLIC AND STAKEHOLDER CONSULTATION

The Flinders Council and the Environment Protection Authority (EPA) are some of the parties who have been contacted about the Activity.

### *A-7-1 FLINDERS COUNCIL*

The Development Application was lodged with Council and the associated fee paid. The Development Application has been deemed a valid application by the Council per the *Land Use Planning and Approvals Act 1993.* A Request for Further Information was subsequently issued by Council.

### *A-7-2 ENVIRONMENT PROTECTION AUTHORITY*

The Development Application was referred by the Council (acting as the Planning Authority) to the EPA given the environmentally relevant activity includes two Level 2 activities.

### *A-7-3 ABORIGINAL HERITAGE TASMANIA*

Cultural Heritage Management Australia (CHMA) conducted an Aboriginal Heritage Assessment of the Land and report prepared to document their methods and findings. That report will remain confidential given it contains culturally sensitive information about Aboriginal heritage sites.

Officers at Aboriginal Heritage Tasmania were consulted by CHMA about the survey findings. The Proponent was advised by CHMA and AHT, as an outcome of consultation process, to implement the *Unanticipated Discovery Plan* procedure issued by AHT.

### *A-7-4 PUBLIC PARTICIPATION IN THE PLANNING PROCESS*

The public will have an opportunity to provide written representation of the project when it is advertised under the relevant provisions of the *Land Use Planning and Approvals Act 1993*.

## PART B - PROJECT DESCRIPTION

### B.1 PROPOSED ACTIVITY

| | |
|---|---|
| **New activity** | The application is for a new Activity; Extractive Industry per the Use Class classifications in the Tasmanian Planning Scheme - Flinders.<br><br>The following Certificates of Title apply to the development and use associated with the Activity –<br>• CT 120064/1, CT 215120/1, CT 230282/1 – private freehold (PID 3513143)<br>• Reserved Road (Part of CID 1182402) – The Crown (vehicular access only)<br><br>The application for a permit to extract, screen, and store lime sand (ready to be collected and delivered to land in agricultural use) applies to the Land shown in **Figures A-1 and A-2** and spatially defined as the Development Area mapped in **Figure A-3.** |
| **Material to be extracted** | The material to be extracted is lime sand destined for an agricultural use (soil ameliorant). Extracted (raw) sand will be screened if necessary to remove organic matter and contaminants (e.g., shells, rocks, and stones). Additional agricultural soil ameliorants/additives such as boron may be mixed (by screening) with some of the lime sands prior to carting to the location of use (i.e., spreading on paddocks). |
| **Maximum extraction quantity** | 10,000 cubic metres per annum (equivalent is 15,000 tonnes per annum). Loose bulk density ratio is 1.5.<br><br>Material is likely to be transported in greater volumes in summer and autumn because these seasons coincide with the peak activity periods for agricultural pasture improvement, maintenance, and establishment. |
| **Development Area and Extraction Area** | The Activity is proposed to occur within the Development Area (**Figures B-1 to B-3**) excluding the septic system absorption pad (**Figure B-1**) and the temporary small sediment basis associated with sediment control from the Disturbed Area (see Site Layout in Attachment 1 of the EIS **Attachment 7**).<br><br>The Disturbed Area is approximately 17.7 hectares; see Drawing VDC/MSP/A/201 in **Attachment 10.**<br><br>The Extraction Area from where lime sands will be extracted is the Extraction Area depicted in **Figures A-4 and B-3** and Drawing VDC/MSP/A/201 in Attachment 10. The Extraction Area is a part of the Development Area; it is approximately 10.2 hectares.<br><br>The EA has an estimated 30-year supply if full production levels are achieved every year from the commencement of the Activity.<br><br>Any lime sand extraction outside the Extraction Area would require a new permit under LUPAA.<br><br>The indicative location of the lime sand resource more broadly in the Land (Mining Lease 2117P/M) is shown in **Figure A-2.** |

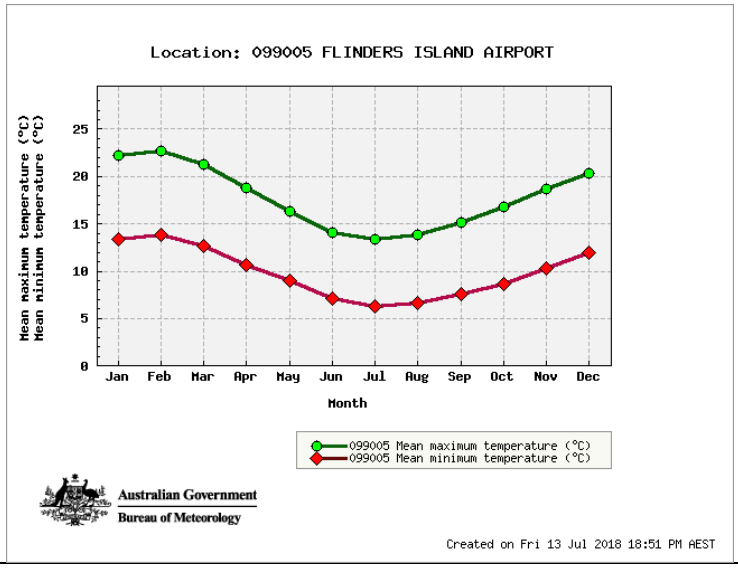
| | |
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| **Maximum processing quantity** | Screening (including blending) of up 10,000 cubic metres per annum (equivalent is 15,000 tonnes per annum). Loose bulk density ratio is 1.5. |
| **Material extraction and processing** | The **extraction and handling of material** will be in accordance with the following:<br>• surface site preparation by vegetation and topsoil stripping and stockpiling;<br>• excavation of material with a bulldozer and/or excavator;<br>• transport of sands to the storage shed for screening/storage and occasional mixing with other soil ameliorants/additives (e.g., additional micro-nutrients and essential plant nutrients such as boron). Some sand will be loaded at the pit into trucks for immediate delivery to agricultural lands;<br>• screening (up to 10,000 cubic metres per annum) to remove any vegetative/root debris and/or rocks and stones;<br>• loading trucks with wheel loader from the pit face and/or stockpile area; and the<br>• transport of material by truck. |
| **Extraction Method and Depth** | The lime sands overlay a mosaic of lacustrine/littoral gravels and sands compacted/cemented in situ by the overlaying lime sand dune sequences. Only the lime sands are to be removed from the Extraction Area; no pit is to be created, nor is any extraction from the base sediments/bedrock proposed.<br>The base geology is fossiliferous (marine shells) Tertiary limestone that is easily distinguished from the dune sands; it is consolidated, and contains pebbles, shells and/or fossils – see image below that shows the very flat limestone layer where lime sand has been removed (this is the existing disused pit).<br>  |

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| | To aid Rehabilitation, a sand layer of approximately 1m depth will be retained over the base geology to ensure that there is a growth medium for plants to colonise and revegetate lime sand extracted areas. |
| **Transport** | The maximum extraction volume of 15,000 tonnes equates to about 1,500 truckloads per annum based on 10 tonne loads (smaller loads are used given the material is to be spread on pastures and ploughed land). All traffic would enter and exit onto the sealed section of Palana Road using the now disused reserved road (unsealed) section of Palana Road – **Figures A-4 and B-1.**<br><br>Lime sands are mainly required in summer and autumn (January to May) which coincide with the peak activity period of agricultural pasture improvement, maintenance, and establishment. Winter rains aid the infiltration of the lime sands into the upper soil surface, which then has effect as it moves through the soil profile to facilitate enhanced spring and summer growth when plant activity is at its greatest.<br><br>Annual campaigns to spread lime sands across larger areas of agricultural land would be approximately 300 truck movements per week (150 truckloads) is expected for an 8 to 10-week period of carting (March to May). If conducted over 5 days each week this equates to about 30 truckloads per day (or 60 truck movements per day).<br><br>It is likely that for some periods of time, lime sand may be extracted, screened and blended without any concurrent loading and carting. For example, preceding a campaign, sufficient lime sands for the campaign would need to have been extracted, screened, and some blended with soil ameliorants (these would be determined by agricultural soil testing of the receiving pastures and expert agronomist advice) ready for carting and spreading. Lime sands would be screened and stored at the Pad or internal to the shed ready for a campaign, and to also enable ad hoc loading and spreading when the weather and pasture conditions allow; winter wet paddocks are not readily accessible on Flinders Island, so this severely constrains or in some cases prevents lime sand spreading at that time.<br><br>The lime sand pit could fall completely silent for a few consecutive weeks or possible (but unlikely) months in any calendar year (e.g. July, August); it is very unlikely because small loads for specific areas of a paddock, or sales to other farmers on the island, requires the product to be sourced and carted for spreading at any time of the year. The example circumstances listed may not generate much activity at the pit, and it could simply be a day of small loads being carted from pre-existing lime sand stockpiles. |
| **Stockpiling** | Raw sand will be stockpiled in the pit, adjacent to the pit or at the storage shed ready for screening.<br><br>Screened (or blended) sands will be stored in the shed or on the hardstand ready for collection by trucks for transport to the delivery location. |
| **Maximum area of disturbance** | The removal of vegetation will occur as an area is required for pit expansion or the establishment of specific infrastructure, such as a cut-off drain, stockpile location etc. The management of vegetation removed to extract the resource will be in accordance with the QCP. |

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| | The maximum area of disturbance, without any Rehabilitation, is **5 hectares**.<br><br>To place this into perspective, given the size of the Mining Lease (364.1 hectares), the maximum area of disturbance at any one time represents 1.4% of the Mining Lease.<br><br>Progressive rehabilitation works would commence as early as possible in the life of the Activity, noting the operational requirement to maintain access from east to west to conduct sand extraction along the dune.<br><br>**Figures B-1 and B-2** show some progressive rehabilitation occurring in the 1-to-5-year extraction plan (the mining plan used to support the granting of the Mining Lease with the Minister). There is about 3,500 square metres of land associated with the section of 'access road' through to Palana Road, and about 1.63 hectares open for the pad/stockpile area. Therefore, about 2 hectares is already open and will remain open until the closure of the Pit, leaving up to 3 hectares of operational area within which to have an area open to extract lime sands, including any internal haul road, sediment basins and areas under Rehabilitation. The operational 3 hectares is not excessive.<br><br>It is likely that approximately 4 hectares would be disturbed at any one time (including the road access from the pad to Palana Road, and the pad itself), with around 0.5 to 1 hectare under Rehabilitation at any one time, pending sign-off by the regulatory authorities to achieve Rehabilitated land. The process of Rehabilitation (when the land is still considered in a regulatory sense to be 'disturbed' or 'open') may take 2-3 years to have sufficient growth of vegetation to warrant sign-off, such that the land is deemed to be self-sustaining, stable, and non-polluting state, which is suitable for the proposed future land. |
| **Major equipment** | The equipment likely to be used at some stage (i.e., not all the below listed equipment would be used concurrently) of the Activity is as follows:<br>• Vibratory screen;<br>• Wheel Loader;<br>• Excavator;<br>• Dozer D9N;<br>• Off-road haul truck;<br>• Transport trucks (medium combination truck & trailer, single trucks);<br>• 15,000L capacity water cart truck; and<br>• Light vehicles for worker transport |
| **Infrastructure** | An existing road off Palana Road (**Figure A-4**) is to be used to access the Pit and shed. The reserved road is held under licence by the Proponent with the Crown for use to access the Land.<br><br>The junction with Palana Road will be sealed for a minimum distance of 25 m, measured from the existing sealed road surface. Standard road maintenance activities will be conducted on the unsealed section of the access road to improve table drains and the road surface (e.g., pothole filling).<br><br>A shed (15000 x 60300 x 7700 mm) is proposed – see **Attachment 2** for its design and layout, and **Attachment 3** for the layout of the shed internal crib room and amenities. |

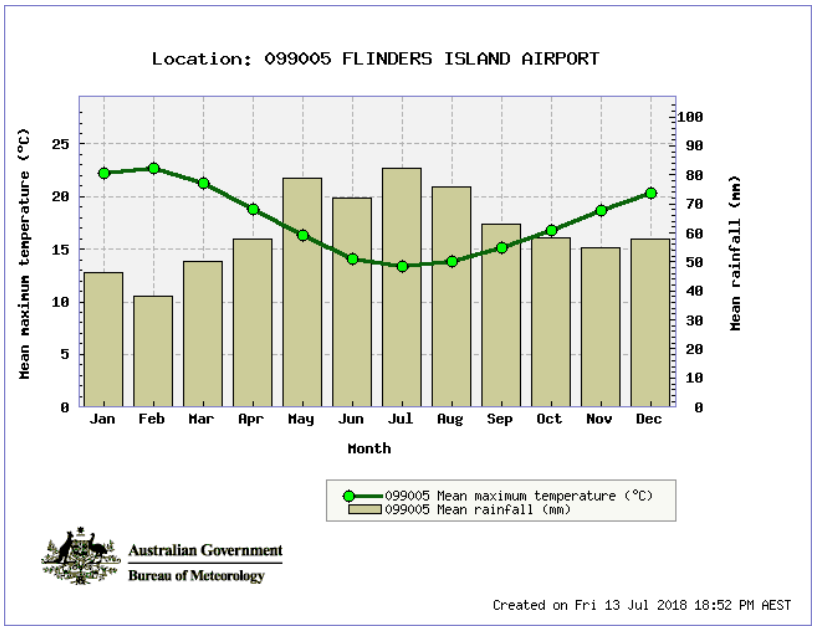
| | |
|---|---|
| | Drains and a sediment pond will be installed to manage surface water flows. As the pit extends westwards additional sediment ponds will be constructed to collect and treat (for sand removal) surface flows prior to their discharge to the environment. The free draining nature of the sands means it is unlikely that sediment ponds would need to be very large, but they will be sized to suit the catchment size.<br><br>A septic wastewater system (grey and black water) will be installed to dispose of toilet, shower, and crib room waste. The approximate location of the trenches is shown in **Figure B-1.**<br><br>Tanks will be installed (likely to be 2 x 50,000 litre) to capture rainwater from the shed and to receive water from a groundwater bore that may be installed in the future via a permit under the *Water Management Act 1999* (see **Figure B-1**). |
| **Operating hours** | 0700 – 1900 hrs Monday to Friday |
| **Workforce** | The activity will utilise up to 5 staff per day when fully operational plus truck drivers.<br><br>Most days will see only 2-3 staff at the site who would be loading trucks and carting lime sands from the active face to the shed. |
| **Wastewater (septic) system** | New on-site wastewater management system to treat and apply wastewater derived from workforce toilets and ablution facilities. It is proposed to install a septic tank absorption bed discharging to an in-ground absorption bed.<br><br>The on-site wastewater management system design caters for a daily design loading of up to 5 persons with a per capita loading of 40L/person/day.<br><br>The wastewater discharge from the premises will be broadly like domestic wastewater; there will be no industrial or trade-waste discharge to the installation; this is consistent with Clause 1.2.1 of *AS/NZS 1547:2012 Domestic on-site waste-water management*.<br><br>The site is underlain by Quaternary deposits of windblown sand of marine origin (coastal sand dunes); this is consistent with soil profiles observed on-site. The marine sands contain a high proportion of calcareous material (marine mollusc shell derived), which makes them attractive for extraction for agricultural usage, for soil pH modification.<br><br>Calcium carbonate from shell grit present in the wind-blown beach sand id subject to solution by rainwater and redeposition as a calcareous matrix, cementing sand grains together, forming discrete layers of hardpan, which is considerably less permeable than the unconsolidated sands.<br><br>This was encountered at a depth of 1100-1200mm (**Attachment 5**); however, it is likely that this hard pan could be present at varying depths, therefore, soil profile modifications to ensure uniform permeability under the land application area basal area will be required. This will be achieved by excavating absorption beds to a minimum depth of 1500mm and backfilling with loose, unconsolidated sand, prior to installing the absorption bed infrastructure. |

**B.2 DESCRIPTION OF SITE AND SURROUNDS**

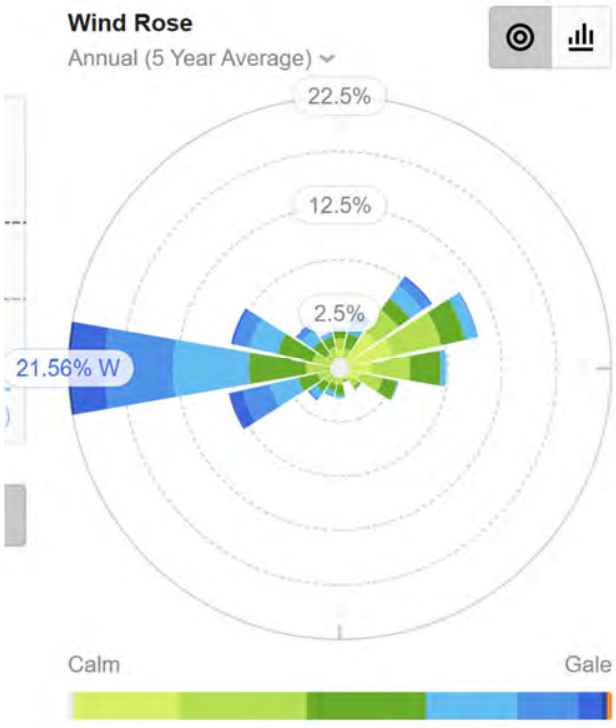
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|---|---|
| **Land Use** | The current land use is native vegetation and some stock grazing. Historically the land has been used more intensively for livestock grazing (some areas are dominated by agricultural grass and herb species with only minor recruitment of native species), and there was a school and associated outbuildings towards the northern end of the Mining Lease. |
| **Topography** | The Land is comprised of an east-west linear dune series that becomes two distinct ridges heading westwards, with a minor depression between the dunes.<br><br>The sands to be extracted from the Mining Lease are well drained being formed by Quaternary sands. Accordingly, there are no defined watercourses within the Land (see **Figure E-4b**), and no formal surface drainage exists into the nearby wetlands (CFEV mapped – they are low-lying depressions of coastal grassland on sandy soils that are likely to never fill with water) that occur southwards and northwards of the Development Area (**Figure E-4a**).<br><br>These deflection basins are dominated by coastal grasslands, with even minor dune formation in the basins, even those of only 1-2 m high, dominated by scrub or ex-pasture vegetation. |
| **Climate** | The nearest Bureau of Meteorology weather recording station is at Flinders Island Airport to the south of the Land. The station details for the Flinders Island Airport weather station are **Site number:** 099005, **Latitude:** 40.09 °S **Longitude:** 148.00 °E, **Elevation:** 9 m<br><br>The development and use occur in a region with cool winters and warm summers (**Graph 1**), with most precipitation occurring in the winter and spring period (**Graph 2**).<br><br>**Graph 1. Mean minimum and maximum temperature for Flinders Island Airport**<br><br>Source: Bureau of Meteorology 2018<br><br>  |

**Graph 2. Mean annual rainfall and mean maximum temperature for Flinders Island Airport**

Source: Bureau of Meteorology 2018




**Graph 3. Wind rose for Marshall Bay, Flinders Island**

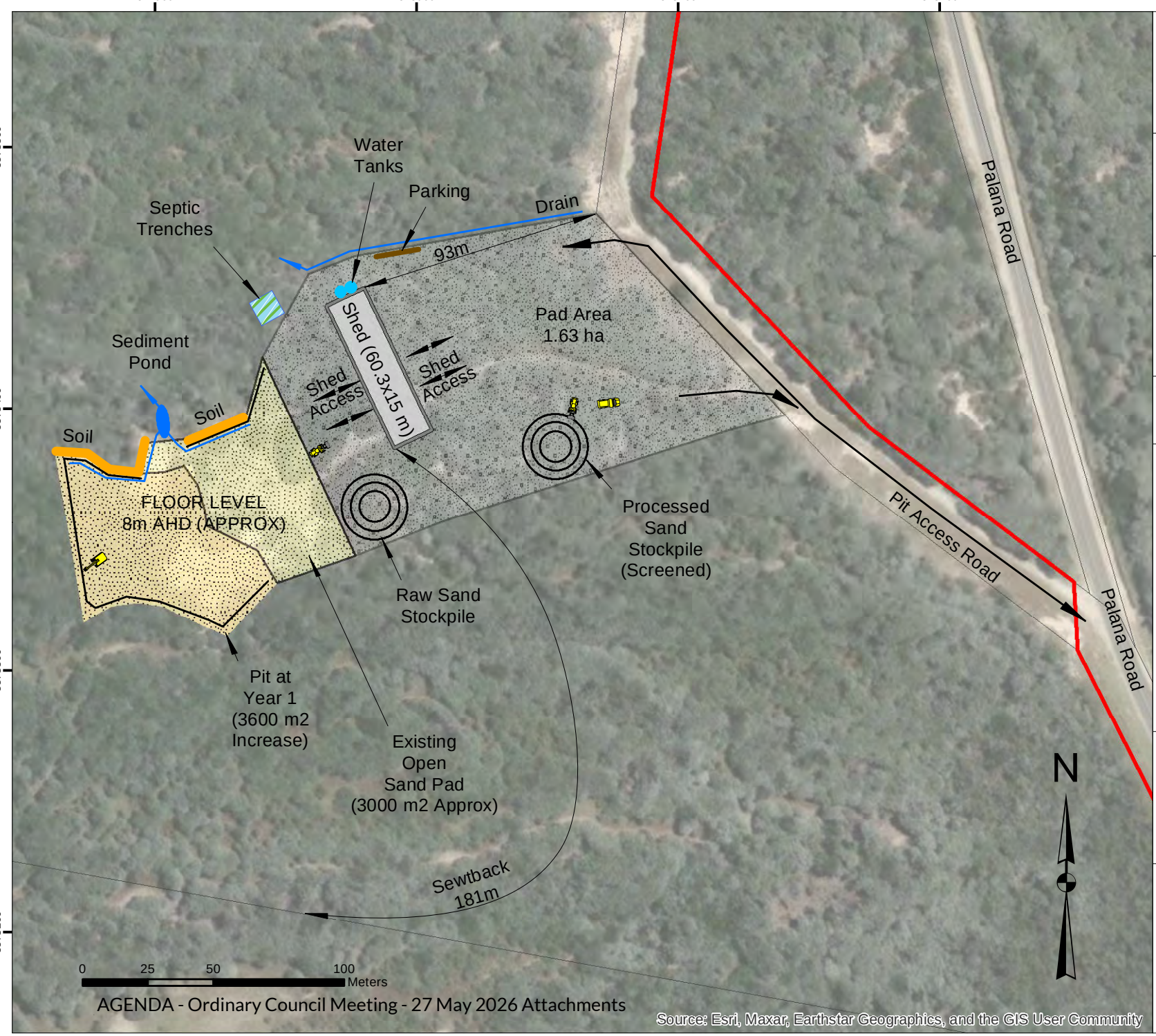


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|---|---|
| **Geology** | The geology of the Mining Lease is sand, gravel, and mud of lacustrine and littoral origin (**Figure E-6**). The sands to be extracted are of littoral origin and are highly calcareous in nature.<br><br>The underlying geology is a mosaic of lacustrine/littoral gravels and sands compacted/cemented in situ by the overlaying dune sequences. The base geology is fossiliferous (marine shells) Tertiary limestone that is easily distinguished from the dune sands. The sands are white to yellow-white and unconsolidated generally with scrub dominated vegetation typical of alkaline sands.<br><br>The general and approximate location of the dunes that are the resource in the Mining Lease is shown in **Figure A-2.**<br><br>The dunes formed by lime and other sands are of a linear type based on the transgressive dune types described by Short and Nicholas (2011). Linear dunes are longer than they are wide with prominent snakelike ridges. Linear dunes do not migrate; they get longer over time, often up to several kilometres.<br><br>The Marshall Bay dunes are highly stable on the leeward side of the bay (Slee, see Attachment 8 in **Attachment 4**) because they are vegetated with native scrub species and even where they are unvegetated they tend not to blow because of their calcareous content. |
| **Soils** | **Characteristics**<br><br>A soil layer is absent, or simply represented by a slightly discoloured (grey, to grey, brown) upper layer in the sandy soil profile. Dune systems of recent age tend not to be old enough to have formed a substantial or distinguishable topsoil layer, and even with a low to moderate fire frequency any organic matter that has accumulated may be quickly lost or substantially depleted during fire events.<br><br>Two prominent paleosols[5] are present in the exposure. Paleosols are darker band of sediment which may or may not contain woody debris, organic matter and charcoal surrounded by lighter and less charcoal-rich sediments.<br><br>Paleosols can be important indicators of past stability between depositional events. In this case organic topsoils (indicating stability) have been buried by a non-organic deposit (sand dunes).<br><br>The upper paleosol 1 lies between 95 cm and 115 cm depth and forms a prominent but laterally patchy dark brown organic-rich layer in the upper dune profile. The lower paleosol at 260 cm depth is a thinner and lighter compact sand unit that appears to not be as organic rich. However, this paleosol is laterally extensive and forms a prominent grey bench on the mid slope of the existing exposed cutting. In the case of the dune systems the presence of paleosols indicates a substantial time of dune stability, allowing an organic topsoil to form prior to renewed dune instability resulting in topsoil burial.<br><br>At the disused pit site at least three periods of dune stability can be inferred as indicated by the two buried paleosols and the darker modern topsoil associated with thick root mats on the crest of the dune. |

[5] the term 'paleosol' refers to a buried soil horizon within a sedimentary profile

| | |
|---|---|
| | **Acid Sulphate Potential**<br><br>There is a Low to Extremely Low likelihood of Potential Acid Sulfate Soils (coastal) in the Marshall Bay area (**Figure E-7**) based on DPIPWE test pitting and sampling that generated the mapping layer.<br><br>Slee (Attachment 8 in **Attachment 4**) notes that the high pH values obtained from his soil samples indicate an alkaline environment where extensive acidic soils are unlikely to be present. The reason for this is that the entire region is buffered by the abundance of dissolved calcium carbonate within the soil profiles and sand dunes and the underlying Tertiary limestone. Low pH conditions are usually associated with deep organic soils or forested areas. While topsoil development is present within the dune fields, they are weakly developed and do not have a significant organic component capable of producing acidic soils, particularly in a carbonate dominated environment.<br><br>**Land Capability**<br><br>The Land Capability is not recorded by DPIPWE however the sandy alkaline sands are likely to qualify as Land Class 5 to 6. |
| **Natural Values** | VDC undertook surveys and observations of the Development Area, and surrounds, of the biodiversity values of the Development Area and surrounds.<br><br>The report of their findings is provided in **Attachment 4** and summarised below.<br><br>**Threatened native vegetation communities**<br><br>None are present in the Development Area.<br><br>**Threatened Flora Species**<br><br>Six flora species protected by a statutory mechanism were observed during combined surveys in the Development Area (TSP Act and EPBC Act listing):<br><br>• *Acacia uncifolia*, coast wirilda (r/-)<br>• *Asperula minima*, mossy woodruff (r/-)<br>• *Eutaxia microphylla*, spiny bushpea (r/-)<br>• *Pimelea curviflora* var. *gracilis*, curved riceflower (r/-)<br>• *Roepera billardierei*, coast twinleaf (r/-)<br>• *Scaevola albida*, pale fanflower (v/-)<br><br>All threatened flora species observed would have plants taken as part of the proposed Activity. No species listed on the *Environment Protection and Biodiversity Conservation Act 1999* were observed in the Development Area.<br><br>**Threatened Fauna Species**<br><br>No fauna species listed on the *Threatened Species Protection Act 1995* or *Environment Protection and Biodiversity Conservation Act 1999* were directly observed in the Development Area during the surveys. |

| | |
|---|---|
| | No trees with the potential to support any hollow-dependent bird species, such as swift parrots or blue-winged parrots, were observed in the Development Area.<br><br>Habitat for several threatened Fauna is present including:<br>• wedge-tailed eagle (*Aquila audax subsp. fleayi* – Foraging habitat is present in the Development Area;<br>• white-bellied sea-eagle (*Haliaeetus leucogaster*) – Foraging habitat is present in the Development Area; and<br>• Tussock skink (*Pseudemoia pagenstecheri*) – potential low *Poa* coverage areas in buffer (the area that is not to be sand extracted) to the Development Area.<br><br>VDC determined based on the nature of the activity, and location and quality of habitat, that the activity would not cause any significant impact to any listed fauna species.<br><br>**Weeds and Disease**<br><br>Two Declared Weed species listed on the *Biosecurity Act 2019* were observed in the Development Area; these include horehound (*Marrubium vulgare*) and slender thistle (*Carduus pycnocephalus*).<br><br>No plants with PC symptoms were observed in the Development Area, and with the lack of susceptible species the water mould is unlikely to be present, or active, in the Development Area. |




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## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure B-1: Mine Plan Site Set Up / Extraction to Year 1 and Access

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

- Clear Gravel Surface
- Existing Sand Surface
- Shed (60.3 x 15 m)
- Clear Gravel Surface
- Mining Lease (2117P/M)
- Land Titles (The LIST)

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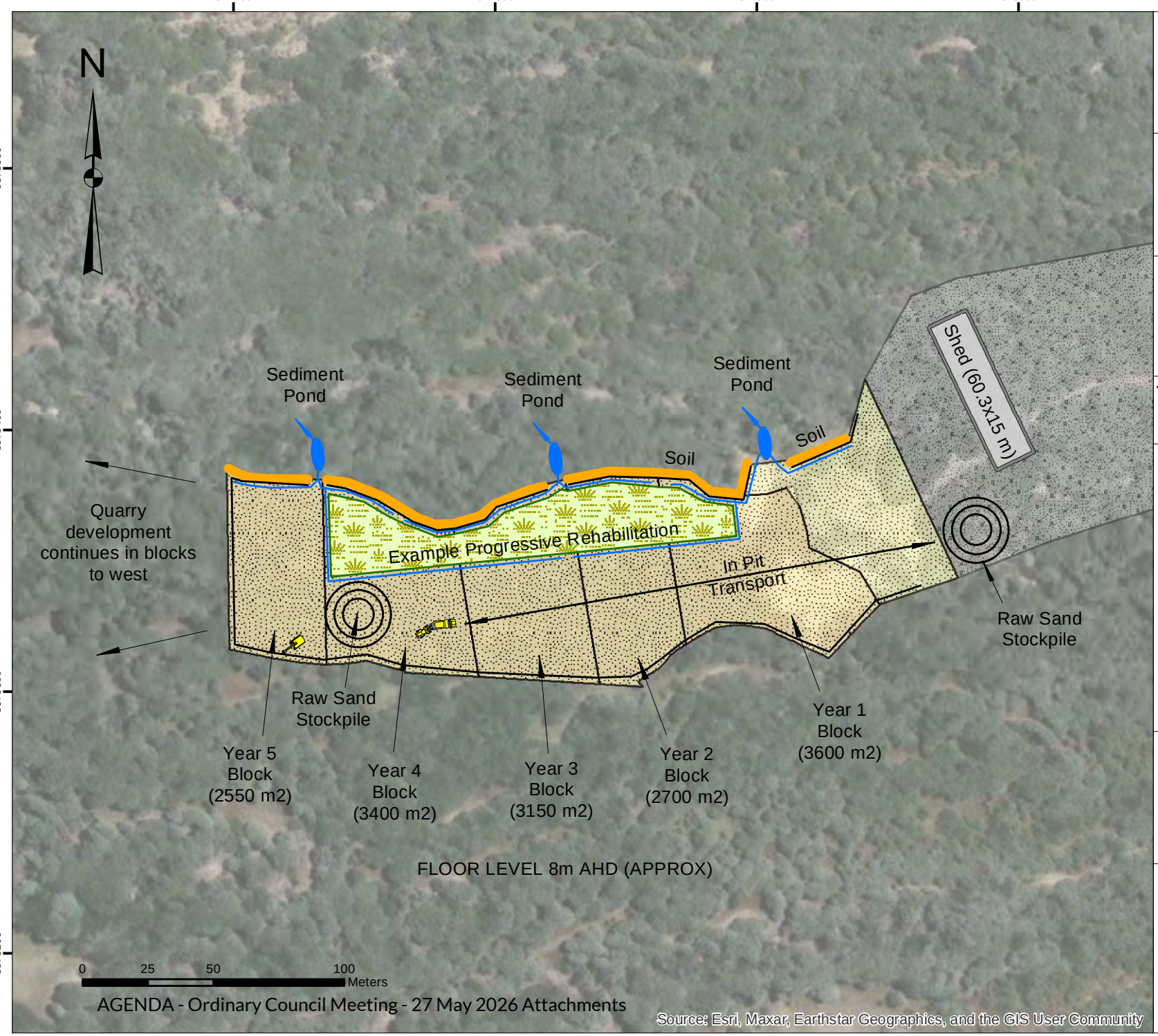
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SCALE: @A4 - NA

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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community




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## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure B-2: Mine Plan Extraction (Year 1 to 5)

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

- Clear Gravel Surface
- Existing Sand Surface
- Shed (60.3 x 15 m)
- Clear Gravel Surface

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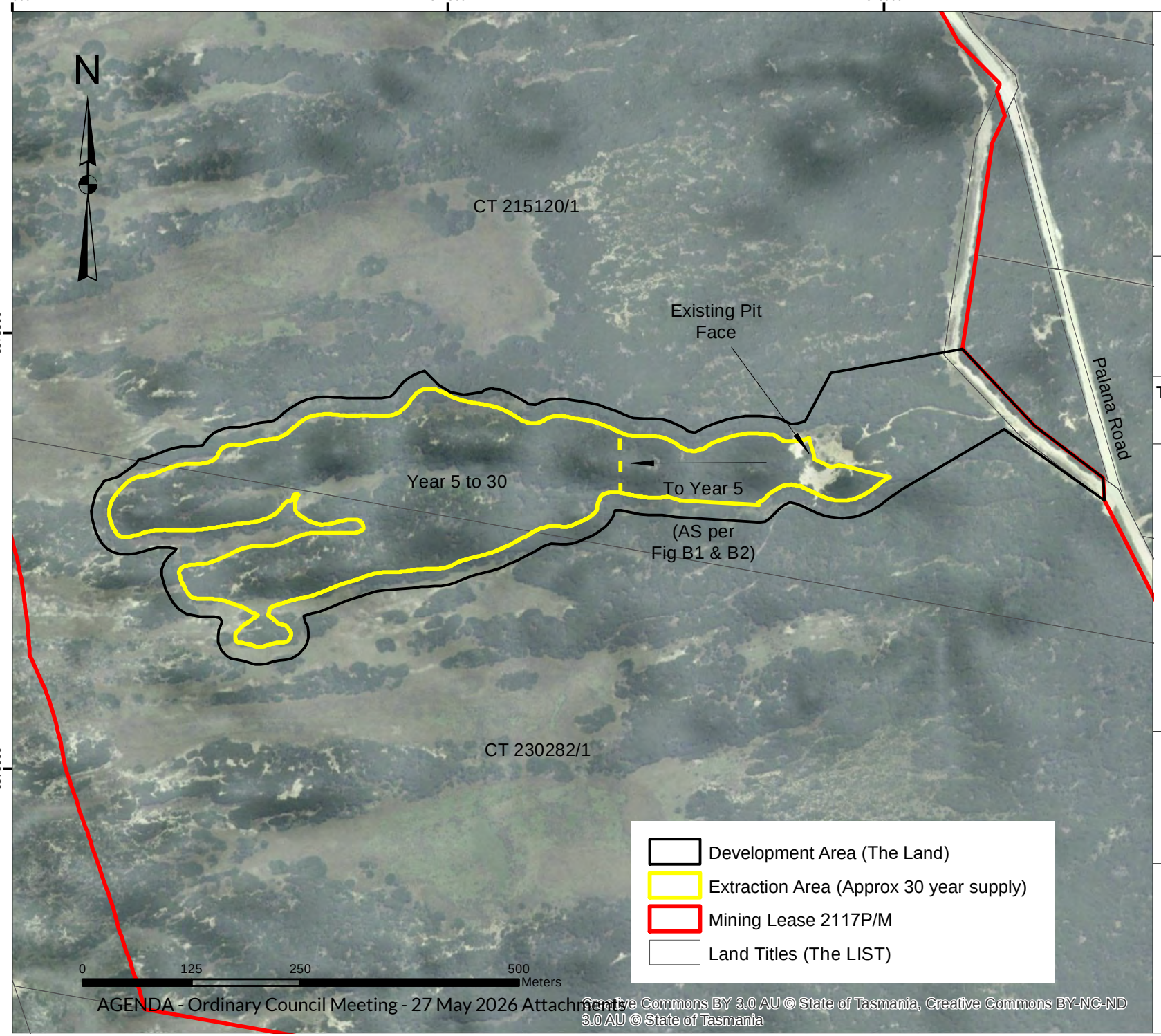
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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure B-3: Maximum Extraction Area

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

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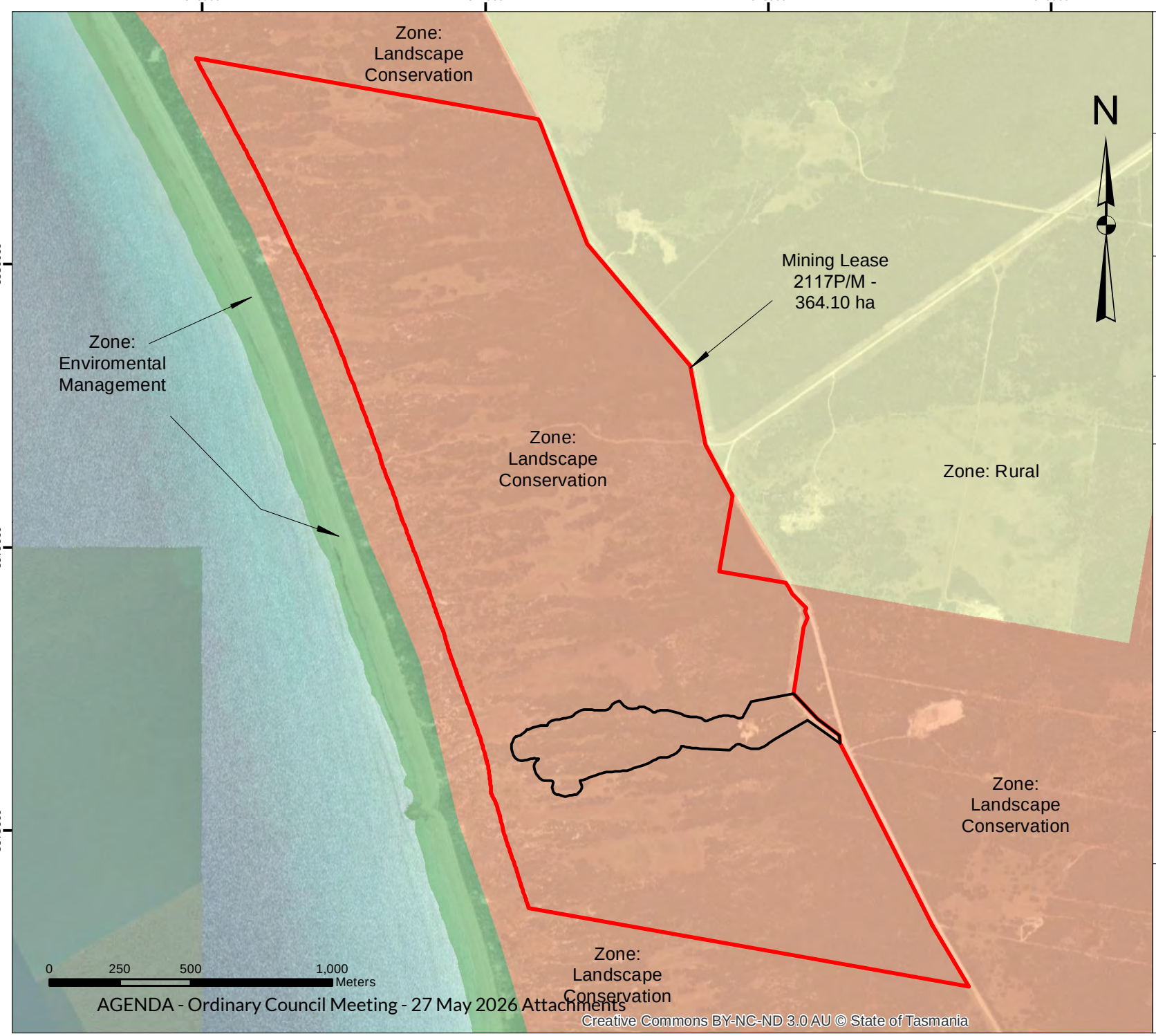
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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-1a: Zone Map
Tasmanian Planning Scheme
LPS Zones

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area (The Land)

Mining Lease (2117P/M)

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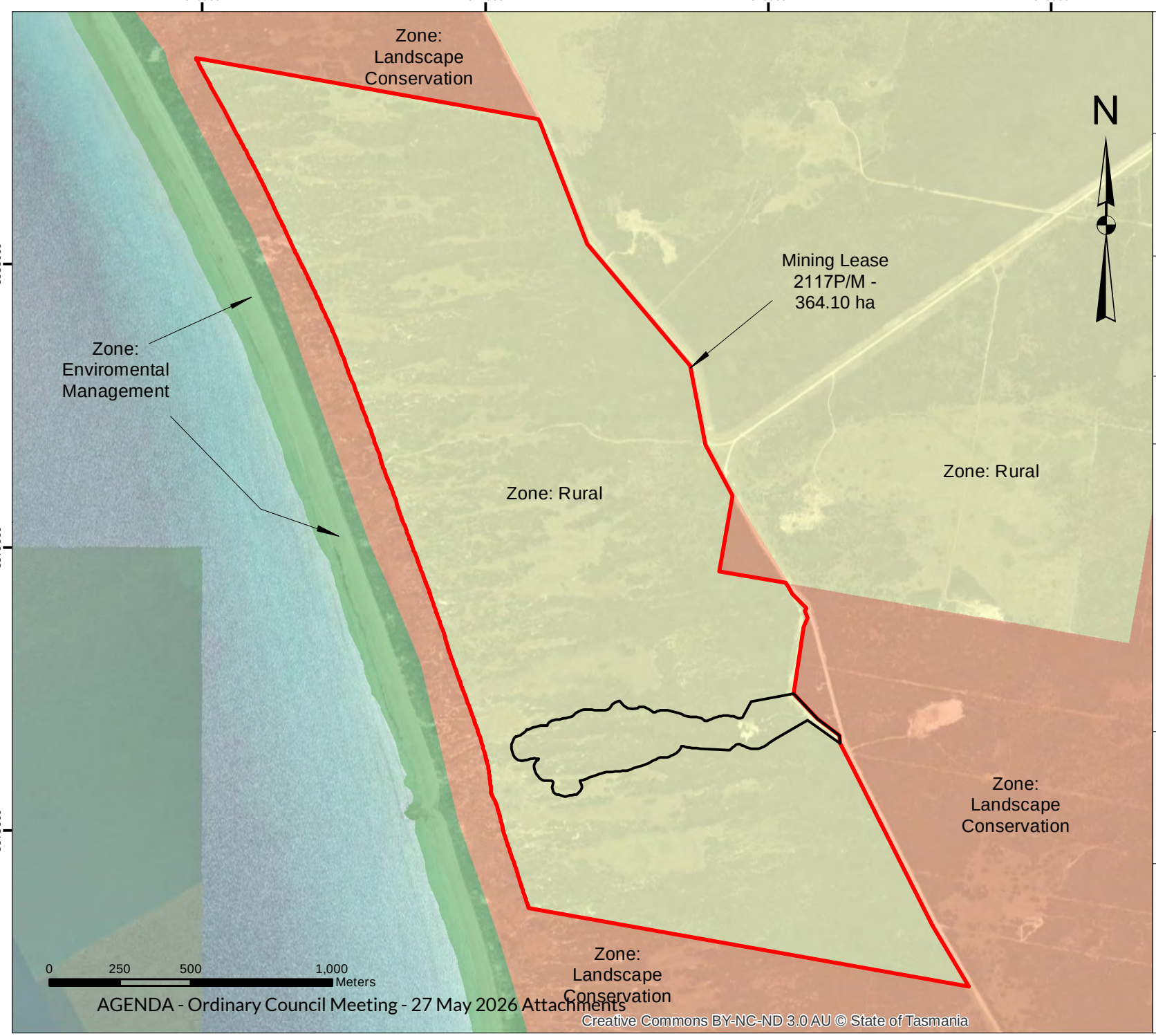
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## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-1b: Zone Map
Tasmanian Planning Scheme
LPS Zones

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area (The Land)

Mining Lease 2117P/M

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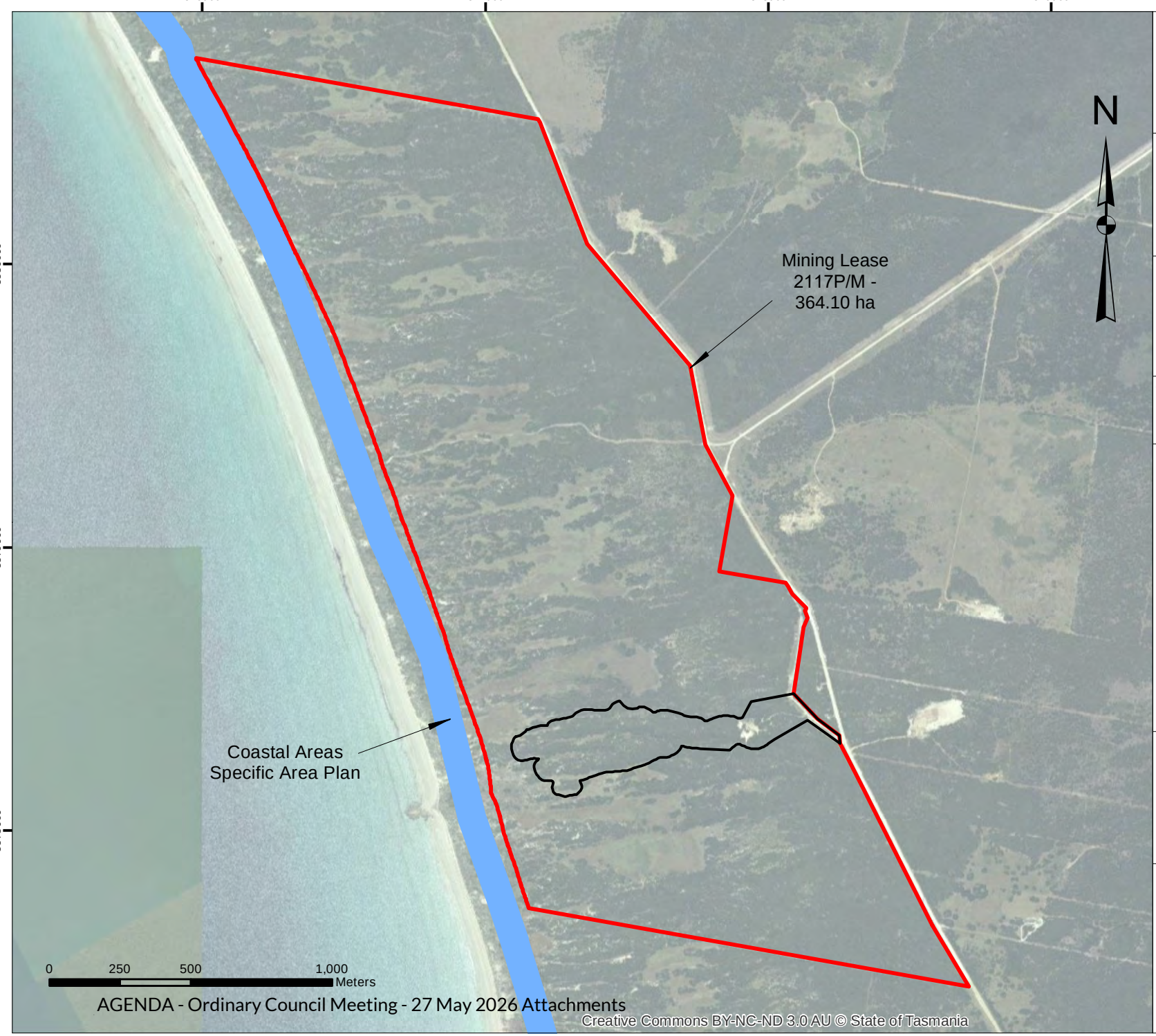
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## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-2: General Overlay Map - Tasmanian Planning Scheme - Flinders

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area (The Land)

Mining Lease 2117P/M

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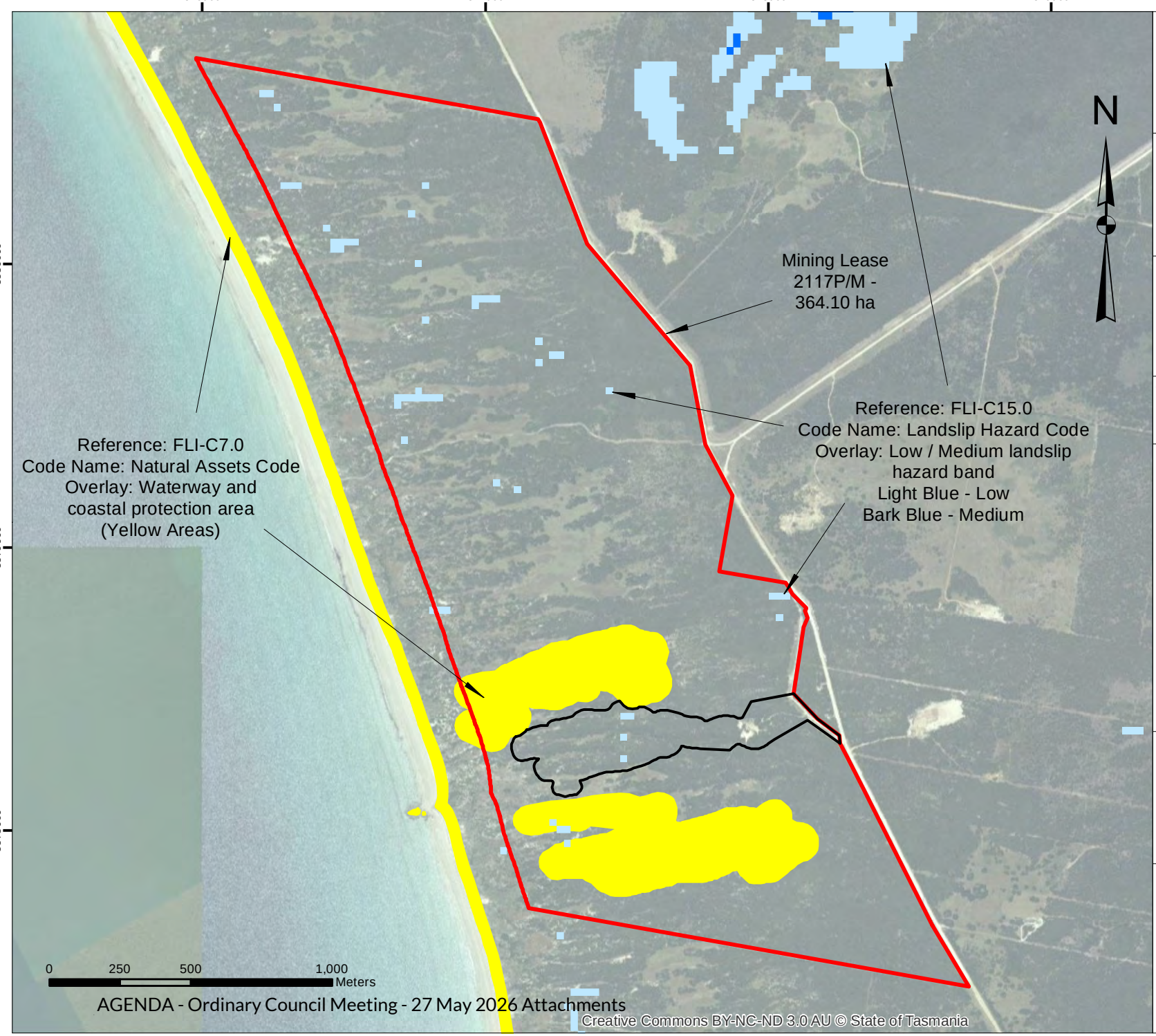
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## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-3a: Code Overlay Map - Tasmanian Planning Scheme - Flinders

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area (The Land)
Mining Lease 2117P/M

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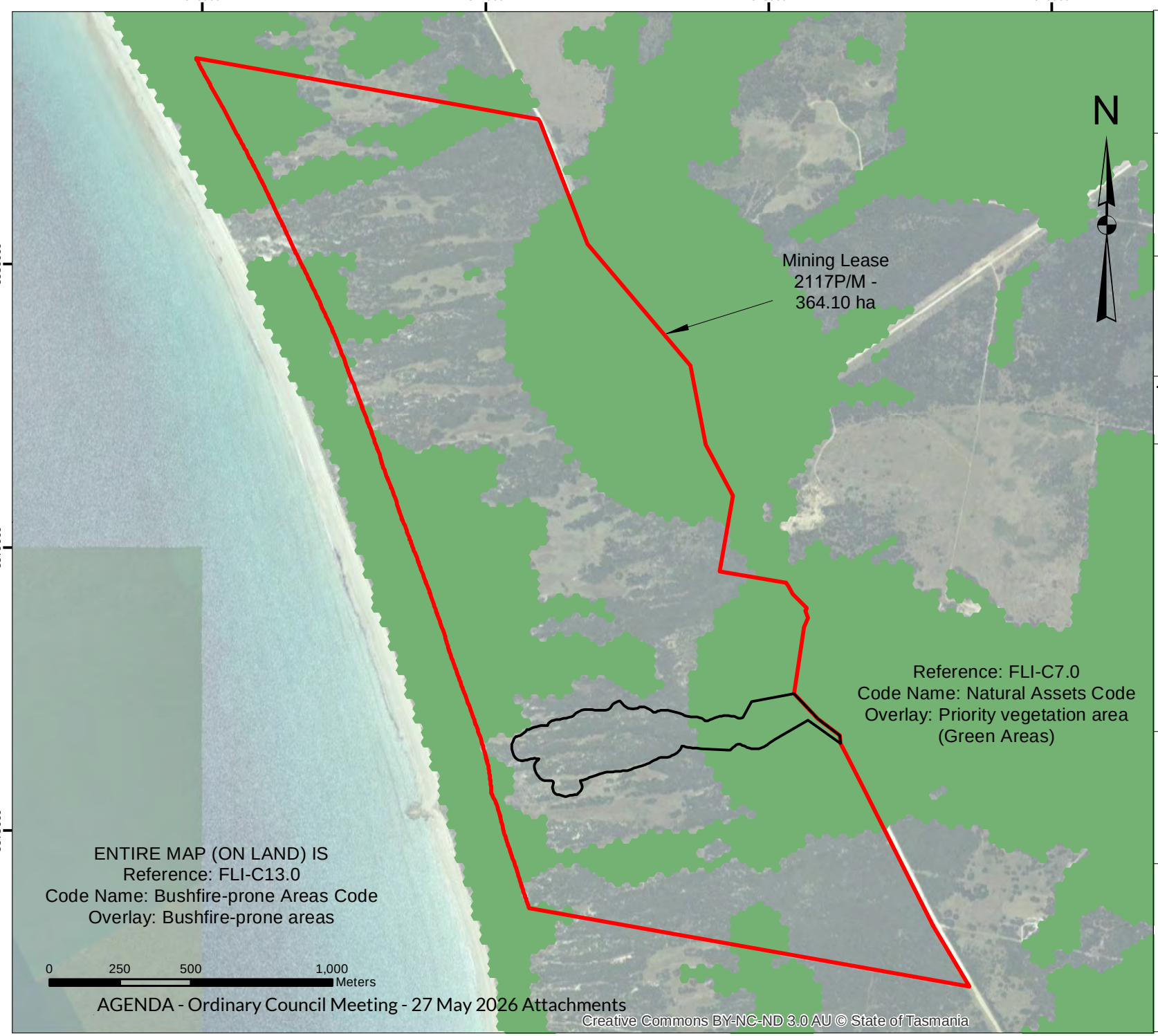
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## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-3b: Code Overlay Map - Tasmanian Planning Scheme - Flinders

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area (The Land)

Mining Lease 2117P/M

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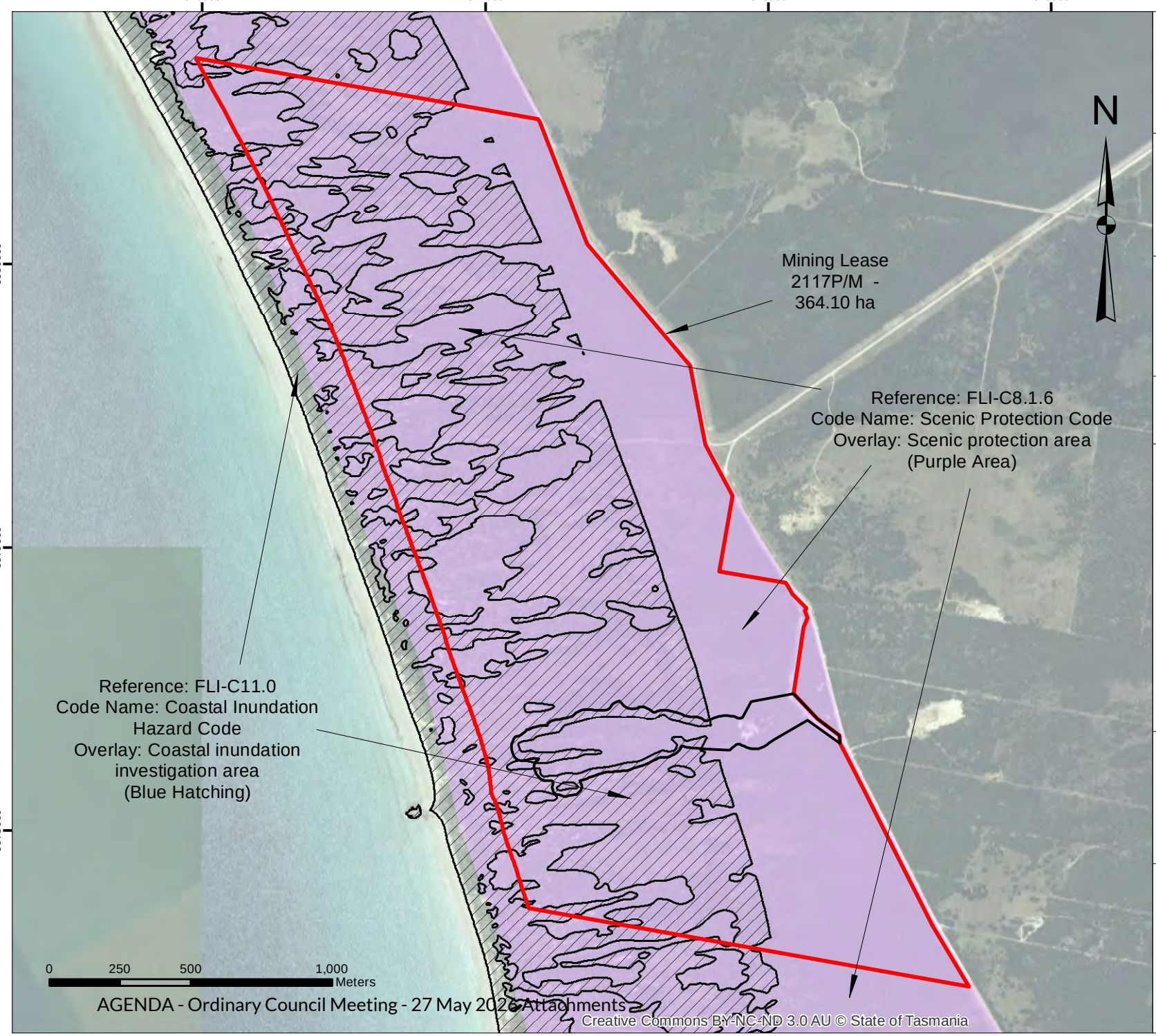
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## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-3c: Code Overlay Map - Tasmanian Planning Scheme - Flinders

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area (The Land)

Mining Lease 2117P/M

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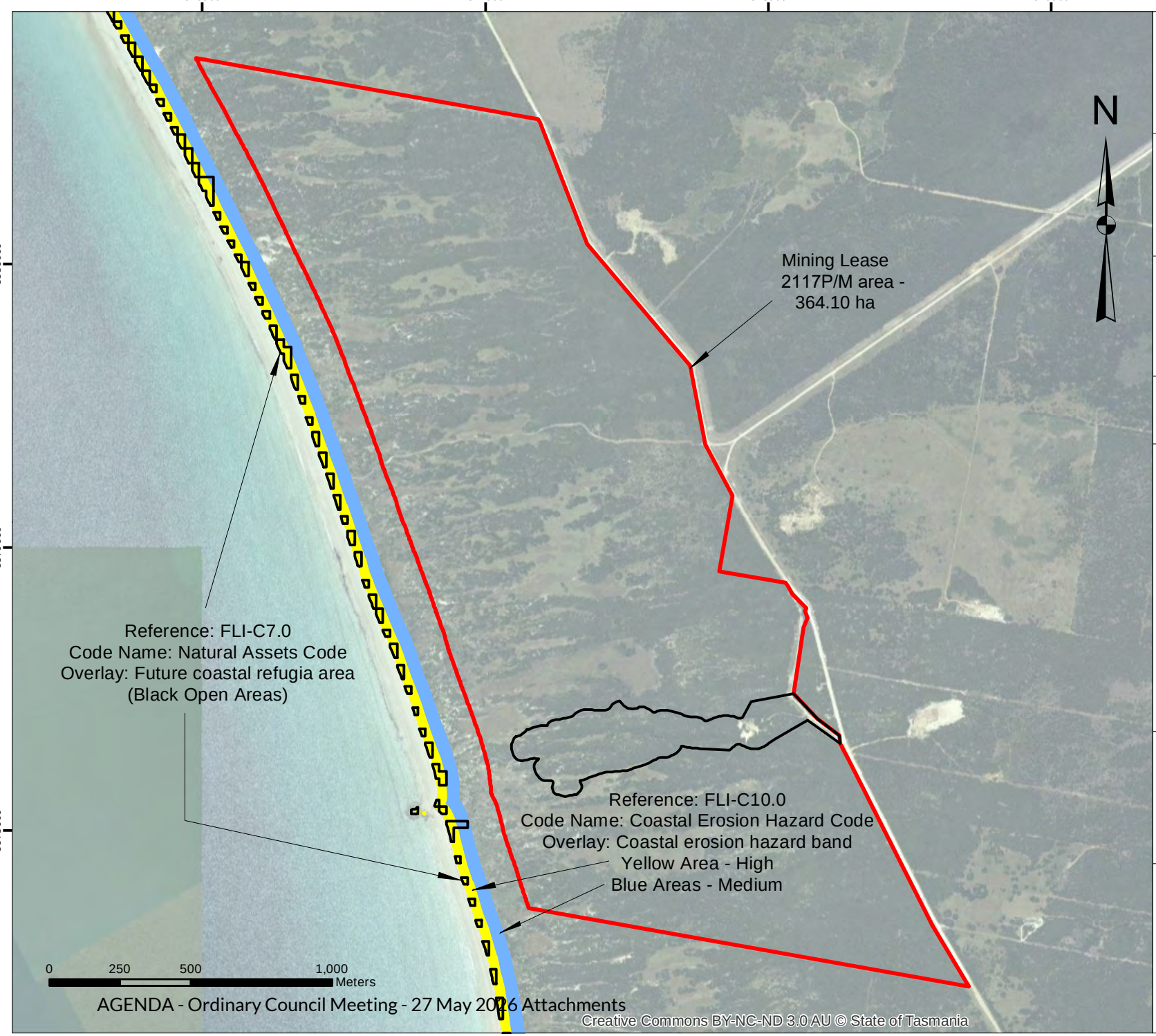
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## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-3d: Code Overlay Map - Tasmanian Planning Scheme - Flinders

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area (The Land)

Mining Lease 2117P/M

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## PART C – POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The following sections describe and assess the potential environmental impacts that may be caused by the Activity.

For each potential environmental impact that has a risk to cause environmental harm or nuisance, such as dust and noise, the risk matrix provided in **Plate 1** was used to assess the risk of prior to and then after the implementation of controls. Mitigation measures are described in this section to mitigate or manage the risk of causing environmental nuisance.

**Plate 1. Risk Assessment Matrix for environmental matters relevant to the Marshall Bay Sand Pit**

| RISK MATRIX | NEGLIGIBLE | MINOR | MODERATE | MAJOR | CATASTROPHIC |
|---|---|---|---|---|---|
| ALMOST CERTAIN | LOW MED | MEDIUM | MED HIGH | HIGH | HIGH |
| LIKELY | LOW | LOW MED | MEDIUM | MED HIGH | HIGH |
| POSSIBLE | LOW | LOW MED | MEDIUM | MED HIGH | MED HIGH |
| UNLIKELY | LOW | LOW MED | LOW MED | MEDIUM | MED HIGH |
| VERY UNLIKELY | LOW | LOW | LOW MED | MEDIUM | MEDIUM |

IMPACT

PROBABILITY

### C-1 AIR EMISSIONS – DUST

**Specialist Report – Geomorphology including karst**

Van Diemen Consulting Pty Ltd engaged Dr Adrian Slee of the Forest Practices Authority (FPA) to investigate the geomorphology, and soils present (and their potential for a blowout to occur, which may create or exacerbate dust emissions) on the Mining Lease owned by the Markarna Grazing Company between Palana Road and Marshall Beach near the settlement of Lughrata on Flinders Island. The field work and report were completed by Dr Adrian Slee, with the report (Slee, 2024) provided in **Attachment 9**. The report forms part of this EIS and the following section should be read in conjunction with it.

*C-1-1 EXISTING CONDITIONS*

Dust can be a nuisance to neighbours and may be a safety hazard to Pit employees. Generally, the emission of visible dust should be confined within the boundary of the premises, except in remote areas as is the case here, where the effects beyond the site may not cause an environmental nuisance or harm.

There are other sources of dust and fugitive air emissions in the surrounding landscape, including agricultural uses, other sand pits, and conservation management activities (e.g., ecological burns).

There are no residences or other sensitive receptors within 1km of the Development Area.

The nearest residence is 1.15km to the south-east of the Development Area, and 1.17km to the closest point of the Extraction Area (**Figure E-8**). The same residence is marginally within 300m of the edge of the Mining Lease. There are two other lime sand pits (ML 2059P/M, and 2056P/M; both pits are Level 1 activities and are permitted to extract up to 4,999 cubic metres per annum) that are closer to the residence than the Marshall Bay Lime Sand Extraction Pit (see **Figure E-8**).

*C-1-2 PERFORMANCE REQUIREMENTS*

| Document | Requirements/Guidance |
|---|---|
| ***Environment Protection Policy (Air Quality) 2004*** | **Part 5 - MANAGING DIFFUSE SOURCES OF AIR CONTAMINANTS**<br>**Management of diffuse sources of air pollution**<br>**16.** **(1)** Regulatory authorities should manage and regulate diffuse sources of air pollution that have the potential to cause material or serious environmental harm or an environmental nuisance in such a manner as will protect the environmental values identified in this Policy.<br>**(2)** Diffuse sources of air pollution should be managed using best practice environmental management so as to:<br>**(a)** minimise emissions; and<br>**(b)** manage those emissions that are unavoidable in a manner that minimises impacts on health, safety or amenity.<br>**(3)** Diffuse sources of air pollution should be managed in accordance with any relevant guidelines published, adopted or endorsed by the Board for the purposes of this clause.<br>**(4)** Diffuse sources of air pollution must be managed in accordance with any regulations made under the Act.<br><br>The Air EPP is supported by the EPA Board Statement January 2022 'Update to Air Pollutant Design Criteria used in the Environmental Impact Assessment Process' which clarifies how the EPA Board uses and implements the Environment Protection Policy (Air Quality) 2004 (Air EPP) during the environmental impact assessment (EIA) process and provides important updates to air pollutant design criteria. The EPA did not require atmospheric dispersion modelling which indicates that the emission of air pollutants from the Activity is unlikely to cause environmental harm or nuisance. |
| **Quarry Code of Practice** | Key considerations include:<br>• Dust should not normally be visible crossing the boundary of the premises.<br>• Environmental factors, such as wind conditions, may on occasion, make the retention of all visible dust on the site impossible. In such cases, the operator must take all reasonable actions to ensure that the emission of dust from the premises is minimised. |

| | |
|---|---|
| | • Roads within the boundary of the premises must be watered or sealed when necessary or when directed by the approval authority, to minimise environmental nuisance.<br>• Trucks must utilise effective dust control measures such as tarpaulins, load dampening when travelling by public roads and carrying loads containing a significant quantity of material that passes a 4-millimetre sieve.<br>• Dust produced by the operation of the Pit or by transport, crushing and screening plant must be effectively controlled to the satisfaction of the approval authority. |

*C-1-3 POTENTIAL SOURCES OF DUST EMISSIONS AND IMPACTS*

The risk of dust emissions from the Activity causing environmental nuisance is low due to the lack of any nearby sensitive premise (**Figure E-8**) and any other area where people congregate.

Sources of fugitive emissions

The most likely source of fugitive dust is from internal road use.

Other potential sources of fugitive dust at the Pit are from:

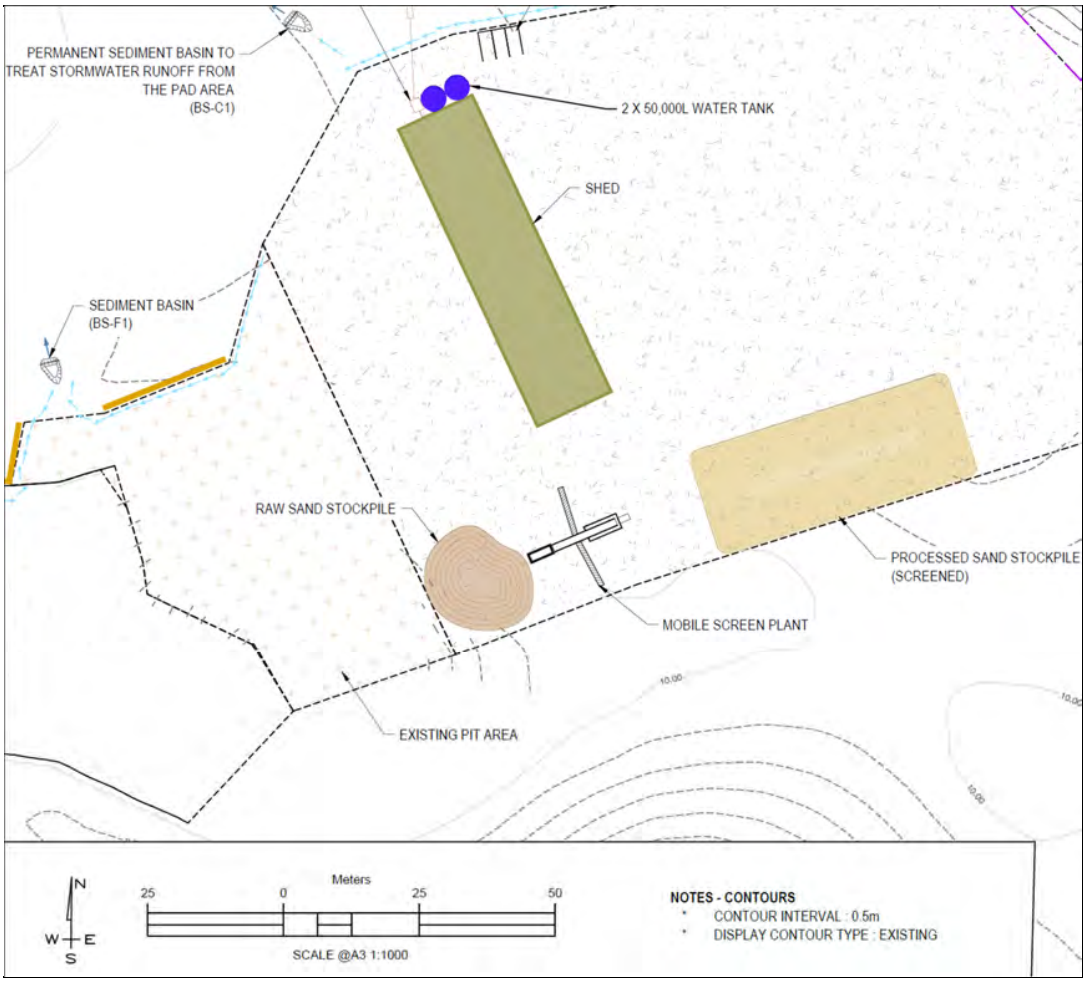
- the clearing of vegetation;
- the stripping of topsoil (extremely limited as the amount of topsoil is low to absent[6]);
- the ripping and movement of sands during dry windy conditions (especially in the summer months);
- screening of raw sand to remove organic matter and any pebbles, rocks or other inorganic debris;
- access road (gravel) use in and out of the Pit; and the
- stockpiles of sand, and the loading of sand into trucks from the stockpiles.

The act of blending (incorporating ameliorants into the limes sands, such as boron or copper sulphate) may generate dust. Blending of soil ameliorants will only occur in the shed owing to the extremely high cost of the soil ameliorants (so loss from wind or fugitive emissions is unacceptable) and their fine particle size which makes them the higher risk item for generating fugitive emissions. The use of the shed for blending avoids fugitive emissions.

The screening of raw sands would likely be conducted at the Pad using a standard mobile screening unit to produce a processed sand stockpile from which lime sands would be loaded into trucks for haulage to paddocks for spreading. The location of the screen is approximately depicted within **Plate 2** which is an extract of the technical drawing 'SITE LAYOUT - PAD AREA AND SITE ENTRANCE' (Drawing VDC/MSP/A/102) in **Attachment 10.**

**Plate 2. Extract of Site Layout showing mobile screen plant location**

[6] Slee (2024, pg 22) notes the soil to be '…thin and low in organic content'




Sand characteristics and potential to blowout

With any broad-scale vegetation removal of a dune sequence there is the potential for a blowout to occur. Blowouts can expand over time and possibly become a source of fugitive dust emissions. Slee (2024, **Attachment 9**) notes that blowouts of the coastal dunes backing the beach are quite common within the Mining Lease (NB. these areas are not in the Development Area). However, away from the coast most of the larger dunes appear to be stable.

He notes that the blowout on the southern edge of the existing pit face has resulted in minor sand deposition and tree burial south of the highest point of the dune. The current location of the pit in the leeward side of the main dune reduces the ability of westerly winds to significantly erode the exposed sands in the pit through deflation, although some loss of sand by wind deflation is likely to have occurred (and may still be occurring). Westerly winds are the dominant wind source (**Graph 3**).

Slee (2024) states that there is a risk that once the operations extend to more of a windward face of the dune, dominant westerly winds may deflate (erode) the dune. This could lead to loss of resource and the wind transport of the sediment.

Maintaining a high vegetation cover above the working face and active efforts to revegetate the site away from the working face are key to minimising wind erosion, especially with the prevailing westerly winds. While easterly winds are common on Flinders Island, they are generally less strong than the westerly winds as evidenced by the strongly deformed vegetation caused by westerlies present at exposed locations on the Mining Lease (**Graph 3**). Also, easterly winds are generally linked to low pressure systems in the Tasman Sea and rainfall, the wet conditions act to stabilise sand dunes and inhibit wind deflation. According to Slee (2024), deflation of the sand towards the Marshall Beach Conservation area to west of the proposed Pit would be an unlikely event.

*C-1-4 RISK ASSESSMENT, MITIGATION, AND MANAGEMENT*

Dust emissions will be managed to the extent necessary to prevent environmental nuisance. **Table 7** provides a risk assessment of the potential impacts caused by fugitive dust emissions from the Activity. The risk assessment is conducted before and after the implementation of control measures, with mitigation measures described.

The mitigation measures outlined in **Table 7** will be implemented.

Measures used to **suppress dust** include the following extractive industry standard environmental practices:

- Retention of vegetation along the access road corridor where possible;
- Retention of vegetation (when possible) around the Pit working area to reduce the likelihood of strong winds liberating fine particles into the air;
- Utilisation of slash/mulch obtained from cleared areas to stabilise the soil surface and to limit wind action on dust generation at the soil/sand surface;
- Covering of trucks with tarpaulins and/or load dampening; and
- Minimising the geographic extent of areas of exposed soil.

Water can be accessed from the on-site water tanks or possible groundwater bore that may be installed in the future via a permit under the *Water Management Act 1999*.

Measures recommended by Slee to **minimise the risk of wind erosion** include the following:

- Avoid, if possible, but otherwise minimise working on faces exposed to westerly winds;
- Maintain vegetation above and to the west of any active face; and
- Re-establish vegetation on a progressive basis, this could include stockpiling cleared tea tree and other scrub species for covering exposed surface as operations progress.

*C-1-5 ASSESSMENT OF NET IMPACTS*

The overall net impacts of dust emissions on local air quality are assessed to be low because emissions can be actively managed through mitigation and avoidance strategies. The mitigation measures outlined in **Table 7** are consistent with the intent of Part 5 of the Air EPP; primarily, clauses 2(a) and (b).

The risk of dust emissions from the Activity causing environmental nuisance is low due to the following combined factors –

1. the lack of any nearby sensitive premise (**Figure E-8**);
2. the reduction of risk by the progressive rehabilitation works to occur as the Pit progresses westwards;
3. implementation of mitigation measures (**Table 7**); and
4. the use of the shed (which enables the effects of wind on generating dust emissions to be removed) for the blending of sands with other soil ameliorants/additives such as boron.

**Table 7. Risk assessment for fugitive dust emissions from the Pit and associated activities and proposed control measures**

| Location | Activity | Pre-Control Risk Assessment | Control Measures | Final Risk Assessment |
|---|---|---|---|---|
| **The Land** | • The clearing of trees and other vegetation.<br>• The stripping of topsoil (limited as the amount of topsoil is low).<br>• The ripping of sands during dry windy conditions (especially in the summer months).<br>• The movement of sand by machinery.<br>• Stockpiles of sand, and the loading of sand into trucks from the stockpiles. | **Medium (Likely – Moderate)** | • Minimising the geographic extent of areas of exposed soil.<br>• Retention of vegetation along the access road corridor where possible.<br>• Retention of vegetation (when possible) around the Pit working area to reduce the likelihood of strong winds liberating fine particles into the air.<br>• Utilisation of slash/mulch obtained from cleared areas to stabilise the soil surface and to limit wind action on dust generation at the soil surface. | **Low (Possible – Negligible)** |
| | • Vibratory screening (and blending of sand and soil ameliorants) of sand material. | **Medium (Likely – Moderate)** | • Vibratory screening to be avoided outside the shed on high wind days (winds >60km/hr).<br>• Blending of sands and other products to occur within the shed. | **Low (Unlikely – Negligible)** |
| | • Wind erosion. | **Medium (Likely – Moderate)** | • Road dampening, progressive rehabilitation, limiting or avoiding extraction on a westerly exposed slope. | **Low (Unlikely – Negligible)** |
| **Transport** | • Dust emissions from loads in trucks. | **Low Med (Possible – Minor)** | • Tarpaulins and load dampening. | **Low (Unlikely – Negligible)** |
| | • Access road (gravel) use in and out of the Pit | **Low Med (Possible – Minor)** | • Road dampening during campaigns.<br>• Speed limit of 40km/hr on access road. | **Low (Unlikely – Negligible)** |

**C-2 SURFACE WATER MANAGEMENT AND GROUNDWATER**

**Specialist Report – Stormwater Management and Sediment Control Measures Assessment Report**

Van Diemen Consulting Pty Ltd (VDC) was engaged by Markarna Grazing Company Pty Ltd, to carry out a stormwater management assessment and recommend drainage and sediment control measures for the Pit. The assessment evaluated current drainage patterns, sediment generation potential of the Activity, and describes stormwater and sediment control measures tailored to the site's geological and operational conditions. Strategies are recommended to manage stormwater runoff, mitigate erosion, control sediment dispersion, and ensure compliance with local environmental regulations to minimize the impact of sand extraction operations on surrounding environment. The report forms part of this EIS and is in **Attachment 7** and the following section, which should be read in conjunction with it.

**Specialist Report – Site & soil evaluation and design report. New onsite wastewater management system at "Markana Park," 368 Five Mile Jim Road, Memana TAS 7255. (Sand mine - Southern site)**

Markarna Grazing Company Pty Ltd engaged Onsite Assessments Tas (Richard Mason) to (i) investigate a site for the installation of an on-site wastewater treatment system and (ii) document design Information, plans, and specifications suitable for inclusion in supporting documentation for a Plumbing Permit. The report forms part of this EIS and is in **Attachment 5** and the following section, which should be read in conjunction with it.

*C-2-1 EXISTING CONDITIONS*

The Development Area is comprised of at least 8 dune crests between North Curves Lagoon and South Curves Lagoon. The dune ridges have narrow rounded tops and steep side slopes, generally >30°. The multi-peaked nature of the dune ridges and the deep wide interdune swales are not well expressed on the 1:25000 topographic map. The existing disused pit is located near the narrowest and easternmost part of the dune sequence.

The Mining Lease features extensive sand dunes, composed predominantly of fine-grained quartz and carbonate deposits (see **Attachment 9**). These dunes are a result of dynamic sedimentary processes, shaped by both wind and water. The top sand layer, which is particularly important for stormwater and sediment management, has high permeability, which influences infiltration rates and stormwater runoff patterns.

The lime sand deposit to be extracted from the Mining Lease are well drained and are formed by Quaternary sands (Slee 2024, pg 24) of high pH value (see Table 2 of Slee (2024)). The high pH values obtained from the soil samples collected by Slee (2024) indicate an alkaline environment where extensive acidic soils are unlikely to be present. The reason for this is because the region is buffered by the abundance of dissolved calcium carbonate within the soil profiles and sand dunes and the underlying Tertiary limestone.

<u>Watercourses and wetlands</u>

There are no defined watercourses within the Development Area (see **Figure E-4b**), and no formal drainage exists into the nearby wetlands (North and South Curves lagoons, **Figure E-4a**, CFEV mapped – they are low-lying depressions of coastal grassland on sandy soils that are likely to never fill with water) that occur southwards and northwards of the Development Area (**Figure E-4a**); these are actually smaller than they are shown on topographic maps and TASVEG mapping. The deflection basins (Curves Lagoons) are dominated by

coastal grasslands, with even minor dune formation in the basins, even those of only 1-2 m high, dominated by scrub or ex-pasture vegetation.

Groundwater

Given the extensive nature and relief of the limestone on the hills east of the mining lease subsurface water flow through karst aquifers is likely but significant karst landforms are unlikely to be present.

Soil augering for the wastewater disposal site (**Attachment 5**) found a calcareous matrix, cementing sand grains together, that created a hardpan considerably less permeable than the unconsolidated sands at a depth of 1.1 to 1.2m. Below 1.2m were loose and damp yellow sands which is the aquifer layer accessed by bore drillers to access water.

Groundwater depth is likely to be in the range of the nearest bore (bore 42804, Palana Rd, about 3 kms north northwest of the Pit) on comparable sediments (i.e. Undifferentiated Cenozoic sequences>Undifferentiated Quaternary sediments>Holocene alluvial, lacustrine and littoral deposits) which had a standing water level of 4.7m (bore depth of 16m) when it was capped in late 2024.

*C-2-2 PERFORMANCE REQUIREMENTS*

| Document | Requirements/Guidance |
|---|---|
| **Quarry Code of Practice** | Drainage – The requirements outlined in Section 7.9.2.1 of the QCP<br>• Cut-off drains, contour drains and diversion banks shall be installed where necessary.<br>• Machine movements should not be through water courses.<br>• Minimise exposed areas and ensure access tracks have well maintained table drains and culverts.<br>• Drainage works will, when possible, seek to mimic natural drainage patterns and utilise natural drainage lines with retained vegetation.<br>• Contour banks and contour drains may be used, if necessary, to capture and slow down water that would otherwise gather momentum as it travels down the slope.<br>• Working areas will be kept in as dry condition as possible (mud areas should be avoided), and machinery should avoid be driven through flowing water.<br>• Rate of run-off increases dramatically following vegetation removal, hence the total area exposed will be kept to a minimum.<br>• Tracks and the access road will be constructed to control the grade, have table drains installed, and with regular cross drains or culverts installed. Culverts should discharge into natural drainage lines that are stable and vegetated via properly constructed spillways, ripraps, or culverts.<br><br>Sediment Control – The requirements outlined in Section 7.9.2.2 of the QCP<br>• Run-off from working areas should be collected in settling ponds before discharging. |

| | |
|---|---|
| | • Settlement ponds should be utilised to remove sediment in run-off.<br>• Run-off should be directed through existing vegetation where possible.<br>• Sediment ponds are to be maintained as necessary to remove sediment build-up.<br>• Sediment ponds should discharge into natural drainage lines.<br><br>Water Quality – The requirements outlined in Section 7.9.2.3 of the QCP<br>• Discharge should be visibly free of oil and grease.<br>• Onsite reuse of stormwater run-off can be used for watering roads, washing, promoting revegetation etc. |
| **Best Practice Erosion & Sediment Control** | The Best Practice Erosion & Sediment Control (IECA, 2008) guidelines suggest capacity of drainage networks should be capable of conveying run-off from storms with a recurrence interval up to 1 in 10 years. |
| **Tasmanian Waterways and Wetlands Works Manual (2003)** | Aspects of this manual are relevant, especially the following points –<br>• 2.2 Minimise sediment disturbance and control erosion,<br>• 3.7 Protect stream-entry points, and<br>• 3.9 Revegetate. |

*C-2-3 RISK ASSESSMENT AND POTENTIAL IMPACTS*

**Table 8** provides a risk assessment of the potential impacts caused by stormwater emissions from the Activity. The assessment is conducted before and after the implementation of control measures.

Polluted Stormwater

Disturbed areas (unvegetated) have the potential to generate sediment in runoff during heavy (high intensity) and/or sustained periods of rainfall. Sources of sediment from uncontrolled or high-volume surface runoff including for example unsealed roads and tracks, partly rehabilitated or areas under Rehabilitation, and the Pit which includes the active working surface.

Operations may also be a source of hydrocarbons that if unmanaged or poorly managed could enter waterways and impact aquatic life. Accidental releases or seepages of environmentally harmful substances like hydrocarbons (such as fuels, oils, and lubricants), herbicides, or different types of waste streams pose a risk to ground and surface waters either directly or through stormwater drainage, or seepage when not appropriately handled. When these substances enter water bodies in substantial concentrations, they can cause severe harm to aquatic plants and animals, either through direct toxicity or by adversely affecting water quality and habitat through secondary effects.

There are no watercourses in or adjacent to the Development Area (**Figure E-4a and E-4b**) so the risk of existing watercourses being polluted by sediment or hydrocarbons from the Activity is effectively nil. The sands are freely draining, with little to no water ponding or accumulation into drainage features (watercourses are absent) but infiltration may cause very minor contamination of groundwater.

Sediment Basin discharge

When overflowing, the sediment basins would not discharge to a watercourse. The environmental risk from the proposed stormwater discharge arrangement is two-fold:

1. Establishment of a concentrated flow of stormwater when the sediment basins do discharge to the environment that may cause surface erosion, scouring and/or displacement of leaf litter from the sand surface (if present) below the outlet structure; and/or
2. Sediment accumulation on vegetation below the outlet structure(s).

Practically, the stormwater discharged if it contained sediment (which ius unlikely) is to overland flow through vegetation and not into a receiving waterway, and that vegetation itself is growing on lime sands which are identical to the sediment that may be released from the sediment basins. The risk of any harm is negligible to nil.

Liquid waste (septic)

The installation of an on-site wastewater management system is proposed to treat and dispose of wastewater derived from toilets and ablution facilities. It is proposed to install a septic tank absorption bed discharging to an in-ground absorption bed. The on-site wastewater management system design caters for a daily design loading of up to 5 persons with a per capita loading of 40L/person/day.

**Attachment 5** provides a detailed assessment of the location of the proposed on-site wastewater management system and a design to cater for the intended level of use. The wastewater discharge from the premises into the absorption trenches will be broadly like domestic wastewater; there will be no industrial or trade-waste discharge to the installation; this is consistent with Clause 1.2.1 of *AS/NZS 1547:2012 Domestic on-site waste-water management*.

The location of the installation and trenches are shown in **Figure B-1.**

The site is underlain by Quaternary deposits of windblown sand of marine origin (coastal sand dunes); this is consistent with soil profiles observed on-site (see Appendix 2 of **Attachment 5**). The marine sands contain a high proportion of calcareous material (marine mollusc shell derived), which makes them attractive for extraction for agricultural usage, for soil pH modification. Calcium carbonate from shell grit present in the wind-blown beach sand is subject to solution by rainwater and redeposition as a calcareous matrix, cementing sand grains together, forming discrete layers of hardpan, which is considerably less permeable than the unconsolidated sands. A hardpan was encountered at a depth of 1,100-1,200mm (**Attachment 5**); however, it is likely that this hard pan could be present at varying depths, therefore, soil profile modifications to ensure uniform permeability under the land application basal area will be required. This will be achieved by excavating absorption beds to a minimum depth of 1,500mm and backfilling with loose, unconsolidated sand, prior to installing the absorption bed infrastructure.

The buffer distance of 350m to the nearest saltmarsh/wetland is consistent with the Acceptable Solutions under the Director's Guidelines for on-site wastewater management systems, for separation from surface water for a land application area for primary treated effluent.

Groundwater depth is believed to exceed 4m; vertical separation from base of land application area is consistent with Acceptable Solutions for application of primary treated effluent under the Director's Guidelines.

System installation and associated pipework and trenches will be performed by qualified personnel.

Water Tanks

Tanks will be installed (likely to be 2 x 50,000 litre) to capture rainwater from the shed. The tanks may also receive water from a groundwater bore that may be installed in the future via a permit granted under the *Water Management Act 1999* (see **Figure B-1**). Overflow from the tanks will be directed to the permanent sediment basin to be installed for the Pad Area (**Attachment 7**, pg. 14).

*C-2-4 MITIGATION AND MANAGEMENT*

Stormwater emissions will be controlled and managed to remove pollutants (by gravity) to the extent necessary to prevent environmental nuisance. Mitigation measures in **Table 8** will be implemented.

Sediment Basins

All rainfall that falls onto disturbed areas will be collected into sediment basins, treated for sediment removal (gravitational removal treatment only, no use of flocculants or other additives is proposed), and subsequently discharged to the environment if basins overflow.

The treated stormwater runoff accumulated in basins may be repurposed for operational activities within the Pit and shed, including sand screening and blending, and road dampening. Due to high water infiltration of the soil (evident by the lack of ponding and surface water accumulation even during heavy and sustained rainfall events), the total demand for these basins to treat captured stormwater will be relatively low; supported by calculations in Table 3.2 of **Attachment 7.**

A set of Technical Drawings illustrate the sediment basins and other drainage features to be installed, which are listed below (see Attachment 1 of **Attachment 7**).

**DRAWING LIST**

| | DRAWING NO. | REVISION | DESCRIPTION |
|---|---|---|---|
| 1 | VDC/MSP/A/001 | 0.0 | COVER PAGE |
| 2 | VDC/MSP/A/002 | 0.0 | SITE LAYOUT |
| 3 | VDC/MSP/A/003 | 0.0 | CONCEPTUAL TYPE F SEDIMENT BASIN DESIGN |
| 4 | VDC/MSP/A/004 | 0.0 | SEDIMENT BASIN BS-C1 DESIGN |

*Pad Area*

The Pad Area surface will be constructed of compacted graded gravel with a semi-permeable finish. Sediment generation from such a compacted gravel surface is likely to be relatively low. However, over time, the top layer of the gravel may loosen and be carried away with stormwater runoff, especially during intense rainfall events such as a thunderstorm.

To avoid clean stormwater entering the Pad Area (**Figure B-1**), a diversion drain shall be installed along the northern extent with the pad surface sloping (approx. 1%) towards that drain (see flow indicators in **Plate 3**). The diversion drain will direct stormwater to the sediment basin (see also **Figure B-1**).

A Type C sediment basin is proposed for the Pad Area, with a design in Drawing Number VDC/MSP/A/004 (see extract of Plan View in **Plate 4**), which may be operated as either "dry" or "wet" basins depending on the requirement for stormwater reuse on the site. The basin design criteria were set to capture 0.1mm particles during a 1 in 20 years stormwater event. The risk of not precisely knowing the particle size distribution of the sands and other possible sediments contributing to 'polluted stormwater' is very low to negligible because when discharged, treated wastewater (i.e., polluted stormwater that has been captured and detained to facilitate sediment removal) is to be directed through vegetation. The basin design specifically includes an outlet structure to dissipate water (to prevent the erosive forces of a concentrated flow) and encourage overland flow and rapid infiltration.

The critical parameter in a Type C basin is the effective surface area. It is not expected the size of the proposed Pad Area (hard stand area) will significantly change over the life of the Activity so the sizing of $32m^2$ of surface area, and $22m^3$ of volume, shouldn't change over time (see Table 4.3 of **Attachment 7**).

*Pit*

Based on the soil characteristics described in the *Geomorphology and Soil Characteristics Survey Report* (Table 1 of Slee 2024) it was decided to implement Type F basins for collecting and treating stormwater runoff (sediment removal by gravity) from the Pit. These basins are generally suitable for fine grained soils that can readily settle without the need for flocculating agents. The critical design parameter for a Type F basin is the volume of the settling pond. Type F basins are typically designed for a maximum 5-day cycle; the filling, treatment (sediment removal by gravity), and discharge of the basin within a maximum of 5-day period. Table B4, Book 02 of IECA Guidelines suggests an $80^{th}$ percentile 5-day rainfall depth to calculate settling zone volume of the sediment basin for basins with design life greater than 6 months. Table B8 of IECA Book 2, provides the guidelines to size the sediment storage volume of a sediment basin.

Indicative sediment basin locations for the initial 5 years of extraction activities are shown in **Figure B-2** and Drawing Number VDC/MSP/A/002 (see extract of plan view in **Plate 5**).

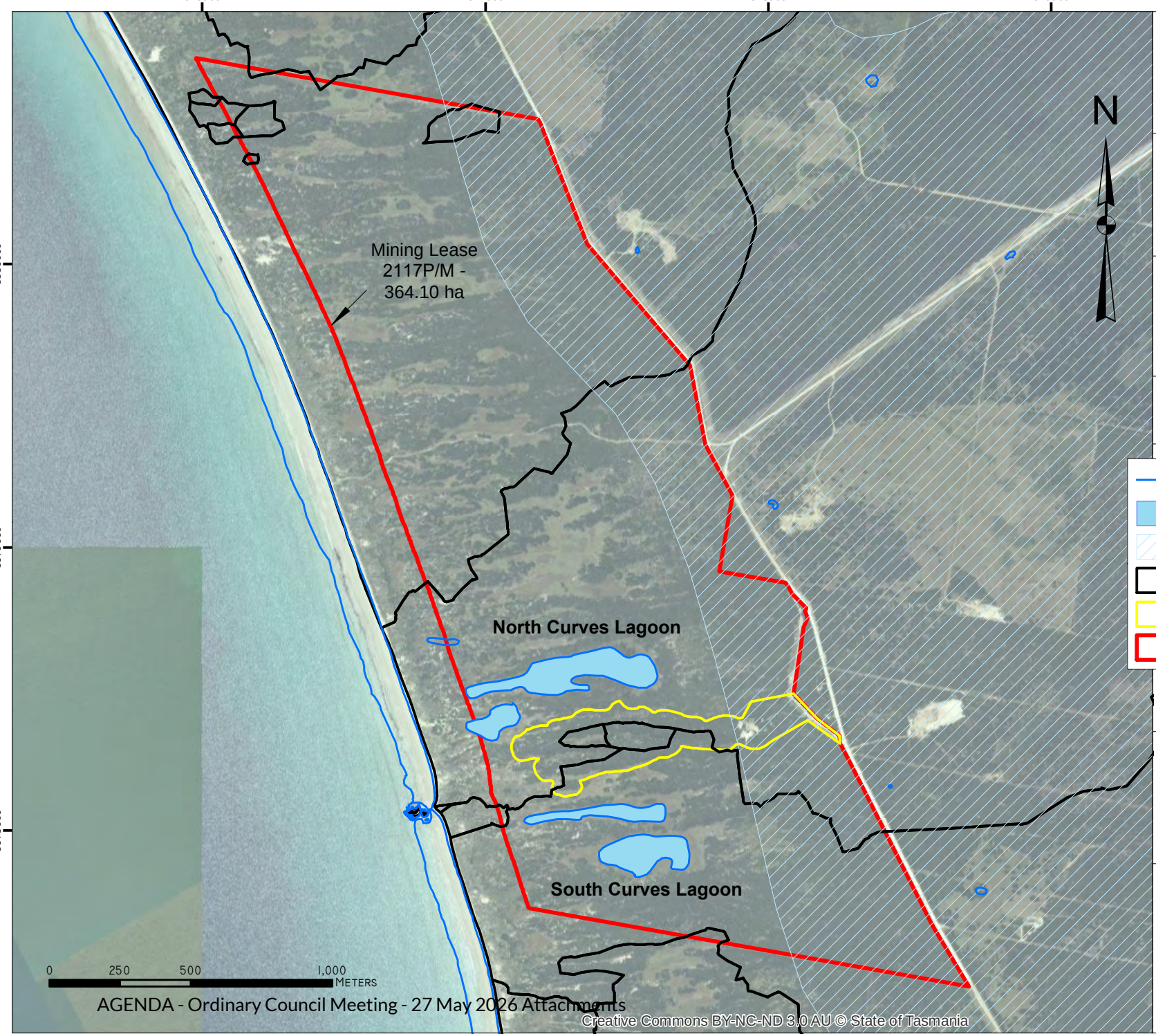
As the sand extraction area of the Pit advances and rehabilitation occurs, BS-F1 and BS-F2 will become redundant, and new basins will be installed to treat stormwater (sediment removal by gravity) runoff from new disturbed areas as required. The Pit Manager is to refer to Table 4.3 (**Attachment 7**) to determine the size of the basins which are to be constructed per the conceptual design in the Drawing Number VDC/MSP/A/003 (see extract of conceptual 3D visualisation in **Plate 6**).

Monitoring structures and basin discharge impacts

Regular visual monitoring (monthly) is to be undertaken to ensure the effectiveness of the installed stormwater management and sediment control structures. Repairs and remedial works (including basin cleaning) are to be performed to maintain sediment settling zones to those required and ensure that stormwater is entering and leaving the basin as planned.

The effect on vegetation and the soil surface from basin runoff is to be monitored, and remedial actions taken if the soil surface becomes scoured or vegetation becomes covered by discharged sediment. Remedial works include for example, the expansion of the outlet structure (additional rock), and/or the installation of surface protection measures like jute mesh, and/or vegetation slash.

Water quality testing is not proposed.




# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-4a: Current drainage, catchment boundaries and CFEV areas

**TASMAP:** TANNER EMITA

**LGA:** FLINDERS

- The LIST Hydlines
- CFEV Wetlands
- CFEV Karst
- CFEV River Section Catchments
- Development Area (The Land)
- Mining Lease 2117P/M

Base data by TASMAP. © State of Tasmania
Base image by TASMAP. © State of Tasmania

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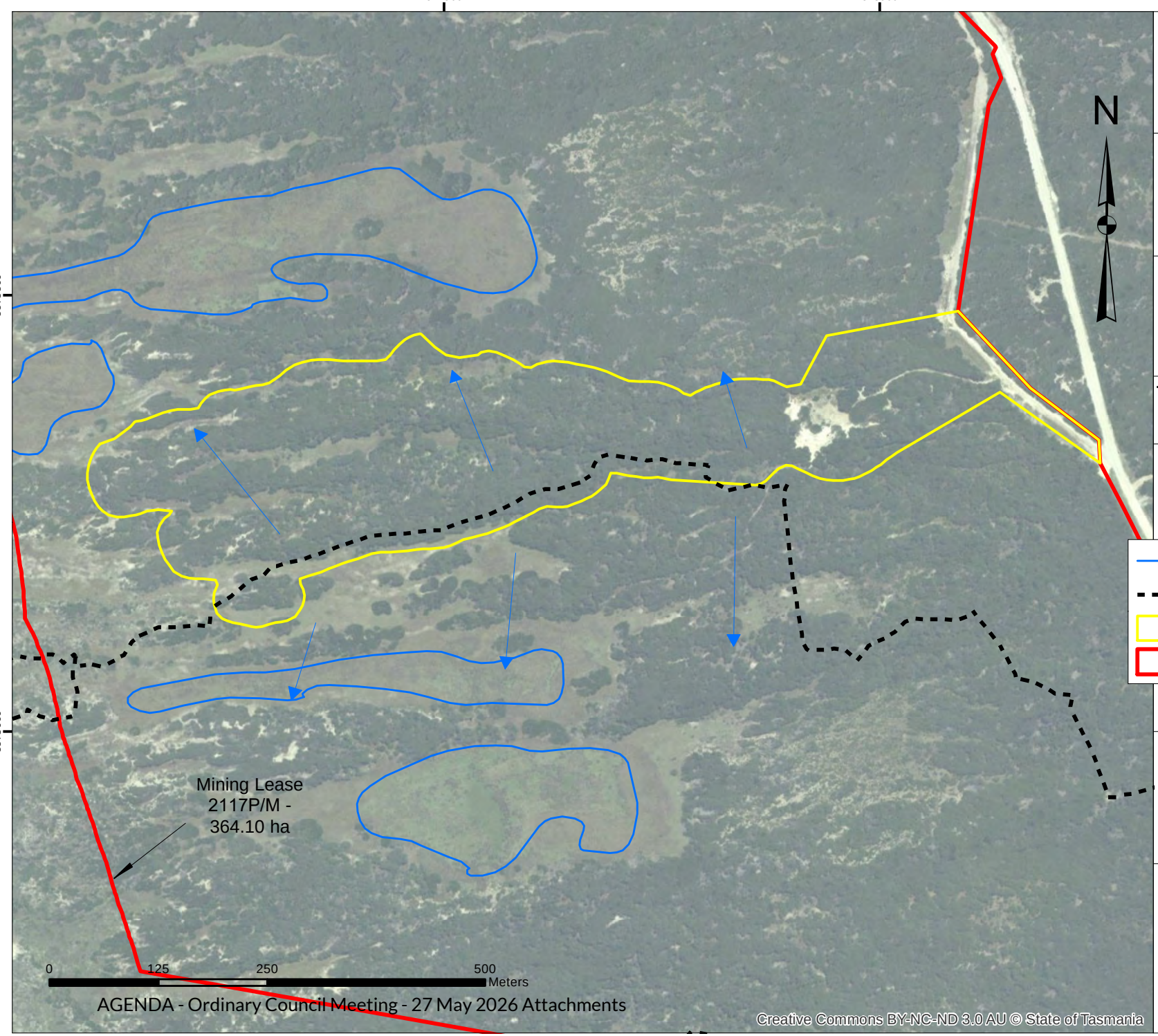
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CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 4 JULY 2024



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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-4b: Final drainage and catchment boundaries

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

- The LIST Hydlines
- Final River Section Catchments
- Development Area (The Land)
- Mining Lease 2117P/M

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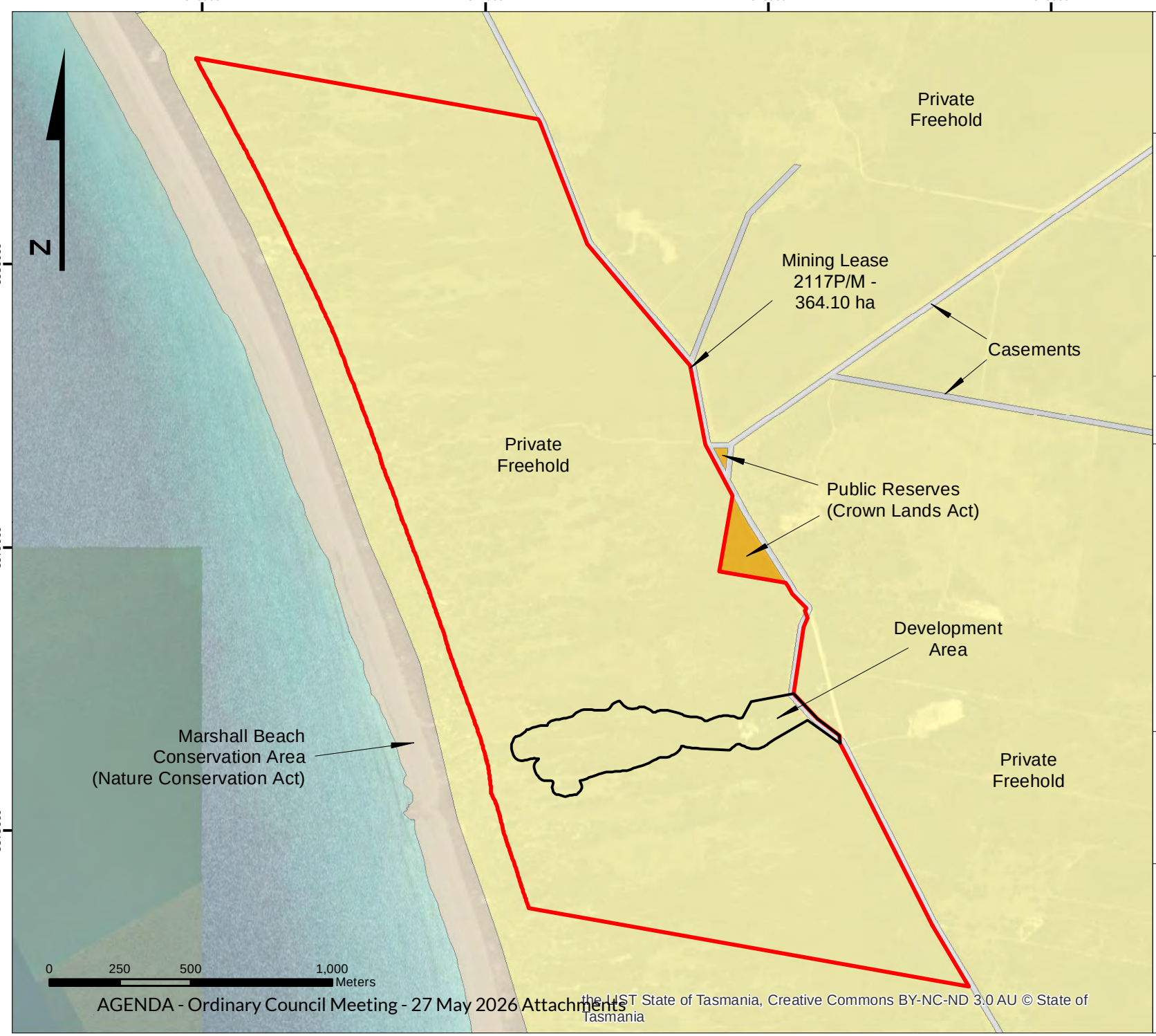
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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-5: Land tenure (including Reserves) around Markarna Park Sand Pit

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Development Area (The Land)

Mining Lease 2117P/M

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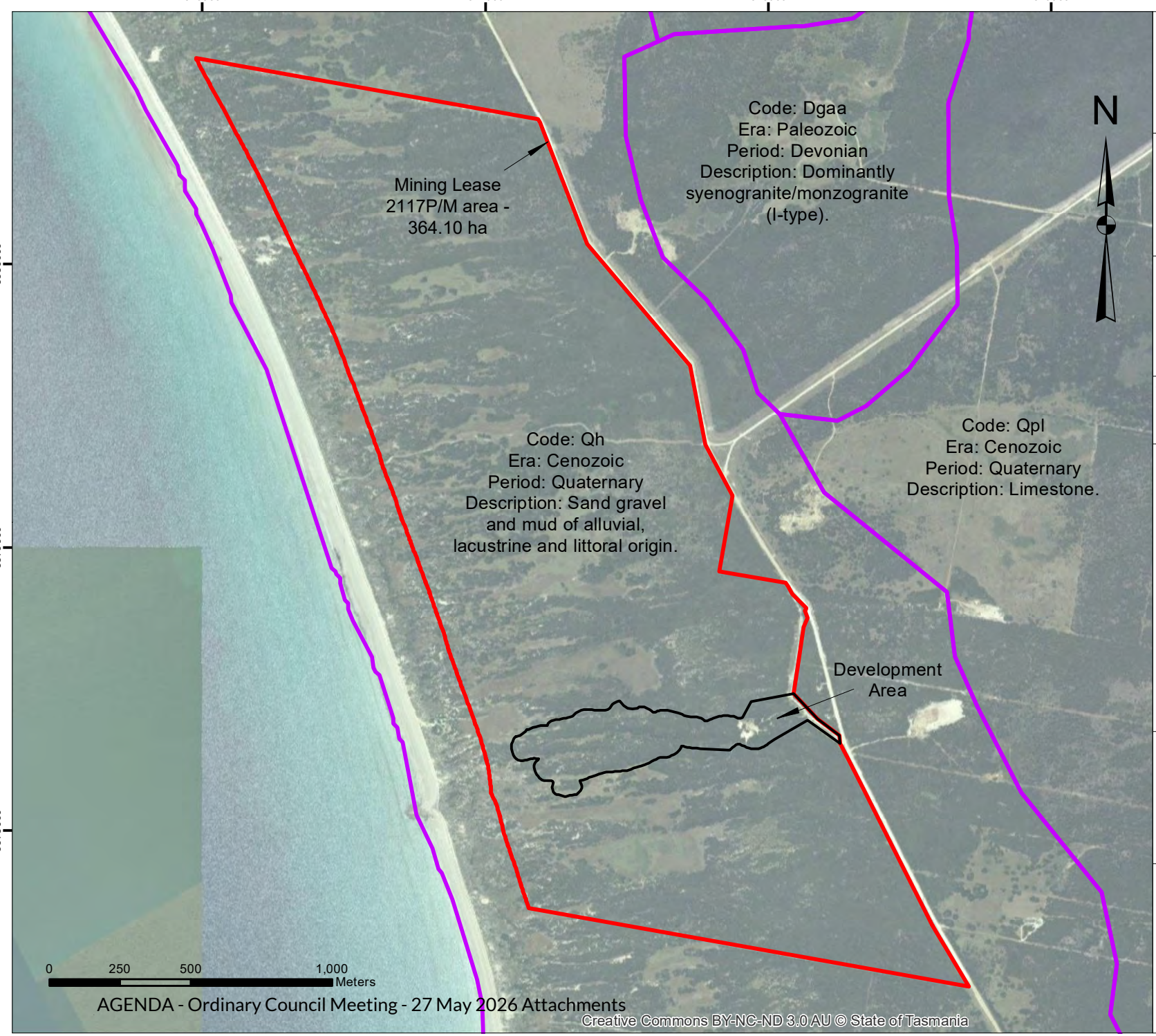


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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-6: Geology (1:250,000 – MRT) around the Development Area

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Geology(1:250,000)
Development Area (The Land)
Mining Lease 2117 P/M

Base data by TASMAP. © State of Tasmania
Base image by TASMAP. © State of Tasmania

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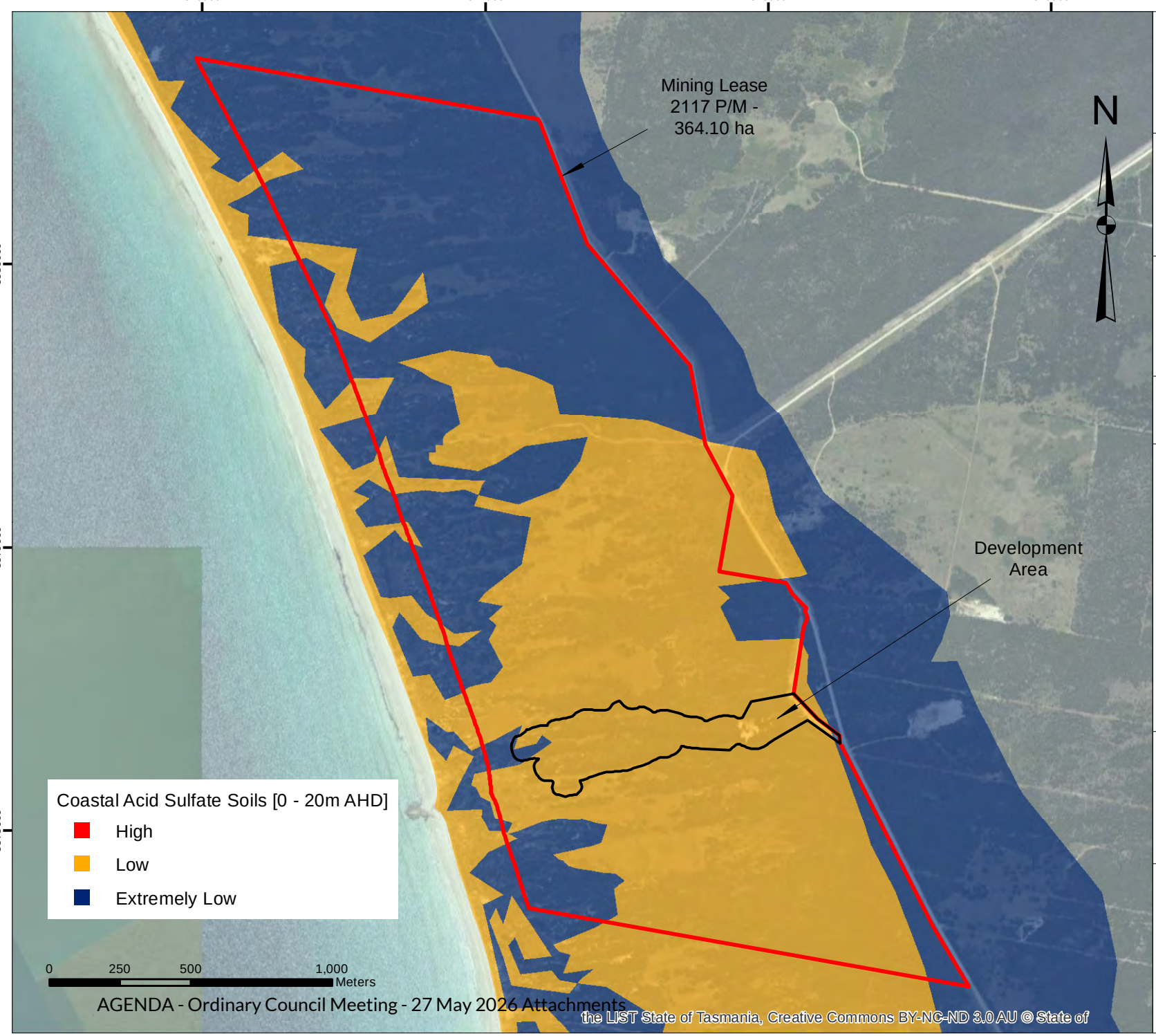
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COMPANY PTY LTD

DATE: 4 JULY 2024



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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-7: Coastal Acid Sulfate Soils (0-20m AHD)

**TASMAP:**
TANNER
EMITA

**LGA:**
FLINDERS

Development Area (The Land)
Mining Lease 2117P/M

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GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING
COMPANY PTY LTD

DATE: 4 JULY 2024



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**Plate 3. Proposed drainage measures at the Pad Area of the Marshall Bay Sand Pit**

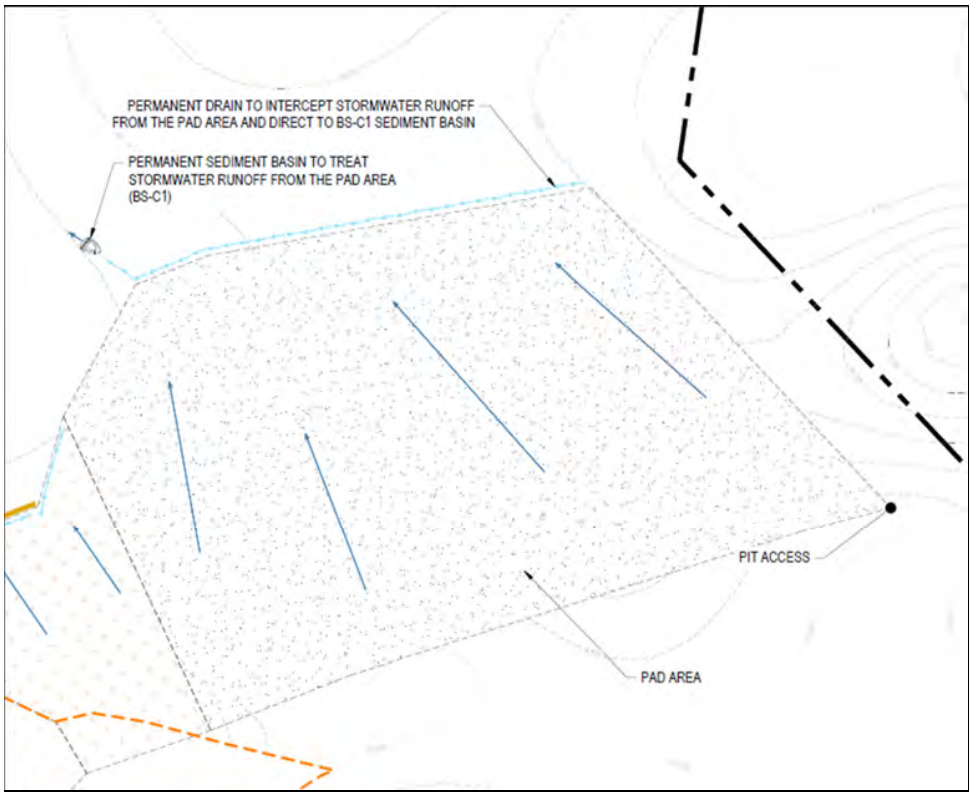



**Plate 4. Proposed sediment basin at the Pad Area of the Marshall Bay Sand Pit**

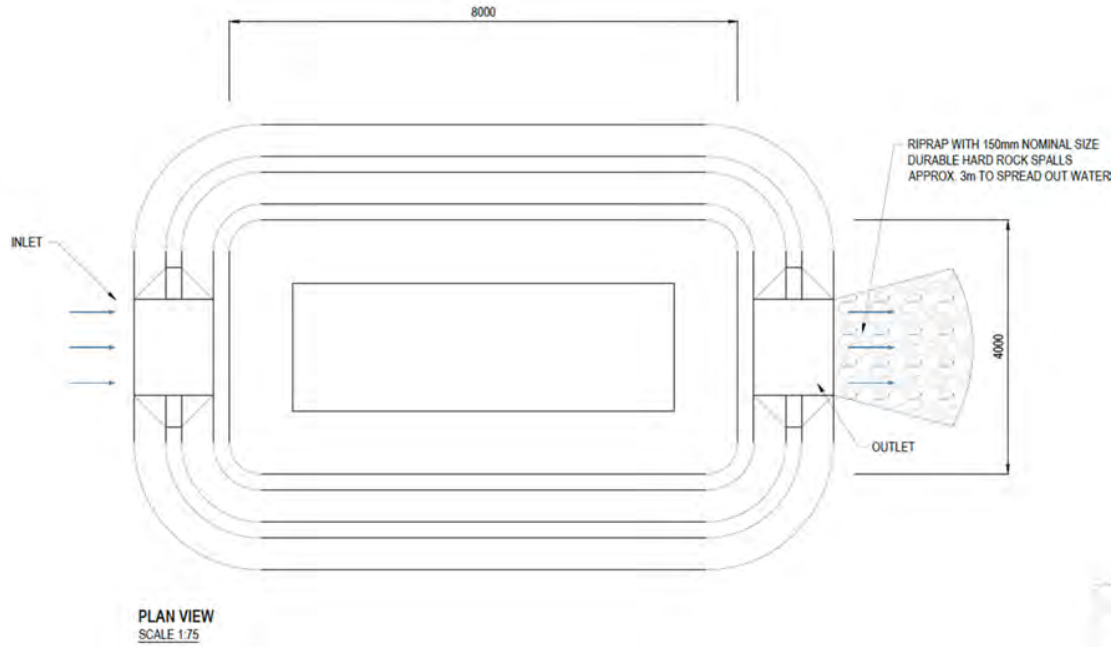


**Table 8. Risk assessment for stormwater emissions from the Pit and associated activities and proposed control measures**

| Location | Activity or action that may cause impact | Pre-Control Risk Assessment | Control Measures | Final Risk Assessment |
|---|---|---|---|---|
| **The Land** | • The clearing of vegetation that increases the area of exposed soil susceptible to water erosion.<br>• Uncontrolled discharge of polluted stormwater. | **Medium**<br>**(Likely – Moderate)** | • Minimising the geographic extent of exposed soil.<br>• Establishment of sediment basins, diversion drains, and other drainage systems at the Activity. | **Low**<br>**(Possible – negligible)** |
| | <u>Sediment Basins</u><br>Establishment of a concentrated flow of stormwater when the sediment basins do discharge to the environment that may cause surface erosion, scouring and/or displacement of leaf litter from the sand surface (if present). | **Medium**<br>**(Likely – Moderate)** | • Sediment basin designed to have outlet structure inclusive of rock to disperse overland flow.<br>• Utilisation of slash obtained from cleared areas or other product (jute mesh) to stabilise the soil surface, and to limit the spread of sediment.<br>• Visual monitoring of flow and the effects of high concentration flow including scouring and displacement of leaf litter and sand. | **Low**<br>**(Possible – negligible)** |
| | <u>Sediment Basins</u><br>Sediment accumulation on vegetation below the discharge outlet caused by high flows, and/or failure of basin to trap sediment. | **Low**<br>**(Possible – negligible)** | • More frequent cleaning and visual monitoring of the sediment settling zone, enlargement of sediment basin.<br>• Utilisation of slash obtained from cleared areas to stabilise the soil surface, and to limit the spread of sediment. | **Low**<br>**(Possible – negligible)** |

| Location | Activity or action that may cause impact | Pre-Control Risk Assessment | Control Measures | Final Risk Assessment |
|---|---|---|---|---|
| | Contamination of groundwater by the infiltration of spilled hydrocarbon products | **Low**<br><br>**(Possible – negligible)** | • Readily available spill kits on site;<br>• Store products in suitably sized bunded containers;<br>• Train personnel to use spill kits and establish emergency procedures in the event of a spill;<br>• Refuel only in bunded and/or hardstand area; and<br>• Daily pre-start checks on machinery to minimise the risk of spills; ensure machinery and equipment is functional, hoses are correctly fitted and secure, and caps on fluid tanks are tightened. | **Low**<br><br>**(Possible – negligible)** |

**Plate 5. Sediment basin locations for the sand extraction area of the Marshall Bay Sand Pit**

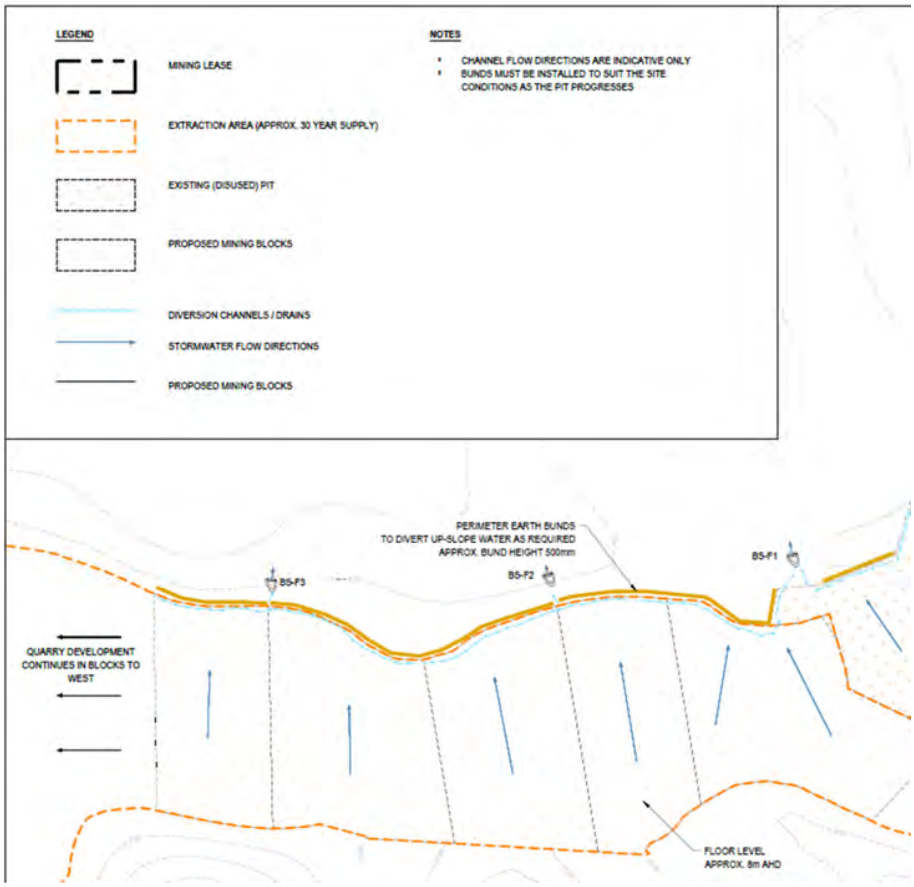
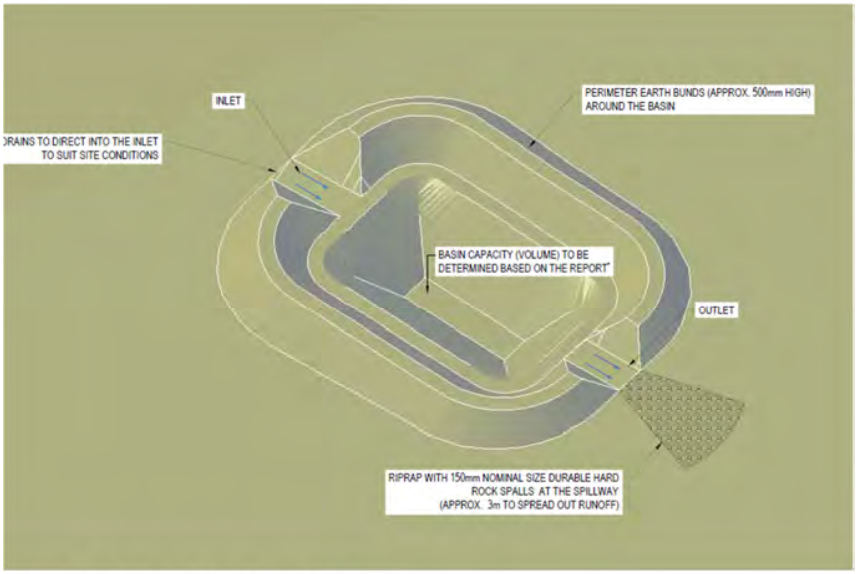



**Plate 6. Proposed sediment basin design for the sand extraction area of the Marshall Bay Sand Pit**




**CONCEPTUAL 3D VISUALIZATION OF TYPE F SEDIMENT BASIN**
SCALE N.T.S.

Groundwater (karst) management

Due to the high infiltration rates of water, all necessary controls must be implemented to prevent spills or hazardous substances from entering the groundwater.

Environmental management controls will be -

- Readily available spill kits on site;
- Storage of products in suitably sized bunded containers;
- Training personnel to use spill kits and establish emergency procedures in the event of a spill; and
- Daily pre-start checks on machinery to minimise the risk of spills; ensure machinery and equipment is functional, hoses are correctly fitted and secure, and caps on fluid tanks are tightened.

**C-3 NOISE EMISSIONS**

The Pit will operate intermittently, with sand likely to be transported in greater volumes during summer and autumn because these seasons coincide with the peak activity periods for agricultural pasture improvement, maintenance, and establishment. There would be little to no carting activity in winter as truck access to pastures for the spreading of lime sand is difficult to impossible.

No blasting is proposed, nor is it required to conduct the Activity.

*C-3-1 NOISE GENERATING EQUIPMENT*

Type and Assumed Sound Power Levels

**Table 9** lists the assumed sound power level for the machinery and equipment to be used at the Activity. The actual equipment used at the Pit will vary over time as equipment is replaced.

Location, duration of use, and possible period of peak activity

Tasks for the Activity at the Pit can be grouped, with each task generally having its own suite of machines and equipment to perform it. For example, the sand excavation process would involve the use of a bulldozer, excavator, water truck and haulage truck.

**Table 9** groups machinery and equipment to be used at the Activity with the corresponding likely location of their use, and the period (total) that the task may be conducted for each year. **Figures B-1 and B-2** provide reference to the terms used in **Table 9**.

A possible peak period for each task is also nominated, which reflects the operational requirement to strip and clear areas, excavate lime sands and then have those sands ready for carting to agricultural lands by March (at the latest) each year. Carting could occur at anytime of the year, with a peak in March to May.

*C-3-2 NOISE SENSITIVE PREMISES*

There are no residences or other NSPs within 1 km of the Development Area.

The nearest residence is 1.15km to the south-east, and 1.17km to the Extraction Area (**Figure E-8**). The same residence is marginally within 300m of the Mining Lease.

There are two other lime sand pits (ML 2059P/M, and 2056P/M; both pits are Level 1 activities and are permitted to extract up to 4,999 cubic metres per annum) that are closer to the residence than the Marshall Bay Lime Sand Extraction Pit (see **Figure E-8**).

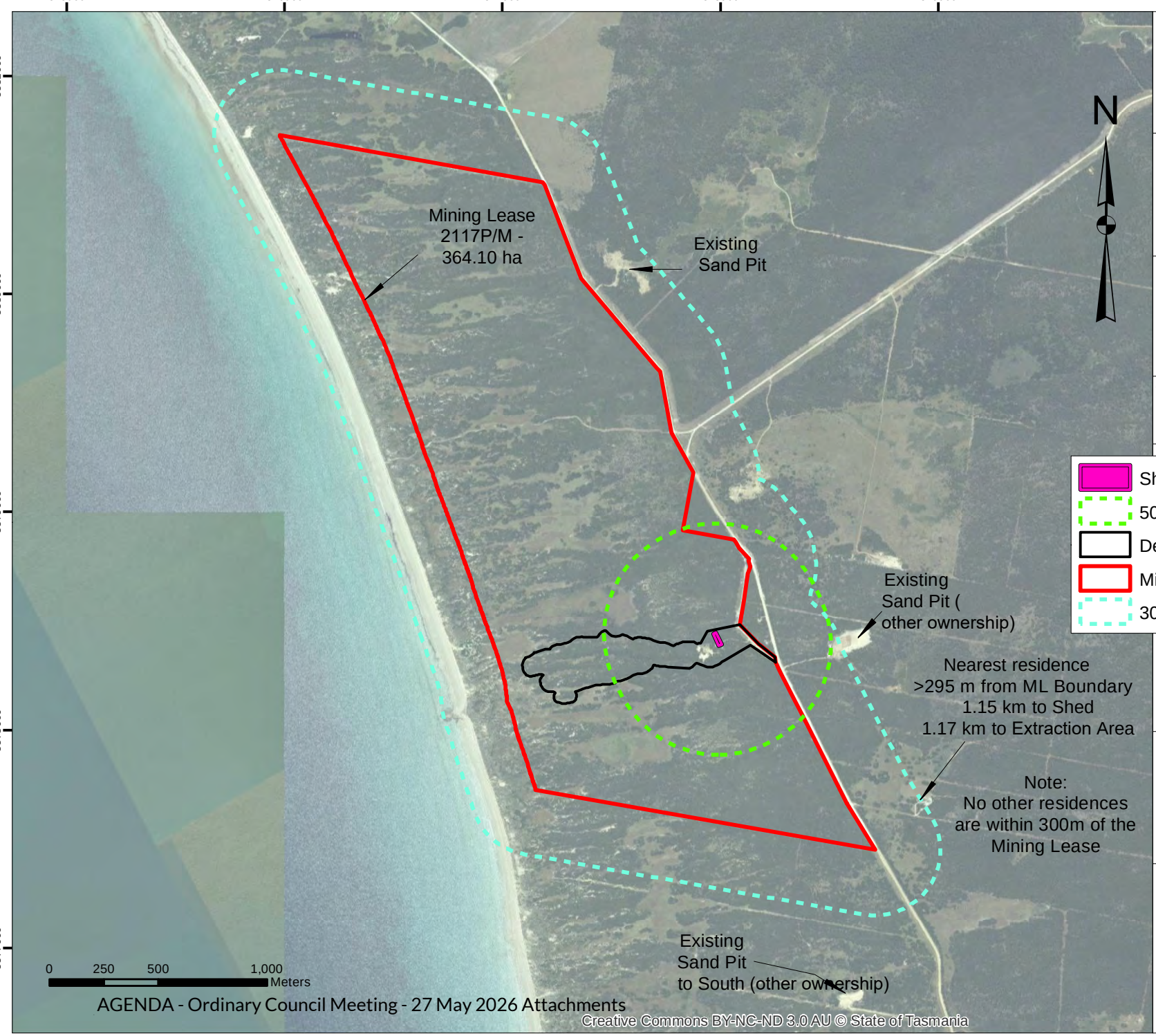
**Table 9. Assumed sound power level for machinery and equipment and primary areas of their use and activity levels**

| CATEGORY OF ACTIVITY | EQUIPMENT/MACHINERY | ASSUMED SOUND POWER (dBA) | PRIMARY USE LOCATION AT PIT (REFER FIGURES B-1 AND B-2) | POSSIBLE TOTAL DURATION OF USE AND PEAK ACTIVITY |
|---|---|---|---|---|
| **Stripping/clearing/Rehabilitation** | CAT D9H Bulldozer | 110 | **Development Area** with sand extraction limited to the Extraction Area | Weeks to several months per annum after initial clearing and establishment of infrastructure. |
| | CAT 140G Grader | 109 | | |
| **Sand excavation** | CAT D9H Bulldozer | 110 | **Development Area** with sand extraction limited to the Extraction Area | Several months per annum (likely peak from December to March) |
| | CAT 329D Excavator | 99 | | |
| | Water truck and haulage truck | 107 | | |
| **Screening/blending** | Powerscreen 2 & 3 deck screens | 113 | **Shed** and associated Pad area, with some in Pit screening of organic debris and rocks (limited to the Extraction Area) | Several months per annum (likely peak from December to March) |
| | CAT 966H Loader | 107 | | |
| **Loading/stockpiling** | CAT 966H Loader | 107 | **Shed** and associated Pad area and Raw stockpiles in Extraction Area | Several months per annum (likely peak from December to March) |
| **Cartage** | Truck (with or without trailer) | 107 | **Shed** and associated Pad area and access road | Most of the year at varying levels of intensity (peak from March to May) |

*C-3-3 PERFORMANCE REQUIREMENTS*

| Document | Requirements/Guidance |
|---|---|
| **Quarry Code of Practice** | Key considerations in the QCP include –<br>• Under certain circumstances, it is appropriate for the regulatory authority to differentiate between certain activities taking place on the land.<br>• Enclosures may be required around crushing and screening plants.<br>• Solid barriers, such as bund walls and topographical features, provide the most effective 'in line' reduction of sound levels. Reliance on a barrier of vegetation alone will result in only marginal reduction in noise levels.<br>• Access tracks and haul roads should be well maintained to prevent corrugation that contributes to truck noise, and truck drivers should be encouraged, where possible, to use access roads which have the least impact on the community.<br>• Machinery should be well maintained and lubricated. Modern equipment is generally quieter than ageing machinery.<br>• Compressors, noisy engines, generators, and exhausts should be fitted with silencers.<br>Noise emission limits set by the QCP are:<br>Noise from quarrying and associated activities, including equipment maintenance, when measured at any neighbouring sensitive use must not exceed the greater of:<br>• the A-weighted 10 minute L90, excluding noise from the quarry, plus 5 dB(A), or<br>• the following levels:<br>▪ 45 dB(A) from 0700 to 1900 hours (daytime)<br>▪ 40 dB(A) from 1900 to 2200 hours (evening), and<br>▪ 35 dB(A) from 2200 to 0700 hours the following day (night time)<br>when measured as a 10 minute $L_{eq}$.<br>Only the daytime emission level (45dB(A)) is relevant as works at the Pit are not proposed outside these hours. |

| | |
|---|---|
| **Tasmanian Environment Protection Policy (Noise) 2009** | The objectives of this policy are –<br><br>(a) to further the objectives of the Act as they relate to the acoustic environment; and<br><br>(b) to protect the environmental values specified in clause 7.<br><br>The environmental values to be protected under the Noise EPP are the qualities of the acoustic environment that are conducive to:<br><br>• the wellbeing of the community or a part of the community, including its social and economic amenity; or<br><br>• the wellbeing of an individual, including the individual's –<br><br>- health; and<br><br>- opportunity to work and study and to have sleep, relaxation and conversation without unreasonable interference from noise.<br><br>The following Pit relevant provisions and clauses are reproduced below from the policy.<br><br>*PART 4 – TRANSPORT INFRASTRUCTURE*<br><br>The policy recognises that although the operation or use of public roads, railways, ports or airports may prejudice protection of the environmental values, the function the transport network serves is necessary for the community's economic, environmental and social wellbeing. Notwithstanding this, it is intended that –<br><br>(a) transport planning initiatives for freight and passenger movement and new transport infrastructure be developed in a systematic way to achieve an optimal balance of economic, environmental and social benefits and costs with a major criterion of minimising the number of people exposed to noise levels that would prejudice protection of the environmental values; and<br><br>(b) where environmental values are acutely prejudiced, existing transport infrastructure noise should be reduced to the greatest extent that is reasonably practical, consistent with achieving an optimal balance of economic, environmental and social benefits and costs.<br><br>*PART 5 – COMMERCIAL AND INDUSTRIAL ACTIVITIES*<br><br>Regulatory authorities should assess, manage and regulate proposed commercial and industrial activities that are sources of noise with the objective of protecting the environmental values. Best practice environmental management should be employed in every activity to reduce noise emissions to the greatest extent that is reasonably practical. Dominant or intrusive noise characteristics of noise emissions from an activity should be reduced to the greatest extent that is reasonably practical. |




Shed (60.3 x 15 m)
500m Buffer on Shed (Sand Screening)
Development Area (The Land)
Mining Lease 2117P/M
300m Buffer on ML

# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-8: Residences near to the Development Area

**TASMAP:** TANNER EMITA

**LGA:** FLINDERS

Base data by TASMAP. © State of Tasmania
Base image by TASMAP. © State of Tasmania

Van Diemen CONSULTING
PO Box 1 New Town TAS 7008

DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 4 JULY 2024



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*C-3-4 RISK ASSESSMENT AND POTENTIAL SOURCES*

All earth-moving operations have the potential to produce noise. Where residences exist adjacent to a Pit, which is not the case here, precautions are to be taken to reduce the impact of noise and vibration.

The major noise sources from the Pit have been identified as follows: -

- clearing of vegetation and the stockpiling of soil into bunds and vegetation into stockpiles;
- establishment of tracks, sediment basins, drains and associated infrastructure (i.e. shed and septic system);
- rehabilitation works;
- screening and blending of sand; and
- use of ancillary equipment; excavators, screens (vibratory/mechanised), use of a loader, and truck movements.

The exclusion of high noise emitting tasks from the Activity, such as drilling, blasting, and crushing, combined with the large distance of the Activity to the nearest NSP (see C-3-2 NOISE SENSITIVE PREMISES) effectively reduces the risk of generating a noise nuisance to low or negligible levels.

*C-3-5 MITIGATION, MANAGEMENT AND NET IMPACT ASSESSMENT*

The Pit is ideally located in an area without nearby NSP such that there is virtually no potential for any impact arising from noise generated by the Activity, including the haulage of sands onto the road network.

Equipment will be well maintained and late model machines with proprietary exhaust silencers fitted to ensure noise emissions are as low as possible.

Pit operations will occur during normal daytime hours of 0700 – 1900 hrs Monday to Friday.

No specific noise attenuation management measures are warranted, and the intent/requirements of the Noise EPP are satisfied.

**C-4 NATURAL VALUES**

**Specialist Report – Natural Values Assessment**

VDC was engaged by Markarna Grazing Company Pty Ltd, to carry out a Natural Values Assessment to survey, assess, and document for example, the occurrence and status of vegetation communities and habitat for threatened flora and fauna species in the Development Area and relevant surrounds.

**Specialist Report – Geomorphology including karst**

Van Diemen Consulting Pty Ltd engaged Dr Adrian Slee of the Forest Practices Authority (FPA) to investigate the geomorphology, present on the Mining Lease owned by the Markarna Grazing Company. The field work and report were completed by Dr Adrian Slee, with the report (Slee, 2024) provided in **Attachment 9**. The report forms part of this EIS and the following section should be read in conjunction with it.

The VDC (2024a) and Slee (2024) assessment reports form part of this EIS and are in **Attachment 4** and **9** respectively and should be read in conjunction with this section.

*C-4-1 EXISTING CONDITIONS*

The natural values present in the Development Area and relevant surrounds to the proposed activity were assessed and reported by Van Diemen Consulting Pty Ltd (2024a; **Attachment 4**).

Vegetation Communities

Two native vegetation types occur in the Development Area (**Figure E-9**); *Coastal scrub on alkaline sands* (TASVEG code - SCA) and *Coastal grassland and herbfield* (TASVEG code – GCH).

The remainder of the Survey Area is comprised of access tracks (some currently used and others not), roads, and a disused sand pit and its associated historical disturbance (naturally regenerating) area. **Table 10** provides a list of the TASVEG 4.0 codes mapped in the Development Area.

**Table 10. TASVEG 4.0 mapping categories recorded in the Survey Area**

| TASVEG CODE | TASVEG COMMUNITY NAME | Threatened native vegetation community# | EPBC-listed or equivalent ecological community | Extent in the Survey Area (hectares) |
|---|---|---|---|---|
| **SCA** | Coastal scrub on alkaline sands | **No** | **No** | 14.356 |
| **GHC** | Coastal grassland and herbfield | **No** | **No** | 2.470 |
| **FUM** | Extra urban miscellaneous | NA | NA | 0.887 |

# Threatened native vegetation communities are those listed in Schedule 3A of the *Nature Conservation Act 2002*

Threatened Flora Species

Six flora species protected by a statutory mechanism ('Threatened flora') were observed during combined surveys in the Survey Area (TSP Act and EPBC Act listed) with observations shown in **Figure E-10**:

- *Acacia uncifolia*, coast wirilda (r/-)
- *Asperula minima*, mossy woodruff (r/-)
- *Eutaxia microphylla*, spiny bushpea (r/-)
- *Pimelea curviflora* var. *gracilis*, curved riceflower (r/-)
- *Roepera billardierei*, coast twinleaf (r/-)
- *Scaevola albida*, pale fanflower (v/-)

All threatened flora species observed would have plants taken as part of the development. No species listed on the *Environment Protection and Biodiversity Conservation Act 1999* were observed in the Development Area.

Threatened Fauna Species

No fauna species listed on the *Threatened Species Protection Act 1995* or *Environment Protection and Biodiversity Conservation Act 1999* were directly observed in the Survey Area during the surveys.

Habitat for several threatened fauna is present in the Development Area including:

- wedge-tailed eagle (*Aquila audax subsp. fleayi* – Foraging habitat is present.
- white-bellied sea-eagle (*Haliaeetus leucogaster*) – Foraging habitat is present.
- tussock skink (*Pseudemoia pagenstecheri*) – potential low *Poa* coverage areas in the buffer to the Survey Area (the part of the Disturbance Area that is not to be impacted by sand extraction and associated works).

No trees with the potential to support any hollow-dependent bird species, such as swift parrots or blue-winged parrots, were observed in the Development Area. It was determined based on the nature of the activity, and location and quality of habitat, that the activity would not cause any significant impact to any TSP Act or EPBC Act listed fauna species.

Weeds and Disease

Two Declared Weed species listed on the *Biosecurity Act 2019* were observed in the Development Area; horehound (*Marrubium vulgare*) and slender thistle (*Carduus pycnocephalus*).

No plants with PC symptoms were observed in the Development Area, and with the lack of susceptible species the water mould is unlikely to be present, or active, in the Development Area.

Geoconservation

Slee (2024) found that the main dune resource identified for extraction under the current development application (not the entire Mining Lease) is a series of up to 8–10 dunes formed between South and North Curves lagoons mapped on the 1:25000 map sheets of the area.

The current face of the old pit is noted by Slee (2024) to provide an interesting profile of dune stratigraphy and is of local scientific interest as it provides evidence of the history of formation of the dunes in this part of Flinders Island and could potentially be used to indicate paleoclimate conditions prevalent on the Island. However, while interesting exposure, many of the other unimpacted dunes in the region are likely to host similar paleosols and rhizoliths and therefore the features of the pit face are likely to be common within the landscape. The exposure is only visible because of past sand mining operations and has been photographed, sampled and described during the study by Slee (2024). Obscuring of the exposure by erosion and tree overturn means that this exposure has a limited lifetime; formal preservation of this site is likely to be impractical.

Resumption of sand extraction will destroy and remove the studied deposits but equally it is likely that extraction activities will expose further paleosols and tree root and stump rhizoliths in the sand dune. There is also a remote potential for archaeological deposits to be found within the dune particularly owing to its

carbonate-rich nature which is conducive to preserving organic material such as bones (e.g. there is a possibility that large bones associated with megafauna could be exhumed as could ancient human remains or evidence of occupation (fire hearths etc)).

Wetlands

Curves Lagoons are wetlands (which may be groundwater dependent in full or part) according to the GDE BOM[7] atlas. In contrast, CFEV mapping does not identify Curves Lagoons as GDEs (relevant CFEV layer accessed via TheLIST.tas.gov.au).

Curves Lagoons (North and South) are outside the Development Area (**Figure E-4a**) which was confirmed by the site surveys by VDC (2024a). Slee (2024) also noted that the extent of the wetlands at both North and South Curves Lagoons are significantly smaller than indicated on the 1:25000 topographic map and the TASVEG mapping. Significant areas of these features are undulating grassy dune fields. Slee (2024) also noted that no wetlands (swamps) as defined by the Forest Practices Code 2020 (Forest Practices Authority 2020, page 98) were documented in the main resource area (Slee 2024, **Attachment 9**).

Seabirds and Shorebirds

The Development Area was found to not contain a short-tailed shearwater (*Ardenna tenuirostris*) colony, or any evidence of occupation by shearwaters (i.e. no burrow systems). The Development Area is well inland of the immediate coast, with the nearest known short-tailed shearwater colonies at Marriott Reef (see Tanners Bay Offshore islands mapped on Figure 17 of **Attachment 4**) and a group to the south including Wybalena Island, Bird Island and Settlement Point (near Emita) (Skira *et al.* 1996).

Several other bird species are associated with beach habitats (e.g., dune, beach and back dune environments associated with modern/recent dunes), with several having been recorded at or near Marshall Bay (**Figure E-11**) including those listed in **Table 11.**

There will be no activities that would generate noise, dust, or other form of emissions that may or would disturb nesting and foraging beach dwelling bird species.

**Table 11. Summary table of Survey Area relevant avifauna and associated statutory conservation listings**

| Scientific Name | Common Name | EPBC Act-listed | TSP Act-listed |
|---|---|---|---|
| **Australian Fairy Tern** | *Sternula nereis nereis* | Vulnerable | vulnerable |
| **Eastern Hooded Plover** | *Thinornis cucullatus cucullatus* | Vulnerable | - |
| **Little Tern** | *Sternula albifrons* | Migratory | - |
| **Short-tailed Shearwater** | *Ardenna tenuirostris* | Migratory | - |

[7] Groundwater Dependent Ecosystems Atlas. http://www.bom.gov.au/water/groundwater/gde/

Marshall Bay has a typical beach profile of beach, and dunes (**Plate 7**). As noted by Slee (2024) (pp. 12-13 of **Attachment 9**), at the west of the Mining Lease are the modern foredune and back dunes behind Marshall Beach while inland are a series of elongated west-to-east trending parallel dunes that rise to 24 m above sea level. These inland dunes are largely vegetated and stable in comparison to the foredunes which are dominated by grasses, herbs, wind pruned shrubs and sedges. The coastal foredunes climb onto the older dunes but can be broadly demarcated by their hummocky forms and presence of sand blow-outs that contrast to the more elongated uniform stabilised ridges of the older dunes.

The Development Area does not include beach, foredune, back dune, or modern dunes (**Attachment 9**).

There will be no activities that would generate noise, dust, or other form of emissions (e.g. light) that may or would disturb nesting and foraging beach dwelling bird species. Lighting is to be provided in the shed where sand would be screened and/or stored. Machinery, vehicles, and other road-using equipment will be fitted with lights as required by law.

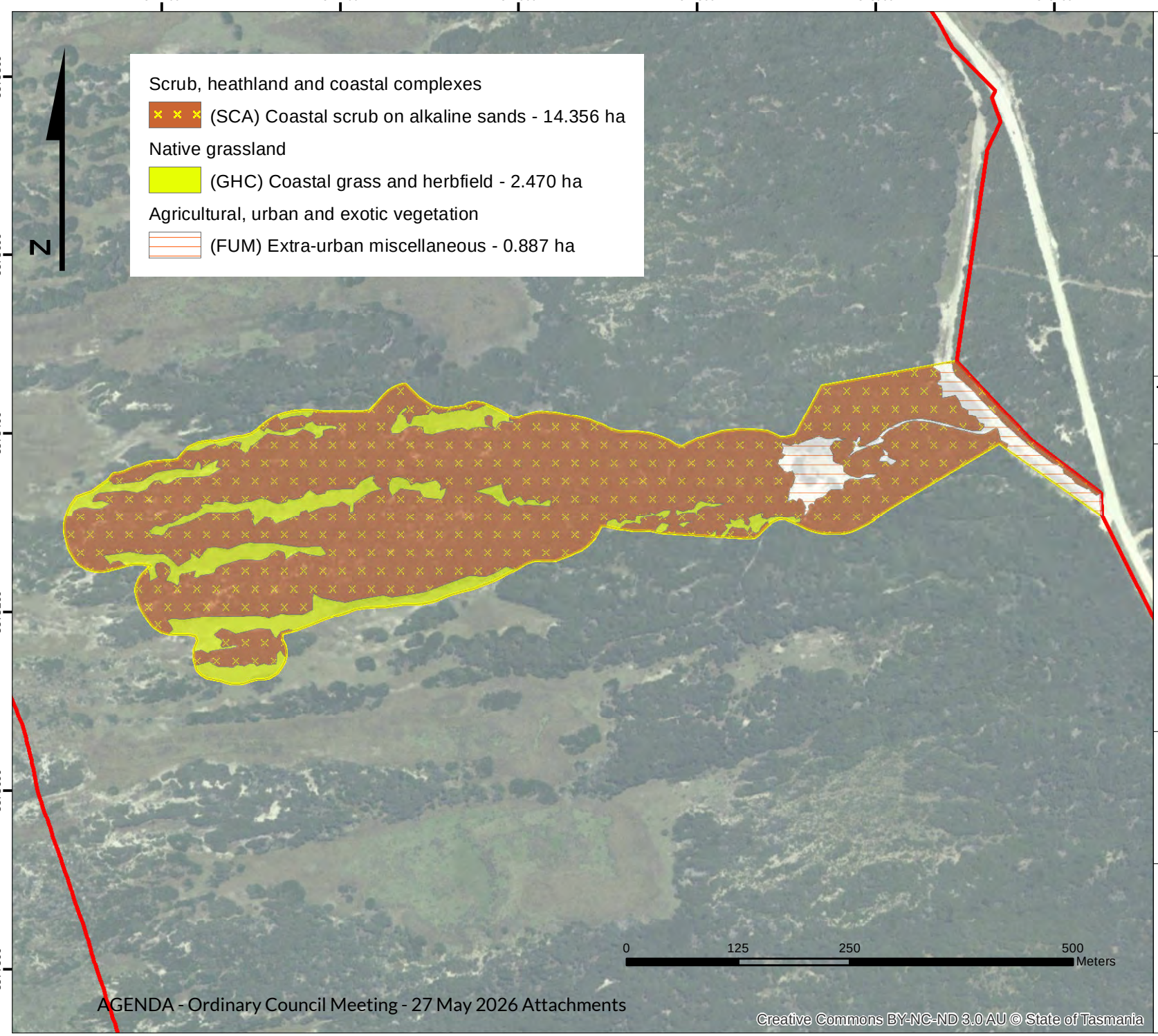
**Plate 7. Marshall Bay beach and dune 'sea bird' habitat outside the Mining Lease**



Karst

No karst landforms apart from very minor surface solution sculpture (karren) landforms were identified during the survey by Slee (**Attachment 9**). Given the extensive nature and relief of the limestone on the hills east of

the mining lease subsurface water flow through karst aquifers is likely but significant karst landforms are unlikely to be present. In the absence of any evidence for significant karst formulation, mitigation measures are unnecessary.




# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-9: TASVEG 4.0 observed communities within the Development Area

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Mining Lease 2117P/M

Development Area (The Land)

Van Diemen CONSULTING
PO Box 1 New Town TAS 7008



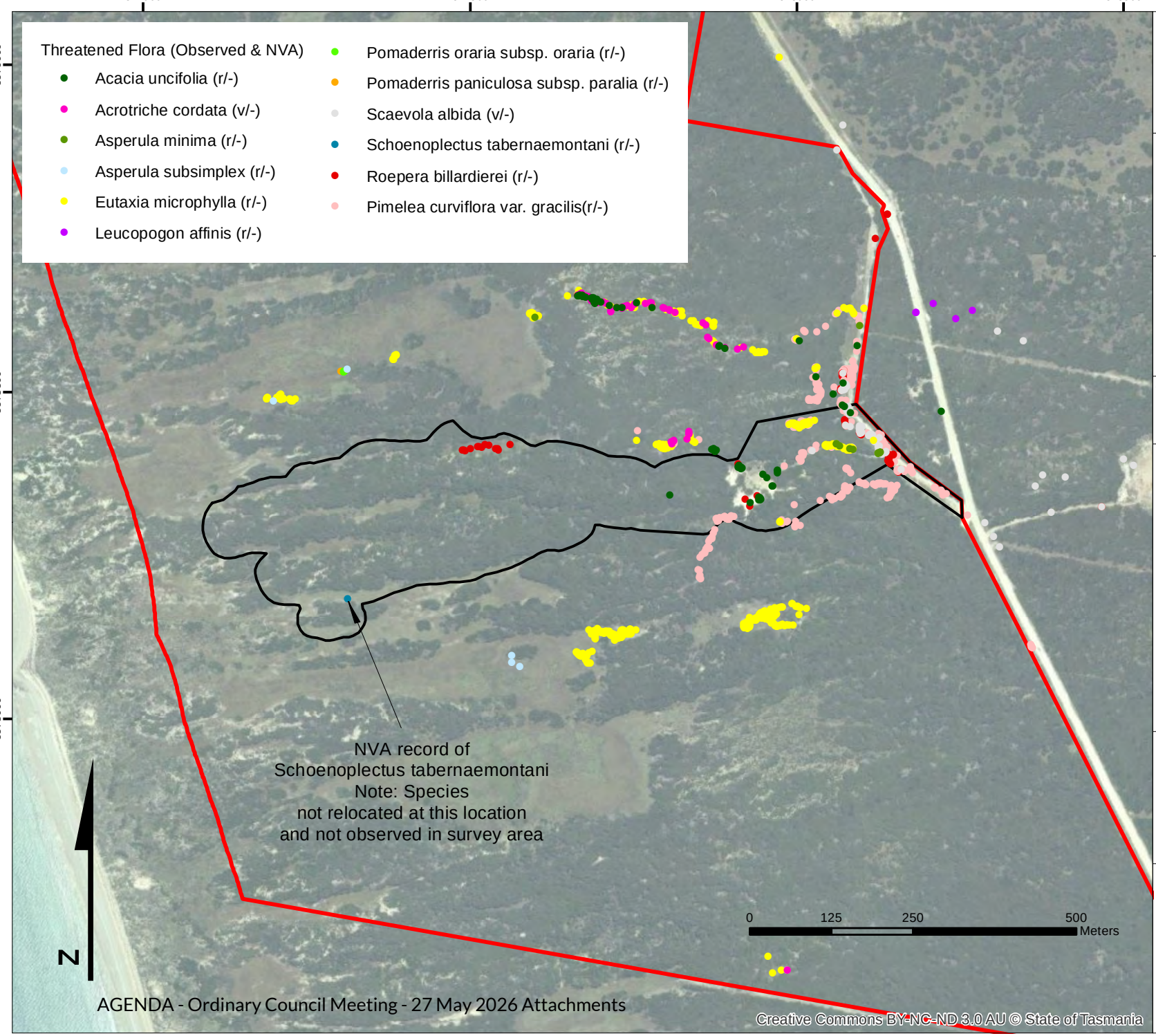
DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 2 JUNE 2024



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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-10: Threatened flora species within and surrounding the Development Area

**TASMAP:** TANNER EMITA

**LGA:** FLINDERS

Survey Area (Development Area)

Mining Lease 2117P/M

Van Diemen CONSULTING

PO Box 1 New Town TAS 7008



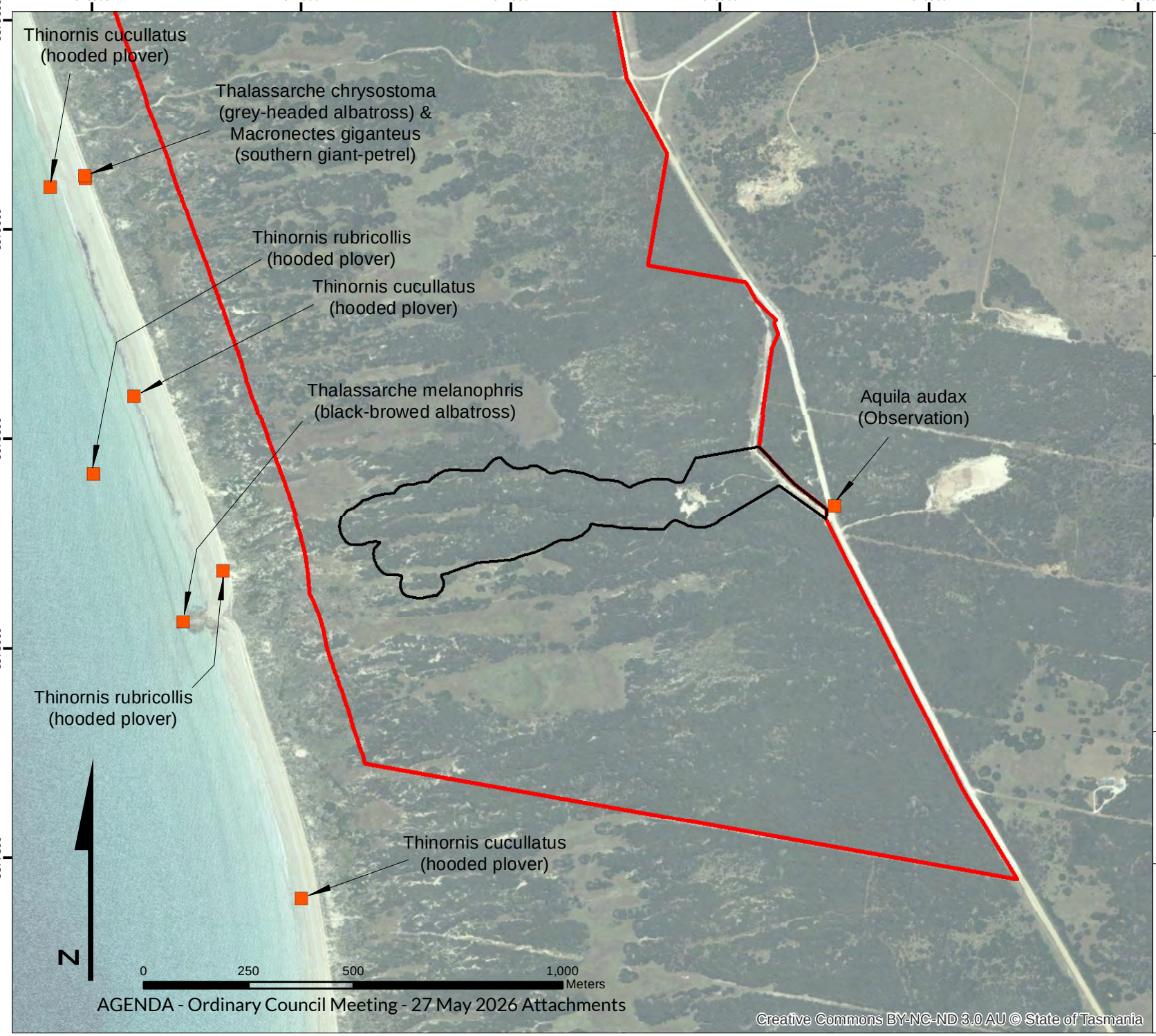
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# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure E-11: Threatened fauna species within and surrounding the Survey Area

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Threatened Fauna Point

Development Area (The Land)

Mining Lease 2117P/M

Van Diemen CONSULTING
PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

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Acid Sulfate Soils

Well drained soils in the mining lease and specifically in the vicinity of the main proposed resource are strongly alkaline Calcarosols. Acidic soils are unlikely to be present over extensive areas and may be totally absent. While organic topsoils, buried palaeosols and lake/swamp sediments are present in the Pit location, none of these soils contain adequate organic material to significantly reduce the pH within the dune sands due to the abundance of acid neutralising carbonates.

No further investigation of acid sulfate soils was deemed to be necessary by Slee (2024; **Attachment 9**).

Reserved Lands

No land reserved under the *Nature Conservation Act 2002* is covered by the Development Area or broader Mining Lease. The Marshall Beach Conservation Area is located westwards of the Development Area (**Figure E-5**) but is not within the Mining Lease.

*C-4-2 POTENTIAL IMPACTS*

Vegetation

Impacts (clearing followed by progressive rehabilitation back to scrub/grassland) will occur to two native vegetation types present; *Coastal scrub on alkaline sands* (TASVEG code - SCA) and *Coastal grassland and herbfield* (TASVEG code – GCH).

No threatened vegetation communities were identified within the Development Area and therefore no impacts to listed (either under the EPBC Act or the NC Act) communities are anticipated.

Threatened Flora Species

Four of the six flora species protected by a statutory mechanism ('Threatened flora') are likely or certain to have plants impacted by the Activity. The estimated number of plants in the Development Area (including the Extraction Area and the buffer) and the approximate number to be taken/impacted by species are provided in **Table 12.**

**Table 12. Approximate numbers of threatened flora species to be taken by the Marshall Bay Sand Pit**

| Species | Common Name | Estimated number in Development Area | Approximate number to be taken over life of Pit |
|---|---|---|---|
| ***Eutaxia microphylla*** | spiny bushpea | 700+ | 200 |
| ***Pimelea curviflora* var. *gracilis*** | curved riceflower | 700+ | 200 |
| ***Roepera billardierei*** | coast twinleaf | 45+ | 18 |
| ***Scaevola albida*** | pale fanflower | 400+ | 200 |

Threatened Fauna Species

No fauna species listed on the *Threatened Species Protection Act 1995* or *Environment Protection and Biodiversity Conservation Act 1999* were directly observed in the Development Area during the surveys.

No trees with the potential to support any hollow-dependent bird species, such as swift parrots or blue-winged parrots, were observed in the Development Area. It was determined based on the nature of the activity, and location and quality of habitat present, that the Activity would not cause any significant impact to any TSP Act or EPBC Act listed fauna species.

There will be no activities that would generate noise, dust, or other form of emissions (e.g. light) that may or would disturb nesting and foraging beach dwelling bird species. Lighting is to be provided in the shed where sand would be screened and/or stored. Machinery, vehicles, and other road-using equipment will be fitted with lights as required by law.

Material could be carted, and other vehicle movements could occur to and from the site, between one hour prior to sunset until one hour after sunrise – noting that operating hours are 0700 to 1900 hrs.

Flinders Island does not currently support the Tasmanian devil, spotted-tailed quoll, eastern barred bandicoot, or eastern quoll. Eastern barred bandicoot is not listed on the *Threatened Species Protection Act 1995* and the Wombat (Bass Strait) is also not listed on the *Threatened Species Protection Act 1995* and it was delisted from the EPBC Act. There is no possibility for a direct impact to the Tasmanian devil or quoll species as these do not exist on the island, and there is also no indirect impact from roadkill effects where these species may become secondary deaths as they scavenge on road killed animals. Occasional wallabies and wombats may be impacted during the months of May, June and July.

*C-4-3 MITIGATION AND MANAGEMENT*

Vegetation

The accurate, appropriate, and timely marking of boundaries, operational areas and the monitoring of disturbed and rehabilitated areas is critical to the success of the Pit. The delineation of operational areas for continuous extraction and processing is important to ensure the disturbed area is kept within that permitted. The following is information about the methods and purpose of marking and monitoring relative to the spatial expansion and gradual extraction, and subsequent rehabilitation of areas in the Pit.

The Proponent will include as part of its induction and operational management system a process for staff, management and contractors working at the Pit to mark clearing and working areas to identify permitted operational areas and exclusion zones.

No offsets are proposed for the clearing (and then Rehabilitation) of the two non-threatened vegetation types; *Coastal scrub on alkaline sands* (TASVEG code - SCA) and *Coastal grassland and herbfield* (TASVEG code – GCH).

Threatened Fauna Species

No specific fauna management measures are warranted, and none are proposed.

Weed Management

A DRAFT Weed and Disease Management Plan (WDMP) is submitted with the EIS (**Attachment 8**).

The plan was guided by the *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania* (Department of Primary Industries, Parks, Water and Environment, 2015).

The WDMP provides two key aspects to weed control and mitigating the spread of weeds and disease to and from the Pit:

- *A Weed Spraying Program –*

  Annual assessments of weed occurrence and location will be conducted to guide the weed spraying program to control and possibly eradicate weeds that may be in or near the Pit.

- *Clean Vehicle Policy –*

  Transport trucks and light vehicles pose less risk to the transportation of weed propagules if they remain on the hard surface of the roads and the gravel loading area and that these areas are managed to exclude weeds. The highest risk of transporting propagules into the Pit is from heavy machinery, such as excavators, as these can carry large clods of dirt and mud in which seed propagules can be lodged. Heavy machinery will be brought into the Pit in a clean condition; free of weed propagules, clods of dirt and vegetative matter.

Geoconservation

In the event notable examples of significant geomorphological features are encountered (i.e. any of the features listed below) the first task will be to photograph the area and move operations away from the feature until a suitably qualified person (in the context of the item/items discovered) can assess any geomorphological/cultural values.

Contractors are to look out for:

- Thick dark continuous bands within the dunes.
- Buried tree stumps or large calcareous deposits (not rhizoliths of modern age such as those created by tree roots from recently deceased vegetation) that appear to be parts of a tree.
- Stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand.
- Large accumulations of shells.
- Large bones and accumulations of smaller bones buried >1m under the surface.

Karst

Despite there being no evidence of significant karst formulation in the Development Area, the following is to be applied:

- In the event a steep sided depression forms during operations that has signs of collapse these should be recorded and avoided during operations until expert advice is obtained.

- In the event a cave is located on site operations should avoid the area and seek expert advice.

Acid Sulfate Soils

Acidic soils are unlikely to be present over extensive areas and may be totally absent. No further investigation of acid sulfate soils was deemed to be necessary by Slee (2024; **Attachment 9**) given the very low to negligible risk of their occurrence in the Development Area. Accordingly, no management measures are proposed.

Reserved Lands

The Marshall Beach Conservation Area is located westwards of the Development Area (**Figure E-5**). No impact to the reserve is anticipated.

**C-5 WASTE**

The Activity generate solid wastes of two main streams –

1. a typical 'domestic' stream such as food scraps, wrappers and other wastes from the office/crib room and food consumption by workers in their working day, and
2. a semi-industrial stream typical of an extractive industry including for example empty drums (e.g., motor oils, hydraulic and brake fluid, other machinery, and brake oil), plastics (wrapping on parts, replacement belts, etc.), and rags (may be contaminated with oils, fuel, grease or other hydrocarbon-based product and batteries.

Machinery related 'solid wastes', such as oil filters, are generally not be produced on site as machinery/equipment servicing will generally not be done at the Pit (except for emergency repairs or service requirements).

All waste is to be collected in suitably labelled bins/containers and then removed from the Pit.

*C-5-1 PERFORMANCE REQUIREMENTS*

Waste management measures must be in accordance with the following hierarchy of waste management, arranged in decreasing order of desirability: -

- avoidance
- recycling/reclamation
- re-use
- treatment to reduce potentially adverse impacts
- disposal.

*C-5-2 POTENTIAL IMPACTS*

Solid and General Wastes

Domestic stream wastes such as food scraps, wrappers and other wastes from the office/amenities block if not collected, stored, and disposed of appropriately could cause an unnecessary localised nuisance from attracting vermin, native animals (possums), feral cats, and potential odour.

Other solid wastes such as machinery filters (not in the Controlled Waste category – includes for example engine air filters, fan belts, conveyor belts, HDPE air filters for machinery cabs), PPE (e.g., disposable ear plugs), and office type waste streams (e.g., electronics, paper, other consumables) will be generated. These items if allowed to accumulate at the Pit beyond reasonable levels could create habitat for vermin and represent an elevated fire risk to assets if a fire were to occur in or approach the Pit.

Liquid Wastes

The only liquid wastes generated by the Pit are those described in Controlled Waste (i.e., oils, hydraulic fluids) and the septic system (**Attachment 5**).

Controlled Waste

Tasmania has adopted the terminology of the *National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998* (Controlled Waste NEPM) which uses the term Controlled Waste.

Controlled waste is the most hazardous category of waste and includes those wastes that exhibit toxicity, chemical or biological reactivity, environmental persistence, or the ability to bio-accumulate or enter the food chain. The handling of controlled waste (production, receipt, storage, reuse, recycling, reprocessing, salvage, incineration, treatment, disposal or use for energy recovery) requires approval in accordance with the Environmental *Management and Pollution Control (Waste Management) Regulations 2020*.

**Table 13** provides a list of the potential Controlled Waste categories generated from time to time at the Pit, the possible source of that generation and the disposal method.

**Table 13. Controlled Waste potential production source at Pit and disposal method**

| Code | Description | Potential source at Pit | Disposal Method |
|---|---|---|---|
| J120 | Waste oil/water, hydrocarbons/water mixtures or emulsions | Hydraulic oils and engine oils | Disposed of at the Council operated Whitemark Waste Facility (419 Memana Road, Whitemark). |
| K130 | Sewage sludge, sewage residue, nightsoil or sludge from an on-site wastewater management system | Toilets and shower | Wastewater system (septic based, **Attachment 5**) |

| | | | |
|---|---|---|---|
| N100 | Containers which are contaminated with residues of substances referred to in this list | Containers that are used to collect and store Waste oil/water, hydrocarbons/water mixtures or emulsions (J120) | Disposed of at the Council operated Whitemark Waste Facility (419 Memana Road, Whitemark). |
| N120 | Soils contaminated with a controlled waste | Soils that may have been the subject of a spill of hydrocarbons, oils or hydraulic fluid | Contaminated site handling facility; may need to be treated on site given the lack of a facility on Flinders Island (this approach has occurred elsewhere on the island, such as the diesel spillage at the Lady Barron Port). |
| N140 | Fire debris and fire washwaters | Only if a fire event occurs | Contaminated site handling facility; may need to be treated on site given the lack of a facility on Flinders Island (this approach has occurred elsewhere on the island, such as the diesel spillage at the Lady Barron Port). |
| T140 | Tyres | Waste tyres will be generated as old tyres are replaced | Disposed of at the Council operated Whitemark Waste Facility (419 Memana Road, Whitemark). |

*C-5-3 MITIGATION AND MANAGEMENT*

Waste will be managed in accordance with the following for each waste stream: –

General Refuse

Waste generated by workers from general refuse (e.g., lunch wrappers) at the Pit will be collected in waste bins provided on-site – at the amenities/crib room. The bins will be emptied at least once per fortnight and the material disposed of at a permitted refuse disposal site. Waste bins that receive food scraps will be fitted with preventative access measures to discourage native animals and feral cats attending the Pit.

On-site Machinery and Equipment Servicing Waste

Waste will be generated at the Pit from the repair of equipment breakdowns, general replacement of filters (air and oil) and conveyor belts (screen) or emergency repairs/maintenance. Waste bins will be located at the Pit and labelled with the types of waste each bin is to receive. Waste will be sorted based on the classification of the type of waste, with Controlled Waste (see **Table 13**) separated from all other waste streams and disposed of at least fortnightly at the Council operated Whitemark Waste Facility (419 Memana Road, Whitemark).

Off-site Machinery and Equipment Servicing Waste

Waste generated by maintenance works, repairs and/or schedule servicing of equipment and machinery off the Pit location will be managed by the service provider at the location where they have been engaged by the

Proponent to complete the required works. This in most cases will be a machinery workshop, truck/equipment repair facility or tyre facility.

**C-6 ENVIRONMENTALLY HAZARDOUS SUBSTANCES**

The Activity will utilise diesel fuel, and other hydrocarbons such as lubricants and oils, and herbicides for weed control. Hazardous materials are known to pose serious risks if released to the environment.

The management of hazardous materials will include the appropriate storage of these materials, and preparation for accidental leaks and spills to ensure that the risk of hazardous materials being released into the environment is minimised.

*C-6-1 PERFORMANCE REQUIREMENTS*

The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations and relevant Codes thereunder, including:

- *Work Health and Safety Act 2012* and subordinate regulations,
- *Explosives Act 2012* and subordinate regulations,
- *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations,
- EPA Tasmania's *Bunding and Spill Management Guidelines December 2015*,
- Australian Dangerous Goods Code (7$^{th}$ edition), and
- Relevant Australian Standards (e.g., AS 1940 and AS 3780).

Diesel Vehicle Emissions NEPM

The objective of this NEMP is to reduce exhaust emissions from diesel vehicles, by facilitating compliance with in-service emissions standards for diesel vehicles. This NEPM is applied to vehicles sold in the country.

Volume limitations for storage

The volume of stored hazardous chemicals on the site will not exceed the manifest quantity as specified in the *Work Health and Safety Regulations 2012*. Explosives are not required for the Activity.

Chemicals (Herbicides)

The use, storage, and disposal of chemicals for weed spraying (herbicides) must be in accordance with the *Agricultural and Veterinary Chemicals (Tasmania) Act 1994* and the *Agricultural and Veterinary Chemicals (Control of Use) Act 1995*.

*C-6-2 POTENTIAL IMPACTS*

Hydrocarbon storage and use

Diesel fuel will be used in the machinery and equipment on the site. Workers attending the Pit will use 100-200l portable diesel tanks that fit into the tray of a 4WD utility to provide fuel to the Pit. These pods/tanks

have become mainstream and are now best-practice for small volume fuel transport to refill machinery at quarries, mines, and other work sites.

Other chemicals

Chemicals for weed spraying used at the Pit may be spilt into the environment by leakage, an accidental spillage, or inappropriate use and/or disposal by staff or contractors.

*C-6-3 MITIGATION AND MANAGEMENT*

Contamination of the environment by the release of fuels, lubricants and/or hazardous will be prevent as far as reasonable to do so by the application of effective, industry standard avoidance and mitigation management measures.

Hydrocarbon storage and use

All fuels, lubricants and/or hazardous materials are stored in accordance with the relevant requirements of *AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids*.

Refuelling activities will only occur when machinery is within a bunded/hardstand area on the Site.

Hazardous materials storage areas will be managed in accordance with EPA Tasmania's *Bunding and Spill Management Guidelines December 2015* and the following principles –

- Design and install bunding and surface sealing of fuel storage areas.
- Provide high-performance grease traps and oil traps near workshops and places where vehicles and machinery are parked.
- Locate storage areas away from waterways and areas prone to flooding.
- Install bund walls or diversion drains to divert surface water away from areas dedicated for the storage of hazardous materials.
- Line bunded storage areas with impervious material.
- The volume of bunded areas must be at least 125 per cent of the maximum volume of the fuel and lubricant capable of being stored.
- Bund heights will be at least 150 millimetres.
- Bunded areas will be drained to a sump if the volume of the hydrocarbons exceeds 1,200 litres.

Other chemicals

Chemicals for weed spraying are to be used at the Pit. They will be stored, handled, used, and disposed of in accordance with the manufacturer's directions and relevant regulations.

Spill and leak prevention and response

The Proponent will ensure that spill prevention and clean-up equipment is readily available and accessible in the vicinity of all plant and machinery, including mobile and fixed fuel storages.

Spill prevention and clean-up procedures will be in accordance with the following principles –

- Minimise the volume of hazardous substances kept onsite.
- Develop contingency plans to address spills and leaks.
- Install trays, thick plastic mats or similar beneath stationary machinery to protect the soil from oil or fuel spills and leaks.
- Install spill trays immediately if there is any potential for, or evidence of, leakage.
- Ensure that appropriate clean-up equipment is readily accessible.
- Maintain a supply of oil-absorbent material.
- Contain and treat spills and leaks.
- Notify relevant authorities of significant spills or leaks.
- Ensure that drainage from areas where spills may occur like a refuelling area is diverted through a sump or interceptor trap to remove hydrocarbon contamination.

**C-7 SITE CONTAMINATION**

The Mining Lease, and specifically the Development Area, is not known to have been used in the past for activities which may have caused soil or groundwater contamination.

**C-8 ENVIRONMENTAL IMPACTS OF TRAFFIC**

The area surrounding the Development Area is mainly native vegetation (bushland) with intermittent cleared areas of degraded pasture (some of these are previously farmed land that is now less intensively farmed, other lime sand pits, and residences (the closest NSP is 1.2km to the shed).

The extraction areas and internal gravel access road are lined with scrub and grassland vegetation. There are no sources of dust from the use of Palana Road because it is sealed from Whitemark to its junction with Five Mile Jim Road.

*C-8-1 TRAFFIC GENERATION AND ROUTES*

All traffic would enter and exit onto the sealed section of Palana Road using the now disused reserved road (unsealed) section of Palana Road – **Figures A-4 and B-1.**

The maximum extraction volume of 15,000 tonnes equates to about 1,500 truckloads per annum based on 10 tonne loads (smaller loads are likely to be used given the material is to be spread on pastures and ploughed land). Lime sands are mainly required in summer and autumn (January to May) which coincide with the peak activity period of agricultural pasture improvement, maintenance, and establishment.

Approximately 300 truck movements per week (150 truckloads) is expected for an 8 to 10-week period of carting (March to May); deliveries may occur outside this period but if they do occur the campaigns would be less intensive. Over 5 days each week this equates to about 30 truckloads per day (or 60 truck movements per day). Trucks delivering lime sand will use the existing road network to gain access to the agricultural lands upon which the lime sands are to be spread.

Light vehicles will access the Pit when it is operating, and some trucks will attend the Pit to deliver bulka bags of soil additives, such as boron.

### *C-8-2 POTENTIAL IMPACTS*

Noise Emissions

Trucks can cause excessive noise on uneven road surfaces; emissions can affect dwellings if they are located close to the road. The impact of noise emissions from light vehicles on an unsealed road is substantially less.

Dust Emissions

Trucks can cause dust plumes from the use of unsealed roads; emissions can affect dwellings if they are located close to the road. The impact of dust emissions from light vehicles on an unsealed road is substantially less. Fugitive dust emissions can also be generated because of poorly covered or dry product in a truck tray.

Biodiversity

Indirect potential impacts of traffic comprise road mortality of fauna (i.e. vehicle strikes).

### *C-8-3 MITIGATION AND MANAGEMENT*

Noise Emissions

Equipment will be well maintained and late model machines with proprietary exhaust silencers fitted to ensure noise emissions are as low as possible.

Pit operations will occur during normal daytime hours of 0700 – 1900 hrs Monday to Friday.

Dust Emissions

Loads in trucks will be covered with a tarpaulin or dampened to reduce the risk of fugitive dust emissions during transport. Unsealed roads internal to the Pit will be dampened during campaigns.

Biodiversity

On public roads all wildlife speed reduction warning signs will be obeyed, and education and awareness training will be provided to drivers.

## C-9 OTHER OFF-SITE IMPACTS

No off-site impacts are anticipated. Trucks generated by the Activity will be travelling on the public road network and their presence will be constrained by the stipulated operating hours.

### *C-9-1 MONITORING APPROACH*

The Pit Manager will conduct regular and routine monitoring to ensure compliance with environmental conditions. The small scale of the Pit doesn't warrant a suite of management plans to be developed to describe the approach for the on-ground management of potential environmental impacts.

*C-9-2 ENVIRONMENTAL MONITORING*

The broad environmental monitoring program for the Activity is provided in **Table 14.**

**Table 14. Environmental monitoring regimes for the Marshall Bay Sand Extraction Pit**

| EIS Attachment | Management Plan |
|---|---|
| **Stormwater Infrastructure** | The Operator will observe the level of accumulated sediment in the sediment basins and drainage channels. Once the level of accumulated sediment in the traps or drains has risen to half the full water level the sump and drains will be cleaned out. The spoil gathered from clearing the sediment basins and drains will be stored with rehabilitation materials for use in future rehabilitation activities.<br>Sediment basin outlets will be monitored (at least monthly) for scouring, and excessive volumes of sediment in the discharged water. |
| **Weeds** | The DRAFT *Weed and Disease Management Plan* (**Attachment 8**) provides details for weed monitoring and plan review. |
| **Dust and air quality impacts** | The Pit Manager will observe dust conditions in dry and windy conditions during extractive or processing campaigns. If dust is observed crossing the operations area boundary suppression activities will be implemented including:<br>• Water cart deployed on trafficked surfaces;<br>• Ceasing the Activity until weather conditions improve so dust suppression measures are effective, or temporarily ceasing aspects of the Activity (e.g., cease outside activities at the Pit and focus on carting or screening/blending of sands in the shed). |
| **Environmentally hazardous substances** | Ongoing inspection of the storage and handling of environmentally hazardous substances and the use/replenishment of spill kits.<br>Ongoing inspection and management of wastes stored at the Pit, and their disposal at regular intervals. |
| **Rehabilitation** | Rehabilitated areas (and those under rehabilitation) will be monitored for –<br>a. weed infestation,<br>b. germination success and growth in seed distributed species, and<br>c. landform stability. |

**C-10 MARINE AREAS AND COASTAL ZONE**

A detailed assessment of the Activity relative to the State Coastal Policy is provided at section *A-6-3 STATE POLICIES.*

The Natural Values Report (**Attachment 4**) and section *C-4 Natural Values* provides information on the biodiversity values in the marine and coastal zones.

## C-11 DECOMMISSIONING AND REHABILITATION

It is the aim of the Proponent to minimise the area of land 'open' at the Pit. When closed, the Pit will be rehabilitated to scrub and grassland vegetation dominated by native flora species.

### *C-11-1 PROGRESSIVE REHABILITATION*

'Progressive rehabilitation' can only be applied at the Pit once areas have been extracted and are no longer needed or used for Pit operation. Stabilisation of disturbed areas of the landform will be conducted prior to rehabilitation and revegetation to ensure landform stability to minimise sediment movement from source. Temporary vegetative cover of native scrub and grass species (e.g., drooping sheoak, *Poa* species) may be established on areas (e.g., soil stockpiles) to prevent weed infestation and erosion by wind or water.

Aims

The primary aims of rehabilitation work would be to:

- achieve long term stabilisation of worked out areas to minimise the risk of ongoing erosion by wind and water;
- revegetate worked out areas with native species that will eventually grow to form native vegetation communities (scrub and/or grassland); and
- ensure that worked out areas are safe for a future land use.

Vegetation Management – clearing and stockpiling

The extent and form of the scrub to be harvested and cleared is comparable to a very small-scale land clearing activity. The small-scale clearing associated with each progressive area for lime sand extraction (see **Figure B-2**) is not likely to generate a high number of logs (there are some larger tea-trees, she-oaks, and wattles but no eucalypt within the vegetation). Most cleared vegetation will be used in Rehabilitation works which are likely to commence at around Year 2 of the Activity. Therefore, for at least the first 2 years of the Activity and for the construction of infrastructure (e.g. shed, sediment basin, pad area), vegetative material will need to be cleared and removed from the Development Area or burnt on site following the fire permit period conditions that prevail at the time.

No more than 10 cubic metres of vegetative debris generated by clearing works will be stored in any one stockpile, with stockpiles separated by at least 20 m of open bare ground ready for burning when conditions are suitable. The stockpiled material will be stored only within the Disturbed Area of the Development Area.

Rehabilitation – reuse of cleared vegetation

Once progressive rehabilitation has commenced, the vegetation cleared from areas being opened for sand extraction can be reused on areas that have been fully extracted. This reduces the possibility of needing to remove vegetation from the site or to burn the vegetation on the site, however there may still be times when

excess vegetation has been generated for the rehabilitation works underway so some vegetation may need to be burnt or removed from the site. If this were to be the case then, no more than 10 cubic metres of vegetative debris generated by clearing works will be stored in any one stockpile, with stockpiles separated by at least 20 m of open bare ground ready for burning when conditions are suitable. The stockpiled material will be stored only within the Disturbed Area of the Development Area.

The Rehabilitation of areas that are no longer being extracted or used for another purpose (such as a stockpile holding area, vegetation stockpile etc.) will be based on the following principles:

1. Surface levelled, and if available, sediment collected from sediment basins and applied to prepared surfaces.
2. Application of native tree/shrub/grass seed or the application of slash (generated by clearing works in the site) that contains fruits with seed (e.g., *Melaleuca, Leptospermum, Allocasuarina*). Tubestock is unlikely to be needed given the plant species to be used for revegetation readily recruit from seed.
3. Monitoring of the following factors –
    d. weed infestation,
    e. germination success and growth in seed distributed species, and
    f. landform stability.
4. Remedial works which may include but not necessarily be limited to –
    a. weed control works,
    b. additional native species seed spreading,
    c. landform stabilisation works, and
    d. erosion control measures and/or repair works.

**Figure B-3** provides an example area for Rehabilitation as the Pit progresses westwards, with the area easily accessible for weed control works, surface water erosion/drainage monitoring, and for the direct placement of soil and slash cleared from areas further westwards. The area depicted could be under Rehabilitation at about Year 2 or 3 of the Activity.

*C-11-2 PERMANENT CLOSURE PLANNING*

In the event of permanent closure of the Pit prior to complete extraction of the resource a Decommissioning and Rehabilitation Plan (DRP) will be developed and submitted to the EPA for approval.

The DRP would include discussion and describe procedures to: -

- Facilitate the orderly and safe removal of machinery, infrastructure, and other equipment;
- Establish sufficient and appropriate tree/shrub/grass/herb ('native vegetation') cover to minimise the risk of ongoing dust generation and soil erosion; and
- Establish a monitoring regime to assess the success or otherwise of the rehabilitation to sign-off parameters.

*C-11-3 FINAL LANDFORM*

Specific attention will be given to the final landform in the DRP. Slopes will be contoured.

- Rehabilitation works will be undertaken by Markarna Grazing Company Pty Ltd employees/contractors and overseen by the Pit Manager;
- The aim of the rehabilitation is to return the landscape to a stable landform that supports native vegetation (scrub) comparable to that of pre-extraction works;
- The extraction areas will be stabilised following extraction to remove any unstable materials, and to ensure the perimeter cut-off drains are operational and follow the localised contour;
- Slash from areas being cleared to facilitate the advancement of the extraction area will be placed onto those areas to be rehabilitated;
- Fertiliser application is not likely to be necessary, and advice will need to be sought from a suitably qualified person *prior* to its application; and
- The Pit Manager will engage with specialist sub-consultants to undertake weed identification and, if weeds are established after rehabilitation, weed control will be completed by Markarna Grazing Company Pty Ltd employees/contractors.

**C-12 GREENHOUSE GASES AND OZONE DEPLETING COMPOUNDS**

*C-12-1 EXISTING CONDITIONS*

Operation of mobile plant, trucks, and associated activities at any extractive industry which operate hydrocarbon-based fuel machinery and equipment causes greenhouse gas emissions from the burning of those fuels.

*C-12-2 PERFORMANCE REQUIREMENTS*

The impacts of climate change and greenhouse gas emissions and targets are set in the *Climate Change State Action Act 2008* and *Climate Change Action Plan 2017 – 2021*. The *Climate Change (State Action) Act 2008* sets a limit of 60% below the 1990 greenhouse gas emissions baseline by 2050[8].

The Pit does not meet the thresholds for reporting under the *National Greenhouse and Energy Reporting Act 2007*.

*C-12-3 POTENTIAL IMPACTS*

Environmental Impacts

The operation of mobile plant, trucks and associated activities will cause greenhouse gas emissions from the burning of hydrocarbon-based fuels.

[8] The State's 2050 target under this Act is to reduce, by 31 December 2050, greenhouse gas emissions in Tasmania to at least 60% below 1990 levels.

Sea-level rise may result in the loss, either in full or part, of the lime sand resource within the Development Area but this is very unlikely to occur within the projected lifespan of Pit. The Scheme identifies management layers that consider a different climate future including sea-level rise and greater storm events (i.e. the application of the coastal inundation and coastal erosion overlays) which do not intersect the Development Area.

Increased frequency or prolonged periods of dry may cause additional wildfires or altered wildfire regimes to occur in the Development Area – these would only temporarily affect the Activity, including Rehabilitated areas, as areas can be remediated and then allowed to continue to grow.

Social Impacts

Exhaust emissions will generate greenhouse gasses within the proposal area and the road corridors approaching the area of proposed operations. Impacts include respiratory effects on workers and surrounding residents.

*C-12-4 MITIGATION AND MANAGEMENT*

The following guiding principles will be used by the Proponent in operating the Pit to minimise and/or reduce greenhouse gas emissions when economically and practical to do so. This is in keeping with the goal of *best practice environmental management* practices.

Energy efficiency

Machinery operated will be modern and well maintained, which will ensure that emissions of greenhouse gases per operating hour of machinery/equipment use will be minimised. Greenhouse gas emission profiles will be considered when procuring new equipment and machinery, as well as engaging other entities for access to a truck fleet, to preferentially adopt low energy (and low emission) options where cost effective to do so relative to the environmental risk reduction those options provide.

Emissions efficiency

The use of fuel-efficient trucks, loaders and light vehicles with regular maintenance schedules will work towards the goal of lower emissions per operating hour.

## PART D – MANAGEMENT MEASURES SUMMARY

Best practice management is important to the project proponent to minimise the risk of environmental nuisance/harm from the activity.

In the preceding Sections of this EIS, the potential environmental effects which may arise from the Activity have been detailed and, where appropriate, actions documented to prevent and or minimise potential adverse impacts.

The management measures made by the Proponent are summarised in **Table 15.**

**Table 15. Environmental Management Measures for the Marshall Bay Sand Pit**

| No | Measure | Timeframe | EIS Section |
|---|---|---|---|
| **1** | Measures to **suppress dust** include the following extractive industry standard environmental practices:<br>• Retention of vegetation along the access road corridor where possible,<br>• Retention of vegetation (when possible) around the Pit working area to reduce the likelihood of strong winds liberating fine particles into the air,<br>• Utilisation of slash/mulch obtained from cleared areas to stabilise the soil surface and to limit wind action on dust generation at the soil surface,<br>• Covering of trucks with tarpaulins and/or load dampening, and<br>• Minimising the geographic extent of areas of exposed soil. | Ongoing | C-1 Air Emissions - Dust |
| **2** | Measures to **minimise the risk of wind erosion** include the following:<br>• Avoid, if possible, but otherwise minimise working on faces exposed to westerly winds;<br>• Maintain vegetation above and to the west of any active face; and<br>• Re-establish vegetation on a progressive basis, this could include stockpiling cleared tea tree and other scrub species for covering exposed surface as operations progress. | Ongoing | |
| **3** | Measures to **minimise the risk of water caused erosion** include the following:<br>• Minimising the geographic extent of exposed soil.<br>• Establishment of sediment basins, diversion drains, and other drainage systems at the Activity.<br>• Utilisation of slash obtained from cleared areas or other product (jute mesh) to stabilise the soil surface, and to limit the spread of sediment. | Ongoing | C.2 Surface Water Management |

| | | | |
|---|---|---|---|
| **4** | Regular monitoring (monthly) is to be undertaken to ensure the effectiveness of the installed stormwater management and sediment control structures. Repairs and remedial works (including basin cleaning) are to be performed to maintain sediment settling zones to those required and ensure that stormwater is entering and leaving the basin as planned. | Ongoing | |
| **5** | Groundwater environmental management controls will be -<br>• Readily available spill kits on site;<br>• Storage of products in suitably sized bunded containers;<br>• Training personnel to use spill kits and establish emergency procedures in the event of a spill; and<br>• Daily pre-start checks on machinery to minimise the risk of spills; ensure machinery and equipment is functional, hoses are correctly fitted and secure, and caps on fluid tanks are tightened. | Ongoing | |
| **6** | Equipment will be well maintained and late model machines with proprietary exhaust silencers fitted to ensure noise emissions are as low as possible.<br>Pit operations will occur during normal daytime hours of 0700 – 1900 hrs Monday to Friday. | | C-3 Noise Emissions |
| **7** | <u>Weed and Disease Management</u><br>A DRAFT Weed and Disease Management Plan (WDMP) is submitted with the EIS (**Attachment 8**). | | C-4 Natural Values |
| **8** | <u>Geoconservation</u><br>In the event notable examples of significant geomorphological features are encountered (i.e. any of the features listed below) the first task should be to photograph the area and move operations away from the feature until a suitably qualified person (in the context of the item/items discovered) can assess any geomorphological/cultural values. Contractors should look out for:<br>• Thick dark continuous bands within the dunes.<br>• Buried tree stumps or large calcareous deposits (not rhizoliths of modern age such as those created by tree roots from recently deceased vegetation) that appear to be parts of a tree.<br>• Stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand.<br>• Large accumulations of shells. | | |

| | | | |
|---|---|---|---|
| | • Large bones and accumulations of smaller bones buried >1m under the surface. | | |
| **9** | <u>Karst</u><br>In the event a steep sided depression forms during operations that has signs of collapse these should be recorded and avoided during operations until expert advice is obtained. In the event a cave is located on site operations should avoid the area and seek expert advice. | | |
| **10** | General refuse waste generated by workers (e.g., lunch wrappers) at the Pit will be collected in waste bins provided on-site – at the amenities/crib room. The bins will be emptied at least once per fortnight and the material disposed of at a permitted refuse disposal site. Waste bins that receive food scraps will be fitted with preventative access measures to discourage native animals and feral cats. | Ongoing | C-5 Waste Management |
| **11** | Waste generated by maintenance works, repairs and/or schedule servicing of equipment and machinery off the Pit location will be managed by the service provider at the location where they have been engaged by the Proponent to complete the required works. | | |
| **12** | Waste will be sorted based on the classification of the type of waste, with Controlled Waste (see **Table 13**) separated from all other waste streams and disposed of at the Council operated Whitemark Waste Facility (419 Memana Road, Whitemark). | | |
| **13** | All fuels, lubricants and/or hazardous materials are stored in accordance with the relevant requirements of *AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids*. Refuelling activities will only occur when machinery is within a bunded/hardstand area. | Ongoing | D.6 DANGEROUS AND ENVIRONMENTALLY HAZARDOUS GOODS |
| **14** | Spill prevention and clean-up equipment is to be readily available and accessible in the vicinity of all plant and machinery, including mobile and fixed fuel storages. | | |

## PART E – CONCLUSION

The proposed intensification of use is to extract up to 10,000 cubic metres (approx. 15,000 tonnes) of material per annum. All material won may be screened, and/or blended with other soil ameliorants/additives such as boron. Material is likely to be transported in greater volumes in summer and autumn because these seasons coincide with the peak activity periods for agricultural pasture improvement, maintenance, and establishment.

The activity includes but is not limited to vegetation removal, soil stripping, ripping, vibratory screening (to blend the product and remove any vegetative matter and stones), stockpiling material, and transportation of material.

This EIS follows the generic EIS Guidelines and the EIS Project Specific Guidelines issued by the EPA and provides information on -

1. the present environment of the site, including such matters as zoning, land use, flora, fauna, soils, and climate. It also describes the proposed operational activities in detail, the potential emissions sources, and the development timetable, and on
2. each of the potential environmental issues associated with the Pit and details of the mitigation measures to address each issue.

There are environmental impacts that are likely or potential from the activity, including noise, vibration, dust, and sediment discharge in uncontrolled stormwater discharge. Management measures have been proposed and will be implemented to mitigate the effects of the identified environmental impacts.

It is concluded that:

1. the RMPS and EMPCS objectives have been duly and properly pursued while sourcing and compiling information on the proposal,
2. the EIS for the Activity has been prepared in accordance with the Environmental Impact Assessment Principles, and
3. the proposed activity is capable of being managed in an environmentally acceptable manner such that it is unlikely that the objectives of the *Environmental Management and Pollution Control Act 1994* (the RMPS and EMPCS objectives) would be compromised.

## PART F - REFERENCES

Department of Primary Industries, Parks, Water and Environment (2015). *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania*. (Eds.) Karen Stewart and Michael Askey-Doran. Department of Primary Industries, Parks, Water and Environment, Hobart, Tasmania.

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VDC (2024a). Lime Sand Extraction Pit, Palana Road, Memana, Flinders Island. Natural Values Report. Van Diemen Consulting Pty Ltd, 20 October 2024.

VDC (2024b). Lime Sand Extraction Pit, Palana Road, Memana, Flinders Island. Natural Values Report. Van Diemen Consulting Pty Ltd, 20 October 2024.

## PART G – ATTACHMENTS

**ATTACHMENT 1. LAND TITLES**

OWNER

FOLIO REFERENCE C.T. 2914/55

GRANTEE

# PLAN OF TITLE

LOCATION FLINDERS./LUGHRATA

FIRST SURVEY PLAN No.

COMPILED BY L T O

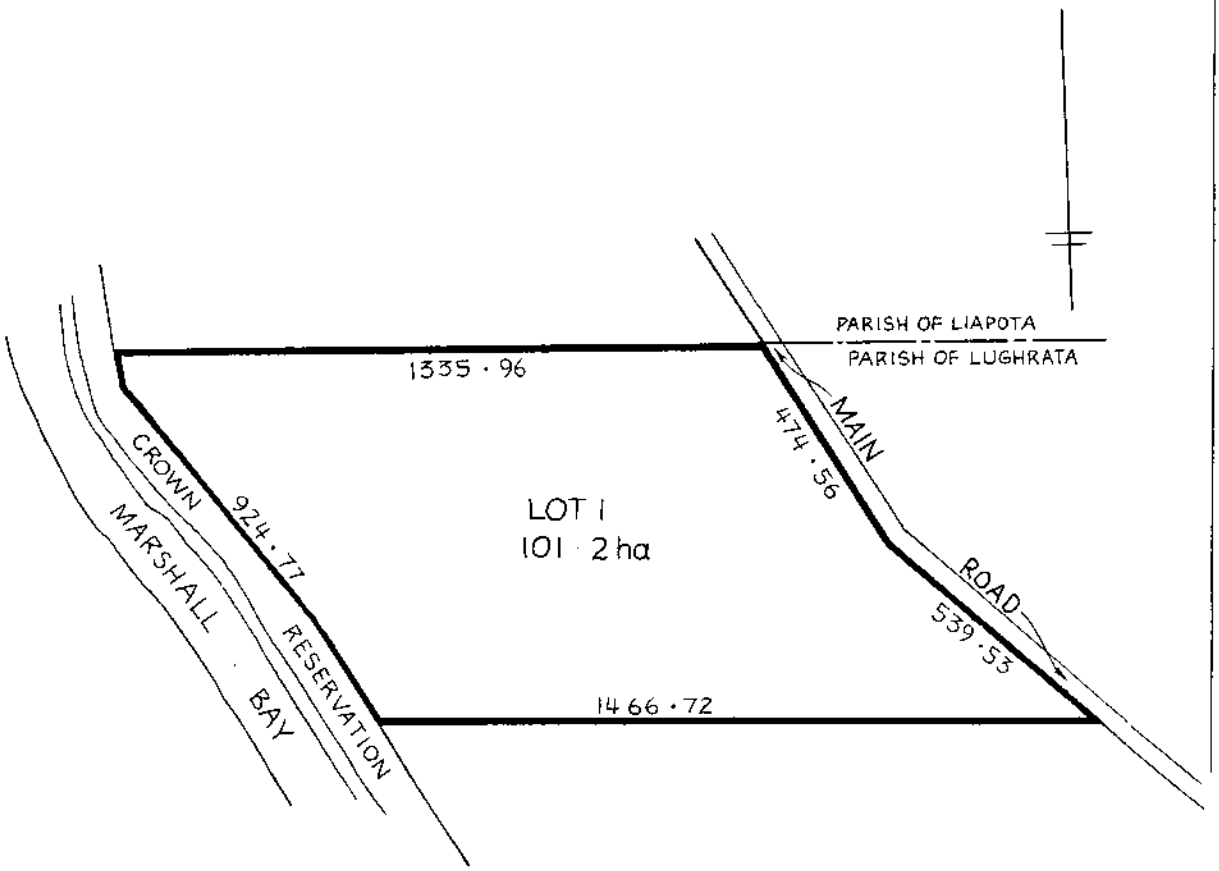
SCALE 1: 900 LENGTHS IN METRES

REGISTERED NUMBER
P 120064

APPROVED 16 AUG 1995
Recorder of Titles

| MAPSHEET MUNICIPAL CODE No. | LAST UPI No | LAST PLAN No. | ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN |
|---|---|---|---|

## BALANCE PLAN





Search Date: 10 Apr 2023 Search Time: 04:47 PM Volume Number: 120064 Revision Number: 01 Page 1 of 1
Department of Natural Resources and Environment Tasmania
www.thelist.tas.gov.au

# RESULT OF SEARCH

RECORDER OF TITLES

*Issued Pursuant to the Land Titles Act 1980*

SEARCH OF TORRENS TITLE

| VOLUME | FOLIO |
|---|---|
| 120064 | 1 |
| EDITION | DATE OF ISSUE |
| 4 | 14-May-2015 |

SEARCH DATE : 10-Apr-2023
SEARCH TIME : 04.46 PM

## DESCRIPTION OF LAND

Parish of LUGHRATA, Land District of FLINDERS
Lot 1 on Plan 120064
Derivation : Whole of Lot 25441 Gtd to T McKenzie
Prior CT 2914/55

## SCHEDULE 1

C829114 TRANSFER to MARKARNA GRAZING COMPANY PTY LTD
Registered 27-Nov-2007 at noon

## SCHEDULE 2

Reservations and conditions in the Crown Grant if any
E10087 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 14-May-2015 at 12.05 PM

## UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

R.P. 312

2580 64

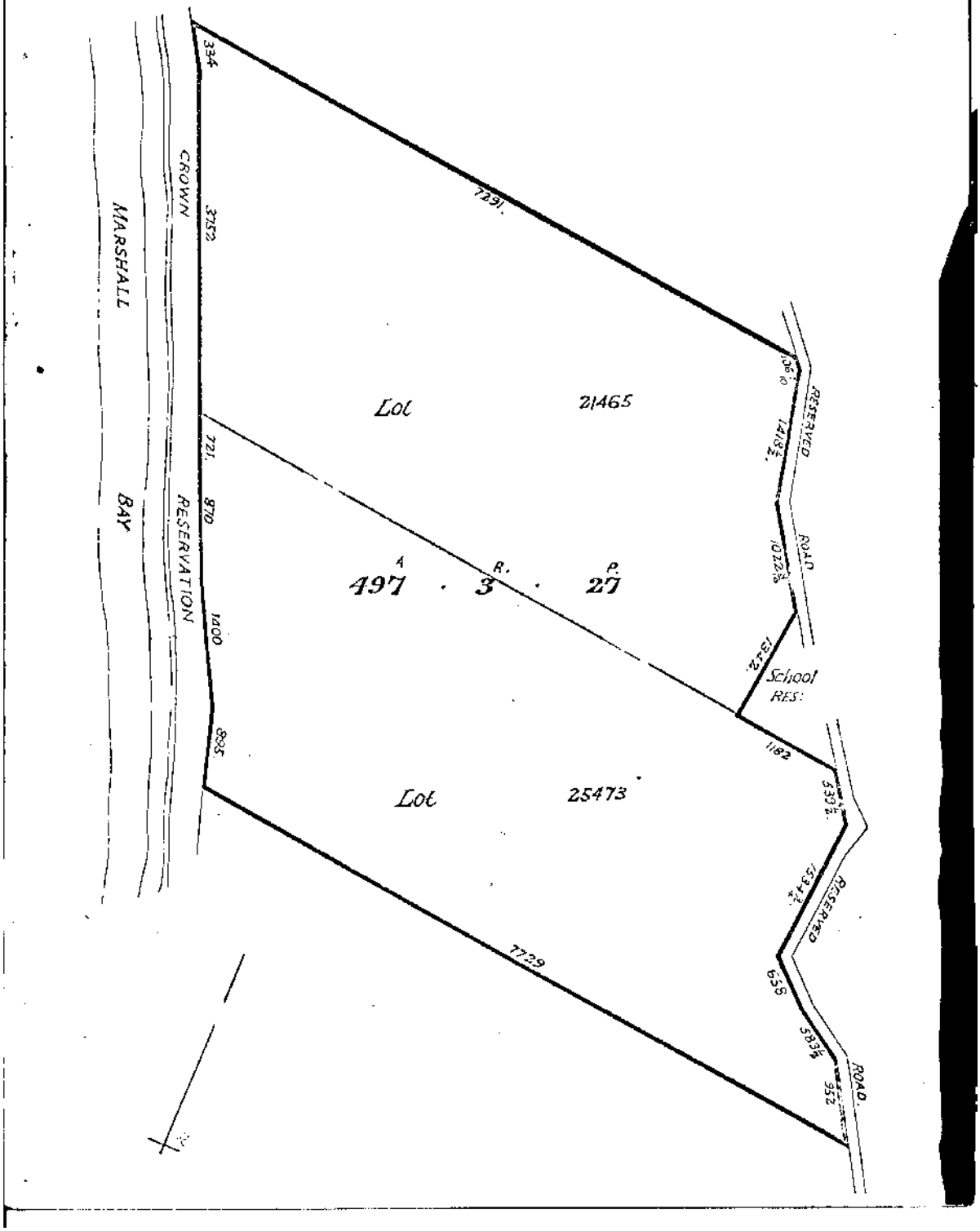
**ANNEXURE TO CERTIFICATE OF TITLE VOL. FOL.**

REGISTERED NUMBER

**215120**

*Recorder of Titles*

**Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register.**



# RESULT OF SEARCH

RECORDER OF TITLES

*Issued Pursuant to the Land Titles Act 1980*

SEARCH OF TORRENS TITLE

| VOLUME | FOLIO |
|---|---|
| 215120 | 1 |
| EDITION | DATE OF ISSUE |
| 4 | 14-May-2015 |

SEARCH DATE : 10-Apr-2023
SEARCH TIME : 04.47 PM

## DESCRIPTION OF LAND

Parish of LUGHRATA, Land District of FLINDERS
Lot 1 on Plan 215120
Derivation : Whole of Lots 21465 and 25473 Gtd. to C.J. Robinson & J.H. Thompson respectively.
Prior CT 2580/64

## SCHEDULE 1

C829114 TRANSFER to MARKARNA GRAZING COMPANY PTY LTD
Registered 27-Nov-2007 at noon

## SCHEDULE 2

Reservations and conditions in the Crown Grant if any
E10087 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 14-May-2015 at 12.05 PM

## UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

VOL. FOL.

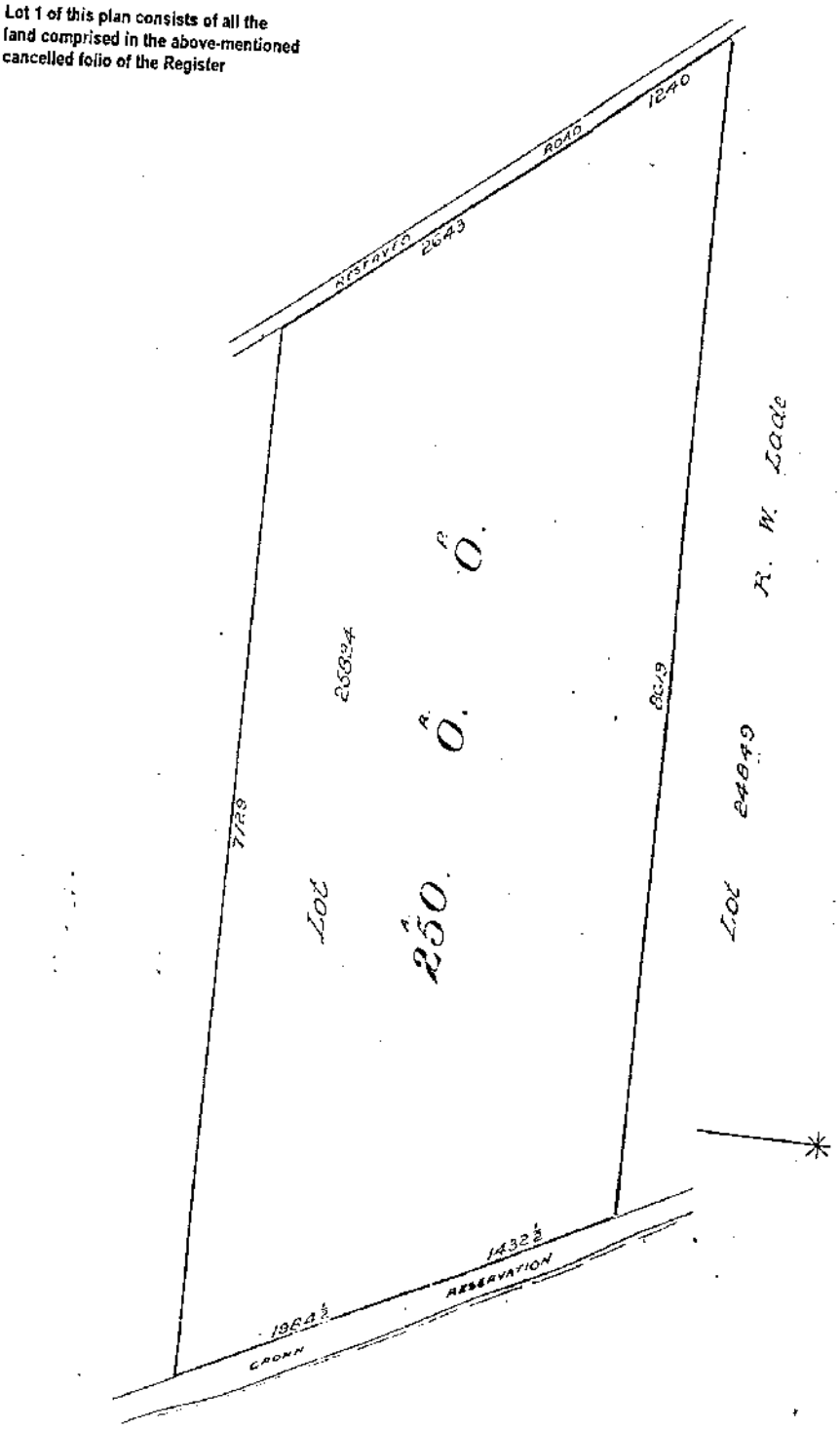
## ANNEXURE TO CERTIFICATE OF TITLE

REGISTERED NUMBER

230282

*Recorder of Titles*

Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register




NOTE

# RESULT OF SEARCH

RECORDER OF TITLES

*Issued Pursuant to the Land Titles Act 1980*

SEARCH OF TORRENS TITLE

| VOLUME | FOLIO |
|---|---|
| 230282 | 1 |
| EDITION | DATE OF ISSUE |
| 4 | 14-May-2015 |

SEARCH DATE : 10-Apr-2023
SEARCH TIME : 04.47 PM

## DESCRIPTION OF LAND

Parish of LUGHRATA, Land District of FLINDERS
Lot 1 on Plan 230282
Derivation : Whole of Lot 25824 Gtd. to J.R. Robinson.
Prior CT 2992/93

## SCHEDULE 1

C829114 TRANSFER to MARKARNA GRAZING COMPANY PTY LTD
Registered 27-Nov-2007 at noon

## SCHEDULE 2

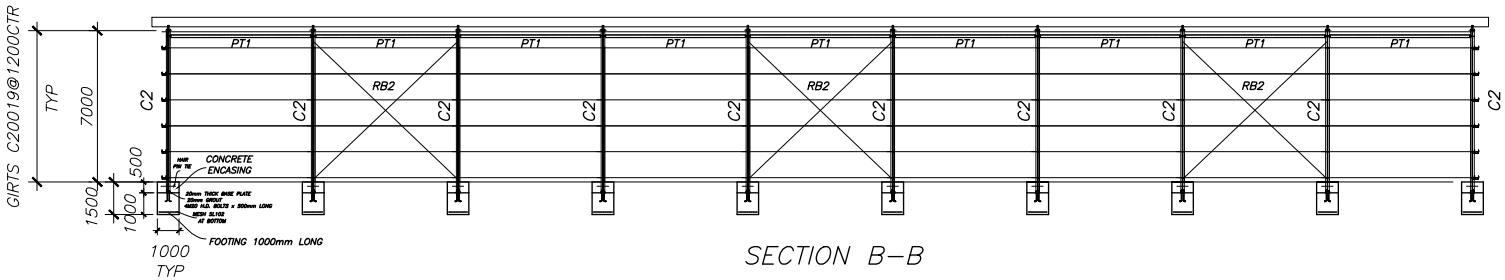
Reservations and conditions in the Crown Grant if any
E10087 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 14-May-2015 at 12.05 PM

## UNREGISTERED DEALINGS AND NOTATIONS

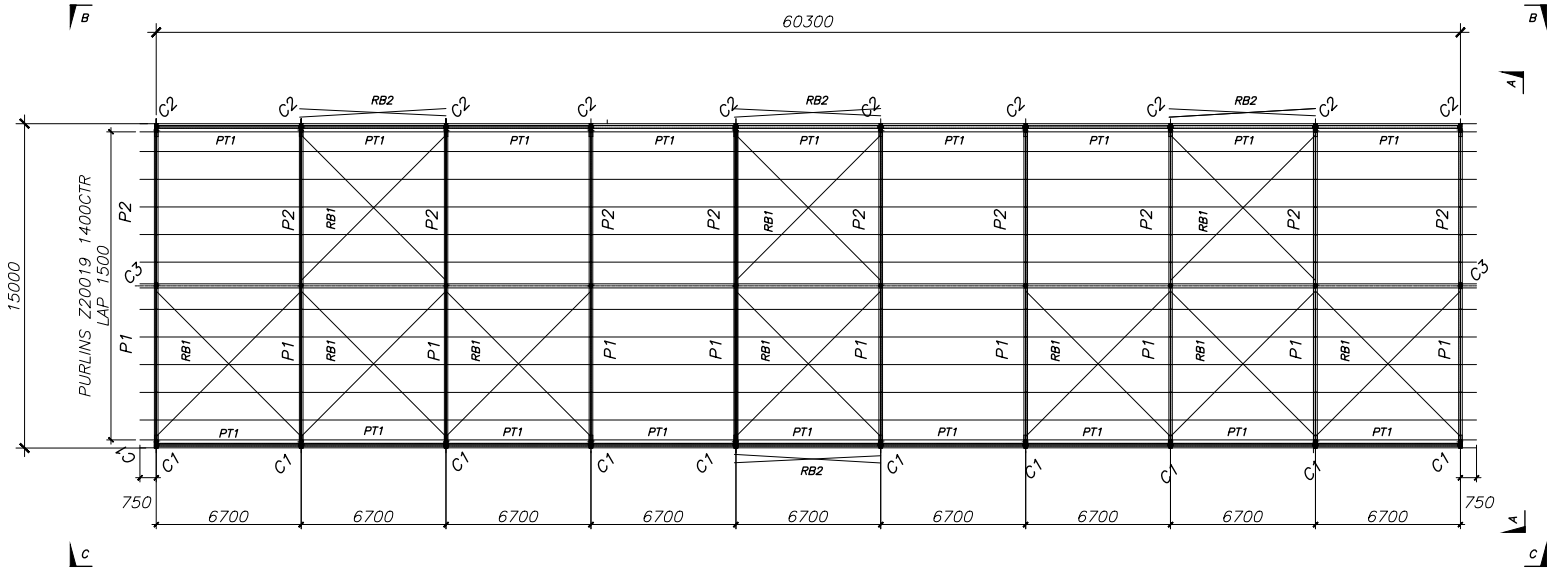
No unregistered dealings or other notations

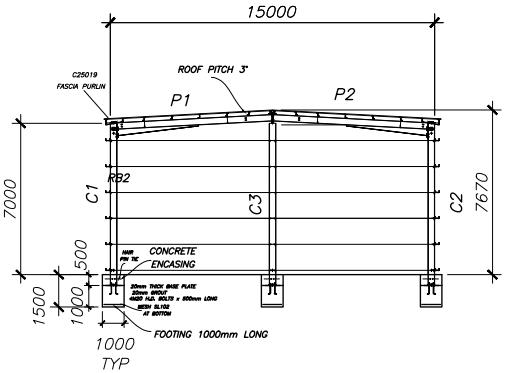
**ATTACHMENT 2. SHED DESIGN**

| STEEL SCHEDULE | |
|---|---|
| MEMBER | SIZE |
| C1 | 310UB40 |
| C2 | 310UB40 |
| C3 | 250UB31 |
| P1 | 310UB40 |
| P2 | 310UB40 |
| RB1–RB2 | 20 ROD |
| PT1 | 125X125X5 SHS |
| HAUNCH | 360UB50 – 3800mm min |
| PURLINS | Z20019 1400 CTRL @ LAP 1500 |
| GIRTS | C20019 1200 CTRL |
| | |

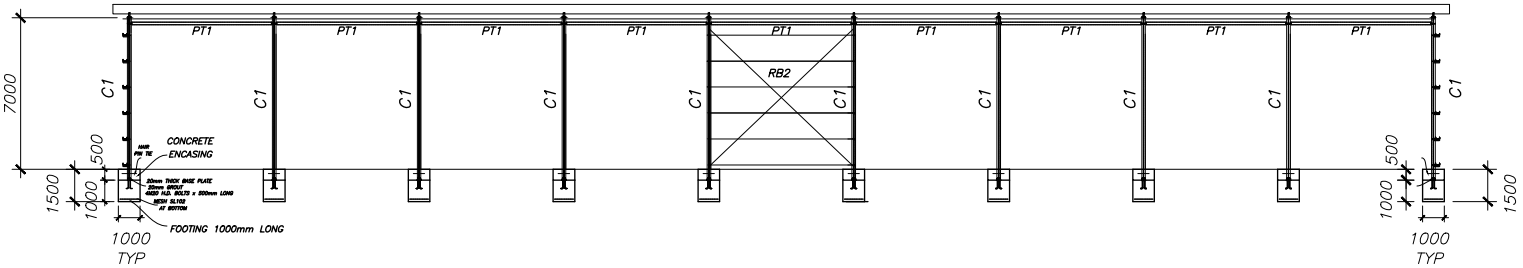



SECTION B–B




SECTION A–A




SECTION C–C

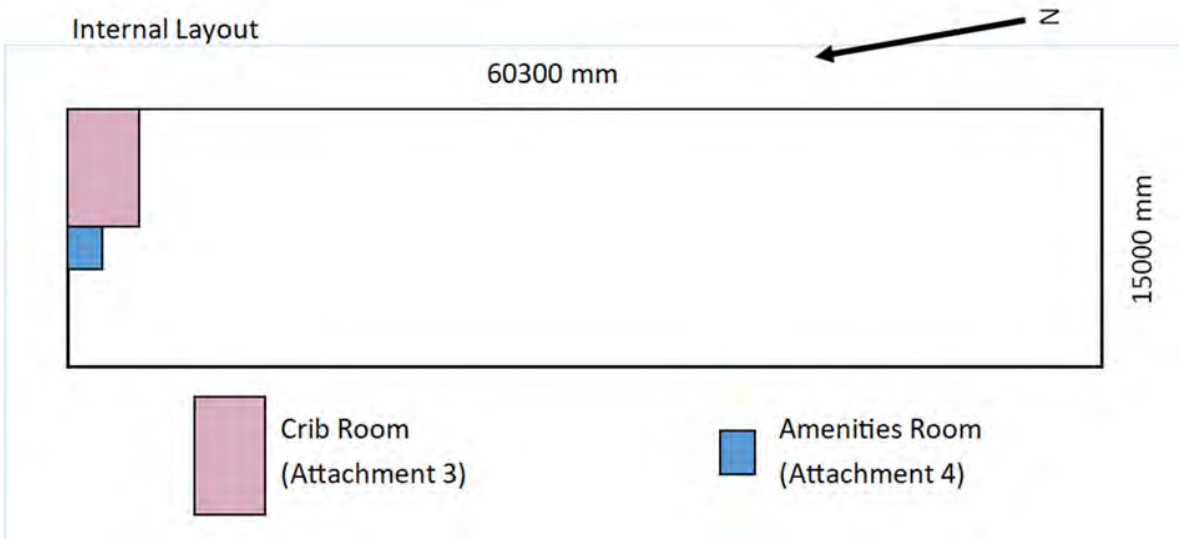
PRELIMINARY
FOR APPROVAL

AUS
Factory 2, 22a GALLI COURT
DANDENONG SOUTH 3175 VIC.
PH 03 9799 9922 FAX 03 9799 9913

| | | |
|---|---|---|
| P1 | PRELIMINARY | 27.02.2019 |
| P | PRELIMINARY | 21.02.2019 |
| AMENDMENTS | | |

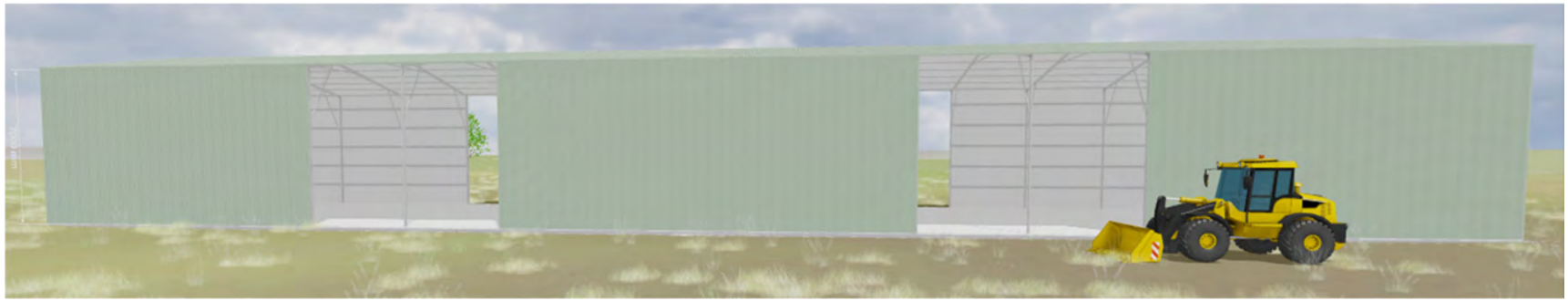
CLIENT: MARKANA PARK
PROJECT: MACHINERY & HAY SHED
FLINDERS ISLAND
JOB:

WELD: 6FW | PAINT: | DRN: CT | DATE: FEB 19 | DWG No: MP01
HOLES: ø22 | PRIMER | CKD: DM | REV P1


Internal Layout
N
60300 mm
15000 mm
Crib Room
(Attachment 3)
Amenities Room
(Attachment 4)

**Elevations**

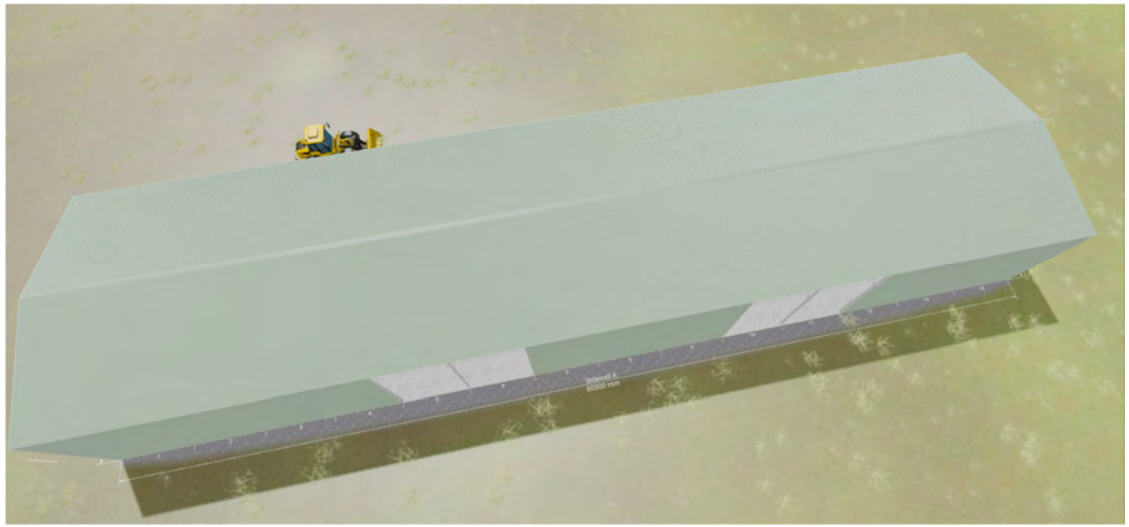
East view



West view



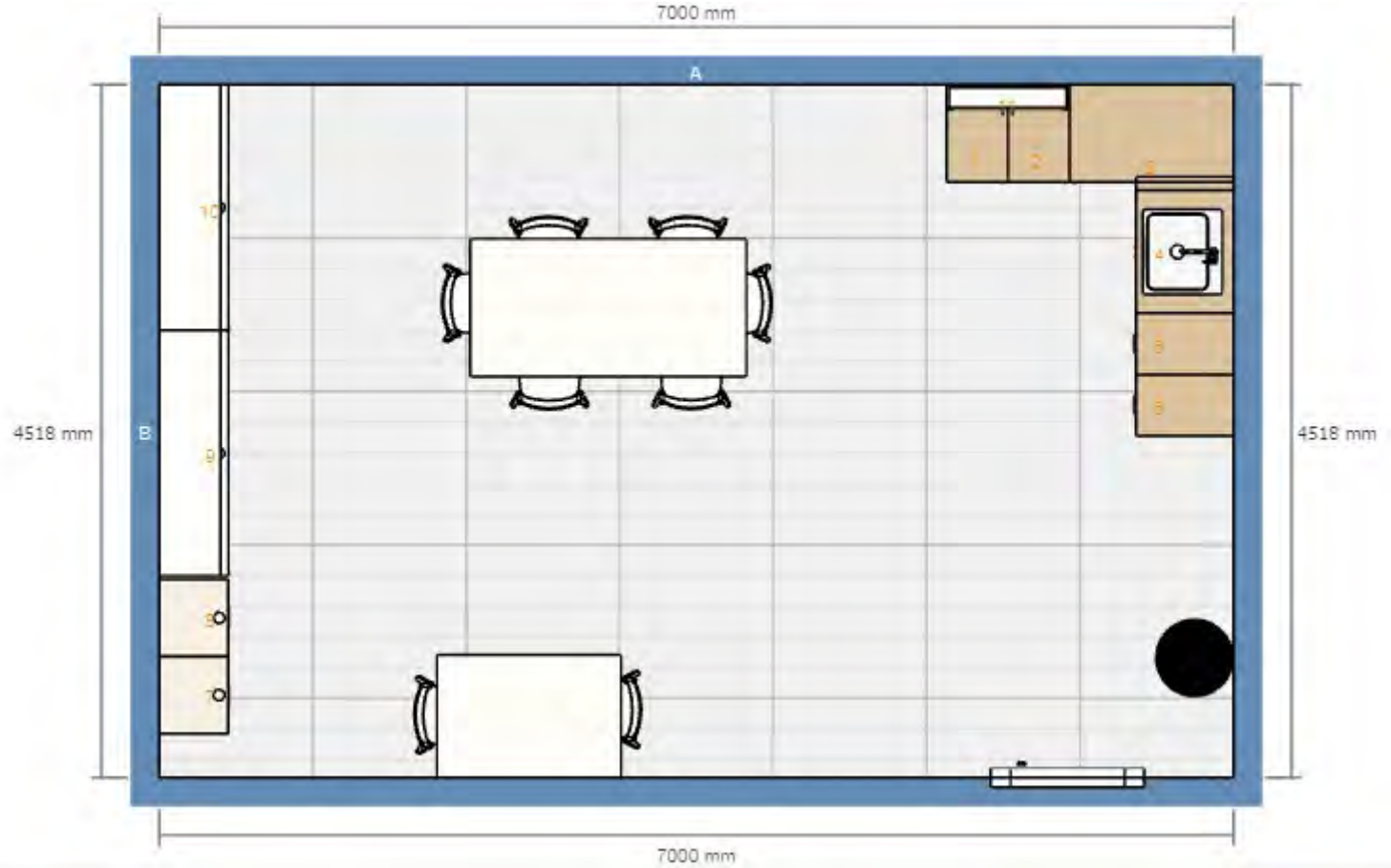
**Overviews**



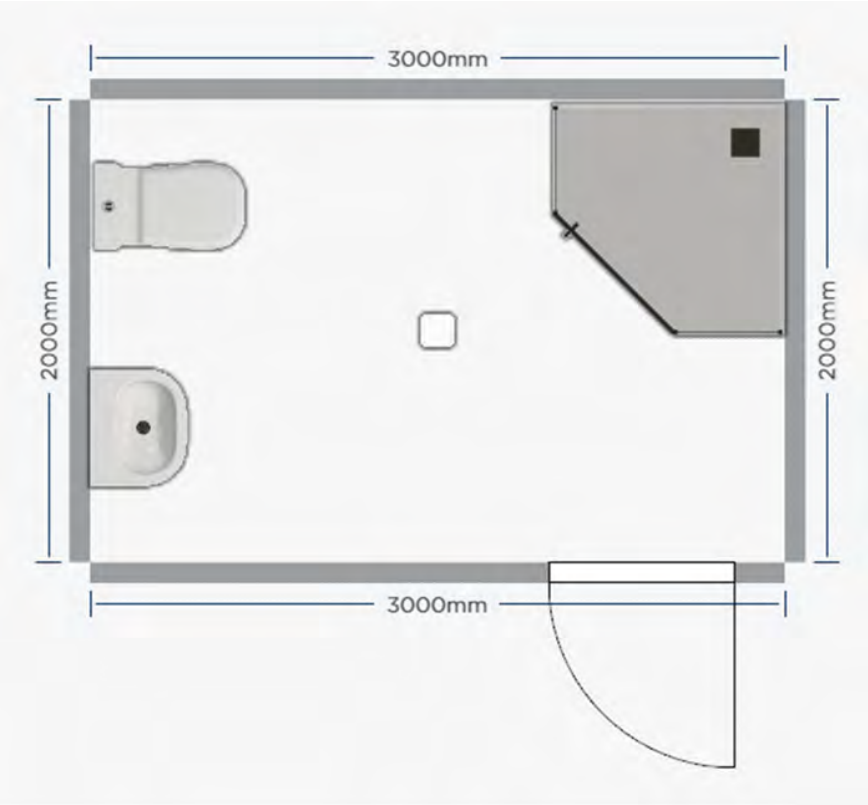


**ATTACHMENT 3. CRIB ROOM AND AMENITIES DESIGN**




7000 mm
A
4518 mm
B
4518 mm
7000 mm

**Amenities - 2D Layout**




**Amenities - 3D Render**



**ATTACHMENT 4. MARSHALL BAY LIME SAND PIT NATURAL VALUES ASSESSMENT REPORT V1**

# LIME SAND EXTRACTION PIT, PALANA ROAD

# MEMANA, FLINDERS ISLAND

## NATURAL VALUES REPORT

### MARKARNA GRAZING COMPANY PTY LTD



Van Diemen CONSULTING PO BOX 1, NEW TOWN, TAS 7008

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PO Box 1
New Town, Tasmania

T: 0438 588 695 E: rwbarnes73@gmail.com

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To the best of VDC's knowledge, the report presented herein represents the Client's intentions at the time of completing the document. However, the passage of time, manifestation of latent conditions or impacts of future events may result in changes to matters that are otherwise described in this document. In preparing this document VDC has relied upon data, surveys, analysis, designs, plans, and other information provided by the client, and other individuals and organisations referenced herein. Except as otherwise stated in this document, VDC has not verified the accuracy or completeness of such data, surveys, analysis, designs, plans, and other information.

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**Document Status**

| Revision | Author | Review | Date | Purpose |
|---|---|---|---|---|
| 1 | R Barnes C McCoull | R Barnes | 30-9-2024 | Review |
| 1 | R Barnes C McCoull | Markarna Grazing Company Pty Ltd | 20-10-2024 | Review |
| 2 | R Barnes C McCoull | | | |
| 2 | R Barnes C McCoull | | | |
| | | | | |
| | | | | |
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## EXECUTIVE SUMMARY

Markarna Grazing Company Pty Ltd has sought a permit under the *Land Use Planning and Approvals Act 1993* for an Extraction Pit (lime sand; the 'Activity') at Marshall Bay, Flinders Island.

The Activity, which is an Extractive Industry per the Use Class classifications in the Tasmanian Planning Scheme - Flinders, is a prohibited use in the current zone (Landscape Conservation). An Amendment was therefore sought to rezone Certificates of Titles CT 120064/1, CT 215120/1, CT 230282/1 – private freehold (PID 3513143) to *Zone 20. Rural* to facilitate the current development application and provide for future extraction opportunities (permissible use) for the agriculturally significant lime sand resource at Marshall Bay.

The EPA issued Project Specific Guideline (see **Attachment 1** for an extract) required the investigation of Natural Values as part of the assessment process for the Activity including Threatened Flora, Threatened Fauna – Terrestrial, and Seabirds and Shorebirds. Natural Values related matters are also identified in the PSGs, such as Water quality, Geoconservation and Wetlands, Karst, and Acid Sulfate Soils. This Report provides information about these themes in response to the PSG's. The key findings are summarised below.

<table>
<tr><th colspan="2">Threatened native vegetation communities</th></tr>
<tr><td>Threatened Ecological Communities (EPBC Act)</td><td rowspan="2">None are present in the Survey Area.</td></tr>
<tr><td>Threatened Native Vegetation Communities (NCA)</td></tr>
<tr><th colspan="2">Threatened Flora Species</th></tr>
<tr><td colspan="2">Six flora species protected by a statutory mechanism ('Threatened flora') were observed during combined surveys in the Survey Area (TSP Act and EPBC Act listing):<br>- Acacia uncifolia, coast wirilda (r/-)<br>- Asperula minima, mossy woodruff (r/-)<br>- Eutaxia microphylla, spiny bushpea (r/-)<br>- Pimelea curviflora var. gracilis, curved riceflower (r/-)<br>- Roepera billardierei, coast twinleaf (r/-)<br>- Scaevola albida, pale fanflower (v/-)<br>All threatened flora species observed would have plants taken as part of the development. No species listed on the Environment Protection and Biodiversity Conservation Act 1999 were observed in the Study Area.</td></tr>
<tr><th colspan="2">Threatened Fauna Species</th></tr>
<tr><td colspan="2">No fauna species listed on the Threatened Species Protection Act 1995 or Environment Protection and Biodiversity Conservation Act 1999 were directly observed in the Survey Area during the surveys.<br>No trees with the potential to support any hollow-dependent bird species, such as swift parrots or blue-winged parrots, were observed in the Survey Area.<br>Habitat for several threatened Fauna is present including:<br>• wedge-tailed eagle (Aquila audax subsp. fleayi – Foraging habitat is present in Survey Area.</td></tr>
</table>

- white-bellied sea-eagle (*Haliaeetus leucogaster*) – Foraging habitat is present in Survey Area.
- Tussock skink (*Pseudemoia pagenstecheri*) – potential low Poa coverage areas in buffer to the Survey Area.

It was determined based on the nature of the activity, and location and quality of habitat, that the activity would not cause any significant impact to any listed fauna species.

**Weeds and Diseases**

Two Declared Weed species listed on the *Biosecurity Act 2019* were observed in the Survey Area; these include horehound (*Marrubium vulgare*) and slender thistle (*Carduus pycnocephalus*).

No plants with PC symptoms were observed in the Survey Area, and with the lack of susceptible species the water mould is unlikely to be present, or active, in the Survey Area.

**Geomorphology and soils**

Van Diemen Consulting Pty Ltd engaged the Forest Practices Authority (FPA) to investigate the geomorphology and soils present on a 364.1 ha mining lease owned by the Markarna Grazing Company between Palana Road and Marshall Beach near the settlement of Lughrata on Flinders Island. The field work and report were completed by Dr Adrian Slee, with the report (Slee) generated from the engagement provided in **Attachment 8**.

**Karst**

Slee observed no karst landforms apart from very minor surface solution sculpture (karren) landforms have been identified during his survey. Given the extensive nature and relief of the limestone on the hills east of the mining lease subsurface water flow through karst aquifers is likely but significant karst landforms are unlikely to be present. In the absence of evidence for significant karst formulation of mitigation measures is unnecessary.

*Karst recommendations*

- In the event a steep sided depression forms during operations that has signs of collapse these should be recorded and avoided during operations until expert advice is obtained.
- In the event a cave is located on site operations should avoid the area and seek expert advice.

**Sand Dunes**

In the event notable examples of significant geomorphological features are encountered (i.e. any of the features listed below) the first task should be to photograph the area and move operations away from the feature until a suitably qualified person (in the context of the item/items discovered) can assess any geomorphological/cultural values.

Contractors should look out for:

- Thick dark continuous bands within the dunes.
- Buried tree stumps or large calcareous deposits (not rhizoliths of modern age such as those created by tree roots from recently deceased vegetation) that appear to be parts of a tree.
- Stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand.
- Large accumulations of shells.
- Large bones and accumulations of smaller bones buried >1m under the surface.

**Soils**

Well drained soils in the mining lease and specifically in the vicinity of the main proposed resource are strongly alkaline Calcarosols.

Acidic soils are unlikely to be present over extensive areas and may be totally absent. While organic topsoils, buried paleosols and lake/swamp sediments are present in the pit location, none of these soils contain adequate organic material to significantly reduce the pH within the dune sands due to the abundance of acid neutralising carbonates.

**DEFINITIONS**

| | |
|---|---|
| **Declared Weed** | means a plant species listed on the *Biosecurity Act 2019* |
| **(the) Activity** | means all use and development associated with the lime sand extraction pit in the Development Area including the screening of extracted sands and ancillary infrastructure such as the storage shed (including crib room), sediment ponds and drains, road and access tracks, hardstand, and wastewater (septic) infrastructure. |
| **Report** | This report |
| **Survey Area** | The area identified as Survey Area in Figures 1 to 3 and includes the area out to 1km from the edge of the Survey Area for the purpose of eagle nest searching (see Section *C.1.4 Targeted Flora and Fauna Species Surveys*). |
| **Mining Lease** | means Mining Lease 2117P/M (in force) |
| **Natural Values** | The Natural and Cultural Heritage Division (2015) Guidelines define this as 'biological and geodiversity values of conservation significance, being those species, vegetation communities and other values that have significance and/or statutory protection under the Tasmanian *Threatened Species Protection Act 1995* (TSPA), *Nature Conservation Act 2002* (NCA) and other relevant policies and regulations. |
| **TASVEG** | A comprehensive digital map of Tasmania's vegetation, including sub-Antarctic Macquarie Island. The map depicts the extent of more than 150 vegetation communities, including coastal heathlands, eucalypt forest and alpine communities. To assist with using the map, these communities are fully described in the accompanying technical manual - *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation* (Edition 2). Available to the public via LISTmap and can be requested as a standalone file for use within a Geographic Information System (GIS). |
| **Threatened fauna** | Species of fauna listed on the –<br>• Tasmanian *Threatened Species Protection Act 1995,* or the<br>• Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.* |
| **Threatened flora** | Species of flora listed on the –<br>• Tasmanian *Threatened Species Protection Act 1995,* or the<br>• Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.* |
| **Threatened ecological communities** | Ecological communities listed under s 181 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.* |
| **Threatened native vegetation communities** | Native vegetation communities listed under Schedule 3A of the Tasmanian *Nature Conservation Act 2002*. |

**ACRONYMS**

| | |
|---|---|
| **DPIPWE (now NRE Tas)** | Department of Primary Industries, Parks, Water and Environment |
| **ENV** | effective neutralising value |
| **(the) EPBC Act** | *Environment Protection and Biodiversity Conservation Act 1999* |
| **EPA** | Environment Protection Authority |
| **LUPAA** | *Land Use Planning and Approvals Act 1993* |
| **ML** | Mining Lease 2117P/M |
| **MRT** | Mineral Resources Tasmania |
| **NCA** | *Nature Conservation Act 2002* |
| **PASS** | Potentially Acid Sulphate Soils |
| **QCP** | Tasmanian Quarry Code of Practice 2017 |
| **NRE Tas** | Department of Natural Resources and Environment Tasmania |
| **NVA** | Natural Values Atlas (a database of natural values information maintained by NRE Tas) |
| **PSA** | Planning scheme amendment |
| **(the) TSPA** | *Threatened Species Protection Act 1995* |

# PART A – INTRODUCTION

## A.1 BACKGROUND

Markarna Grazing Company Pty Ltd has sought a permit under the *Land Use Planning and Approvals Act 1993* for an Extraction Pit (lime sand; the 'Activity') at Marshall Bay, Flinders Island.

The Activity, which is an Extractive Industry per the Use Class classifications in the Tasmanian Planning Scheme - Flinders, is a prohibited use in the current zone (Landscape Conservation). An Amendment was therefore sought to rezone Certificates of Titles CT 120064/1, CT 215120/1, CT 230282/1 – private freehold (PID 3513143) to *Zone 20. Rural* to facilitate the current development application and provide for future extraction opportunities (permissible use) for the agriculturally significant lime sand resource at Marshall Bay.

A permit under LUPAA is currently sought on the basis that the planning scheme amendment for the zone change to Rural from Landscape Conservation is approved by the Tasmanian Planning Commission.

## A.2 LIME SAND AND AGRICULTURAL PRODUCTION ON FLINDERS ISLAND

Agriculture is a critical employment and income generation activity on Flinders Island, so its longevity is of paramount importance to the social and economic well-being of the island.

The lime sand deposits at Marshall Bay are well known, highly significant to the agricultural productivity of Flinders Island, and proven in their ENV on agricultural lands (Everard 1950, Pryor 1967, Sutherland and Kershaw 1971). A Mining Lease is in force; 2117P/M.

The Marshall Bay land parcels owned by Markarna Park were specifically purchased to provide ongoing lime sands for the agricultural lands on the property and associated properties, and to also provide some for sale to other agricultural enterprises on the island.

The existing but now disused pit (which is the starting location for the new pit) was once used by many islanders to access lime sand due to its ease of access, extraction of high ENV (effective neutralising value). Sands will also be used to supply concrete production activities because most sand for such a purpose is brought to the island.

Off-island supplies of lime are costly due to high freight charges which in the medium to long-term undermines the economic viability of agriculture on the island. That is, if lime is expensive then it is likely that inadequate levels would be used by agricultural operators (due to cost) that then has a long-term negative impact to the overall soil health and potential of agricultural lands to produce food.

## A.3 SCOPE

The EPA issued Project Specific Guideline (see **Attachment 1** for an extract) required the investigation of Natural Values as part of the assessment process for the Activity including Threatened Flora, Threatened Fauna – Terrestrial, and Seabirds and Shorebirds. Natural Values related matters are also identified in the PSGs, such as Water quality, Geoconservation and Wetlands, Karst, and Acid Sulfate Soils.

The following tasks were undertaken as part of the Natural Values (biodiversity) assessment and Report:

1. A review of biodiversity values recorded previously within and adjacent to the Study Area including Natural Values Atlas held data, and available reports and maps,

2. The potential for the occurrence of threatened fauna species listed under the TSP Act and EPBC Act in the Study Area was evaluated using the Natural Values Atlas Database (NVA, Department of Natural Resources and Environment Tasmania),

3. Field surveys were undertaken to investigate and verify the potential biodiversity values identified in the desktop assessment. The field surveys included:

   (a) The ground-truthing and mapping of vegetation communities at an appropriate geographic scale in the Study Area using TASVEG 4.0 mapping units (and ecological communities listed under the EPBC Act);

   (b) Targeted searches of areas for terrestrial and riparian flowering annual and perennial plants and aquatic flora[1], including potential habitat for conservation significant species;

   (c) Habitat assessment for threatened raptor and mammal species; and

   (d) The identification and mapping of declared and weeds listed on the schedules of the *Biosecurity Act 2019* within the Study Area, and

4. Provide recommendations for the management of any identified conservation significant matters.

## A.4 PROPOSED ACTIVITY

This section provides information about the Activity.

| | |
|---|---|
| **Material to be extracted** | The material to be extracted is lime sand destined for an agricultural use (soil ameliorant). Extracted (raw) sand will be screened if necessary to remove organic matter and contaminants (e.g., shells, rocks, and stones). Additional agricultural soil ameliorants/additives such as boron may be mixed (by screening) with some of the lime sands prior to carting to the location of use (i.e., spreading on paddocks). |
| **Maximum extraction quantity** | 10,000 cubic metres per annum (equivalent is 15,000 tonnes per annum). Loose bulk density ratio is 1.5. Material is likely to be transported in greater volumes in summer and autumn because these seasons coincide with the peak activity periods for agricultural pasture improvement, maintenance, and establishment.<br><br>Raw sand will be stockpiled in the pit, adjacent to the pit or at the storage shed ready for screening. Screened sands will be stored in the shed or on the hardstand ready for collection by trucks for transport to the delivery location. |

[1] Excluding micro-flora such as algae, lichen, fungi.

| | |
|---|---|
| **Material extraction and processing** | The **extraction and handling of material** will be in accordance with the following:<br>• surface site preparation by vegetation and topsoil stripping and stockpiling;<br>• excavation of material with a bulldozer and/or excavator;<br>• transport of sands to the storage shed for screening/storage and occasional mixing with other soil ameliorants/additives (e.g., additional micro-nutrients and essential plant nutrients such as boron). Some sand will be loaded at the pit into trucks for immediate delivery to agricultural lands;<br>• screening (up to 10,000 cubic metres per annum) to remove any vegetative/root debris and/or rocks and stones;<br>• loading trucks with wheel loader from the pit face and/or stockpile area; and the<br>• transport of material by truck. |
| **Operating hours** | 0700 – 1900 hrs Monday to Friday |
| **Transport** | The maximum extraction volume of 15,000 tonnes equates to about 1,500 truckloads per annum based on 10 tonne loads (smaller loads are used given the material is to be spread on pastures and ploughed land).<br>All traffic would enter and exit onto the sealed section of Palana Road using the now disused reserved road (unsealed) section of Palana Road. |
| **Maximum area of disturbance** | The removal of vegetation will occur as an area is required for pit expansion or the establishment of specific infrastructure, such as a cut-off drain, stockpile location etc. The management of vegetation removed to extract the resource will be in accordance with the QCP.<br>The maximum area of disturbance, without any rehabilitation, is 5 hectares.<br>To place this into perspective, given the size of the Mining Lease (364.1 hectares), the maximum area of disturbance at any one time represents 1.4% of the Mining Lease. |
| **Infrastructure** | An existing road off Palana Road is to be used to access the pit and shed. The reserved road is held under licence with the Crown for use to access the Land.<br>A shed (15000 x 60300 x 7700 mm) is proposed.<br>A septic wastewater system (grey and black water) will be installed to dispose of toilet, shower, and crib room waste. The on-site wastewater management system design caters for a daily design loading of up to 5 persons with a per capita loading of 40L/person/day. The wastewater discharge from the premises will be broadly like domestic wastewater; there will be no industrial or trade-waste discharge to the installation; this is consistent with Clause 1.2.1 of *AS/NZS 1547:2012 Domestic on-site waste-water management*.<br>Tanks will be installed (likely to be 2 x 50,000 litre) to capture rainwater from the shed and to receive water from a groundwater bore. |
| **Workforce** | The activity will utilise up to 5 staff per day when fully operational plus truck drivers. Most days will see only 2-3 staff at the site who would be loading trucks and carting lime sands from the active face to the shed. |

## A.5 ASSOCIATED REPORTS

Natural Values includes 'geodiversity values' which were assessed and documented for the Survey Area and broader Mining Lease in a separate study and report.

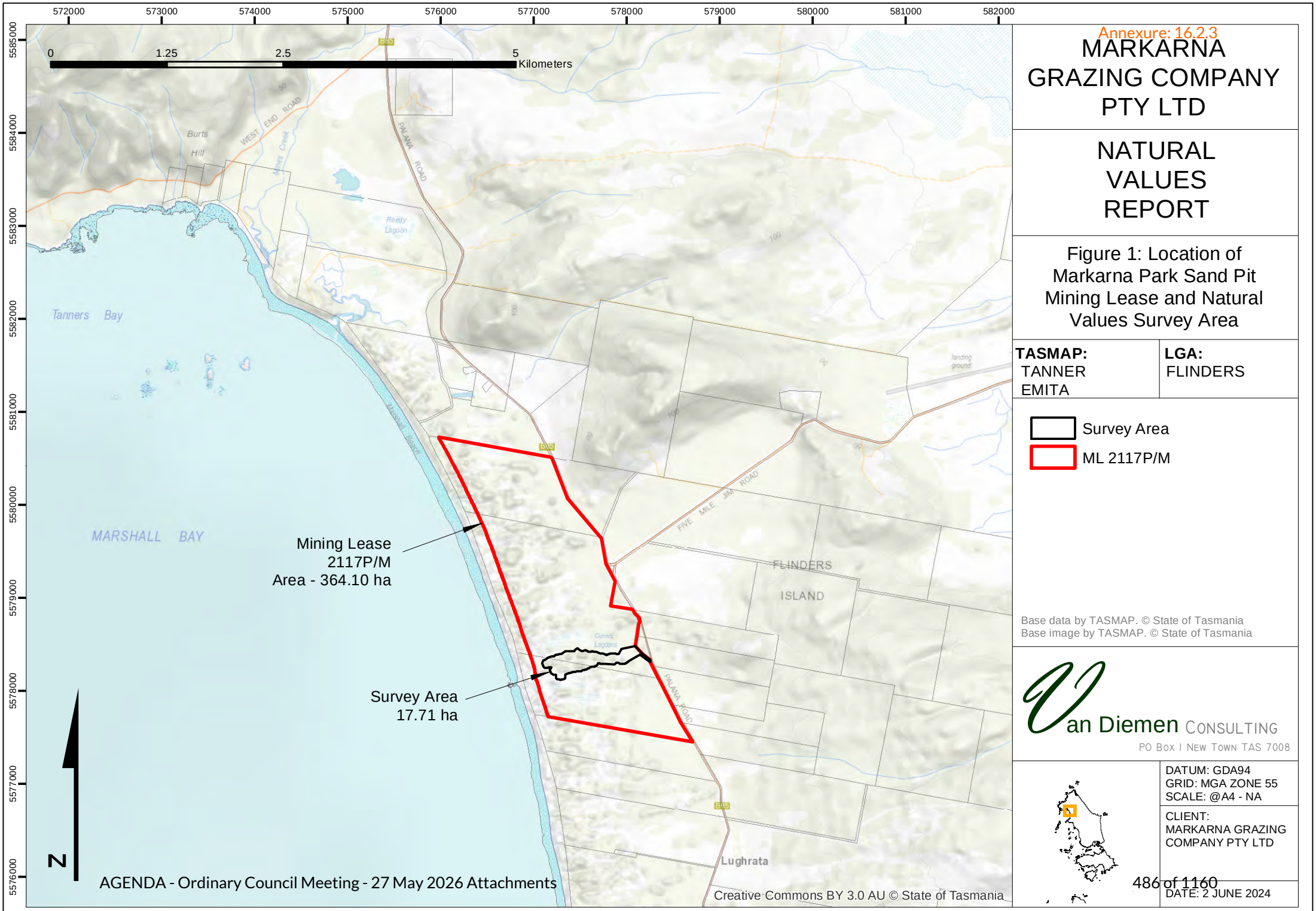
VDC commissioned the Forest Practices Authority to investigate the Survey Area and broader Mining Lease for its geomorphology and soils. The EPA issued Project Specific Guideline (see **Attachment 1** for an extract) also required the investigation of various matters as part of the assessment process for the Activity including Geoconservation and Wetlands, Karst, and Acid Sulfate Soils.

The aim of the geomorphological aspect of the project inter alia was to provide a detailed report on the dune field and other landforms including swamps and potential Tertiary limestone karst features in the vicinity of the proposed extraction pit (i.e. the Survey Area as identified in **Figure 3**). Soils were also be investigated in this area. A secondary focus was a general documentation of the dune field and other sites of geomorphic significance in the overall Mining Lease in the event of expansion of operations in the future.

The Slee (2023) report addressed the EPA PSGs and specifically included the following:

- Documentation of karst features present (if any) and provide management recommendations.
- Overview of the sand dunes present at the proposed pit site and mine lease in general and dune special values management recommendations.
- Comment on sand blow risks and mediation recommendations.
- Documentation of other geomorphic landforms (if any).
- Soil observations and management.

The Slee (2023) report is provided in **Attachment 8**, with reference made to it in this Report where relevant.




# MARKARNA GRAZING COMPANY PTY LTD

# NATURAL VALUES REPORT

Figure 1: Location of Markarna Park Sand Pit Mining Lease and Natural Values Survey Area

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Survey Area

ML 2117P/M

Base data by TASMAP. © State of Tasmania
Base image by TASMAP. © State of Tasmania

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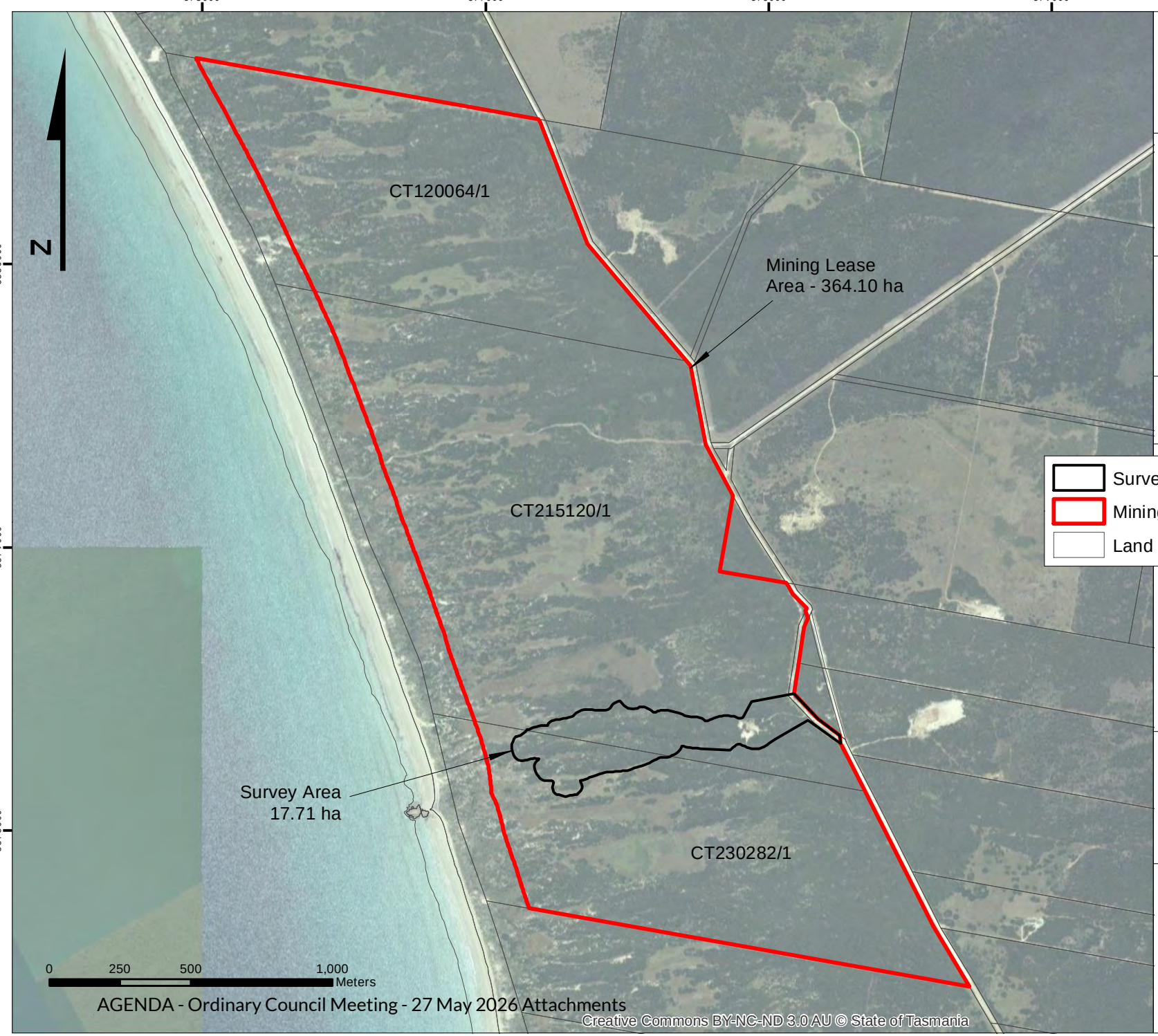
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GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 2 JUNE 2024



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# MARKARNA GRAZING COMPANY PTY LTD

## NATURAL VALUES REPORT

Figure 2: Location of Markarna Park Sand Pit Development Area and Land Titles

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

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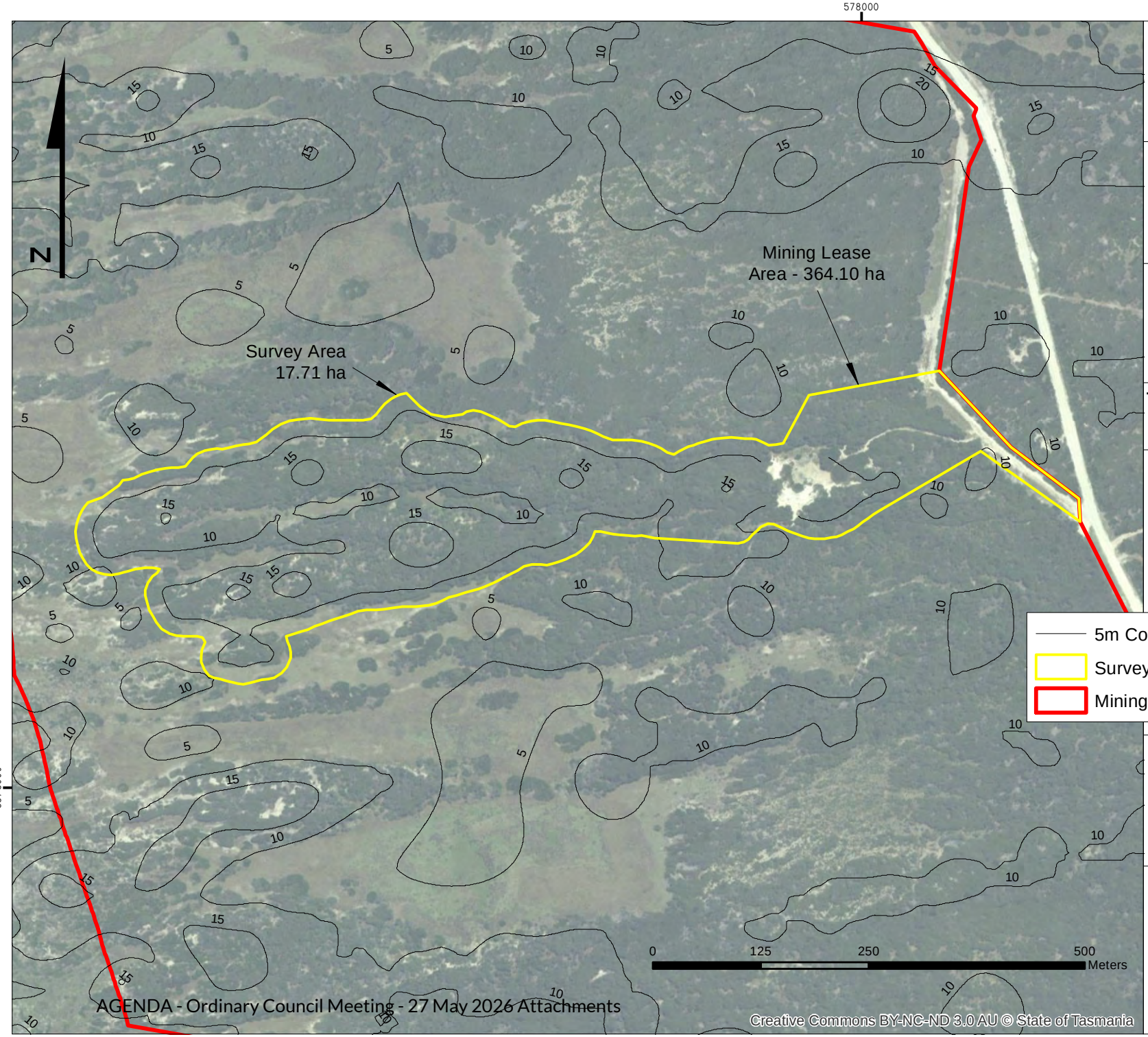
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## NATURAL VALUES REPORT

Figure 3: Topography at the Markarna Park Sand Pit Development Area and surrounds

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

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## PART B – EXISTING ENVIRONMENT

### B.1 LOCATION AND ACCESS

The Activity is proposed for land described in **Table 1** and is to be accessed via Palana Road, a sealed road which connects the northern and southern sections of the island.

Traffic would enter and exit onto the sealed section of Palana Road using the now disused reserved road (unsealed) section of Palana Road. This reserved road section is licensed with The Crown as the access to the Activity.

**Table 1. Location and Certificate of Title Details for the Activity**

| | |
|---|---|
| **Certificates of Title** | CT 215120/1, CT 230282/1 |
| **PID** | 3513143 |
| **Physical Address** | 'MARKANA PARK' - 368 FIVE MILE JIM RD MEMANA TAS 7255 |
| **Access** | Access is from Palana Road (sealed road section) over Crown Land under licence |
| **Mining Lease** | (approx. 364.10 hectares) |

### B.2 CLIMATE PARAMETERS

The nearest Bureau of Meteorology weather recording station is at Flinders Island Airport to the south of the Land. The station details for the Flinders Island Airport weather station are -

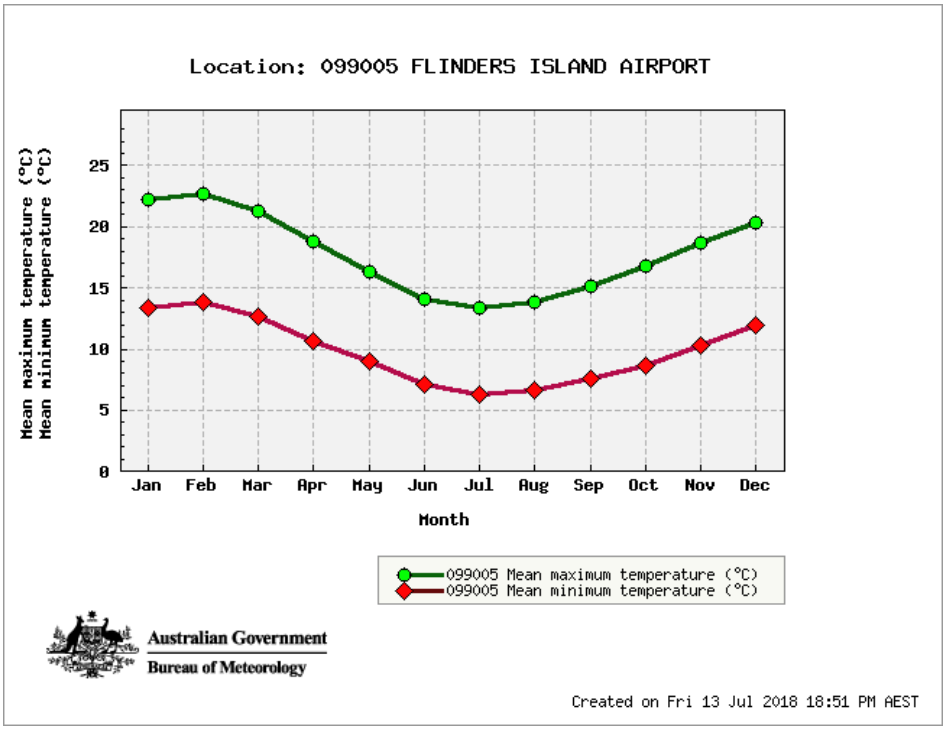
- **Site number:** 099005,
- **Latitude:** 40.09 °S **Longitude:** 148.00 °E,
- **Elevation:** 9 m

The development and use occur in a region with cool winters and warm summers (**Graph 1**), with most precipitation occurring in the winter and spring period (**Graph 2**).

Winds are predominantly from the west (**Graph 3**), as is usual for the Bass Strait islands because of their location in the path of the Roaring 40's. Winds from the east and south-east reflect the 'east coast low' weather patterns that occasionally affect the island, which are often associated with strong winds and heavy and/or sustained periods of rainfall.

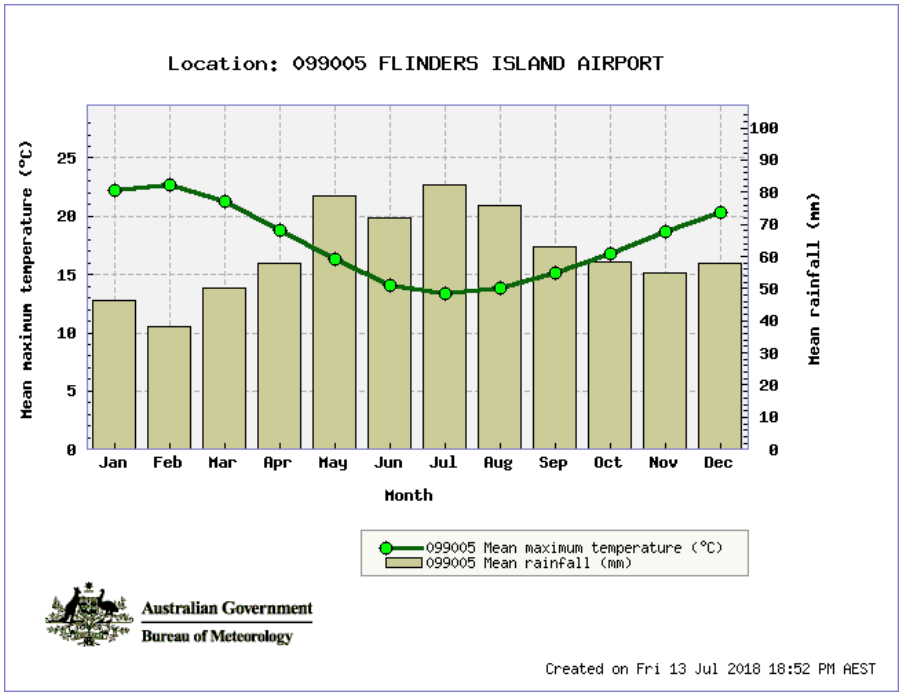
**Graph 1. Mean minimum and maximum temperature for Flinders Island Airport**

Source: Bureau of Meteorology 2018



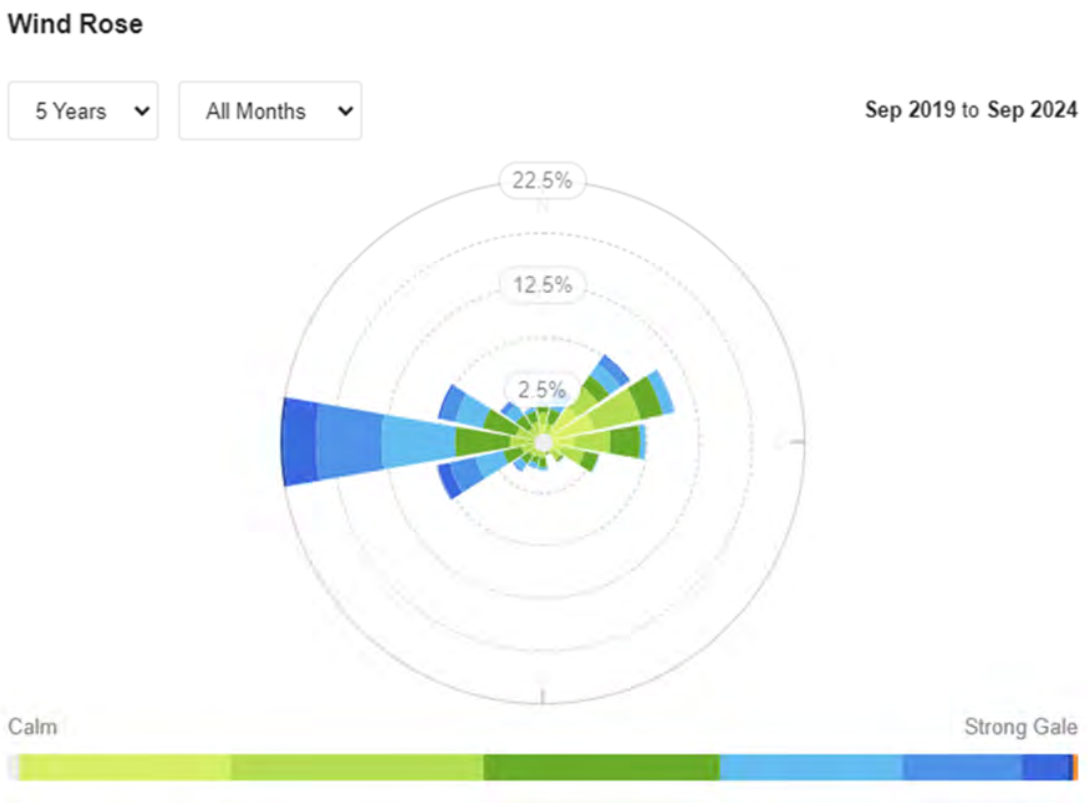

**Graph 2. Mean annual rainfall and mean maximum temperature for Flinders Island Airport**

Source: Bureau of Meteorology 2018



**Graph 3. Annual wind rose for Flinders Island Airport**

Source: Willy weather 2024




## B.3 GEOLOGY, SOILS AND LAND CAPABILITY

### *B.3.1 Base Geology*

The geology of the Survey Area and broader Mining Lease is sand, gravel, and mud of lacustrine and littoral origin (**Figure 4**). The sands to be extracted are of littoral origin and are highly calcareous in nature.

The underlying geology is a mosaic of lacustrine/littoral gravels and sands compacted/cemented in situ by the overlaying dune sequences. The base geology is highly fossiliferous (marine shells), compacted and easily distinguished from the dune sands. The sands are white to yellow-white and unconsolidated generally with scrub dominated vegetation typical of alkaline sands.

**Plate 1** illustrates the previously worked area of the existing but disused pit. All overlaying lime sand was extracted from the base geology at the now disused pit; there are no podsols present between the base sediments and overlaying sands.

### *B.3.2 Soils*

A soil layer is absent, or simply represented by a slightly discoloured (grey, to grey brown) upper layer in the sandy soil profile. Dune systems of recent age tend not to be old enough to have formed a substantial or

distinguishable topsoil layer, and even with a low to moderate fire frequency any organic matter that has accumulated may be quickly lost or substantially depleted during fire events.

**Plate 1. Base geological formation and dune system at the disused sand pit**

**A**



A – basement geology is a compacted/cemented mosaic of gravel, sand, and mud

**B**



B – a vegetated dune dominated by white to yellow-white lime dominated sands overlays the base geological formation

There are deflation basins present (see also Slee (2023)) dominated by native and exotic grasses and herbs. *Poa poiformis* and to a lesser degree *P. labillardierei* are the dominant species. They are not wetlands; however, they may be seasonally inundated in the winter months which keeps trees and other woody vegetation from colonising and dominating the shallow sand deposit environment. Unlike 'Arbothnots Lagoon' which is located to the south of the Mining Lease these deflection basins lack an organic underlying geology and sit over limestone bedrock and shallow sands – they are not Potentially Acid Sulphate Soils (PASS). There is a Low to Extremely Low likelihood of Potential Acid Sulfate Soils (coastal) in the Marshall Bay area based on DPIPWE test pitting and sampling that generated the mapping layer.

### B.4 WATERCOURSES

There are no watercourses within the Survey Area or Mining Lease generally. The sands to be extracted from the Mining Lease are well drained being formed by Quaternary sands.

### B.5 LAND USES

The Land Capability is not recorded by DPIPWE however the sandy alkaline sands are likely to qualify as Land Class 5 to 6. Historical and current land uses include livestock grazing (cattle).

**Plate 2. Dune descriptions from Short & Nicholas 2011 noting (b) Linear dune form**

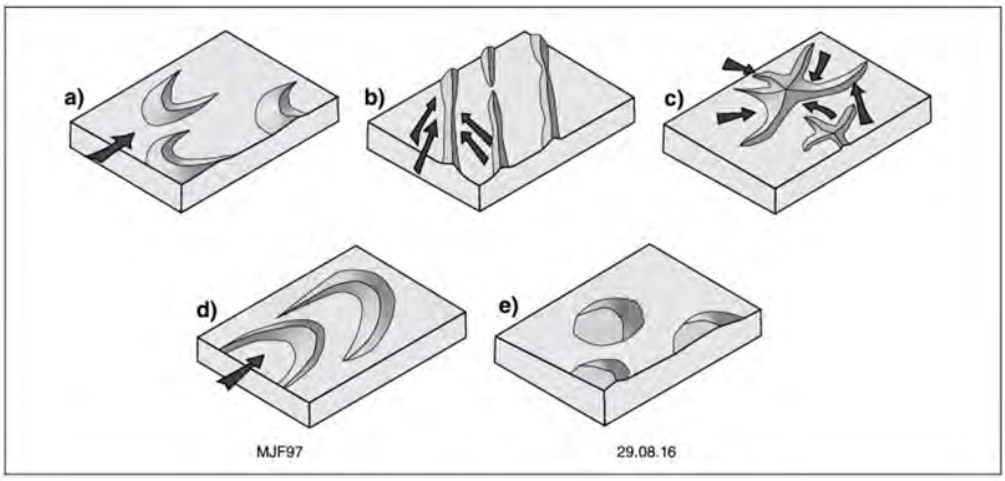
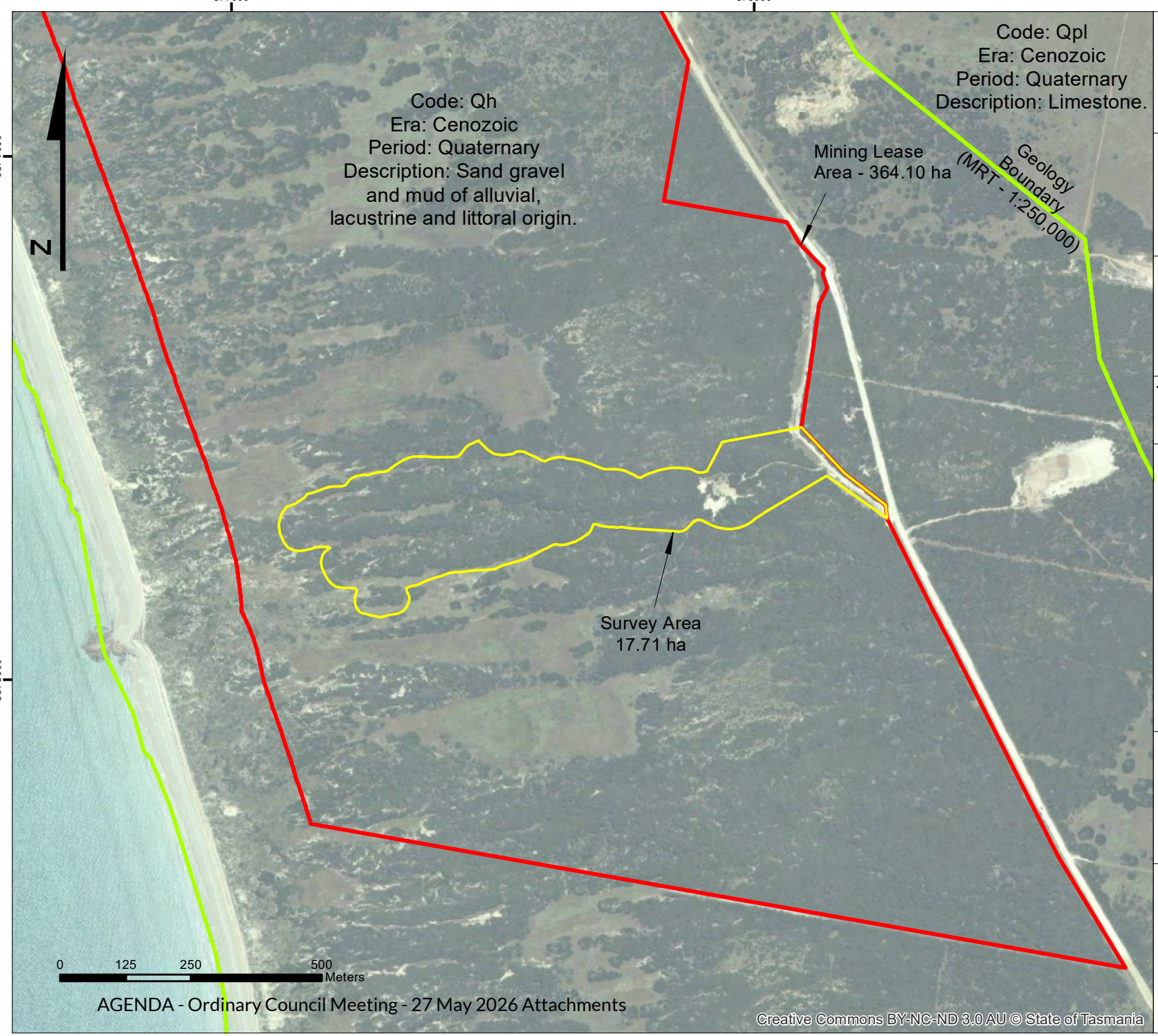



**Plate 3. Coastal grasslands between linear dunes outside the Survey Area**






# MARKARNA GRAZING COMPANY PTY LTD

## NATURAL VALUES REPORT

Figure 4: Geology (1:250,000 – MRT) around the SurveyArea

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

- Survey Area
- Mining Lease (The Land)
- Geology (1:250,000)

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PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 2 JUNE 2024



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## PART C – SURVEY METHODS AND ASSESSMENT TOOLS

This section provides details of the survey techniques applied for the studies conducted in the Survey Area, and the planning and assessment tools/documents used to identify the natural values, if any, of significance in the Site.

### C.1 SURVEY TECHNIQUES AND METHODS

#### *C.1.1 Qualifications of personnel*

The Natural and Cultural Heritage Division (2015[2]) note that -

> 'The proponent or their representative must ensure that the personnel undertaking surveys and preparing reports have appropriate skills, qualifications and experience in identification and documentation of all natural values of interest, including a knowledge of Tasmanian species, their habitat and other ecological requirements, and vegetation communities.'

In this case, the surveyors of the natural values each hold a PhD in a relevant field of science – zoology and botany – and over 50 years of combined field expertise in natural values assessment, identification, mapping, reporting and ecological impact assessment/mitigation.

#### *C.1.2 Vegetation Classification and Mapping*

Classification

Vegetation communities were identified and attributed to Tasmanian Vegetation Mapping Units (Kitchener and Harris 2013, 2nd Edition and with revisions in April 2019). All vegetation types in the Survey Area were assessed and the variation within each explored. Flora species were recorded as they were encountered in a meandering survey.

Mapping

An iPhone was also used to navigate and assist with the interpretation of vegetation types using Google Earth overlain with shapefiles of the Survey Area. Aerial photography both in the field and in the office was used to further interpret vegetation boundaries.

#### *C.1.3 General Flora and Fauna Species Survey*

A query of the Natural Values Atlas (NVA, **Attachment 2**) was used to generate a report to identify previous recorded locations of species (flora and fauna) and range boundaries for significant or threatened fauna species. A query of the Protected Matters Search Tool (PMST, **Attachment 3**) provided through DCCEEW was

[2] Natural and Cultural Heritage Division (2015). Guidelines for Natural Values Surveys - Terrestrial Development Proposals. Department of Primary Industries, Parks, Water and Environment. Version 1.1 – 13th August 2019 (minor updates to links in document).

also generated to provide an overview of the Matters of National Environmental Significance that may or are likely to occur in or near the Survey Area.

The conservation status of flora and fauna species follow the:

- Tasmanian *Threatened Species Protection Act 1995,*
- Tasmanian *Nature Conservation Act 2002,* and
- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The surveys directly assessed the range of habitat types present in the Survey Area and were conducted in January, March, August and October 2022, and June and October 2023.

### *C.1.4 Targeted Flora and Fauna Species Surveys*

Flora

Flora species of particular focus were those listed in the Natural Values Atlas report as having known records, or potential habitat, within and near the Site. The flora surveys were limited to vascular species: species of mosses, lichens and liverworts were not recorded. However, consideration was made of species (vascular and non-vascular) likely to be present based on available habitat information and database records.

Flinders Island has a diversity of threatened orchid species, some of which may not be fully understood in terms of their distribution on the island itself let alone the offshore islands. To maximise the likelihood of detection of threatened orchid species, if present, several surveys were conducted to overlap with peak flowering periods. **Table 2** provides the survey periods where specific surveys were done of the Survey Area (limited to suitable habitat for the relevant species in the Survey Area).

**Table 2. Survey periods for target threatened orchid species**

| Survey Period | Target threatened orchid species | Comments |
|---|---|---|
| **Winter 2022**<br>(June and August) | *Cyrtostylis robusta* (robust gnat orchid)<br>*Pterostylis sanguinea* (banded greenhood) | 2 days for 2 people.<br>Species not detected. |
| **Summer 2022/2023**<br>(December 2022, January 2023) | *Orthoceras strictum* (horned orchid)<br>*Thelymitra holmesii* (blue-star sun orchid) | 2 days for 2 people.<br>Species not detected. |
| **Spring 2023**<br>(October and November) | *Caladenia campbellii* (thick-stem fairy fingers)<br>*Caladenia caudata* (tailed spider-orchid)<br>*Caladenia filamentosa* (daddy longlegs)<br>*Caladenia pusilla* (tiny fingers)<br>*Calochilus campestris* (copper beard-hood) | 3 days for 2 people.<br>Species not detected. |

| | | |
|---|---|---|
| | *Diuris palustris* (swamp doubletail)<br>*Microtidium atratum* (yellow onion orchid)<br>*Paraprasophyllum secutum* (northern leek-orchid)<br>*Thelymitra malvina* (mauvetuft sun-orchid) | |

Fauna

Potential habitat for threatened fauna was assessed by reference to the vegetation communities present and the associated characteristics of the habitat values each provided to fauna species - assessments were made by comparing the characteristics of known fauna habitat with the habitat present in the Site. **Table 3** provides specific comments about the survey effort and techniques applied to target fauna species.

**Table 3. Survey effort and method for selected fauna species**

| Natural Value | Comments about survey effort and methods |
|---|---|
| **Eagles** | The Site is within the potential range (foraging and breeding) of the Tasmanian wedge-tailed eagle (*Aquila audax fleayi*) and white-bellied sea eagle (*Haliaeetus leucogaster*).<br><br>No nests of either species have been recorded within 1km of the Survey (see **Attachment 2; Figure 8**) nor is there any NRE modelled habitat within 1km of the Survey Area. |
| **Mammals** | New Holland Mouse (*Pseudomys novaehollandiae*; **Figure 9**) potential presence was considered by an assessment of the habitat type and floristic composition of the vegetation.<br><br>Trapping with Elliot traps or similar, the use of baited wildlife cameras, or hair traps were not deployed. |
| **Frogs** | Green and gold frog (*Litoria raniformis;* **Figure 10**) and the striped marsh frog (*Limnodynastes peroni*, **Figure 13**) were not assessed using bioacoustic techniques because suitable habitat (i.e. wetlands, swamps, dams) is absent from the Survey Area. |
| **Reptiles** | Tussock skink (*Pseudemoia pagenstecheri;* **Figure 15**) presence was considered by habitat type, composition, and abundance. In accordance with advice from CAS, pitfall and/or noose trapping was not conducted. |

578000

5578000

N

Scrub, heathland and coastal complexes

(SCA) Coastal scrub on alkaline sands - 14.356 ha

Native grassland

(GHC) Coastal grass and herbfield - 2.470 ha

Agricultural, urban and exotic vegetation

(FUM) Extra-urban miscellaneous - 0.887 ha

0 125 250 500 Meters

# MARKARNA GRAZING COMPANY PTY LTD

## NATURAL VALUES REPORT

Figure 5: TASVEG 4.0 observed communities within the Survey Area

**TASMAP:** TANNER EMITA

**LGA:** FLINDERS

Mining Lease (The Land)

Survey Area

Van Diemen CONSULTING
PO Box 1 New Town TAS 7008



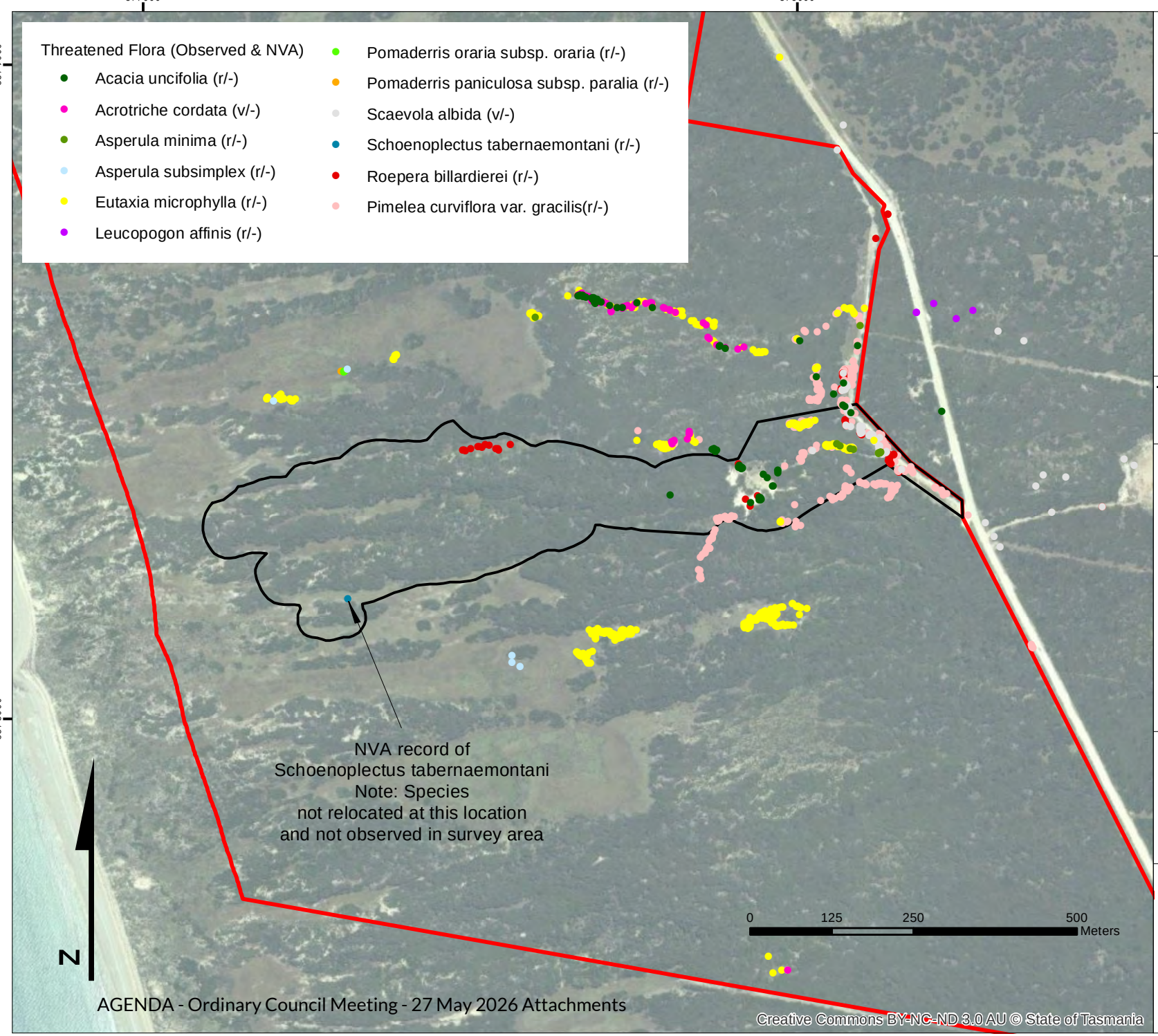
DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT: MARKARNA GRAZING COMPANY PTY LTD

DATE: 2 JUNE 2024



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# MARKARNA GRAZING COMPANY PTY LTD

## NATURAL VALUES REPORT

Figure 6: Threatened flora species within and surrounding the Survey Area

**TASMAP:** TANNER EMITA

**LGA:** FLINDERS

Survey Area

Mining Lease (The Land)

Van Diemen CONSULTING
PO Box 1 New Town TAS 7008



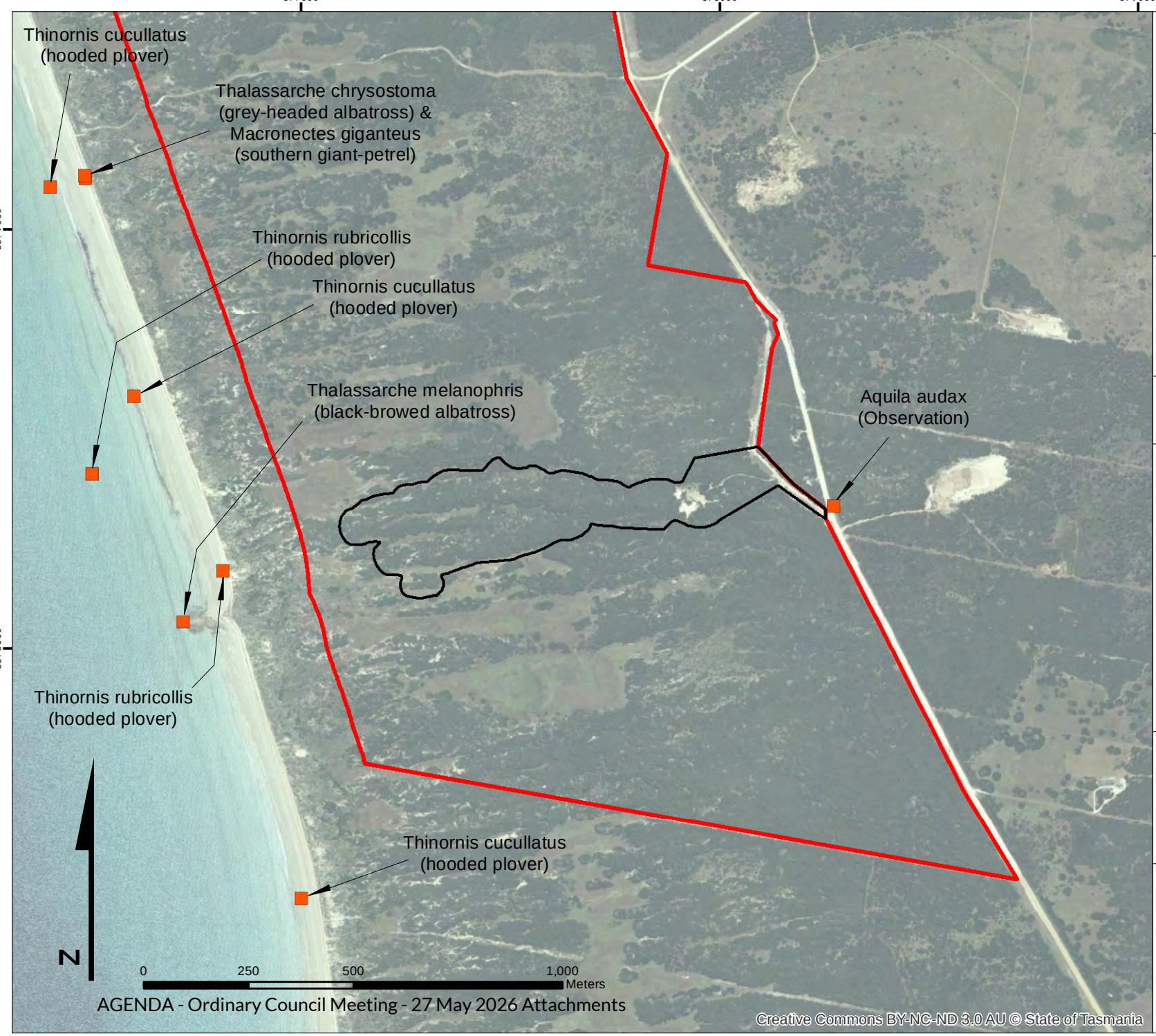
DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 2 JUNE 2024



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# MARKARNA GRAZING COMPANY PTY LTD

# NATURAL VALUES REPORT

Figure 7: Threatened fauna species within and surrounding the Survey Area

| **TASMAP:** | **LGA:** |
|---|---|
| TANNER<br>EMITA | FLINDERS |

Threatened Fauna Point

Survey Area

Mining Lease (The Land)

Van Diemen CONSULTING
PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 2 JUNE 2024



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### *C.1.5 Fauna Habitat Assessment – State based criteria*

Fauna species with potential or known habitat in the Survey Area were considered in the context of habitat ranges/descriptions provided in **Table 4** (FPA 2022b).

**Table 4. Fauna habitat ranges/descriptions applied in the study**

| Habitat Descriptor | Definition |
|---|---|
| **Core Range** | Encompasses the area, within the known range, known to support the highest densities of the species and/or thought to be of highest importance for the maintenance of breeding populations of the species. |
| **Potential Range** | Encompasses the area, within the known range, known to support the highest densities of the species and/or thought to be of highest importance for the maintenance of breeding populations of the species. |
| **Known Range** | is the area within which the species is most likely to occur, being the area of land within a minimum convex polygon of all known localities of the species. This term is synonymous with 'extent of occurrence' as referred to in the *Guidelines for Eligibility for Listing under the* Threatened Species Protection Act 1995 (DPIW 2009). |
| **Potential habitat** | is all habitat types within the potential range of a species that are likely to support that species in the short and/or long term. It may not include habitats known to be occupied intermittently (e.g. occasional foraging habitat only). Potential habitat is determined from published and unpublished scientific literature and/or expert opinion and is agreed by the Threatened Species Section (DPIPWE) in consultation with species' specialists. |
| **Significant habitat** | is habitat within the known or core range of a species that (1) is known to be of high priority for the maintenance of breeding populations throughout the species' range and/or (2) conversion of which to non-native vegetation is considered to result in a long-term negative impact on breeding populations of the species. It may include areas that do not currently support breeding populations of the species but that need to be maintained to ensure the long-term future of the species. Significant habitat is determined from published and unpublished scientific literature and/or expert opinion, and is agreed by the Threatened Species Section (DPIPWE) in consultation |

### *C.1.6 Fauna Habitat Assessment – EPBC Significant Impact Criteria*

For relevant EPBC-listed species (those identified in **Appendix 4** as requiring further consideration in the surveys) the guidelines and reports listed in **Table 5** were considered.

**Table 5. EPBC relevant assessment documents and guidelines**

| Publication/Theme | Description | Species or species groups |
|---|---|---|
| **EPBC Act Significant Impact Guidelines** | General Significant Impact Guidelines<br><br>Species or Species groups Significant Impact Guidelines | All species.<br>Specific guidelines also considered –<br>• EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species.<br>• Draft referral guideline for 14 birds listed as migratory species under the EPBC Act, Commonwealth of Australia 2015. |
| **Conservation Advice** | Advice prepared and published under the *Environment Protection and Biodiversity Conservation Act 1999* (s266B) | All EPBC-listed species considered in this assessment. |
| **Light Pollution** | 'National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds, Commonwealth of Australia 2020'. | Seabirds and Migratory Shorebirds (not relevant as no shed external lighting is proposed). |
| **Recovery Plans** | Recovery Plans adopted under the *Environment Protection and Biodiversity Conservation Act 1999* | All species where a Recovery Plan exists such as -<br>• Wedge-tailed eagle (*Aquila audax fleayi*)<br>• White-bellied sea eagle (*Haliaeetus leucogaster*)<br>• Swift parrot (*Lathamus discolor*)<br>• Australian Fairy Tern (*Sternula nereis nereis*) |

### *C.1.7 Limitations*

Flora

Due to varying flowering times and seasonality of occurrence not all flora species that occur in the Site may have been recorded during the on-ground surveys. Short lived annuals, orchids and lilies that may be present

at the Survey Area which may have been missed because they were not able to be identified (they were not flowering) or they were not evident at this time of year (they were annual plants that had died back or not emerged at the time of survey).

As noted in section *C.1.4 Targeted Flora and Fauna Species Surveys*, and specifically **Table 3**, additional effort was applied to survey for threatened orchid species during their likely peak flowering period. Overall, it is unlikely that species of conservation significance were not appropriately considered in the survey/assessment.

Fauna

The fauna assessment (except for direct searches of nests and dens etc as outlined above) was limited to a habitat assessment for fauna species, including the ground truthing of potential habitats for significant fauna species that were identified in database searches.

Micro Flora and Fauna

The flora and fauna surveys excluded micro-flora and micro-invertebrates such as algae, zooplankton, and cave-dwelling fauna.

## PART D – RESULTS

### D.1 VEGETATION COMMUNITY IDENTIFICATION, DESCRIPTIONS AND CONSERVATION STATUS

Two native vegetation types occur in the Survey Area (**Figure 5**); Coastal scrub on alkaline sands (TASVEG code - SCA) and Coastal grassland and herbfield (TASVEG code – GCH). The remainder of the Survey Area is comprised of access tracks (some currently used and others not), roads, and a disused sand pit and its associated historical disturbance (naturally regenerating) area.

**Table 6** provides a list of the TASVEG 4.0 codes mapped in the Survey Area.

The plant species observed within the Survey Area during surveys are listed in **Attachment 5.**

**Table 6. TASVEG 4.0 mapping categories recorded in the Survey Area**

| TASVEG CODE | TASVEG COMMUNITY NAME | Threatened native vegetation community[#] | EPBC-listed or equivalent ecological community | Extent in the Survey Area (hectares) |
|---|---|---|---|---|
| **SCA** | Coastal scrub on alkaline sands | **No** | **No** | 14.356 |
| **GHC** | Coastal grassland and herbfield | **No** | **No** | 2.470 |
| **FUM** | Extra urban miscellaneous | | | 0.887 |

# Threatened native vegetation communities are those listed in Schedule 3A of the *Nature Conservation Act 2002*

Comments are provided below for each vegetation type and mapping unit recorded in the Survey Area.

#### *D.1.1 Coastal scrub on alkaline sands (TASVEG code - SCA)*

The dominant species are *Leptospermum laevigatum* and *Myoporum insulare*. In the Survey Area this mapping unit is represented by a relatively species poor scrub community dominated by *Leptospermum laevigatum* with sub-dominant to occasional *Allocasuarina verticillata*, *Acacia longifolia* subsp. *sophorae* and sparse numbers (and canopy coverage) of *Myoporum insulare*.

The ground layer species diversity is low to very with most of the ground covered by leaf litter, mosses and lichens and/or exposed lime sands. Common herbs include *Tetragonia implexicoma*, *Parietaria cardiostegia*, *Threlkeldia diffusa*, *Ajuga australis, Podolepis jaceoides, Dichondra repens, Senecio biserratus*, *Wahlenbergia gracilenta*, and *Urtica incisa*.

A few rush and sedge species occur in the ground layer where there are canopy openings and include *Juncus pallidus, J. pauciflora*, and *Lepidosperma concavum*.

The following images depict the various forms of this scrub type in the Survey Area.














*D.1.2 Coastal grassland and herbfield (TASVEG code – GCH)*

This community is dominated by *Austrofestuca littoralis, Austrostipa stipoides, Poa poiformis* and *P. labillardierei*. Common non-dominant grasses include *Distichlis distichophylla* and the sedge *Ficinia nodosa*. Herbs include *Acaena nova-hollandiae, Carpobrotus rossii, Centaurium erythraea, Pelargonium australe, Ranunculus lappaceus, Samolus repens, Apium prostratum, Dichondra repens, Tetragonia tetragonioides, Rhagodia candolleana* and *Selliera radicans*.

The *Lowland Native Grasslands of Tasmania* ecological community was not identified in the PMST but is considered here given the presence of a TASVEG potential analogue - Coastal grassland and herbfield (TASVEG – Code GCH).

In this case, the GCH in the Survey Area –

(1) has less than 50% *Poa labillardierei* coverage of the native perennial tussock grasses (it is 0 to 20%) present in the GCH patches, and/or

(2) Patch size is less than 1 hectare, and/or

(3) Weeds (perennial) make up 20% or more than the total ground cover of the patch.

- which excludes it from *the Lowland Native Grasslands of Tasmania* ecological community listed on the EPBC Act[3].

The following images depict the various forms of this vegetation type in the Survey Area.

[3] Department of the Environment, Water, Heritage and the Arts (2010). Lowland Native Grasslands of Tasmania — a nationally threatened ecological community. Environment Protection and Biodiversity Conservation Act 1999 Policy Statement 3.18. Australian Government, Canberra.



*D.1.3 Extra-urban miscellaneous (TASVEG code – FUM)*

Areas of previous disturbance such as roadways, roadsides, access tracks and the disused sand pit are included in this mapping unit. Native species are present and include for example *Austrofestuca littoralis, Austrostipa stipoides, Poa poiformis* and *P. labillardierei*. Common non-dominant grasses include *Distichlis distichophylla* and the sedge *Ficinia nodosa*. Herbs include *Acaena nova-hollandiae, Carpobrotus rossii, Centaurium erythraea, Pelargonium australe, Ranunculus lappaceus, Samolus repens, Dichondra repens, Tetragonia tetragonioides,* and *Selliera radicans*.

Species listed on the TSPA are occasionally present, especially in areas where the canopy allows sunlight to penetrate to the ground layer, and include *Eutaxia microphylla*, *Scaevola albida* and .

The following images depict the various forms of this mapping unit in the Survey Area.













## D.2 THREATENED FLORA SPECIES

### *D.2.1 Overview of listed species in Survey Area*

There are several threatened flora species recorded within 5,00m of the Survey Area based on data contained within the Natural Values Atlas (**Attachment 2**) and PMST (**Attachment 3**). **Table 7** provides a list of the listed threatened flora species recorded nearby or in Survey Area based on the results of surveys and NVA records.

### *D.2.2 Species Assessments*

Six flora species protected by a statutory mechanism ('Threatened flora') were observed during combined surveys in the Survey Area (TSP Act and EPBC Act listing):

- *Acacia uncifolia*, coast wirilda (r/-)
- *Asperula minima*, mossy woodruff (r/-)
- *Eutaxia microphylla*, spiny bushpea (r/-)
- *Pimelea curviflora* var. *gracilis*, curved riceflower (r/-)
- *Roepera billardierei*, coast twinleaf (r/-)
- *Scaevola albida*, pale fanflower v/-)

Comments are provided below for each of the species present in the Survey Area.

Coast wirilda (*Acacia uncifolia*)

This shrub or small tree flowers summer to mid-autumn. It can be identified from its leaves. In Tasmania, *Acacia uncifolia* is found on soils derived from calcareous limestone in coastal heath, heathy scrub and dry open woodland with *Allocasuarina verticillata* emergents. Occurrences on mainland Tasmania are assumed to have originated from ornamental plantings. The observed population is not a 'new' location for the species; the species is already known to be widespread and locally abundant in the Marshall Bay – Leeka – Memana – West End area and also at Lady Barron and surrounding coastal flats which still support scrub vegetation.

It is estimated that the population (including seedlings) is 35 plants, with 16 plants requiring progressive removal to facilitate the Activity.

**Plate 4. Photos of *Acacia uncifolia* and its habitat in the Survey Area**





**Table 7. Threatened flora species recorded within 5km of the Survey Area based on the NVA and PMST Reports**

| Species | Common Name | TSPA | EPBCA | Observation Count | Last Recorded | Comments about species in the Survey Area |
|---|---|---|---|---|---|---|
| ***Acacia uncifolia*** | coast wirilda | r | | 40 | 15-Mar-2018 | **Present**. Generally associated with disturbed sand pit and tracks that connect to it. |
| ***Acrotriche cordata*** | coast groundberry | v | | 3 | 24-Nov-2015 | **Not observed,** calcarenite absent, deep lime sands present. Observed in scrub on calcarenite to the north of the Survey Area. |
| ***Asperula minima*** | mossy woodruff | r | | 4 | 06-Nov-2018 | **Present**. Localised in regenerating grassland adjacent to the disused section of Palana Road. |
| ***Asperula subsimplex*** | | r | | - | - | **Not observed.** Absent from Survey Area. Southwards of the Survey Area the species was observed in wet drainage area on GCH. |
| ***Banksia serrata*** | saw banksia | r | | 6 | 25-Mar-2014 | **Not observed**. Habitat absent, species unlikely to have been overlooked. |
| ***Carex gunniana*** | mountain sedge | r | | 1 | 01-Jan-1000 | **Not observed**. Habitat absent, species unlikely to have been overlooked. Recorded location on Flinders Island may be an error. |
| ***Diuris palustris*** | swamp doubletail | e | | 2 | 24-Nov-2022 | **Not observed.** GCH habitat present. Surveys conducted during peak flowering period; no plants observed. Survey Area has been stock grazed for decades.<br>Species observed in flower at Reedy Lagoon near West End Road when survey conducted at the Survey Area. Unlikely to have been overlooked. |
| ***Drosera glanduligera*** | scarlet sundew | r | | 1 | 08-Sep-2021 | **Not observed.** Low nutrient, sandy or loamy soils in heathlands and woodlands are absent from the Survey Area. |

| | | | | | |
|---|---|---|---|---|---|
| ***Eutaxia microphylla*** | spiny bushpea | r | 22 | 19-Nov-2019 | **Present**. Widespread and locally abundant in the Marshall Bay area, with most locations in the Survey Area associated with old access tracks and roads near Palana Road. |
| ***Hydrocotyle comocarpa*** | fringefruit pennywort | r | 1 | 10-Sep-2006 | **Not observed.** Suitable habitat is present, and locally widespread along the edge of scrub. Surveys were conducted in October 2022 and 2023 to coincide with the species short flowering period. |
| ***Isopogon ceratophyllus*** | horny conebush | v | 5 | 21-Mar-2014 | **Not observed.** Habitat is marginally suitable, but the species prefers acidic sands in heathland which are absent from the Survey Area. This distinctive species was not observed and is unlikely to have been overlooked in the Survey Area. |
| ***Lasiopetalum baueri*** | slender velvetbush | r | 1 | 01-Jan-1985 | **Not observed.** No suitable low coastal scrub and heathland present. |
| ***Lepilaena patentifolia*** | spreading watermat | r | 1 | 30-Oct-1972 | **Not observed.** Habitat (wetlands, drains etc.) is absent. |
| ***Leucopogon affinis*** | lanceleaf beardheath | r | 19 | 26-Sep-2017 | **Not observed.** Habitat is suitable, but this distinctive species was not observed and is unlikely to have been overlooked in the Survey Area. Species recorded to the east of Palana Road in scrub. |
| ***Parietaria debilis*** | shade pellitory | r | 3 | 29-Sep-2005 | **Not observed.** The closely related *Parietaria cardiostegia* was observed to widespread and abundant in and adjacent to the drip zone of the scrub edge around the lime sand dunes. |
| ***Pimelea curviflora* var. *gracilis*** | curved riceflower | r | 60 | 06-Nov-2018 | **Present.** Widespread and locally abundant in the Marshall Bay area, with most locations in the Survey Area associated with old access tracks and roads near Palana Road. |
| ***Pomaderris intermedia*** | lemon dogwood | r | 3 | 20-Nov-2017 | **Not observed.** Habitat is suitable, but this distinctive species was not observed and is unlikely to have been overlooked in the Survey Area. |
| ***Pomaderris oraria* subsp. *oraria*** | bassian dogwood | r | 5 | 20-Nov-2017 | **Not observed.** Observed in scrub to the north of the Survey Area. Unlikely to have been overlooked in the Survey Area. |

| | | | | | | |
|---|---|---|---|---|---|---|
| ***Pomaderris paniculosa* subsp. *paralia*** | shining dogwood | r | | 2 | 29-Sep-2005 | **Not observed.** Observed in scrub to the north of the Survey Area. Unlikely to have been overlooked in the Survey Area. |
| ***Pterostylis cucullata* subsp. *cucullata*** | leafy greenhood | e | VU | 4 | 13-Nov-2008 | **Not observed**. GCH habitat present. Surveys conducted during peak flowering period; no plants observed. Survey Area has been stock grazed for decades.<br>Species observed in flower at Reedy Lagoon near West End Road when survey conducted at the Survey Area. Unlikely to have been overlooked. |
| ***Ranunculus pumilio* var. *pumilio*** | ferny buttercup | r | | 1 | 26-Aug-2017 | **Not observed.** Habitat absent (no seasonally wet areas). |
| ***Roepera billardierei*** | coast twinleaf | r | | 22 | 19-Nov-2019 | **Present**. Locally abundant in open areas adjacent to scrub near the disused section of Palana Road, at the disused lime sand pit, and on the northern edge of a scrub patch on the edge of the Survey Area. |
| ***Scaevola albida*** | pale fanflower | v | | 79 | 19-Nov-2019 | **Present.** Locally abundant in open areas adjacent to scrub near the disused section of Palana Road, at the disused lime sand pit, and on the access track that connects these areas. |
| ***Schenkia australis*** | spike centaury | r | | 1 | 15-Nov-1981 | **Not observed.** GCH and SCA habitat present. Surveys conducted during peak flowering period; no plants observed. Unlikely to have been overlooked. |
| ***Schoenoplectus tabernaemontani*** | river clubsedge | r | | 1 | 01-Jan-1979 | **Not observed.** Species recorded in NVA at a location recorded in 1979 by an unknown observer (see **Attachment** 7). The record has a 250m accuracy.<br>The recorded location, and surrounds, was searched but the species was not relocated or observed more broadly. |
| ***Scleranthus fasciculatus*** | spreading knawel | v | | 1 | 30-Sep-2005 | **Not observed**. Species may be present in GCH, or open areas adjacent to dense scrub. This distinctive species was not observed and is unlikely to have been overlooked in the Survey Area. |

| | | | | | |
|---|---|---|---|---|---|
| ***Spyridium parvifolium* var. *parvifolium*** | coast dustymiller | r | 1 | 18-Oct-1976 | **Not observed**. Habitat is suitable, but this distinctive species was not observed and is unlikely to have been overlooked in the Survey Area. |
| ***Styphelia esquamata*** | swamp beardheath | r | 1 | 09-Dec-2012 | **Not observed**. Habitat is suitable, but this distinctive species was not observed and is unlikely to have been overlooked in the Survey Area. |

**Key**: TSP Act listings e = endangered, v = vulnerable, r = rare; EPBC Act listings CR = critically endangered, EN = endangered, VU = vulnerable

Spiny bushpea (*Eutaxia microphylla*)

Plants grow to between 30 and 40 centimetres high. The small, grey green, narrow to ovate leaves are 2.3 to 4 mm long and 0.6 to 0.9 mm wide. The single pea flowers have dark red keels, yellow-orange wings, and a yellow-orange standard with red markings on the rear. These are produced between July and October. On Flinders Island, *Eutaxia microphylla* mainly occurs in windswept coastal heathland on calcarenite. On mainland Tasmania, the species usually occurs in low open coastal shrubbery and on cliff edges (various substrates).

The observed populations are not a 'new' location for the species; the species is already known to be widespread and locally abundant in the Marshall Bay – Leeka – Memana – West End area with it being especially prominent in open grassy areas on various substrates such as stabilised dunes formed by lime sands, older dunes and calcarenite. Most occurrences in the Survey Area were observed in canopy openings associated with old or current tracks, open areas between scrub patches, and on the edge of scrub into the coastal herbfield and grasslands community (see **Plate 5**).

It is estimated that the population (including seedlings) is +700 plants, with approximately 200 plants requiring progressive removal to facilitate the Activity.

**Plate 5. Photos of *Eutaxia microphylla* and its habitat in the Survey Area**







Curved riceflower (Pimelea curviflora var. gracilis)

*Pimelea curviflora* var. *gracilis*, also known as curved rice-flower, is a shrub in the family Thymelaeaceae and is endemic to Australia. It is a small, hairy shrub with greenish-yellow or red tubular flowers.

The observed populations are not a 'new' location for the entity; it is already known to be locally abundant in the Marshall Bay – Five Mile Jim Road – Leeka – Memana – West End area with it being especially prominent in open grassy areas on various substrates such as stabilised dunes formed by lime sands, older dunes and calcarenite. Many occurrences in the Survey Area were observed in canopy openings associated with old or current tracks, open areas between scrub patches, and on the edge of scrub into the coastal herbfield and grasslands community (see **Plate 6**) but does extend in very low numbers into the closed the scrub vegetation. The species is restricted to the eastern side of the Survey Area, on the older stabilised dune systems.

It is estimated that the population (including seedlings) is +700 plants, with approximately 200 plants requiring progressive removal to facilitate the Activity.

**Plate 6. Photos of *Pimelea curviflora* var. *gracilis* and its habitat in the Survey Area**









Pale fanflower (*Scaevola albida*)

A cushion-forming herb that spreads vegetatively by root suckers. In Tasmania the species is known from Flinders Island and on the northwest coast near Temma. The habitat of pale fanflower in Tasmania includes near-coastal scrubs, woodlands and grasslands, usually on calcareous sands, and it has also been observed colonising road margins. The species responds positively to disturbance, including fire, slashing or physical disturbance.

The observed populations are not a 'new' location for the species; the species is already known to be widespread and locally abundant in the Marshall Bay area. It is especially prominent in disturbed vegetation areas (access tracks, disused cleared areas etc.) and in open grassy areas on various substrates such as stabilised dunes formed by lime sands, older dunes and calcarenite (see **Plate 7**).

It is estimated that the population (including seedlings) is +400 plants, with approximately 200 plants requiring immediate removal to facilitate the Activity (track and shed construction).

**Plate 7. Photos of *Scaevola albida* and its habitat in the Survey Area**









Twin leaf (*Roepera billardierei*) syn. *Zygophyllum billardierei*

A perennial herb with ground spreading stems that are very branched and between 2040 mm long. It has distinctive flattened leaves divided into two oblong to wedge-shaped leaflets of 1-3 cm long (see **Figure 8**). Flowers are pale to bright yellow (fading to white with age) and of 4 petals, 8-15 mm long. Fruit is a 4-angled capsule, containing 1-2 brown, wrinkled to granular seeds in each cell. In Tasmania, it is only known from calcareous sands, forests, wetland and heath communities on the Furneaux Group.

The observed populations are not a 'new' location for the species; the species is already known to be localised in the Marshall Bay – Leeka – Memana – West End area It is especially prominent in open areas (mainly the edge of scrub vegetation where it meets coastal grassland, agricultural lands and wetlands/marshes).

It is estimated that the population (including seedlings) is +45 plants, with approximately 18 plants requiring immediate removal to facilitate the Activity.

**Plate 8. Photos of *Roepera billardierei* and its habitat in the Survey Area**









## D.3 THREATENED FAUNA SPECIES

*D.3.1 Overview of listed species in Survey Area*

There are several threatened fauna species recorded within 5,000 m of the Survey Area based on data contained within the Natural Values Atlas (**Attachment 2**) and PMST (**Attachment 3**).

**Table 8** provides a list of the State listed threatened fauna species recorded near the Survey Area, and/or those species which are identified in the PMST that based on the initial assessment in **Attachment 4** required further assessment as to their occurrence or likely occurrence in the Survey Area.

No threatened fauna species were directly observed during the survey of the Survey Area.

**Table 8. Threatened and conservation significant fauna species considered in the assessment**

| **Common name**<br>*Species name* | **Habitat present?**<br>**If yes, comments about likelihood of presence.** |
|---|---|
| **Birds** | |
| **blue-winged parrot**<br>*Neophema chrysostoma* | **No.** No eucalypt forest or woodland present. |
| **forty-spotted pardalote**<br>*Pardalotus quadragintus* | **No.** No eucalypt forest or woodland present. Not a known colony (see **Figure 12**). |
| **swift parrot**<br>*Lathamus discolor* | **No.** Key foraging species absent and not a known nesting site, no eucalypt forest or woodland (for nesting) is present. |

| | |
|---|---|
| **wedge-tailed eagle**<br>*Aquila audax* subsp. *fleayi* | **Yes.** Foraging habitat is present in Survey Area. |
| **white-bellied sea-eagle**<br>*Haliaeetus leucogaster* | **Yes.** Foraging habitat is present in Survey Area. |
| **Mammals** | |
| **New Holland Mouse**<br>*Pseudomys novaehollandiae* | **Possibly**. Some vegetation present at the western edge of the Mining Lease, but is outside (and buffered), contains floristic components that may represent possible foraging habitat; vegetated dunes. While not directly impacted, the species ought to be further considered to provide an impact determination. |
| **Amphibians** | |
| **Green and gold frog**<br>*Litoria raniformis* | **No** suitable habitat (i.e. freshwater wetlands, coastal freshwater lagoons and swamps, freshwater dams) in the Survey Area. The Survey Area is within the potential range (**Figure 10**) but habitat (breeding and overwintering) is absent. |
| **Striped Marsh Frog**<br>*Lymnodynastes peroni* | **No** suitable habitat (i.e. freshwater wetlands, coastal freshwater lagoons and swamps, freshwater dams) in the Survey Area. The Survey Area is within the potential range (**Figure 13**) but habitat is absent. |
| **Fish** | |
| **Australian grayling**<br>*Prototroctes maraena* | **No.** A migratory freshwater and marine species. The Survey Area is within the potential range (**Figure 16**) but habitat (waterways, creeks and/or streams) is absent. |
| **Eastern Dwarf Galaxias**<br>*Galaxiella pusilla* | **No.** On Flinders Island the species is known from wet heathlands, swamps, backwaters of streams and rivers, and drains. The Survey Area is within the potential range (**Figure 14**) but habitat is absent. |
| **Invertebrates** | |
| **chaostola skipper**<br>*Antipodia chaostola* | **No.** No food source (*Gahnia* species) is present in the Survey Area, and this invertebrate species is not known from Flinders island. The Survey Area is within the potential range (**Figure 11**) but habitat is absent. |
| **Reptiles** | |
| **Tussock skink**<br>*Pseudemoia pagenstecheri* | **Possibly**. Some vegetation present at the western edge of the Mining Lease, but is outside (and buffered), contains floristic components that may represent possible foraging habitat; vegetated dunes. While not directly impacted, the species ought to be further considered to provide a impact determination.. Grassland with *Poa* tussock is present. |

*D.3.2 Threatened Fauna Habitat Assessment – Aves*

Bird species

**Table 9** provides a list of the avifauna which were considered in more detail as to the potential impact the Activity may have on them directly (e.g., physical impact to individuals, impacts to their habitat) or indirectly (e.g., secondary impacts such as changes to their breeding behaviour).

**Table 9. Summary table of Survey Area relevant avifauna and associated statutory conservation listings**

| Scientific Name | Common Name | EPBC Act-listed | TSP Act-listed |
|---|---|---|---|
| **Australian Fairy Tern** | *Sternula nereis nereis* | Vulnerable | vulnerable |
| **Eastern Hooded Plover** | *Thinornis cucullatus cucullatus* | Vulnerable | - |
| **Little Tern** | *Sternula albifrons* | Migratory | - |
| **Short-tailed Shearwater** | *Ardenna tenuirostris* | Migratory | - |
| **Wedge-tailed Eagle** | *Aquila audax fleayi* | Endangered | endangered |
| **White-bellied Sea-Eagle** | *Haliaeetus leucogaster* | Marine | vulnerable |

Beach associated avifauna

Several bird species are associated with beach habitats (e.g., dune, beach and back dune environments associated with modern/recent dunes), with several having been recorded at or near Marshall Bay (Figures 7 and 17) including:

- Australian Fairy Tern
- Eastern Hooded Plover
- Little Tern.

Marshall Bay has a typical beach profile of beach, and dunes. As noted by Slee (pp. 12-13 of **Attachment 8**), at the west are the modern foredune and back dunes behind Marshall Beach while inland are a series of elongated west-to-east trending parallel dunes that rise to 24 m above sea level. These inland dunes are largely vegetated and stable in comparison to the foredunes which are dominated by grasses, herbs, wind pruned shrubs and sedges. The coastal foredunes climb onto the older dunes but can be broadly demarcated by their hummocky forms and presence of sand blow-outs that contrast to the more elongated uniform stabilised ridges of the older dunes.

The Survey Area does not include beach, foredune, back dune, or modern dunes (pg. 18 of **Attachment 8**). Furthermore, the Mining Lease largely excluded these features when granted.

There will be no activities that would generate noise, dust, or other form of emissions (e.g. light) that may or would disturb nesting and foraging beach dwelling bird species. Lighting is to be provided in the shed where sand would be screened and/or stored. Machinery, vehicles, and other road-using equipment will be fitted with lights as required by law.

**Plate 9. Marshall Bay beach and dune habitat outside the Mining Lease**



Short-tailed Shearwater (*Ardenna tenuirostris*)

The short-tailed shearwater or slender-billed shearwater (*Ardenna tenuirostris*; formerly *Puffinus tenuirostris*), also called yolla or moonbird, and commonly known as the muttonbird in Australia, is the most abundant seabird species in Australian waters, and is one of the few Australian native birds in which the chicks are commercially harvested. It is a migratory species that breeds mainly on small islands in Bass Strait and Tasmania and migrates to the Northern Hemisphere for the boreal summer.

The largest breeding colonies of Short-Tailed Shearwaters are in the Furneaux Islands and every year the birds make a 30,000 km round trip between Alaska and breeding sites in South-Eastern Australia. By mid-April, the new fledglings are strong enough to make their migration north to Alaska.

The Survey Area was found to not contain a short-tailed shearwater colony, or any evidence of occupation by shearwaters (i.e. no burrow systems). The Survey Area is well inland of the immediate coast, with the nearest

known short-tailed shearwater colonies at Marriott Reef (see Tanners Bay Offshore islands mapped on **Figure 17** which are north-west of the Survey Area) and a group to the south including Wybalena Island, Bird Island and Settlement Point (near Emita) (Skira *et al.* 1996).

There will be no activities that would generate noise, dust, or other form of emissions that may or would disturb nesting and foraging beach dwelling bird species.

Wedge-tailed eagle (*Aquila audax fleayi*)

This eagle subspecies is found only in Tasmania and occurs throughout the State including large offshore islands. It hunts over a wide range of habitats, but nests only in old-growth trees in native forests. Bird densities are highest in areas with mosaics of forest, farmland, grassland, wetlands, and rivers. Eagles feed mainly on rabbits, hares, wallabies, possums, birds such as native hens and ravens and carrion.

Nests are usually in tall eucalypt trees in large tracts (more than 10 ha) of old-growth eucalypt or mixed forest. Nest trees are amongst the largest in a locality. They are in sheltered positions on leeward slopes, between the lower and mid slopes and with the top of the tree usually lower than the ground level of the top of the ridge.

The Recovery Plan (2006-2010) states for this species (emphasis added):

> '*Habitat critical to the survival* of the Tasmanian Wedge-tailed Eagle is defined by nesting habitat (see Mooney & Holdsworth 1991, Brown & Mooney 1997), as forests of predominantly old growth trees greater than 10ha in area and occurring on sites sheltered from prevailing strong winds. Trees selected for nesting are greater than 27 m in height, with few exceptions. Most nest sites have an eastern, south-eastern or southern aspect and the height of the nest is usually positioned below that of the ridge to the windward side.'

The Range and Habitat descriptors for the species (FPA 2022b) are below with comments about the Survey Area.

| Range Type | Description | Comments about Survey Area |
|---|---|---|
| **Core Range** | N/A | NA |
| **Potential Range** | The whole of Tasmania including islands. | Flinders island |
| **Known Range** | N/A | NA |
| **Potential habitat** | Potential habitat for the wedge-tailed eagle comprises potential nesting habitat and potential foraging habitat.<br><br>Potential foraging habitat is a wide variety of forest (including areas subject to native forest silviculture) and non-forest habitats.<br><br>Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. Nest trees are usually amongst the largest in a locality. They are generally in sheltered positions on leeward slopes, | **Potential foraging habitat PRESENT**<br><br>The Survey Area and the area adjacent contains a wide variety of non-forest and non-forest habitats.<br><br>**Potential nesting habitat ABSENT** |

| | | |
|---|---|---|
| | between the lower and mid sections of a slope and with the top of the tree usually lower than the ground level of the top of the ridge, although in some parts of the State topographic shelter is not always a significant factor (e.g. parts of the northwest and Central Highlands). Nests are usually not constructed close to sources of disturbance and nests close to disturbance are less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next year. [see FPA's Fauna Technical Note 1 and FPA's Fauna Technical Note 6 for more information]. | There are no tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. |
| **Significant Habitat** | Is all native forest and native non-forest vegetation within 500m or 1 km line-of-sight of known nest sites (where the nest tree is still present). | **Absent.** No known nest site within 500 m or 1 km line-of-sight. |

*Survey results and assessment of presence in the Survey Area*

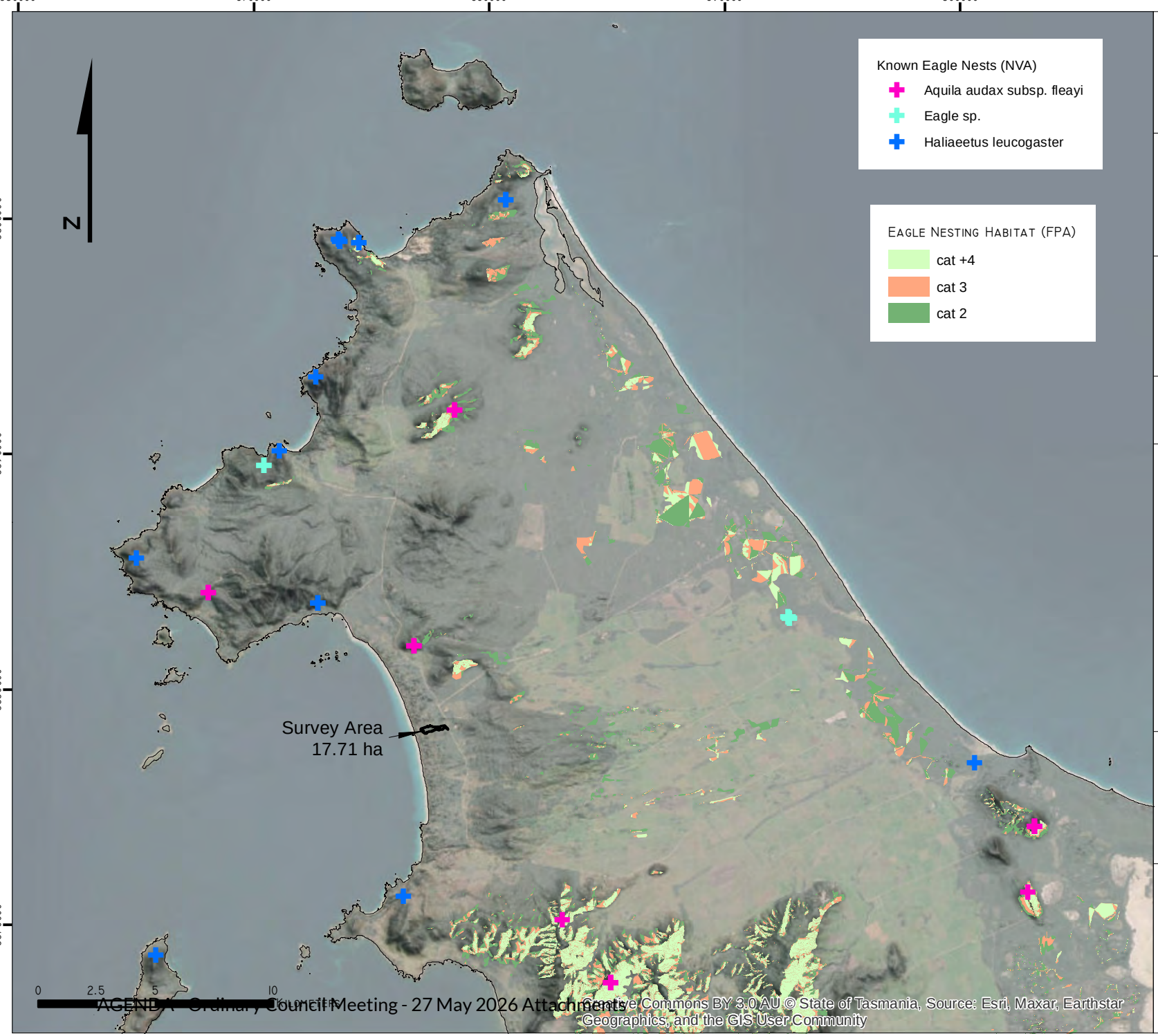
No wedge-tailed eagle nests occur on or near the Survey Area. Foraging habitat is present, and the species may use the broader landscape to forage and display.

There are few raptor nests in the region attributed to wedge-tailed eagle (see **Figure 8**), none of which occur within 1,000 m line-of-sight or 500 m of the Site. Significant habitat is therefore absent. There is also no modelled suitable nesting habitat within 2.5 kms of the Survey Area.

The nearest recorded nest is located on the slopes of a small hill eastwards of Palana Road, about 3.5kms north-northwest of the Survey Area. The pair of birds that use this nest, as part of a territory, are the pair likely to use the Marshall Bay area to forage and display.

*Assessment of likely impact, management recommendations and offsets*

The Activity is unlikely to cause any impact to the species. Accordingly, no management recommendations or offsets are made as none are warranted.




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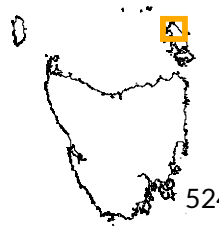
## NATURAL VALUES REPORT

Figure 8: Regional Eagle Nests and Nesting Habitat

| TASMAP: | LGA: FLINDERS |
|---|---|

Base data by TASMAP. © State of Tasmania
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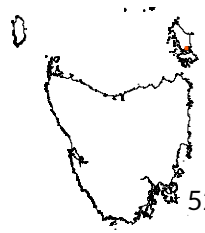
## NATURAL VALUES REPORT

Figure 9: Regional New Holland Mouse (Pseudomys novaehollandiae) Observations and Range

| TASMAP: | LGA: FLINDERS |
|---|---|

BASE DATA BY TASMAP. © STATE OF TASMANIA
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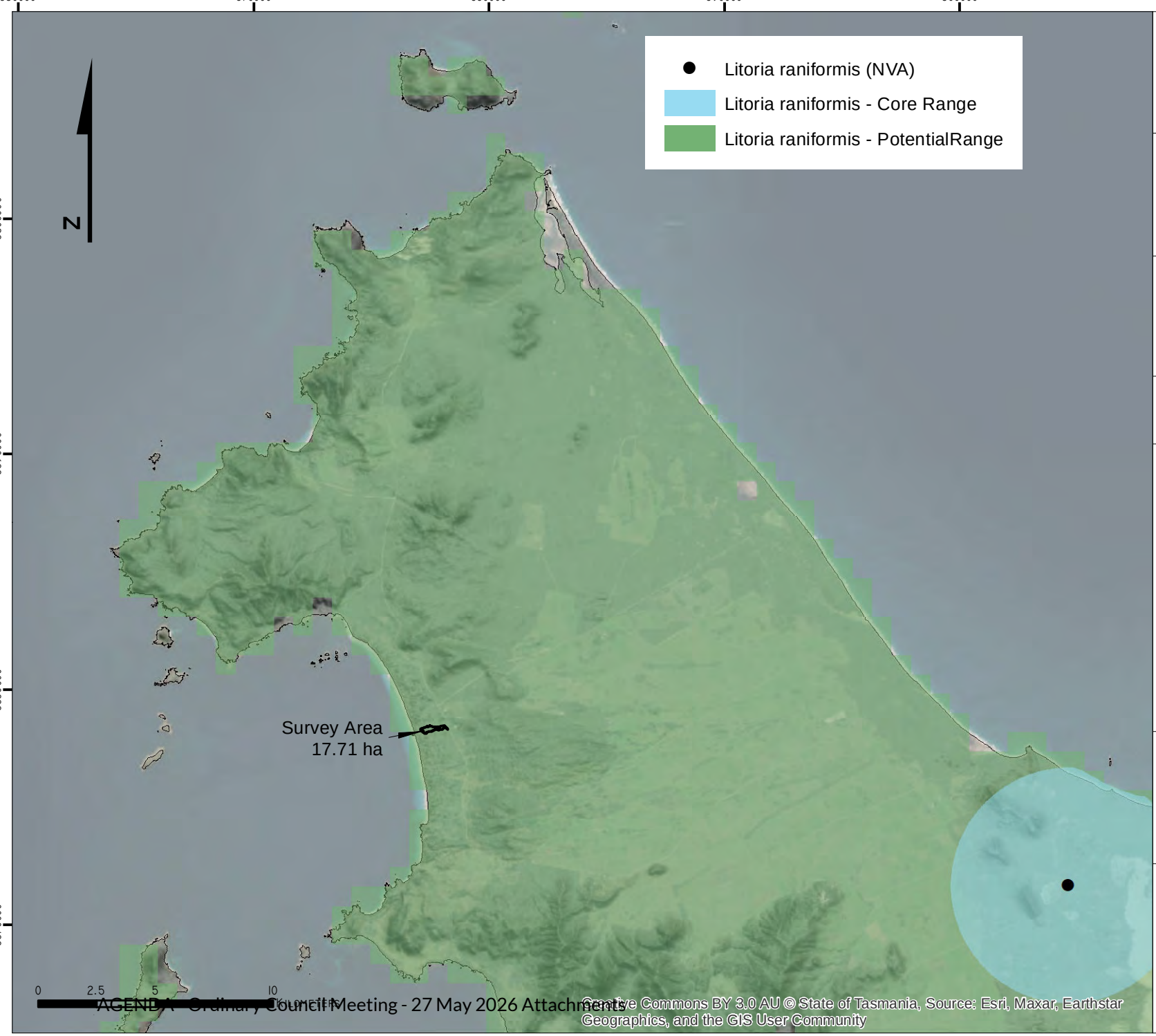


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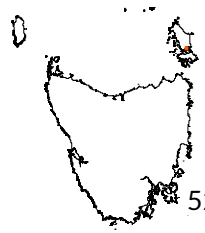
## NATURAL VALUES REPORT

Figure 10: Regional Green and Gold Frog (Litoria raniformis) Observations and Range

| TASMAP: | LGA: FLINDERS |
|---|---|

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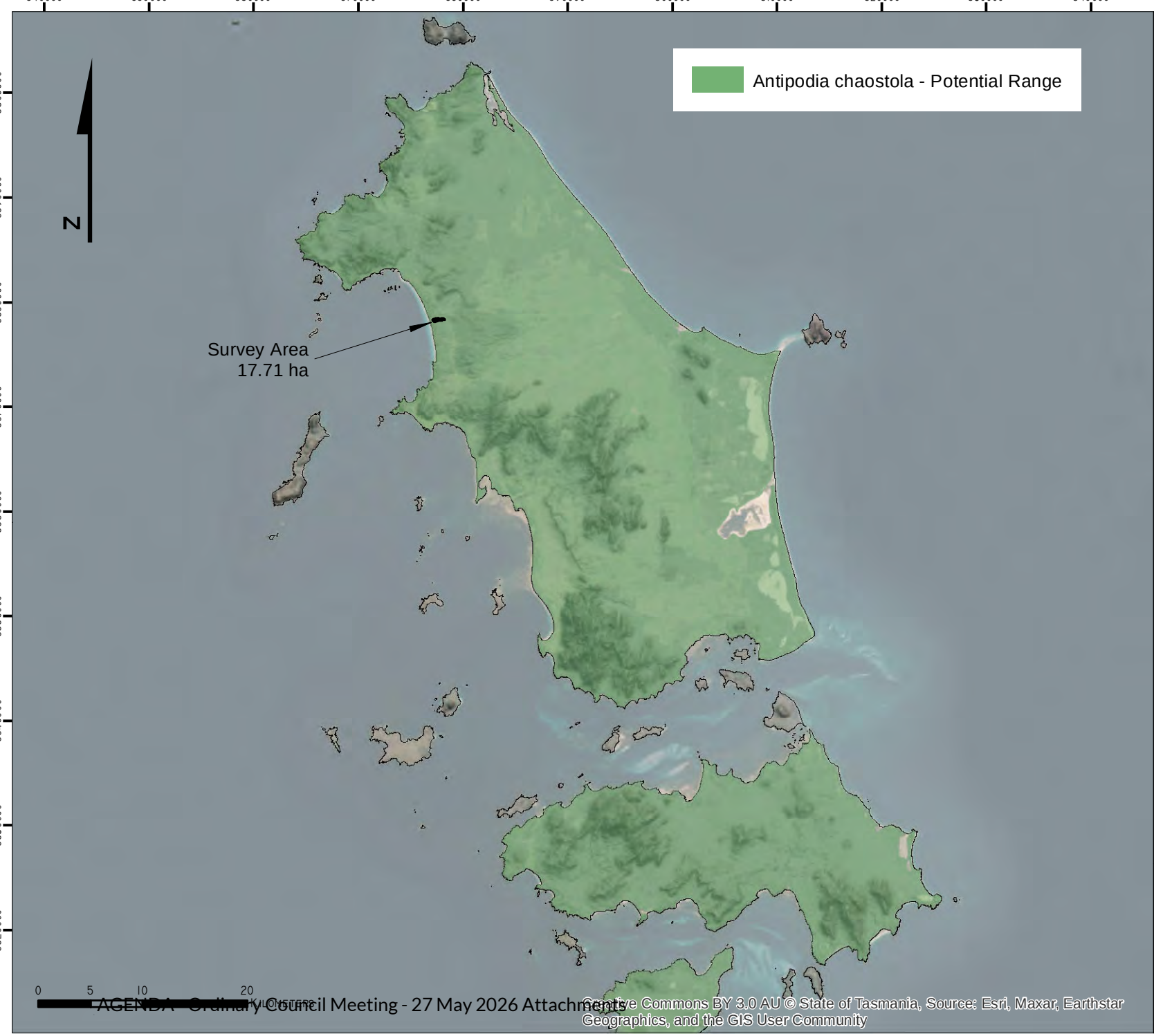
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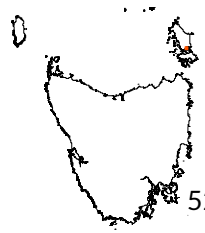
Figure 11: Regional Chaostola Skipper (Antipodia chaostola) Observations and Range

| TASMAP: | LGA: FLINDERS |
|---|---|

NOTE:
Chaostola Skipper not recorded from Flinders Island

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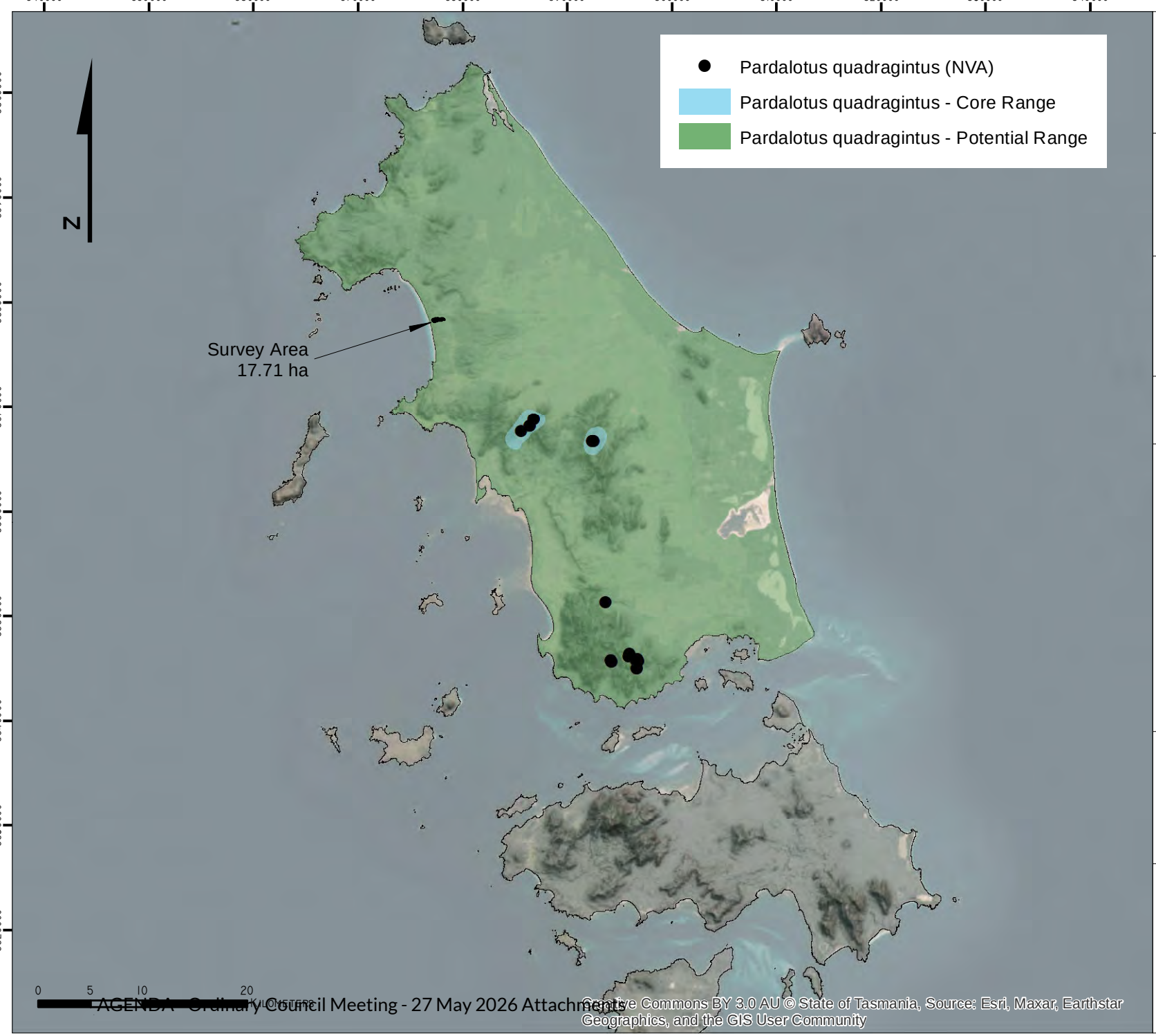


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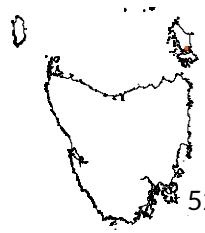
## NATURAL VALUES REPORT

Figure 12: Regional Forty-Spotted Pardalote (Pardalotus quadragintus) Observations and Range

| TASMAP: | LGA: FLINDERS |
|---|---|

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White-bellied sea eagle (Haliaeetus leucogaster)

The white-bellied sea eagle is widely distributed from India to Australia. Key sites in Tasmania include the Tamar River estuary, Tasman Peninsula, and the Bass Strait Islands. They nest and forage mainly near the coast but will also live near large rivers and lakes inland, often moving on a seasonal basis.

The nest of the white-bellied sea eagle is similar in construction to the wedge-tailed eagle and when resources are limited, competition for nest sites between the two species can occur. As with the wedge-tailed eagle, the white-bellied sea eagle nests are traditional. More than one nest may occur within a territory, but only one is used in any one year. The breeding season occurs between August and January inclusive with eagles being particularly sensitive to disturbance early in this period.

The Range and Habitat descriptors for the species (FPA 2020) are below with comments about the Survey Area.

| Range Type | Description | Comments about Survey Area |
|---|---|---|
| **Core Range** | N/A | NA |
| **Potential Range** | The whole of Tasmania including islands. | Flinders island |
| **Known Range** | N/A | NA |
| **Potential habitat** | Potential habitat for the white-bellied sea-eagle species comprises potential nesting habitat and potential foraging habitat.<br><br>Potential foraging habitat is any large waterbody (including sea coasts, estuaries, wide rivers, lakes, impoundments and even large farm dams) supporting prey items (fish).<br><br>Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest within 5 km of the coast (nearest coast including shores, bays, inlets and peninsulas), large rivers (Class 1), lakes or complexes of large farm dams. Scattered trees along river banks or pasture land may also be used. The species nests and forages mainly near the coast but will also live near rivers, lakes and farm dams.<br><br>Nest trees are amongst the largest in a locality. Nests are not usually constructed close to sources of disturbance and nests close to disturbance are less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next year. [see Part I of the BVD, and FPA's Fauna Technical Note 1 for more information] | **Potential foraging habitat PRESENT**<br><br>The Survey Area is inland more than 900m of the sea coast which is likely to be used as a foraging resource for fish.<br><br>**Potential nesting habitat ABSENT**<br><br>There are no tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. There are no scattered trees along river banks or pasture land that may be used. |

| | | |
|---|---|---|
| **Significant Habitat** | All native forest and native non-forest vegetation within 500 m or 1 km line-of-sight of known nest sites (where nest tree still present). | **Absent.** No known nest site within 500 m or 1 km line-of-sight. |

*Survey results and assessment of presence in the Survey Area*

No white-bellied sea eagle nests occur on or near the Survey Area. Foraging habitat is present at Marshall Bay to the west of the Survey Area but not within or immediately adjacent to the Survey Area. Nests are recorded about 7 kms to the south-west (near Emita) and 9 kms to the north-northwest at Tanners Bay to the east of Pine Scrub (**Figure 8**). There is also no modelled suitable nesting habitat within 2.5 kms of the Survey Area.

*Assessment of likely impact, management recommendations and offsets*

The Activity is unlikely to cause any impact to the species even with it utilising the sea coast to forage. Accordingly, no management recommendations or offsets are made as none are warranted.

*D.3.3 Threatened Fauna Habitat Assessment – Mammalia*

New Holland Mouse (Pseudomys novaehollandiae)

The New Holland Mouse (*Pseudomys novaehollandiae*) is a small, nocturnal native rodent found in a small number of disjunct populations on the north and north-east coast of Tasmania including Flinders Island. It is similar in appearance to the introduced and relatively common House Mouse (*Mus musculus*) but can be distinguished by its relatively large eyes and lack of a 'mousey' odour. In Tasmania, it has been found in open heathlands, heathy woodlands, and vegetated sand dunes.

Habitat for the New Holland Mouse includes the following elements: coastal open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes, particularly where the following indicator species also occur: Common Aotus (*Aotus ericoides*), Tassel Rope Rush (*Hypolaena fastigiata*), Sand Sword sedge (*Lepidosperma concavum*) and grasstree (*Xanthorrhoea* species).

The Range and Habitat descriptors for the species (FPA 2022b) are below with comments about the Survey Area.

| Range Type | Description | Comments about Survey Area |
|---|---|---|
| **Core Range** | The core range of the New Holland mouse is a 3 km (radius) buffer centred on the known sites (see **Figure 9**). | Survey Area is not in the Core Range. |
| **Potential Range** | The potential range of the New Holland mouse includes the core range and specialist-defined extensions of the core range that may support the species but are as yet largely unsurveyed (extends to within c. 15 km inland) from between Boltons | Flinders island |

| | | |
|---|---|---|
| | Beach (east coast) around to East Devonport (north coast), including the Furneaux islands. | |
| **Known Range** | N/A | NA |
| **Potential habitat** | Potential habitat for the New Holland mouse is heathlands (mainly dry heathlands but also where dry heathlands form a mosaic with other heathland, moorland and scrub complexes), heathy woodlands (i.e. eucalypt canopy cover 5-20%), *Allocasuarina*-dominated forests on sandy substrates (not dolerite or basalt), and vegetated sand dunes. Key indicator plant species include (but are not restricted to) *Aotus ericoides, Lepidosperma concavum, Hypolaena fastigiata* and *Xanthorrhoea* spp. | **Potential foraging habitat ABSENT**<br>The Survey Area does not support heathlands, heathy woodlands, or *Allocasuarina*-dominated forests (*A. verticillata* is present as a species, but it is not the canopy dominant) on sandy substrates.<br>Vegetated sand dunes are present at the western side of the Mining Lease but these are outside the Survey Area.<br>Of note is that the key foraging species of *Aotus ericoides, Lepidosperma concavum, Hypolaena fastigiata and Xanthorrhoea* spp. are absent or sparse (only *Lepidosperma concavum* has any coverage but is sparse because the dominant sedge is *Lepidosperma gladiatum* due to the proximity to Marshall Beach coastal dune system). |
| **Significant Habitat** | Significant habitat for the New Holland mouse is all potential habitat within the core range of the species. | **Absent.**<br>The Survey Area is not in the Core Range (see **Figure 9**), and it also supports no 'potential habitat'. |

*Survey results and assessment of presence in the Survey Area*

There are no known records of New Holland Mouse within 5 kms of the Site. Core habitat is therefore absent, because there are no known sites within 3 km of the Survey Area (see **Figure 9**).

The Survey Area does not support heathlands, heathy woodlands, or *Allocasuarina*-dominated forests (*A. verticillata* is present, but is not the canopy dominant) on sandy substrates.

Vegetated sand dunes are present at the western side of the Mining Lease, but these are outside the Survey Area. Of note is that the key foraging species of *Aotus ericoides, Lepidosperma concavum, Hypolaena fastigiata and Xanthorrhoea* spp. are absent or sparse (only *Lepidosperma concavum* has any coverage but is sparse because the dominant sedge is *Lepidosperma gladiatum* due to the proximity to Marshall Beach coastal dune system).

Given this, New Holland Mouse is unlikely to be present even in the vegetated dunes that occur at the far western side of the Mining Lease. Vegetated dunes extend beyond the Mining Lease on private land (same landowner as the Mining Lease is located) and into the Marshall Bay Conservation Area which protects the beach, foredune and some back dune environment.

*Assessment of likely impact, management recommendations and offsets*

The Activity is unlikely to cause any impact to the species. Accordingly, no management recommendations or offsets are made as none are warranted.

*D.3.4 Threatened Fauna Habitat Assessment – Reptiles and Amphibians*

Tussock skink (*Pseudemoia pagenstecheri*)

In Tasmania, the Tussock Skink, a ground-dwelling lizard, occurs in grassland and grassy woodland habitats at a range of elevations. Records of the species in Tasmania are in small, disconnected patches of habitat in the Midlands, inland near Cradle Mountain and the eastern Bass Strait islands.

Habitat includes the following elements: treeless tussock grassland and grassy open woodland at virtually any elevation where suitable habitat is present; typical habitat in the warmer lowland part of the range is native grassland dominated by *Poa labillardierei* (tussock grass) and species of *Rytidosperma* (wallaby grasses), *Themeda triandra* (kangaroo grass) and *Microlaena stipoides* (weeping grass).

The Range and Habitat descriptors for the species (FPA 2022b) are below with comments about the Survey Area.

| Range Type | Description | Comments about Survey Area |
|---|---|---|
| **Core Range** | Is a 500 m (radius) buffer centred on the known sites. | No known sites within 500m of the Survey Area. |
| **Potential Range** | Includes the core range and specialist defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed (includes the majority of mapped native lowland and highland grasslands throughout the Midlands, Fingal Valley and northwest grasslands). | Flinders island |
| **Known Range** | N/A | NA |
| **Potential habitat** | Grassland and grassy woodland (including rough pasture with paddock trees), generally with a greater than 20% cover of native grass species, especially where medium to tall tussocks are present. | **Potential habitat PRESENT in Survey Area**<br>Grassy woodlands absent.<br>Grassland is present in the Survey Area which supports patches of the GCH mapped vegetation. These are described at section *C.1.2 Coastal grassland and herbfield (TASVEG code – GCH).*<br>Within the Survey Area (i.e. those areas to be affected by the Activity plus a buffer), and as indicated in **Plate 8**, the grasslands present are not dominated by *Poa* tussocks. |

| | | |
|---|---|---|
| **Significant Habitat** | N/A | N/A |

*Survey results and assessment of presence in the Survey Area*

Suitable habitat is absent because there is no *Poa labillardierei* grasslands, or grassy forests dominated by *Poa* species. There are no known locations within 500 m of the Survey Area, so the Survey Area is not within the Core Range, but it is within the Potential Range (**Figure 15**).

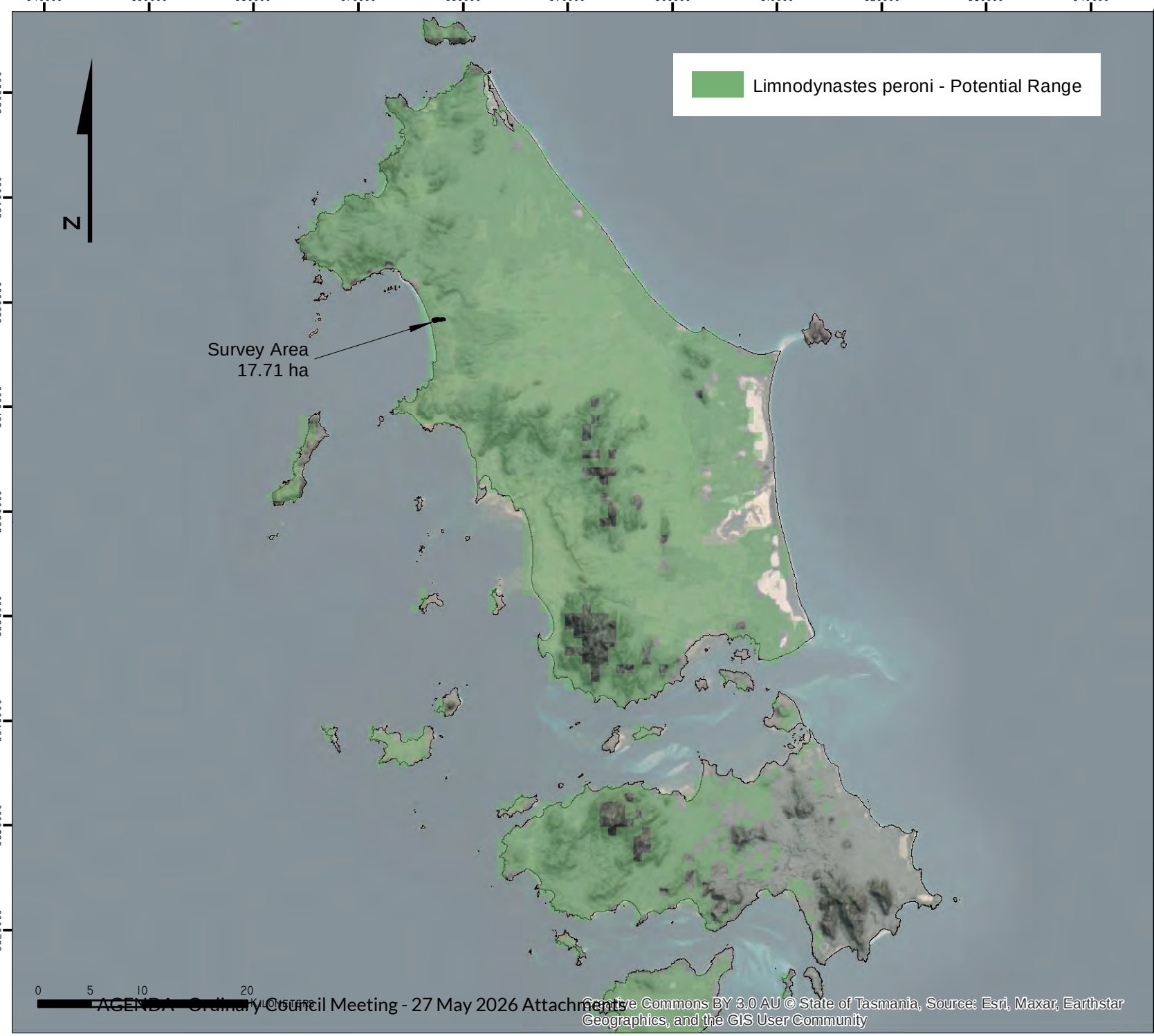
The coastal grasslands and herbfield (described at section *C.1.2 Coastal grassland and herbfield (TASVEG code – GCH)* present in the Survey Area are dominated by *Austrofestuca littoralis, Austrostipa stipoides, Poa poiformis* and to a much lesser extent, *P. labillardierei*. *Poa labillardierei* is no more than 20% of the native perennial tussock cover, with its foliage cover ranging from 0 up to 20% (the site is not stock grazed, so this cover reflects natural herbivory pressures). Within the Survey Area (i.e. those areas to be affected by the Activity plus a buffer), and as indicated in **Plate 8**, the grasslands present are not dominated by *Poa* tussocks.

Common non-dominant grasses include *Distichlis distichophylla* and the sedge *Ficinia nodosa*. Herbs include *Acaena nova-hollandiae, Carpobrotus rossii, Centaurium erythraea, Pelargonium australe, Ranunculus lappaceus, Samolus repens, Apium prostratum, Dichondra repens, Tetragonia tetragonioides, Rhagodia candolleana* and *Selliera radicans*.

Grasslands with a greater *Poa* coverage do occur in the Mining Lease (see **Plate 3**) but these are northwards and south-westwards of the Survey Area in other landscape depressions.

*Assessment of likely impact, management recommendations and offsets*

There is unlikely to be any significant impact to the species because suitable habitat is largely absent from the Survey Area; areas with a higher percentage of *Poa* cover mainly occur in the buffer area applied to the resource to be extracted (areas outside the Survey Area were observed to have upwards of 90% *Poa* coverage). No management recommendations or offsets are made as none are warranted.




# MARKARNA GRAZING COMPANY PTY LTD

# NATURAL VALUES REPORT

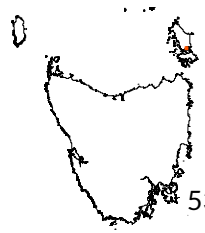
Figure 13: Regional Striped Marsh Frog (Limnodynastes peroni) Observations and Range

| TASMAP: | LGA: FLINDERS |
|---|---|

NOTE:
Striped Marsh Frog not recorded from Flinders Island

Base data by TASMAP. © State of Tasmania
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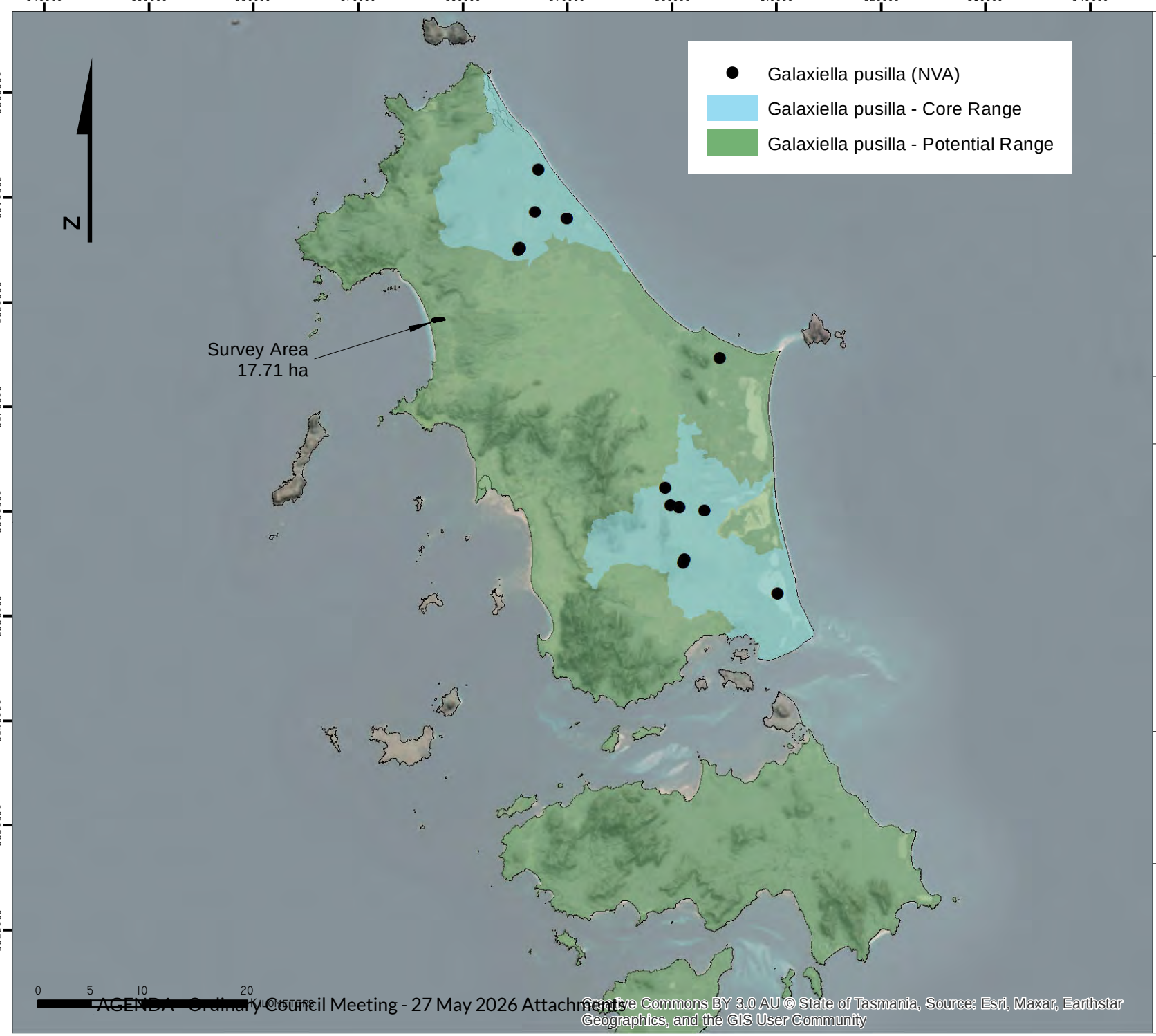
Van Diemen Consulting
PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 2 JUNE 2024




# MARKARNA GRAZING COMPANY PTY LTD

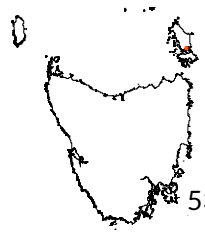
## NATURAL VALUES REPORT

Figure 14: Regional Eastern Dwarf Galaxias (Galaxiella pusilla) Observations and Range

| TASMAP: | LGA: FLINDERS |
|---|---|

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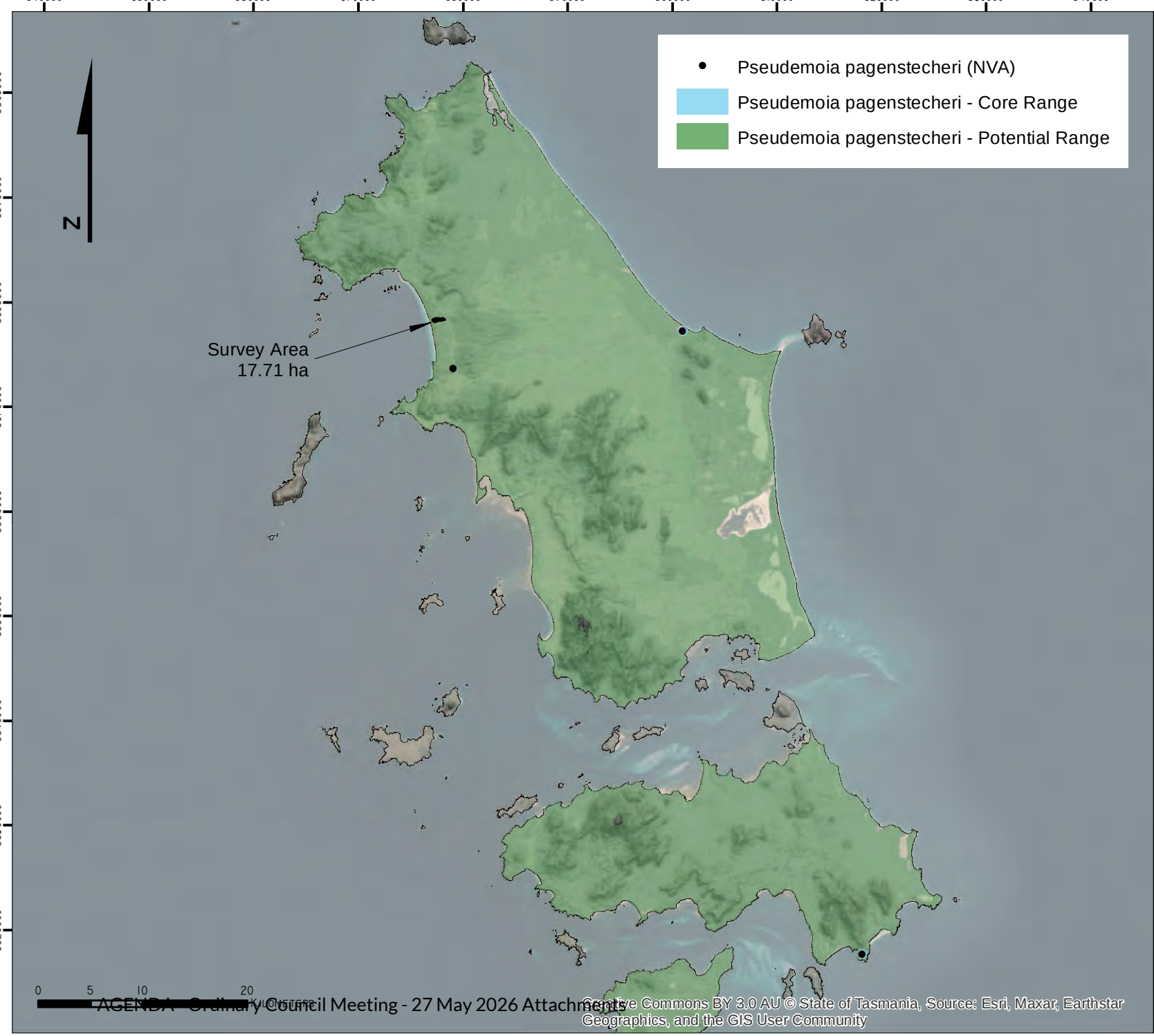


DATUM: GDA94
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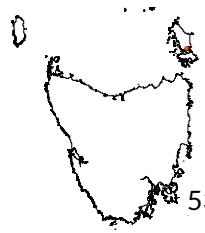
## NATURAL VALUES REPORT

Figure 15: Regional Tussock Skink (Pseudemoia pagenstecheri) Observations and Range

| TASMAP: | LGA: FLINDERS |
|---|---|

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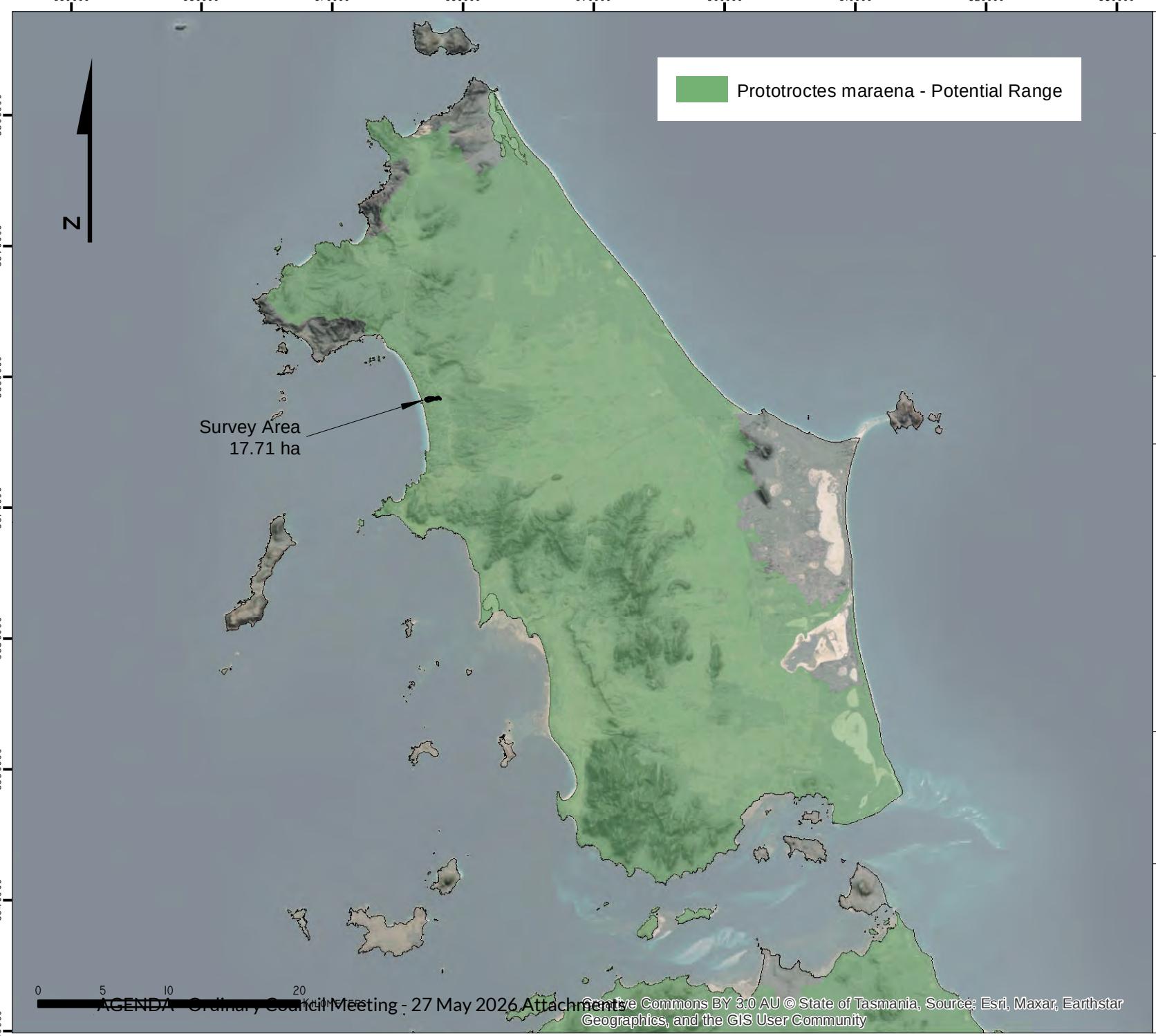


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# NATURAL VALUES REPORT

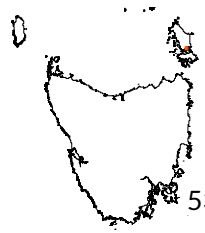
Figure 16: Regional Australian Grayling (Prototroctes maraena) Observations and Range

| TASMAP: | LGA: FLINDERS |
|---|---|

NOTE:
Australian grayling not recorded from Flinders Island

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BASE IMAGE © MICROSOFT CORPORATION

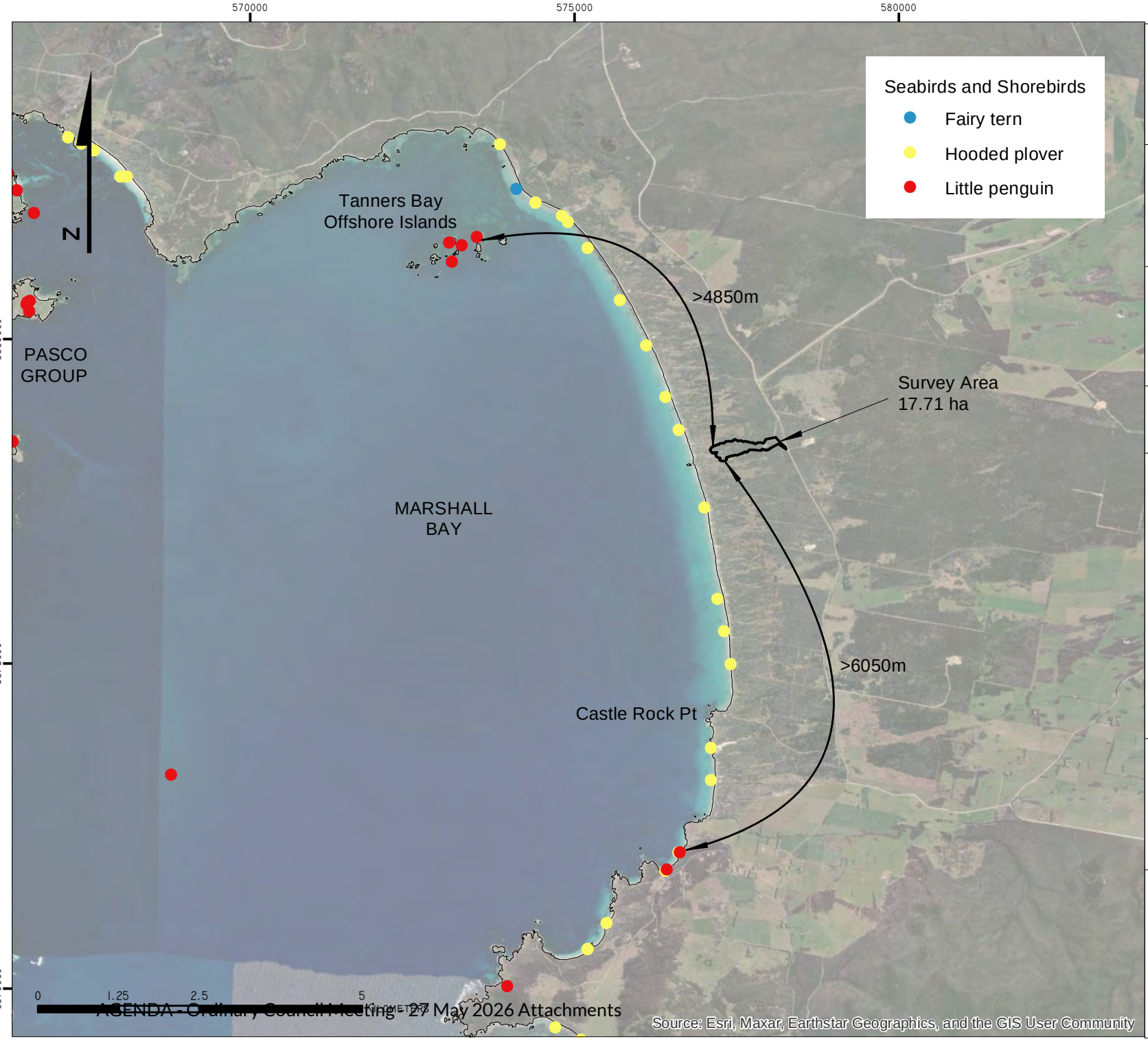
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GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 2 JUNE 2024




# MARKARNA GRAZING COMPANY PTY LTD

## NATURAL VALUES REPORT

Figure 17: Seabird and Shorebird Observations

| TASMAP: | LGA: FLINDERS |
|---|---|

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SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 2 JUNE 2024

**D.4 DECLARED AND ENVIRONMENTAL WEEDS**

Two plant species listed as a *Declared Weed* on the *Biosecurity Act 2019* were recorded in the Survey Area, all were associated with the disused section of Palana Road:

- Horehound, *Marrubium vulgare*, and
- Slender thistle, *Carduus pycnocephalus*.

These species are widespread and occasionally locally abundant in the Marshall Bay – Emita area.

**D.5 *PHYTOPHTHORA CINNAMOMI (PC)***

Root-rot fungus (*Phytophthora cinnamomi,* PC) is a soil borne pathogen that causes death in a wide range of native plant species often leading to floristic and structural changes in susceptible plant communities.

PC evolved in tropical areas and requires warm, as well as moist, soils for at least some time of the year to produce sporangia and release zoospores (Rudman 2005). Only those areas of the State that are below an altitude of about 700m above sea level have soils sufficiently warm for this to occur (Podger *et al* 1990). Vegetation types below 700m elevation may not be wholly or partly susceptible if closed canopies keep soil temperatures cool during the summer months, such as tall wet eucalypt forests over rainforest species, or rainforest communities.

PC can be spread through the movement of infected soil or plant material by people or animals and can even be transported by water percolating through soil or via surface water, such as in creeks and other drainage lines. Transport of PC to new areas is usually through soil/dirt adhering to vehicles and machinery. Transport into non-roaded areas of high human usage is mainly via bushwalking items such as tents or footwear but can also occur by bird activity. The fungus is not always evident in the landscape as it attacks root systems of susceptible species, usually causing death in new growth or the yellowing of leaves followed by loss of vigour and, in most cases, death. The fungus can inhabit the root systems of resistant species without any visible signs of infection within the host plant.

Samples to directly survey for PC were not collected. Instead, areas within and around the Survey Area were inspected in detail for signs of infection by PC which included areas of water accumulation such as spoon drains, culverts, and other drainage features. No plants with PC symptoms were observed in the Survey Area.

## PART E – GEOMORPHOLOGICAL VALUES

### E.1 SCOPE

Van Diemen Consulting Pty Ltd engaged the Forest Practices Authority (FPA) to investigate the geomorphology and soils present on a 364.1 ha mining lease owned by the Markarna Grazing Company between Palana Road and Marshall Beach near the settlement of Lughrata on Flinders Island. The field work and report were completed by Dr Adrian Slee, with the report (Slee) generated from the engagement provided in **Attachment 8**.

This section provides a summary of the scope, observations, and recommendations made by Slee.

The priority area for the survey and assessments was an 800 m long west to east oriented sand dune complex covering approximately 4 ha that forms a lime sand resource immediately west of the current old extraction pit.

The aim of the investigations on site was to provide a detailed report on the dune field and other landforms including swamps and potential Tertiary limestone karst features in the vicinity of the proposed extraction pit. Soils were also be investigated in this area. A secondary focus was a general documentation of the dune field and other sites of geomorphic significance in the overall Mining Lease in the event of expansion of operations in the future.

The report addressed the following issues:

- Documentation of any karst features present and management recommendations.
- Overview of the sand dunes present at the proposed pit site and mine lease in general and dune special values management recommendations.
- Comment on sand blow risks and mediation recommendations.
- Documentation of other geomorphic landforms.
- Soil observations and management.

### E.2 KARST VALUES

*E.2.1 Findings*

An extensive Tertiary dune limestone bench is present in the eastern section of the study area. This bench is overlain in locations by the Quaternary dunes and has open predominantly *Leptospermum laevigatum* dominated forest. The lack of streams (and channels) flowing from the higher limestone hills to the east of the property may indicate that a karst aquifer is present in the area. However, Slee did not observe any obvious springs were. Furthermore, Slee observed no sinkholes on the property, and as the largest limestone outcrop observed covered only a few square meters, caves are unlikely to be present in the priority study area. However, as Slee did not cover the entire Mining Lease, and LiDar coverage is not available for the area, the presence of isolated and/or discrete karst landforms including bedrock bluffs with karren, sinkholes, or small caves cannot be entirely ruled out (excluding the area assessed for the proposed lime sand pit).

*E.2.2 Management Recommendations*

While bedrock Tertiary Limestone is present in the east of the mine lease Slee observed no karst landforms apart from very minor surface solution sculpture (karren) landforms have been identified during this survey. Given the extensive nature and relief of the limestone on the hills east of the mining lease subsurface water flow through karst aquifers is likely but significant karst landforms are unlikely to be present. In the absence of evidence for significant karst formulation of mitigation measures is unnecessary.

Karst recommendations

- In the event a steep sided depression forms during operations that has signs of collapse these should be recorded and avoided during operations until expert advice is obtained.
- In the event a cave is located on site operations should avoid the area and seek expert advice.

**E.3 SAND DUNE SYSTEMS AND BLOW RISK**

*E.3.1 Findings*

Extensive sand dunes cover most of the Mining Lease. With the exception for the granitic sediments east of North Curves Lagoon described on page 8 of **Attachment 8**, the sand dunes are composed of fine-grained white quartz and carbonate deposits.

Two significant sand dune assemblages are present. In the west are the modern foredune and back dunes behind Marshall Beach. Inland are a series of elongated west-to-east trending parallel dunes that rise up to 24 m above sea level. These inland dunes are largely vegetated and stable in comparison to the foredunes that have fewer woody and tree species, instead being dominated by grasses, herbs, wind pruned shrubs and sedges. The coastal foredunes climb onto the older dunes but can be broadly demarcated by their hummocky forms and presence of sand blow-outs that contrast to the more elongated uniform stabilised ridges of the older dunes.

Two prominent paleosols are present in the exposure at the now disused sand pit. The upper paleosol 1 lies between 95 cm and 115 cm depth and forms a prominent but laterally patchy dark brown organic-rich layer in the upper dune profile. The lower paleosol at 260 cm depth is a thinner and lighter compact sand unit that appears to not be as organic rich. However, this paleosol is laterally extensive and forms a prominent grey bench on the mid slope of the cutting. In the case of the dune systems the presence of paleosols Slee states this indicates a substantial time of dune stability, allowing an organic topsoil to form prior to renewed dune instability resulting in topsoil burial. At the pit site at least three periods of dune stability can be inferred as indicated by the two buried paleosols and the darker modern topsoil associated with thick root mats on the crest of the dune.

Slee noted a feature of the main pit exposure is the rhizoliths located in Unit 6 of the profile formed by dissolution of carbonate by percolating water and its subsequent precipitation around roots. Rhizoliths observed at the pit include narrow straw-like tree root rhizoliths up to 20 cm long and 1–5 cm across many of which still contain inner woody root material and larger cylindrical-shaped rhizoliths up to 30 cm long and 15 cm thick, which may have formed around tree branches. Slee noted that small columns are present at other locations suggesting calcification of the stumps of *Melaleuca* and other small trees found at the site.

Modern dune ridges run parallel to Marshall Beach for the length of the mining lease. They were found by Slee to consist of an almost continuous elongated beach foredune backed by a complex of hummocky back dunes separated by roughly bowl-shaped dune swales (depressions). At the western margin of the main resource area these dunes intercept the older west – east longitudinal dunes considered above. Slee also noted that the modern dunes are composed of fine loose sands with no evidence of significant calcite crust or rhizolith development; however the carbonate content of the dunes is high. No paleosols were observed by Slee in these dunes but thin buried soil horizons may be present. The lack of calcite cementation in the modern dunes suggests a significantly younger age for these deposits as may be expected from their nearcoastal setting.

*E.3.2 Management Recommendations*

The current face of the old pit provides an interesting profile of dune stratigraphy and is of local scientific interest as it provides evidence of the history of formation of the dunes in this part of Flinders Island and could potentially be used to indicate paleoclimate conditions prevalent on the Island. While this is an interesting exposure, many of the other unimpacted dunes in the region are likely to host similar paleosols and rhizoliths and therefore the features of the pit face are likely to be common within the landscape. The exposure is only visible because of past sand mining operations and has been photographed, sampled and described during this study. Obscuring of the exposure by erosion and tree overturn means that this exposure has a limited lifetime; formal preservation of this site is likely to be impractical as noted by Slee.

Resumption of sand mining extending west from the current pit face will destroy and remove the studied deposits but equally it is likely that the mining activities will expose further paleosols and tree root and stump rhizoliths in the sand dune. Slee notes that there is also a remote potential for archaeological deposits to be found within the dune particularly owing to its carbonate-rich nature which is conducive to preserving organic material such as bones (e.g. there is a possibility that large bones associated with megafauna could be exhumed as could ancient human remains or evidence of occupation (fire hearths etc)). Therefore, Slee provides the following recommendations that features of potential interest be flagged during operations.

In the event notable examples of these deposits are encountered (i.e. any of the features listed below) the first task should be to photograph the area and move operations away from the feature until a suitably qualified person (in the context of the item/items discovered) can assess any geomorphological/cultuyral values.

Contractors should look out for:

- Thick dark continuous bands within the dunes.
- Buried tree stumps or large calcareous deposits (not rhizoliths of modern age such as those created by tree roots from recently deceased vegetation) that appear to be parts of a tree.
- Stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand.
- Large accumulations of shells.
- Large bones and accumulations of smaller bones buried >1m under the surface.

## E.4 SOILS

### *E.4.1 Findings*

Slee sampled soils from several locations in the vicinity of the main resource deposit (see Map 2 of **Attachment 8**). Soils were sampled at depths of 30 cm, 50 cm and where possible 1 m using either natural cuttings or the Eijkelkamp soil auger. This was to identify any unusual characteristics of the soils and to sample for laboratory assessment of soil acidity (pH). pH was measured by Slee after shaking soils and water (1:25 ratio) and allowing the mixture to stand for 2 hours A Milwaukee MW 100 pH meter was used, calibrated at the time of analysis using standard solutions at pH 4 and pH 7.

Results for pH tests for all samples indicated alkaline soil conditions with no indications of highly acidic soil horizons or acid sulphate soils being present in the vicinity of the proposed sand pit. The samples varied in pH between 7.4 and 8.6 with most soils sampled being classified as moderately to strongly alkaline.

The high pH values obtained from the soil samples indicate an alkaline environment where extensive acidic soils are unlikely to be present. Slee states that the reason for this is that the entire region is buffered by the abundance of dissolved calcium carbonate within the soil profiles and sand dunes and the underlying Tertiary limestone. Low pH conditions are usually associated with deep organic soils or forested areas. While topsoil development is present within the dune fields, they are weakly developed and do not have a significant organic component capable of producing acidic soils, particularly in a carbonate dominated environment. This can be clearly seen by the gradation of pH in the site 3 dune swale samples (see Table 2 of **Attachment 8**). Slee found that here weakly developed topsoil has a pH of 7.4 and pH rises to 7.9 at 50 cm and 8.4 in the white dune sands at >80 cm.

It is notable that although both the site 2 dark organic soil at 100 cm in South Curves Lagoon and the granite-derived soils at site 5 are in locations that should potentially have low pH soils at neither site do pH values drop below pH 7. Slee states that this is due to the abundance of carbonate in the environment. The lack of deep well-developed topsoils indicate that since the dune formation wet forests or large eucalypt dominated forests may have never been present in this dry landscape. Although the Holocene dune (site 7 of **Attachment 8**) clearly shows a period of stability and soil development, Slee notes that the soil is thin and low in organic content. He also notes that at the main pit face (site 5) the two paleosols are also poorly developed and show very limited changes in pH. Previous eucalypt forest cover at these sites is unlikely.

### *E.4.2 Management Recommendations*

Well drained soils in the mining lease and specifically in the vicinity of the main proposed resource are strongly alkaline Calcarosols.

Acidic soils are unlikely to be present over extensive areas and may be totally absent. While organic topsoils, buried paleosols and lake/swamp sediments are present, none of these soils contain adequate organic material to significantly reduce the pH within the dune sands. However, Slee noted that his survey was not comprehensive, and it is possible that some swampy depressions could host thicker organic horizons having a lower pH. These horizons however will not be directly impacted by sand mining of the high-relief dune ridges. Furthermore, they provide no calcium rich sands that are sought to be progressively mined and by consequence they will always remain undisturbed (i.e. no extraction of sands would ever occur there).

**PART F. REFERENCES**

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**ATTACHMENTS**

**ATTACHMENT 1: EXTRACT OF EPA ISSUED PROJECT SPECIFIC GUIDELINES**

## Part C – Environmental Impacts and Management

The report should evaluate all potential impacts of the proposal, with the level of detail provided on each issue reflecting its level of significance. For each issue, describe how the impact assessment has been performed (for example, surveys or desktop studies). Describe the existing environment in relation to the impact, including the vulnerability of the potentially affected environment. Clearly articulate the potential impacts, identifying plausible worst-case scenarios and the reversibility of the impact. Then, describe the management or contingency measures proposed to avoid, mitigate or offset potential adverse impacts. Detail any specialist recommendations which have / will be implemented or justify otherwise. Finally, analyse how and to what degree the impacts will have been avoided, minimised or offset, and any residual impacts.

### 1 Air quality

- Describe the potential sources of air emissions, including dust that may arise from loading, unloading and transport.
- Evaluate the potential for environmental nuisance or harm to air quality, taking into consideration the:
  - distance to nearest residences;
  - acceptable standards described in section 7 of the *Quarry Code of Practice*[3]*;*
  - prevailing winds and other climatic factors;
  - nature of the material excavated;
  - method of excavation and processing/handling on site; and
  - site layout (refer to the Site Plan).
- Describe the measures that will be employed to reduce the potential for environmental nuisance or harm to air quality.
- Is the proposal consistent with the *Tasmanian Environment Protection Policy (Air Quality) 2004*?

### 2 Water quality (surface, discharge and groundwater)

- Describe the potential impacts of the activity on the receiving environment, with specific consideration of sediment and waterway disturbance, environmental values and downstream water uses.
- Describe the management measures that will be employed to control surface water and reduce the potential for erosion and sediment loss. Control measures include: minimisation of areas of disturbance; minimisation of stormwater ingress and sediment mobilisation through the use of perimeter drains, cut-off drains and bunding; sediment basins or stilling areas to capture entrained sediment; and swales, rock filters, wetlands or vegetated discharge zones to remove fine suspended sediment.
- Describe any other management measures proposed to minimise impact on waterways and aquatic values.
- Identify the dimensions, capacity and other relevant design features of key stormwater infrastructure such as drains and sediment basins, with reference to design rainfall frequency (average recurrence interval) and intensity. For sediment basins provide the sediment capture particle size, settling volume and surface area calculations and design rationale[4].

[3] Available at: https://epa.tas.gov.au/business-industry/regulation/industrial-activities/mining-and-extractive

[4] Suitable design approaches for sediment basins include those detailed in Best Practice Erosion and Sediment Control – Appendix B (June 2018 revision), International Erosion Control Association (Australasia) and Managing Urban Stormwater: Soils and Construction - Volume 2e: Mines and Quarries, Department of Environment and Climate Change, NSW Government (2008).

- Describe the waterbodies and aquatic values on site and in the surrounding area, including relevant Protected Environmental Values as per the *State Policy on Water Quality Management 1997*: *https://epa.tas.gov.au/environment/water/pevs-for-tasmanian-surface-waters.*
- State the distance from the activity to the nearest waterbody.
- Provide details of any proposed water monitoring activities.
- Is the proposal consistent with the *State Policy on Water Quality Management 1997*?
- Identify and characterise any other liquid emissions which could arise from the proposal. Provide details of the nature of the effluent (estimated volume and characteristics), proposed treatment, monitoring (as relevant) and likely impact on the receiving environment (provide water quality data where available).

## 3 Noise emissions and blasting

- Describe all noise sources, including the size and sound power level for each main piece of equipment (e.g. crusher / screen, loader, excavator, haul truck, rock drill).
- Provide a map of the location of all major sources of noise and any noise sensitive premises[5] within 1 km of the boundary of the Land.
- Describe the potential impacts of noise generated by the activity.
- Evaluate the potential for the activity to create a noise nuisance, taking into consideration the:
  - distance to nearest residences and other noise sensitive premises;
  - acceptable standards described in section 7 of the *Quarry Code of Practice*[6]*;*
  - hours of operation;
  - method of excavation and processing / handling on site;
  - topography; and
  - site layout showing locations of activities (refer to the Site Plan).
- Describe the noise attenuation measures that will be implemented.
- Is the proposal consistent with the *Environment Protection Policy (Noise) 2009* [7]?

## 4 Natural values

The Report must detail the proposed clearing / disturbance of native vegetation or potential habitat for native fauna as part of the proposal, including details of the nature of vegetation and habitat values to be cleared or disturbed, and the area of vegetation / habitat affected (in hectares).

The Report must describe the potential impacts to threatened fauna, flora and vegetation communities, taking into account:

- The clearance or disturbance of native vegetation or other potential habitat; and
- Movement, noise, or lights during sensitive avifauna breeding seasons.

The Report must describe the management measures that will be implemented to mitigate or avoid impacts to threatened fauna, flora and vegetation communities or other natural values.

[5] 'Noise sensitive premise' is defined as: residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.
[6] Available at: https://epa.tas.gov.au/business-industry/regulation/industrial-activities/mining-and-extractive
[7] Available at: https://epa.tas.gov.au/policy/statutory-policies/state-policies-and-environment-protection-policies/environment-protection-policy-(noise)-2009

A natural values survey should be undertaken by a suitably qualified person in accordance with the NRE Tasmania *Guidelines for Natural Values Surveys relate to Development Applications*[8].

The Conservation Assessment Section identified several threatened flora and fauna species located within 5 km of the proposed activity, including several species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Please ensure you are aware of your obligations under the EPBC Act.

The mining lease has areas within it that are mapped as Coastal grass and herbfield areas (TASVEG 4.0 code GHC), which may meet the criteria for the EPBC Act listed *Lowland Native Grasslands of Tasmania*. The survey needs to determine whether the GHC community exists within the proposed development area. If it is identified within the development area, or may be impacted by the proposed development, consideration needs to be given as to whether it meets the EPBC Act criteria for classification as *Lowland Native Grasslands of Tasmania*.

### Threatened Flora

Threatened flora species have been observed within 5 km of the development area footprint, several of which occur within 500 m, including within the mining lease and along Palana Road. The table below shows those threatened flora species that have been recorded within 500 m of the development footprint.

| Species name | Common name | TSP Act* |
|---|---|---|
| *Acacia uncifolia* | coast wirilda | rare |
| *Eutaxia microphylla* | spiny bushpea | rare |
| *Scaevola albida* | pale fanflower | vulnerable |
| *Schoenoplectus tabernaemontani* | River clubsedge | rare |
| *Zygophyllum billardierei* | coast twinleaf | rare |

*Tasmanian *Threatened Species Protection Act 1995*.

### Threatened Fauna – Terrestrial

Terrestrial threatened fauna species have been recorded within 5 km or are within range boundary of the mining lease as shown in the table below. The survey must determine if any potential habitat for these species is present. Of particular note, the New Holland Mouse has not been observed in Tasmania for over 17 years until its re-discovery in 2021 on Flinders Island within 5 km of the mining lease.

| Species name | Common name | TSP Act | EPBC Act |
|---|---|---|---|
| *Pseudomys novaehollandiae* | New Holland Mouse | endangered | Vulnerable |
| *Litoria raniformis* | Green and Gold Frog | vulnerable | Vulnerable |
| *Antipodia chaostola* | Chaostola Skipper | endangered | Endangered |
| *Pardalotus quadragintus* | Forty-spotted Pardalote | endangered | Endangered |
| *Lymnodynastes peroni* | Striped Marsh Frog | endangered | - |
| *Galaxiella pusilla* | Eastern Dwarf Galaxias | vulnerable | Vulnerable |
| *Pseudemoia pagenstecheri* | Tussock Skink | vulnerable | - |
| *Aquila audax subsp. fleayi* | Tasmanian Wedge-tailed Eagle | endangered | Endangered |
| *Haliaeetus leucogaster* | White-bellied Sea-eagle | vulnerable | - |

[8] Available at: https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/survey-guidelines-for-development-assessments

### Seabirds and Shorebirds

The proposal is located within a coastal area and located approximately 200 m from Marshall Beach. Several seabirds and shorebirds have been recorded along the beach, including two listed threatened species:

- Hooded Plover (*Thinornis cucullatus*), vulnerable under the EPBC Act, and
- Fairy Tern (*Sternula nereis subsp. nereis*), vulnerable under both the TSP Act and the EPBC Act.

Little Penguins (*Eudyptula minor*) have also been recorded south of Castle Rock Point and on the offshore islands across Marshall Bay.

The potential impacts on seabirds and shorebirds from the proposal need to be considered and discussed, including an assessment of potential nesting habitat and indirect impacts resulting from disturbance within the development area.

### Geoconservation and Wetlands

Describe the potential impacts to geoconservation sites, aquatic or riparian environments and other natural values, and the management measures proposed to mitigate these impacts.

The proposal is located within a coastal and wetland area. Wetlands are listed as Threatened Native Vegetation Communities under Schedule 3A of the *Nature Conservation Act 2002*. The report must address the potential impacts of the activity on geomorphology and hydrology, including dune systems, wetlands, and other relevant landforms, including but not limited to:

- existing and modified sediment budgets;
- sand transport potential, before, during and after mining and methods proposed to minimise erosion and sedimentation;
- stability of interim and final landforms, including dunes, swales, and wetlands; and
- whether the dunes are considered mobile and the potential for vegetation removal within the development area to mobilise dunes and impact the Marshall Beach Conservation Area.

Proposed measures to avoid / minimise disturbance to vegetated or mobile landforms, hydrology and water quality should be detailed, including the use of buffers. Where disturbance will occur, proposed rehabilitation measures should be outlined.

### Karst

It is noted that a karst area is mapped extending eastwards from the eastern third of the mining lease. The potential impacts on karst from the activity must be considered and discussed. Consideration should be given to undertaking a survey for karst within the development area and detailing any recommended mitigation measures as necessary.

### Acid Sulfate Soils

The entire mining lease is mapped as having Potential Acid Sulfate Soils (PASS). The Tasmanian Acid Sulfate Soil Management Guidelines[9] and the National Acid Sulfate Soil Guidelines[10] should be reviewed in relation to the proposed activity. The Tasmanian ASS Guidelines indicate that a management plan is likely to be required for the proposal. The Report must consider the requirements of the Tasmanian ASS Guidelines and determine whether further investigation and management of acid sulfate soils at the site is required.

[9] Available at: https://nre.tas.gov.au/agriculture/land-management-and-soils/soil-management/acid-sulfate-soils
[10] Available at: https://www.waterquality.gov.au/issues/acid-sulfate-soils

## 5 Weeds, pests and pathogens

- A Weed and Disease Management Plan must be developed and implemented for the activity. The Plan must be developed in accordance with the NRE (2015) *Weed and Disease planning and Hygiene Guidelines: Preventing the spread of weeds and disease in Tasmania*[11].
- The Report should:
  - List the weeds[12], pests and pathogens occurring on or near the site.
    - Three weed species declared under the *Weeds Management Act 1999* have been recorded within 5 km of the mining lease.
    - *Phytophthora cinnamomi* (PC) is recorded as present along Palana Road north of the mining lease.
    - Frog chytrid fungus (*Batrachochytrium dendrobatidis*) has been recorded on Flinders Island and is of relevance to this proposal noting the mapped wetland areas within and adjacent to the development proposal footprint.
  - Evaluate the potential for the activity to introduce or spread weeds and diseases to, from and within the site.
  - Discuss the proposed management measures for preventing the spread of weeds, pests and pathogens (e.g. vehicle washdown procedures).
- Practical information on how to minimise the risks of introducing and spreading PC and chytrid fungus can be found in the manual *Keeping it clean - A Tasmanian field hygiene manual to prevent the spread of freshwater pests and pathogens*[13].

## 6 Waste

- Describe the solid and liquid waste that will be produced by the activity (e.g., overburden, Potentially Acid Forming material, metal, and machinery service wastes, used oils, general refuse).
- Describe the proposed methods for avoidance, reuse, recycling, treatment, and disposal of waste.

## 7 Environmentally hazardous substances

- Detail the nature and quantity of any environmentally hazardous substances[14] that will be stored (permanently or temporarily) and/or handled on site. This includes fuels, oils, waste and chemicals.
- Describe the storage method and location of any environmentally hazardous substances and discuss the proposed management measures to prevent release and respond to accidental spills (e.g., provision of spill kits).
- Identify any dangerous goods[15] and controlled wastes[16] that will be present on the site, with reference to standard classification. Detail how they will be managed.

---

[11] Available at: https://nre.tas.gov.au/invasive-species/weeds/weed-hygiene/weed-and-disease-planning-and-hygiene-guidelines

[12] Plant species declared as a weed under the *Weed Management Act 1999*.

[13] Available at: https://nre.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual

[14] 'Environmentally hazardous substance' is defined as: any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment.

[15] As defined in the Australian Code for the Transport of Dangerous Goods by Road and Rail.

[16] Information on controlled waste identification and classification is available at: https://epa.tas.gov.au/business-industry/regulation/waste-management/controlled-waste

## 8 Site contamination

- Has the site on which the activity is to be located been used in the past for activities which may have caused soil or groundwater contamination? If so, provide details. Include details of any assessments of soil or groundwater contamination on the site.

## 9 Environmental impacts of traffic

- Provide details of the vehicle types, number of vehicle movements, times of movements and route(s).
- Evaluate the potential for transport to and from the site to cause a noise nuisance to residences and other noise sensitive premises in proximity to the Land, considering the type, volume and time of traffic associated with the proposal.
- Evaluate the potential to cause a dust nuisance as a result of traffic in proximity to the Land.

## 10 Other off-site impacts

- Does the activity have the potential to generate any other off-site impacts that may affect the amenity of residences or other sensitive uses (such as schools and hospitals)? If yes, provide details. The location of all nearby residences or other sensitive uses must be clearly shown on the area map.

## 11 Monitoring

- Describe any proposed environmental monitoring and reporting for the activity.
- Show all proposed monitoring points on the site plan.

## 12 Marine areas and coastal zone

- Describe the potential impact to sensitive marine areas, conservation areas, or areas used extensively for recreational or commercial fishing activities.
- Provide details of any surveys undertaken in accordance with the *Guidelines for Marine and Estuarine Natural Values Surveys related to Development Proposals*[17].
- Discuss how the proposal is consistent with the *Tasmanian State Coastal Policy 1996*.

## 13 Decommissioning and rehabilitation

- Describe the proposed decommissioning and rehabilitation measures in the event of cessation of the activity.
- Describe any proposed progressive rehabilitation measures, with reference to the staged development of the quarry/extractive pit (refer to the Site Plans as relevant).

## 14 Greenhouse gas emissions and climate change

- Describe how the proposal will implement best practice environmental management in energy consumption and in transport of materials to and from the proposed activity, to minimise greenhouse gas emissions.

[17] Available at: Guidelines for Marine and Estuarine Natural Values Surveys related to Development Proposals.pdf (nre.tas.gov.au)

# Markarna Grazing – additional comments from other Government Agencies

Heritage Tasmania (HT)

- Page 17 (Table 5) of the report cites the objectives of the Planning Process Established by LUPAA but does not advise of the presence or absence of historic cultural heritage sites.
- That specific detail should be included to demonstrate that consideration has been given to potential impacts on sites or places of historic cultural heritage significance (i.e., archaeological or built features and deposits of heritage value from the period post 1788).
- The Proponent should be aware that coastal areas in this region may contain other archaeological or built features and deposits of potential heritage value relating to past extractive industry such as quarries, tramways, lime kilns; settlement sites relating to pastoral or fishing activities including on-shore whaling activity; early maritime infrastructure such as jetties and associated yards, buildings, roads or tramways.
- Page 20 of the report, addressing the Tasmanian State Coastal Policy Section 1.2 relating to *Cultural and Historic Resources,* only covers Aboriginal sites and relics.
- Reference should be made to the Flinders Island Local Planning Scheme's Local Heritage Places code list (ref: FLI-Table C6.1), Local Historic Landscape Precincts (FLI-Table C6.3). It does refer to the areas identified in FLI-Table C8.1 - Scenic Protection Areas.

Parks & Wildlife Service (PWS)

PWS noted that the priority vegetation overlay in the Tasmanian Planning Scheme – Flinders Local Provision Schedule extends from the proposal area into the adjoining Marshall Beach Conservation Area. PWS expressed concern that the removal of vegetation within the proposed development area has the potential to cause westward movement of dunes that would impact on the Conservation Area.

**ATTACHMENT 2: NATURAL VALUES ATLAS (NVA) REPORT**

# Natural Values Atlas Report

*Authoritative, comprehensive information on Tasmania's natural values.*

| | |
|---|---|
| Reference: | |
| Requested For: | |
| Report Type: | Summary Report |
| Timestamp: | 08:50:01 PM Tuesday 04 June 2024 |
| Threatened Flora: | buffers Min: 500m Max: 5000m |
| Threatened Fauna: | buffers Min: 500m Max: 5000m |
| Raptors: | buffers Min: 500m Max: 5000m |
| Tasmanian Weed Management Act Weeds: | buffers Min: 500m Max: 5000m |
| Priority Weeds: | buffers Min: 500m Max: 5000m |
| Geoconservation: | buffer 1000m |
| Acid Sulfate Soils: | buffer 1000m |
| TASVEG: | buffer 1000m |
| Threatened Communities: | buffer 1000m |
| Fire History: | buffer 1000m |
| Freshwater Ecosystem Values: | buffer 1000m |
| Freshwater Ecosystem Values displayed: | |
| | Rivers |
| | Lakes |
| | Wetlands |
| | Saltmarshes |
| | Estuaries |
| | Karst |
| | Other freshwater ecosystem values |
| Tasmanian Reserve Estate: | buffer 1000m |
| Biosecurity Risks: | buffer 1000m |

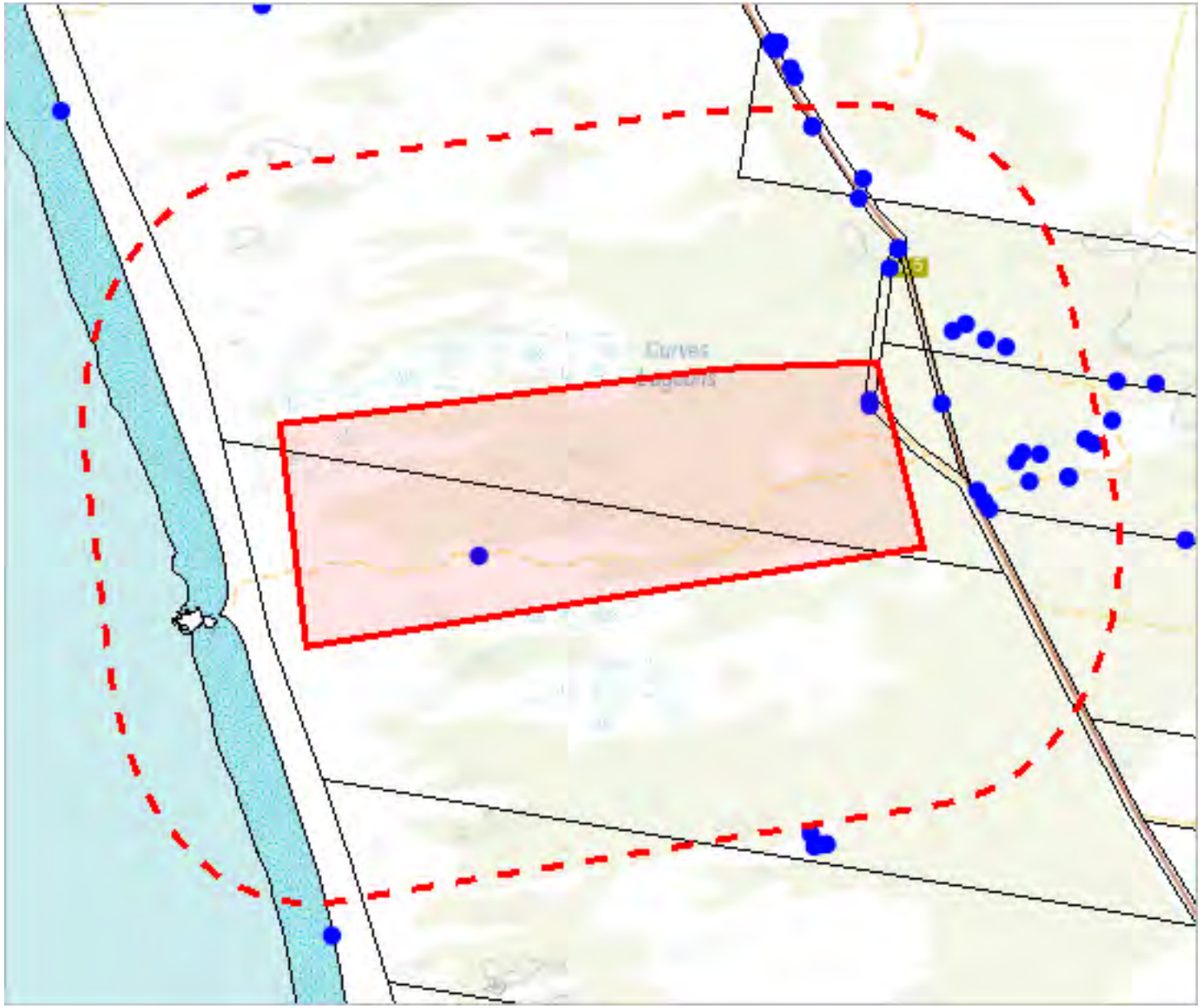


The centroid for this query GDA94: 577530.0, 5578300.0 falls within:

Property: 3513143

# Threatened flora within 500 metres

578728, 5579268



576375, 5577294

Please note that some layers may not display at all requested map scales

# Threatened flora within 500 metres



Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Threatened flora within 500 metres



## Verified Records

| Species | Common Name | SS | NS | Bio | Observation Count | Last Recorded |
|---|---|---|---|---|---|---|
| Acacia uncifolia | coast wirilda | r | | n | 1 | 10-Jan-2007 |
| Eutaxia microphylla | spiny bushpea | r | | n | 1 | 17-Nov-2008 |
| Leucopogon affinis | lanceleaf beardheath | r | | n | 2 | 07-Sep-2013 |
| Pimelea curviflora var. sericea | silky curved riceflower | r | | n | 1 | 17-Nov-2008 |
| Scaevola albida | pale fanflower | v | | n | 18 | 19-Nov-2019 |
| Schoenoplectus tabernaemontani | river clubsedge | r | | n | 1 | 01-Jan-1979 |
| Zygophyllum billardierei | coast twinleaf | r | | n | 4 | 20-Nov-2018 |

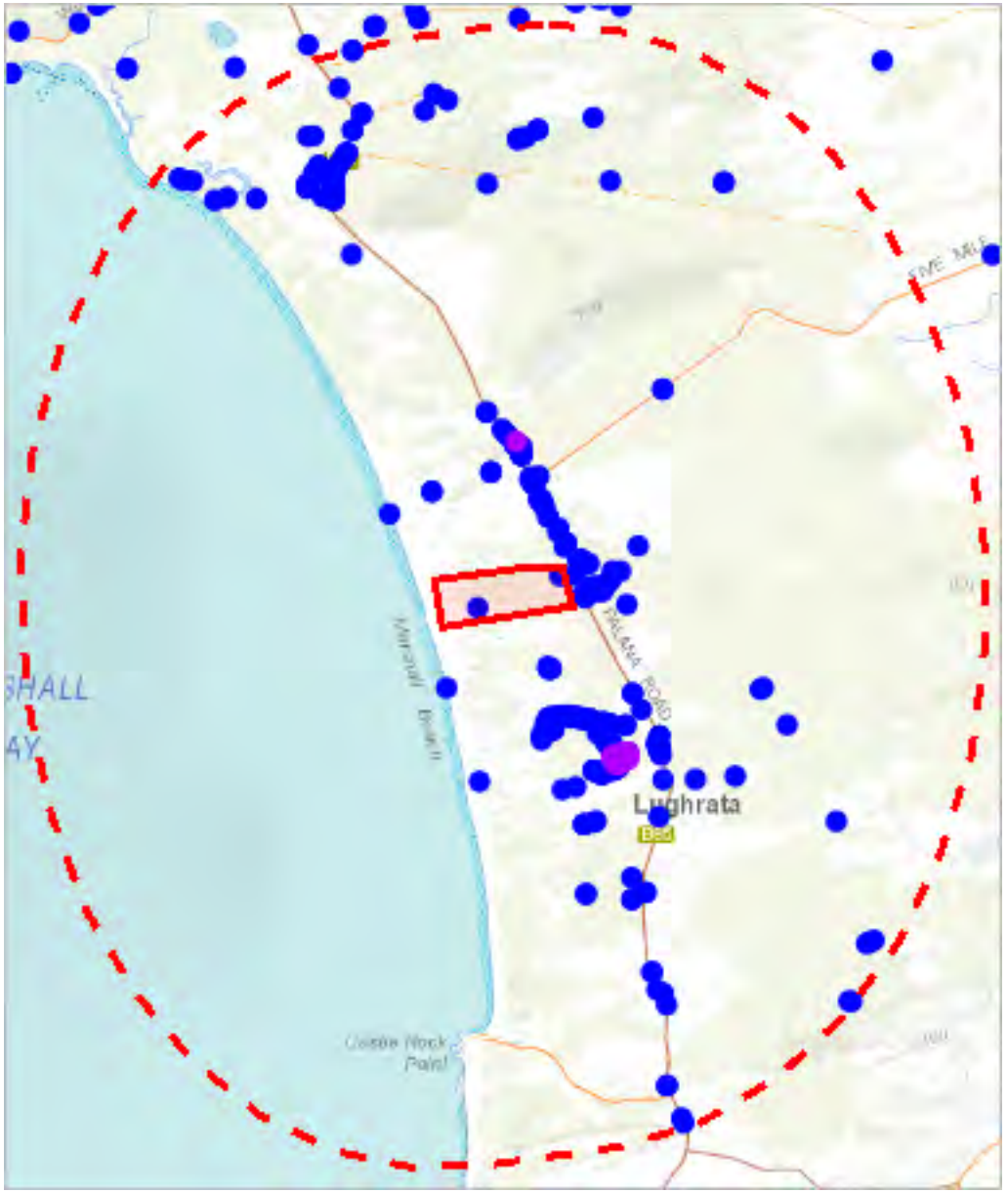
## Unverified Records

No unverified records were found!

For more information about threatened species, please contact Threatened Species Enquiries.
Telephone: 1300 368 550
Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

# Threatened flora within 5000 metres

582227, 5583798




572873, 5572771

Please note that some layers may not display at all requested map scales

# Threatened flora within 5000 metres



Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels



# Threatened flora within 5000 metres



## Verified Records

| Species | Common Name | SS | NS | Bio | Observation Count | Last Recorded |
|---|---|---|---|---|---|---|
| Acacia uncifolia | coast wirilda | r | | n | 40 | 15-Mar-2018 |
| Acrotriche cordata | coast groundberry | v | | n | 3 | 24-Nov-2015 |
| Asperula minima | mossy woodruff | r | | n | 4 | 06-Nov-2018 |
| Banksia serrata | saw banksia | r | | n | 6 | 25-Mar-2014 |
| Carex gunniana | mountain sedge | r | | n | 1 | 01-Jan-1000 |
| Diuris palustris | swamp doubletail | e | | n | 2 | 24-Nov-2022 |
| Drosera glanduligera | scarlet sundew | r | | n | 1 | 08-Sep-2021 |
| Eutaxia microphylla | spiny bushpea | r | | n | 22 | 19-Nov-2019 |
| Hydrocotyle comocarpa | fringefruit pennywort | r | | n | 1 | 10-Sep-2006 |
| Isopogon ceratophyllus | horny conebush | v | | n | 5 | 21-Mar-2014 |
| Lasiopetalum baueri | slender velvetbush | r | | n | 1 | 01-Jan-1985 |
| Lepilaena patentifolia | spreading watermat | r | | n | 1 | 30-Oct-1972 |
| Leucopogon affinis | lanceleaf beardheath | r | | n | 19 | 26-Sep-2017 |
| Parietaria debilis | shade pellitory | r | | n | 3 | 29-Sep-2005 |
| Pimelea curviflora | curved riceflower | p | | n | 60 | 06-Nov-2018 |
| Pimelea curviflora var. gracilis | slender curved riceflower | r | | n | 1 | 07-May-1966 |
| Pimelea curviflora var. sericea | silky curved riceflower | r | | n | 23 | 15-Mar-2018 |
| Pomaderris intermedia | lemon dogwood | r | | n | 3 | 20-Nov-2017 |
| Pomaderris oraria subsp. oraria | bassian dogwood | r | | n | 5 | 20-Nov-2017 |
| Pomaderris paniculosa subsp. paralia | shining dogwood | r | | n | 2 | 29-Sep-2005 |
| Pterostylis cucullata subsp. cucullata | leafy greenhood | e | VU | n | 4 | 13-Nov-2008 |
| Ranunculus pumilio var. pumilio | ferny buttercup | r | | n | 1 | 26-Aug-2017 |
| Scaevola albida | pale fanflower | v | | n | 79 | 19-Nov-2019 |
| Schenkia australis | spike centaury | r | | n | 1 | 15-Nov-1981 |
| Schoenoplectus tabernaemontani | river clubsedge | r | | n | 1 | 01-Jan-1979 |
| Scleranthus fasciculatus | spreading knawel | v | | n | 1 | 30-Sep-2005 |
| Spyridium parvifolium var. parvifolium | coast dustymiller | r | | n | 1 | 18-Oct-1976 |
| Styphelia esquamata | swamp beardheath | r | | n | 1 | 09-Dec-2012 |
| Zygophyllum billardierei | coast twinleaf | r | | n | 22 | 19-Nov-2019 |

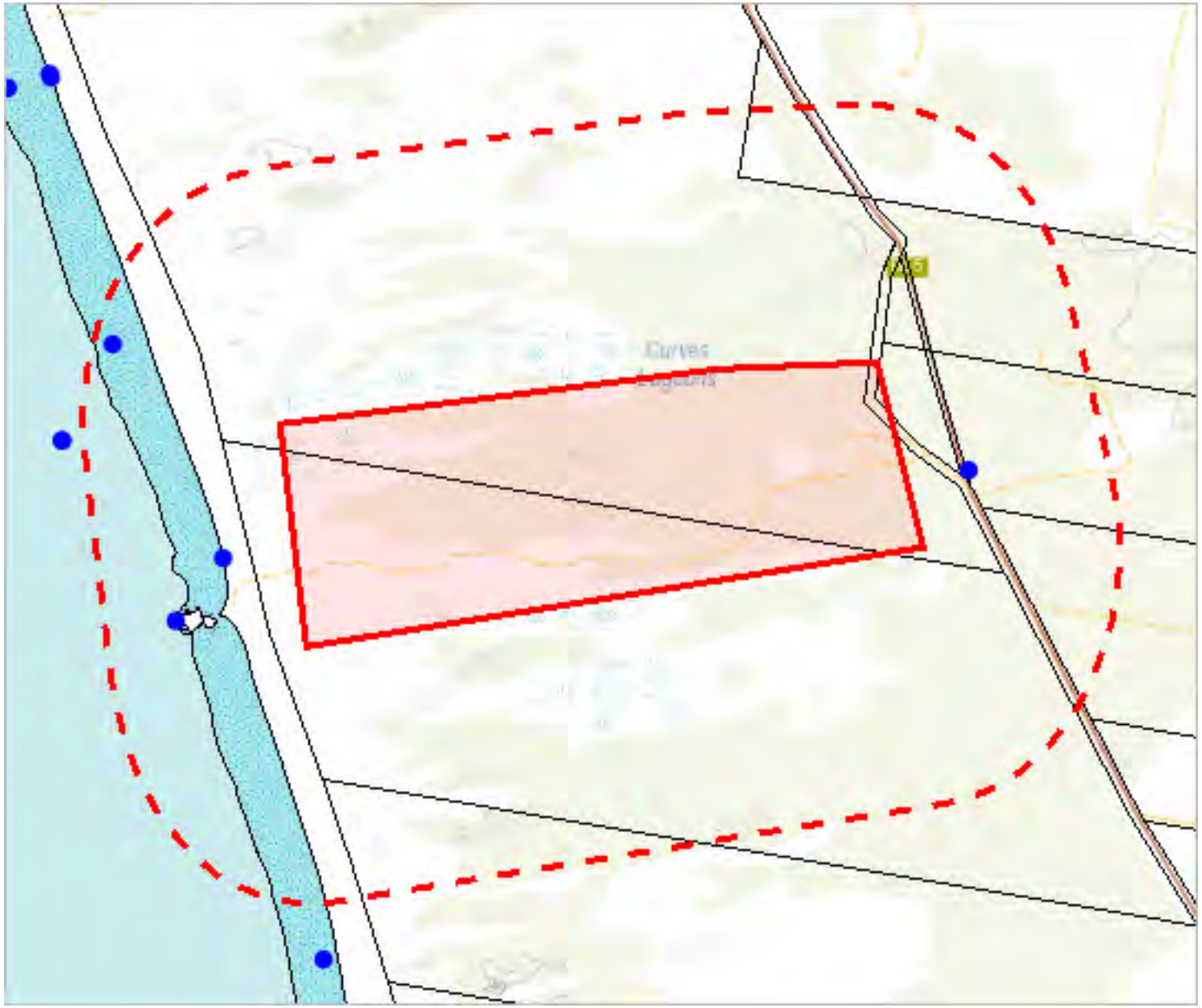
## Unverified Records

| Species | Common Name | SS | NS | Bio | Observation Count |
|---|---|---|---|---|---|
| Pimelea curviflora | curved riceflower | p | | n | 1 |
| Pomaderris oraria subsp. oraria | bassian dogwood | r | | n | 1 |
| Scaevola albida | pale fanflower | v | | n | 1 |
| Zygophyllum billardierei | coast twinleaf | r | | n | 114 |

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Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

# Threatened fauna within 500 metres

578728, 5579268



576375, 5577294

Please note that some layers may not display at all requested map scales

# Threatened fauna within 500 metres



Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Threatened fauna within 500 metres



## Verified Records

| Species | Common Name | SS | NS | Bio | Observation Count | Last Recorded |
|---|---|---|---|---|---|---|
| Aquila audax | wedge-tailed eagle | pe | PEN | n | 1 | 17-Feb-2014 |
| Thalassarche melanophris | black-browed albatross | e | VU | n | 1 | 03-Jul-1969 |
| Thinornis cucullatus | hooded plover | | PVU | ae | 1 | 06-Nov-2004 |
| Thinornis rubricollis | hooded plover | | VU | n | 3 | 19-Dec-1998 |

## Unverified Records

No unverified records were found!

# Threatened fauna within 500 metres

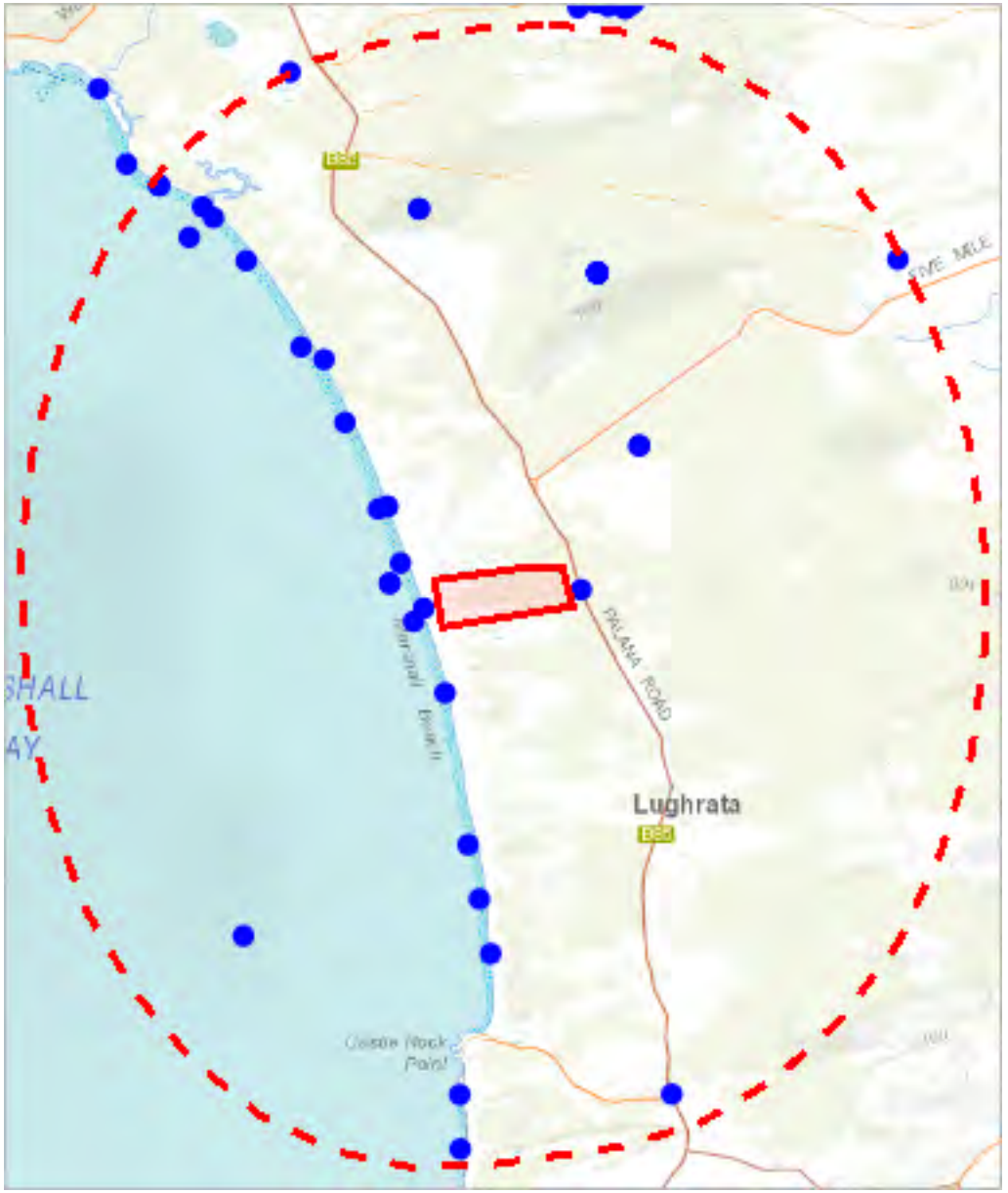
## (based on Range Boundaries)

| Species | Common Name | SS | NS | BO | Potential | Known | Core |
|---|---|---|---|---|---|---|---|
| Pseudomys novaehollandiae | new holland mouse | e | VU | n | 1 | 0 | 0 |
| Litoria raniformis | green and gold frog | v | VU | n | 1 | 0 | 0 |
| Prototroctes maraena | australian grayling | v | VU | ae | 3 | 0 | 0 |
| Antipodia chaostola | chaostola skipper | e | EN | ae | 1 | 0 | 0 |
| Pseudemoia pagenstecheri | tussock skink | v | | n | 1 | 0 | 0 |
| Haliaeetus leucogaster | white-bellied sea-eagle | v | | n | 2 | 0 | 0 |
| Limnodynastes peroni | striped marsh frog | e | | n | 1 | 0 | 0 |
| Galaxiella pusilla | eastern dwarf galaxias | v | VU | n | 3 | 0 | 0 |
| Pardalotus quadragintus | forty-spotted pardalote | e | EN | e | 1 | 0 | 0 |
| Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | e | EN | e | 1 | 0 | 0 |

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# Threatened fauna within 5000 metres

582227, 5583798




572873, 5572771

Please note that some layers may not display at all requested map scales

# Threatened fauna within 5000 metres



Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels



# Threatened fauna within 5000 metres



## Verified Records

| Species | Common Name | SS | NS | Bio | Observation Count | Last Recorded |
|---|---|---|---|---|---|---|
| Aquila audax | wedge-tailed eagle | pe | PEN | n | 2 | 30-Aug-2020 |
| Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | e | EN | e | 5 | 08-Dec-2004 |
| Botaurus poiciloptilus | australasian bittern | | EN | n | 1 | 14-Jan-1979 |
| Diomedea cauta subsp. cauta | shy albatross | pv | PVU | | 1 | 14-Nov-1981 |
| Eubalaena australis | southern right whale | e | EN | m | 1 | 26-Aug-2014 |
| Haliaeetus leucogaster | white-bellied sea-eagle | v | | n | 3 | 30-Aug-2020 |
| Hirundapus caudacutus | white-throated needletail | | VU | n | 2 | 27-Mar-2014 |
| Macronectes giganteus | southern giant-petrel | v | EN | n | 1 | 25-Jul-1988 |
| Pseudemoia pagenstecheri | tussock skink | v | | n | 1 | 02-Nov-1988 |
| Pseudomys novaehollandiae | new holland mouse | e | VU | n | 1 | 13-May-1982 |
| Sternula nereis subsp. nereis | fairy tern | v | VU | n | 1 | 06-Nov-2004 |
| Thalassarche chrysostoma | grey-headed albatross | e | EN | n | 1 | 09-Jul-1971 |
| Thalassarche melanophris | black-browed albatross | e | VU | n | 1 | 03-Jul-1969 |
| Thinornis cucullatus | hooded plover | | PVU | ae | 15 | 26-Apr-2021 |
| Thinornis rubricollis | hooded plover | | VU | n | 6 | 19-Dec-1998 |

## Unverified Records

No unverified records were found!

# Threatened fauna within 5000 metres

## (based on Range Boundaries)

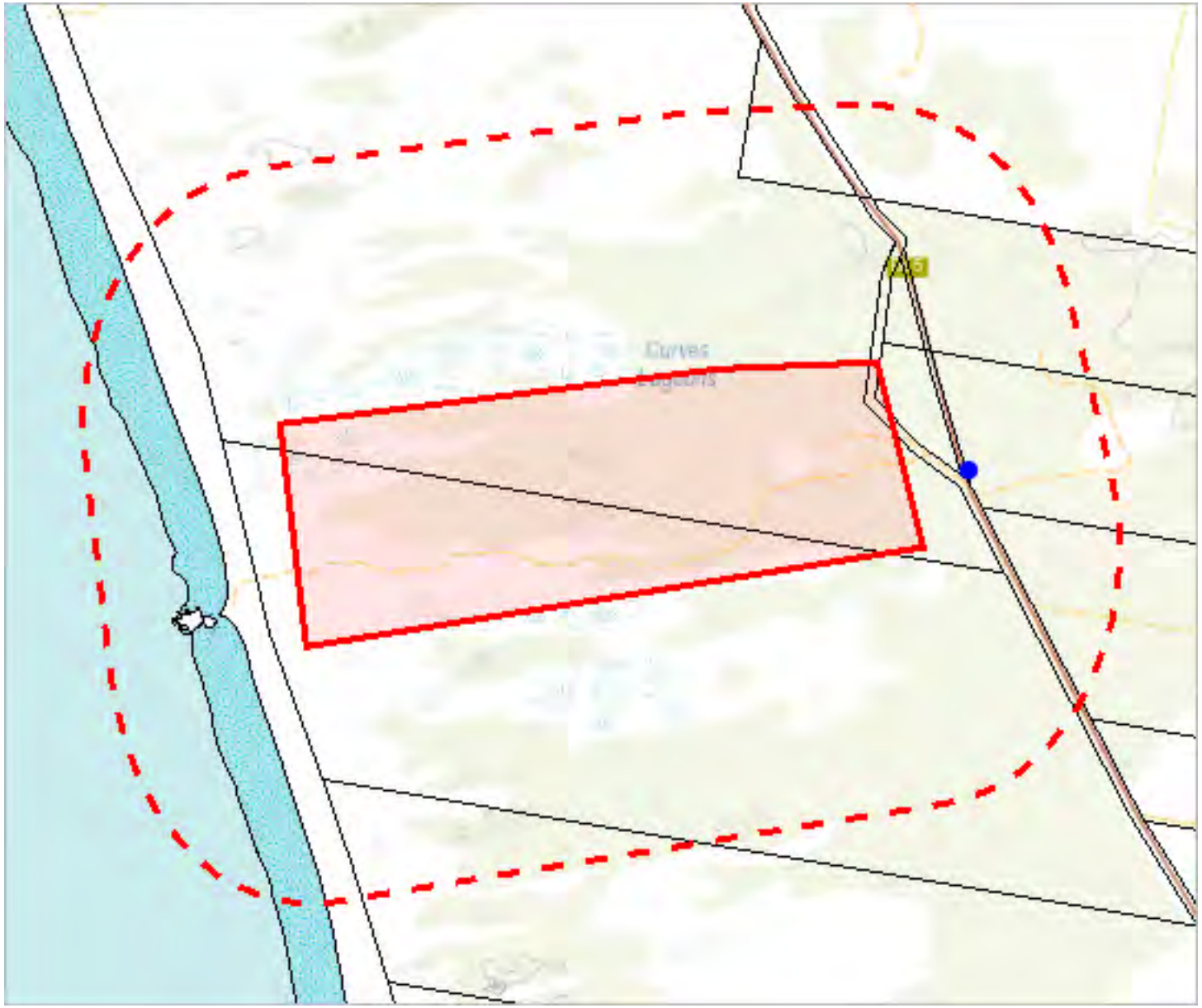
| Species | Common Name | SS | NS | BO | Potential | Known | Core |
|---|---|---|---|---|---|---|---|
| Pseudomys novaehollandiae | new holland mouse | e | VU | n | 1 | 0 | 2 |
| Litoria raniformis | green and gold frog | v | VU | n | 1 | 0 | 0 |
| Prototroctes maraena | australian grayling | v | VU | ae | 18 | 0 | 0 |
| Antipodia chaostola | chaostola skipper | e | EN | ae | 1 | 0 | 0 |
| Pseudemoia pagenstecheri | tussock skink | v | | n | 1 | 0 | 0 |
| Haliaeetus leucogaster | white-bellied sea-eagle | v | | n | 2 | 0 | 0 |
| Limnodynastes peroni | striped marsh frog | e | | n | 1 | 0 | 0 |
| Galaxiella pusilla | eastern dwarf galaxias | v | VU | n | 18 | 0 | 0 |
| Pardalotus quadragintus | forty-spotted pardalote | e | EN | e | 1 | 0 | 0 |
| Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | e | EN | e | 1 | 0 | 0 |

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Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

# Raptor nests and sightings within 500 metres



578728, 5579268



576375, 5577294

Please note that some layers may not display at all requested map scales

# Raptor nests and sightings within 500 metres

Annexure: 16.2.3

Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Raptor nests and sightings within 500 metres

Annexure: 16.2.3

## Verified Records

| Nest Id/Location Foreign Id | Species | Common Name | Obs Type | Observation Count | Last Recorded |
|---|---|---|---|---|---|
| | Aquila audax | wedge-tailed eagle | Not Recorded | 1 | 17-Feb-2014 |

## Unverified Records

No unverified records were found!

# Raptor nests and sightings within 500 metres

(based on Range Boundaries)

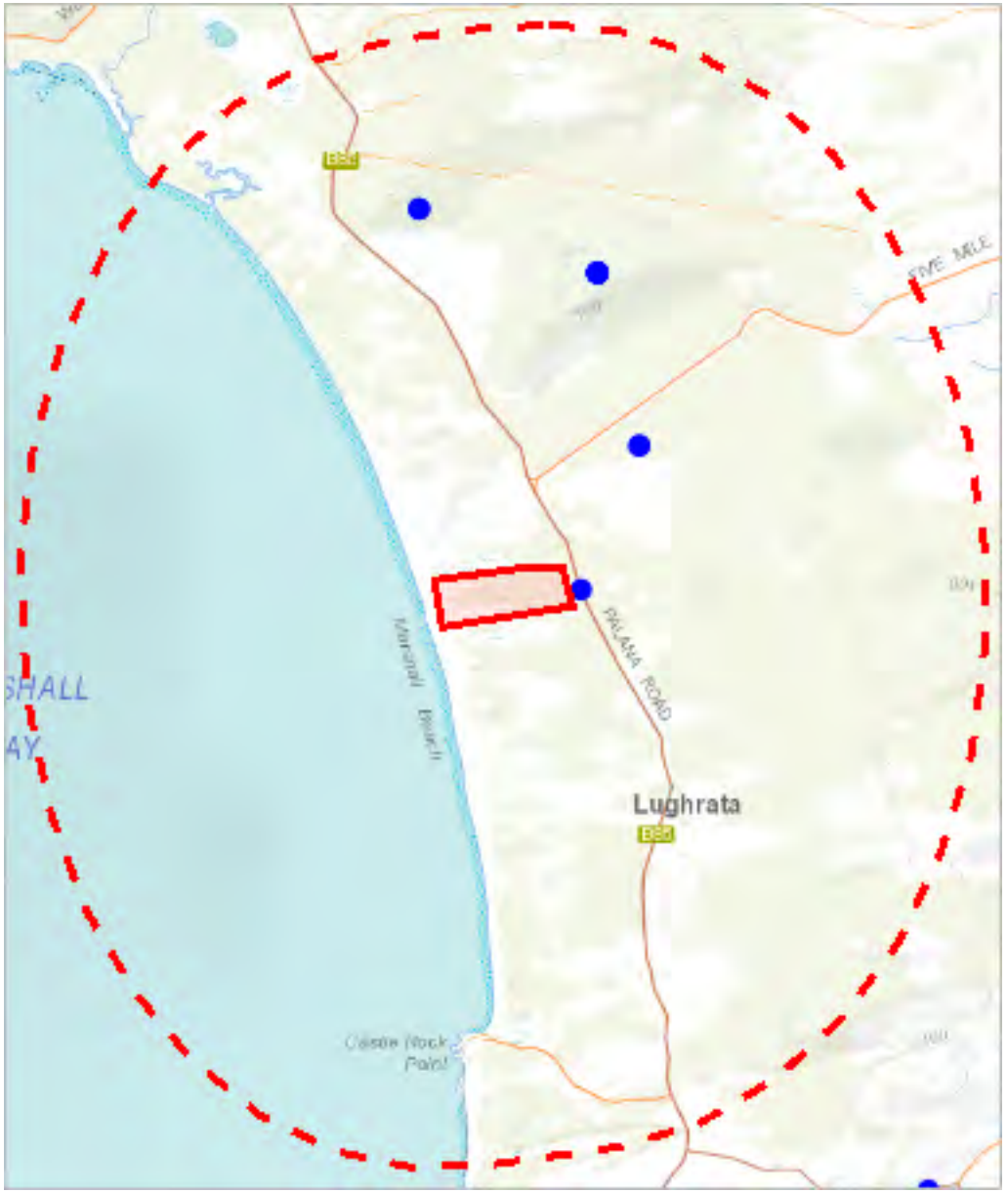
| Species | Common Name | SS | NS | Potential | Known | Core |
|---|---|---|---|---|---|---|
| Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | e | EN | 1 | 0 | 0 |
| Haliaeetus leucogaster | white-bellied sea-eagle | v | | 2 | 0 | 0 |

For more information about raptor nests, please contact Threatened Species Enquiries.
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Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

# Raptor nests and sightings within 5000 metres



582227, 5583798




572873, 5572771

Please note that some layers may not display at all requested map scales

# Raptor nests and sightings within 5000 metres

Annexure: 16.2.3

Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Raptor nests and sightings within 5000 metres



## Verified Records

| Nest Id/Location Foreign Id | Species | Common Name | Obs Type | Observation Count | Last Recorded |
|---|---|---|---|---|---|
| 603 | Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | Nest | 2 | 08-Dec-2004 |
| | Aquila audax | wedge-tailed eagle | Camera Trap | 1 | 30-Aug-2020 |
| | Aquila audax | wedge-tailed eagle | Not Recorded | 1 | 17-Feb-2014 |
| | Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | Sighting | 3 | 01-Mar-1979 |
| | Falco cenchroides | nankeen kestrel | Sighting | 4 | 09-Jan-1981 |
| | Haliaeetus leucogaster | white-bellied sea-eagle | Camera Trap | 1 | 30-Aug-2020 |
| | Haliaeetus leucogaster | white-bellied sea-eagle | Sighting | 2 | 14-Nov-1981 |

## Unverified Records

No unverified records were found!

# Raptor nests and sightings within 5000 metres

(based on Range Boundaries)

| Species | Common Name | SS | NS | Potential | Known | Core |
|---|---|---|---|---|---|---|
| Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | e | EN | 1 | 0 | 0 |
| Haliaeetus leucogaster | white-bellied sea-eagle | v | | 2 | 0 | 0 |

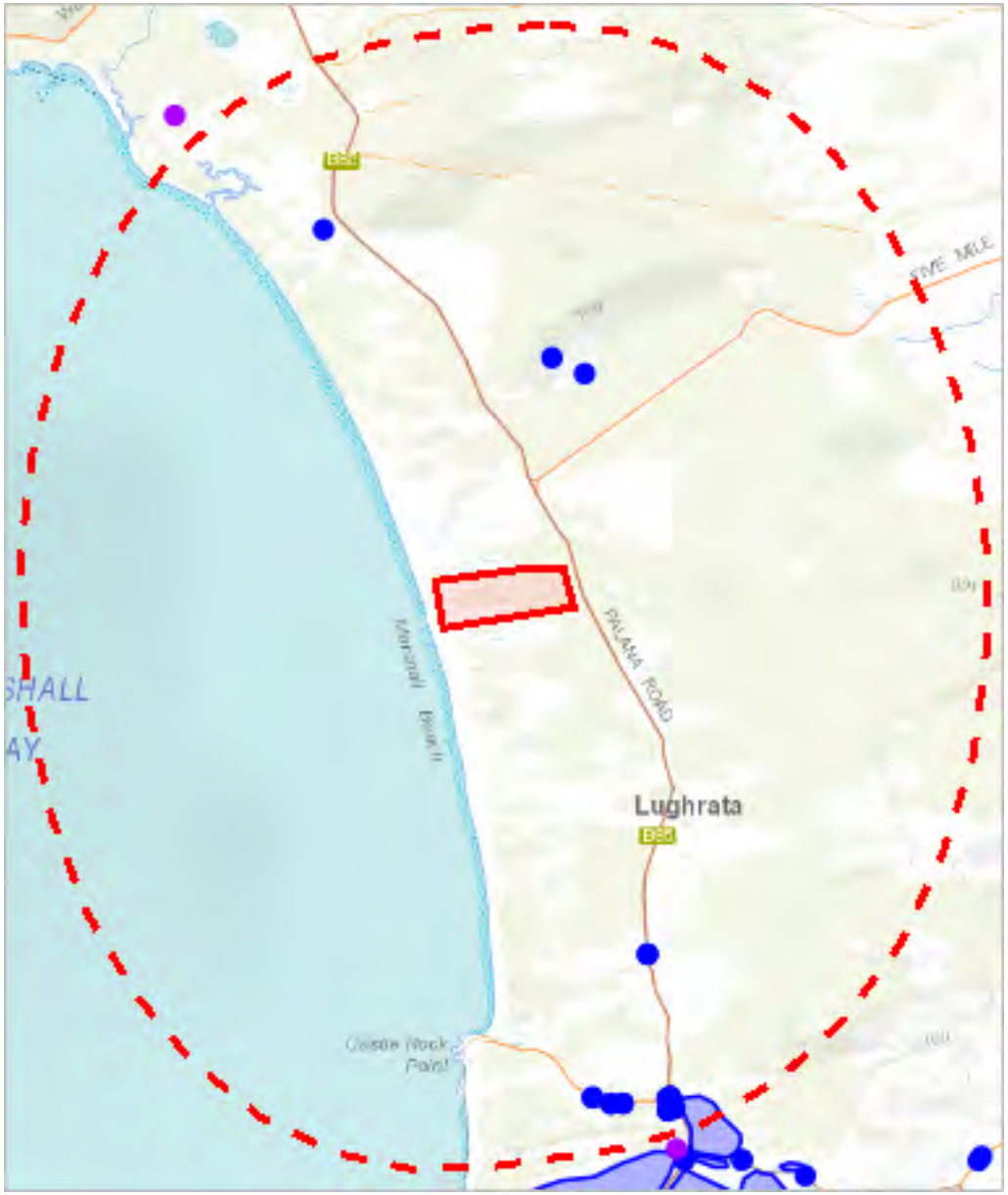
For more information about raptor nests, please contact Threatened Species Enquiries.
Telephone: 1300 368 550
Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

*** No Tas Management Act Weeds found within 500 metres ***

# Tas Management Act Weeds within 5000 m



582227, 5583798




572873, 5572771

Please note that some layers may not display at all requested map scales

# Tas Management Act Weeds within 5000 m



Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Tas Management Act Weeds within 5000 m



## Verified Records

| Species | Common Name | Observation Count | Last Recorded |
|---|---|---|---|
| Echium plantagineum | patersons curse | 3 | 01-Nov-2001 |
| Lycium ferocissimum | african boxthorn | 3 | 16-Feb-2017 |
| Marrubium vulgare | white horehound | 16 | 12-Jul-2016 |

## Unverified Records

| Species | Common Name | Observation Count |
|---|---|---|
| Senecio jacobaea | ragwort | 1 |

For more information about introduced weed species, please visit the following URL for contact details in your area:

https://www.nre.tas.gov.au/invasive-species/weeds

*** No Priority Weeds found within 500 metres ***

# Priority Weeds within 5000 m



582227, 5583798




572873, 5572771

Please note that some layers may not display at all requested map scales

# Priority Weeds within 5000 m

Annexure: 16.2.3

Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Priority Weeds within 5000 m



## Verified Records

| Species | Common Name | Observation Count | Last Recorded |
|---|---|---|---|
| Reseda luteola | weld | 1 | 04-Dec-2012 |

## Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

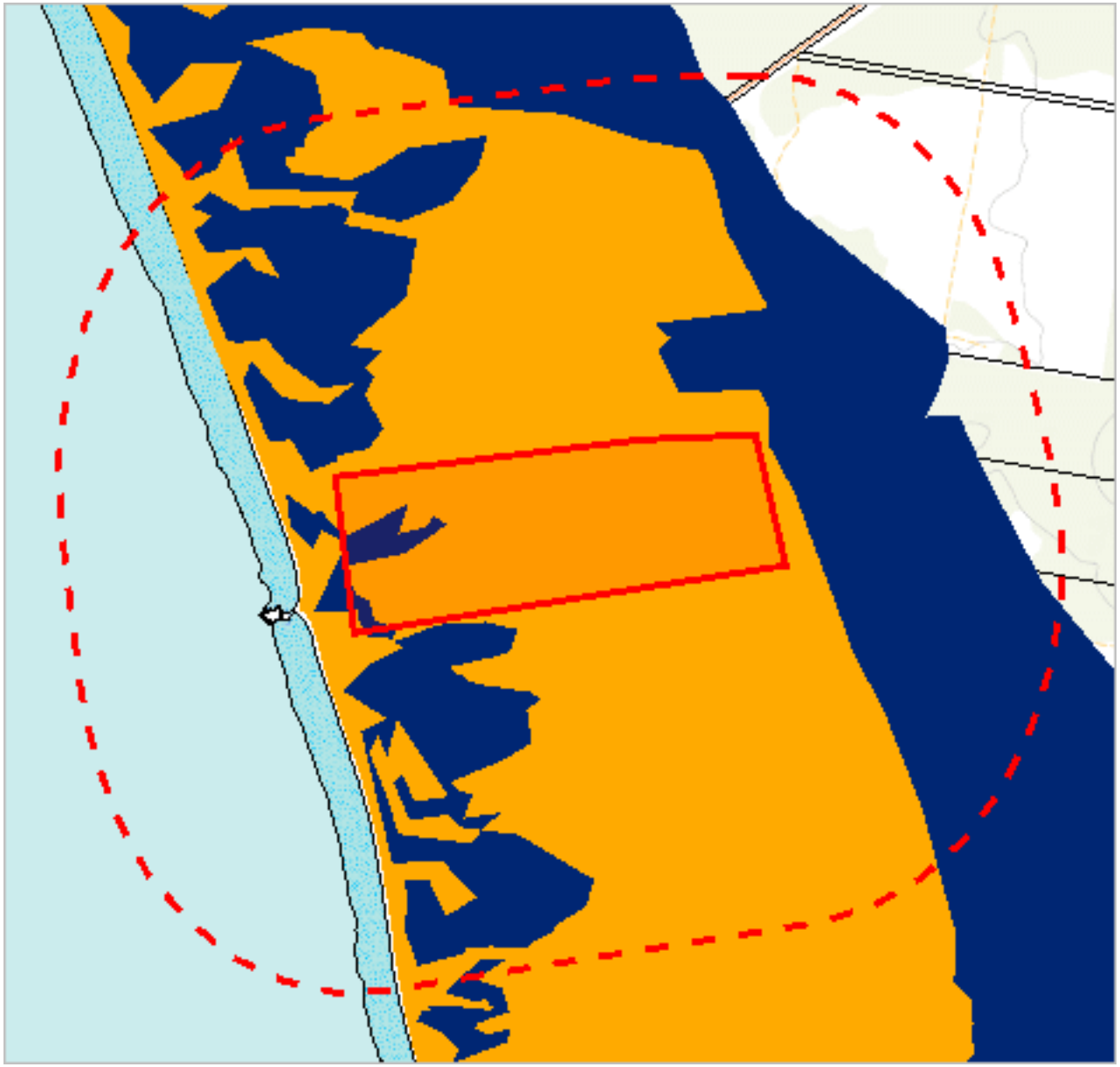
https://www.nre.tas.gov.au/invasive-species/weeds

*** No Geoconservation sites found within 1000 metres. ***

# Acid Sulfate Soils within 1000 metres



579117, 5579771



575986, 5576792

Please note that some layers may not display at all requested map scales

# Acid Sulfate Soils within 1000 metres



Legend: Coastal Acid Sulfate Soils (0 - 20m AHD)

High | Low | Extremely Low

Legend: Inland Acid Sulfate Soils (>20m AHD)

High | Low | Extremely Low

Legend: Marine Subaqueous/Intertidal Acid Sulfate Soil

High (Intertidal) | High (Subtidal)

Legend: Cadastral Parcels

# Acid Sulfate Soils within 1000 metres



| Dataset Name | Acid Sulfate Soil Probability | Acid Sulfate Soil Atlas | Description |
|---|---|---|---|
| Coastal Acid Sulfate Soils | Extremely Low | Ci(p3) | Extremely low probability of occurance (1-5% of mapping unit). with occurences in small areas. Sandplains and dunes 2-10m AHD, ASS generally below 1m from the surface. Heath, forests. Holocene or Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments. |
| Coastal Acid Sulfate Soils | Extremely Low | Cj(p3) | Extremely low probability of occurance (1-5% of mapping unit). with occurences in small areas. Sandplains and dunes >10m AHD, ASS generally below 1m from the surface. Heath, forests. Mainly Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments. |
| Coastal Acid Sulfate Soils | Low | Bh(p2) | Low probability of occurance (6-70% chance of occurrence in mapping unit). Sandplains and dunes <2m AHD, ASS generally within 1m of the surface. Often wet heath. Holocene or Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). Analytical data are incomplete but are sufficient to classify the soil with a reasonable degree of confidence. |
| Coastal Acid Sulfate Soils | Low | Bi(p2) | Low probability of occurance (6-70% chance of occurrence in mapping unit). Sandplains and dunes 2-10m AHD, ASS generally below 1m from the surface. Heath, forests. Holocene or Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). Analytical data are incomplete but are sufficient to classify the soil with a reasonable degree of confidence. |
| Coastal Acid Sulfate Soils | Low | Bi(p3) | Low probability of occurance (6-70% chance of occurrence in mapping unit). Sandplains and dunes 2-10m AHD, ASS generally below 1m from the surface. Heath, forests. Holocene or Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments. |
| Coastal Acid Sulfate Soils | Low | Bj(p3) | Low probability of occurance (6-70% chance of occurrence in mapping unit). Sandplains and dunes >10m AHD, ASS generally below 1m from the surface. Heath, forests. Mainly Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments. |
| Coastal Acid Sulfate Soils | Low | Bm(p3) | Low probability of occurance (6-70% chance of occurrence in mapping unit). Hydrosols, ASS generally within upper 1m in wet/riparian areas with Hydrosols (Isbell 1996). Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments. |

For more information about Acid Sulfate Soils, please contact Land Management Enquiries.

Telephone: (03) 6777 2227

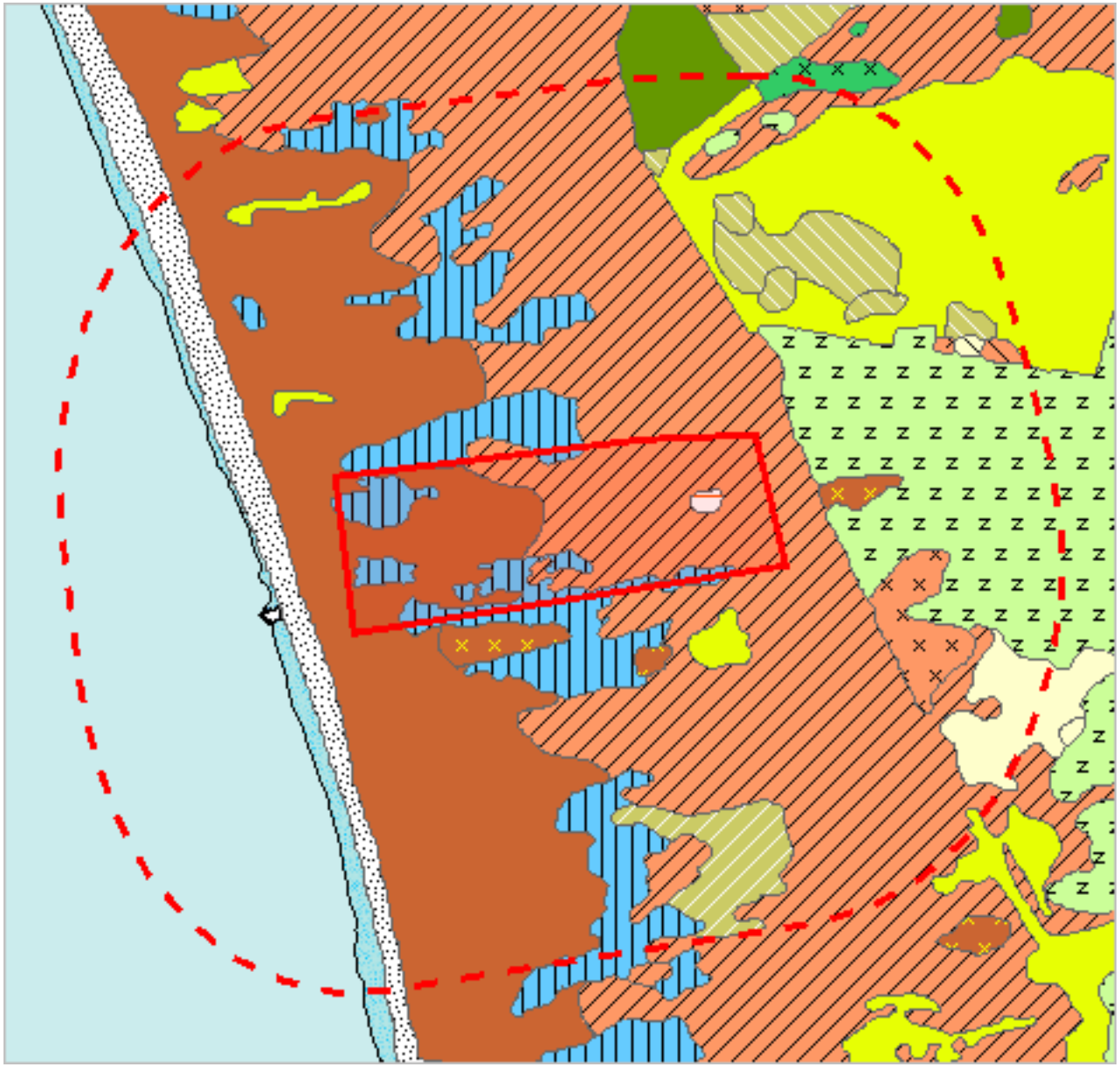
Email: LandManagement.Enquiries@nre.tas.gov.au

Address: 171 Westbury Road, Prospect, Tasmania, Australia, 7250

# TASVEG 4.0 Communities within 1000 metres



579117, 5579771



575986, 5576792

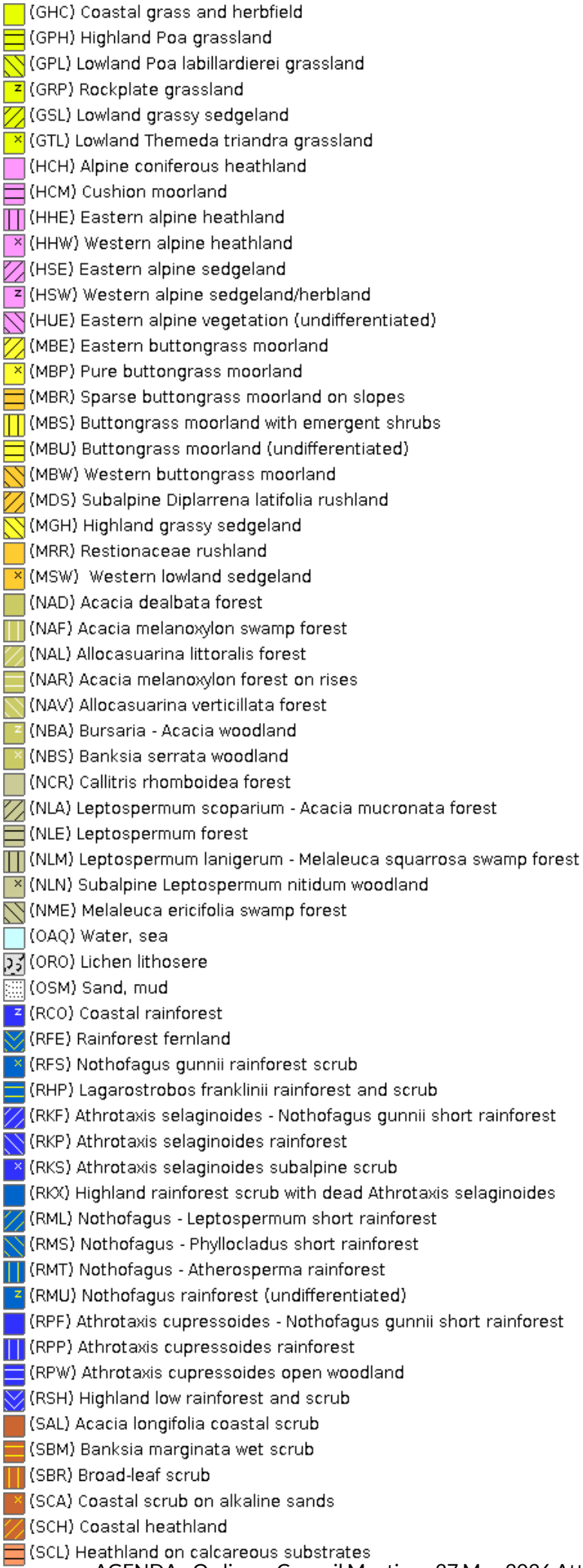
Please note that some layers may not display at all requested map scales

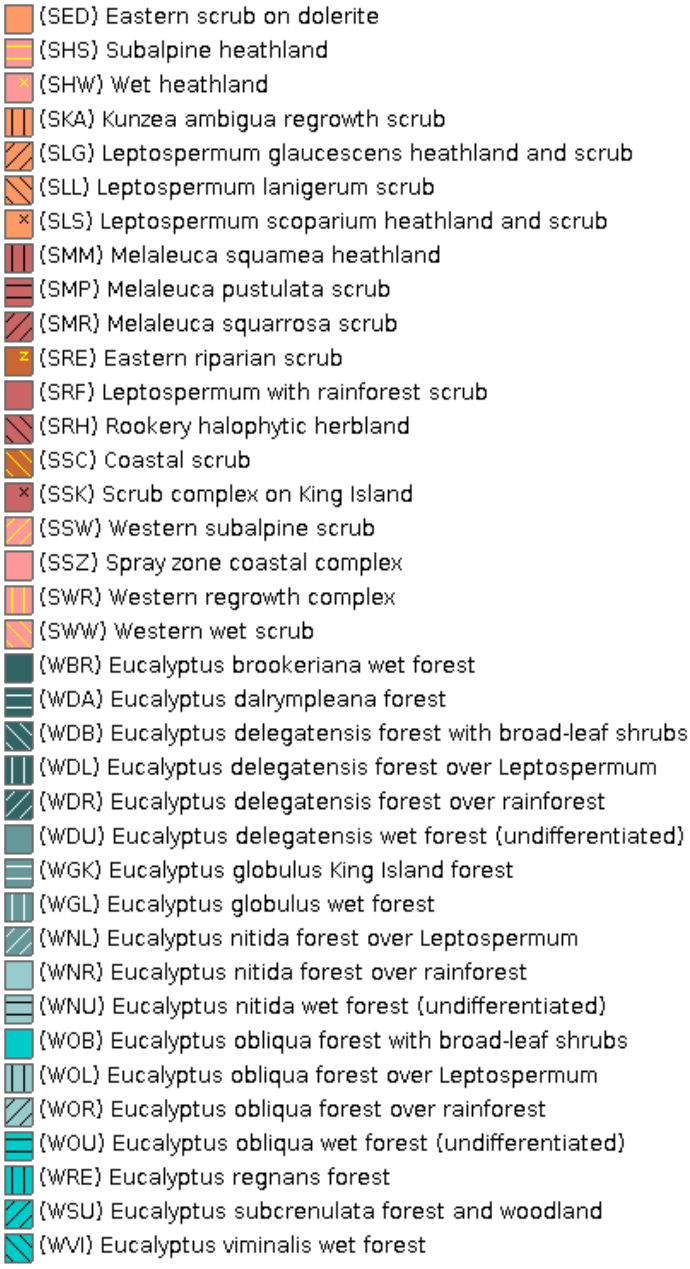
# TASVEG 4.0 Communities within 1000 metres

Annexure: 16.2.3

Legend: TASVEG 4.0




(GHC) Coastal grass and herbfield
(GPH) Highland Poa grassland
(GPL) Lowland Poa labillardierei grassland
(GRP) Rockplate grassland
(GSL) Lowland grassy sedgeland
(GTL) Lowland Themeda triandra grassland
(HCH) Alpine coniferous heathland
(HCM) Cushion moorland
(HHE) Eastern alpine heathland
(HHW) Western alpine heathland
(HSE) Eastern alpine sedgeland
(HSW) Western alpine sedgeland/herbland
(HUE) Eastern alpine vegetation (undifferentiated)
(MBE) Eastern buttongrass moorland
(MBP) Pure buttongrass moorland
(MBR) Sparse buttongrass moorland on slopes
(MBS) Buttongrass moorland with emergent shrubs
(MBU) Buttongrass moorland (undifferentiated)
(MBW) Western buttongrass moorland
(MDS) Subalpine Diplarrena latifolia rushland
(MGH) Highland grassy sedgeland
(MRR) Restionaceae rushland
(MSW) Western lowland sedgeland
(NAD) Acacia dealbata forest
(NAF) Acacia melanoxylon swamp forest
(NAL) Allocasuarina littoralis forest
(NAR) Acacia melanoxylon forest on rises
(NAV) Allocasuarina verticillata forest
(NBA) Bursaria - Acacia woodland
(NBS) Banksia serrata woodland
(NCR) Callitris rhomboidea forest
(NLA) Leptospermum scoparium - Acacia mucronata forest
(NLE) Leptospermum forest
(NLM) Leptospermum lanigerum - Melaleuca squarrosa swamp forest
(NLN) Subalpine Leptospermum nitidum woodland
(NME) Melaleuca ericifolia swamp forest
(OAQ) Water, sea
(ORO) Lichen lithosere
(OSM) Sand, mud
(RCO) Coastal rainforest
(RFE) Rainforest fernland
(RFS) Nothofagus gunnii rainforest scrub
(RHP) Lagarostrobos franklinii rainforest and scrub
(RKF) Athrotaxis selaginoides - Nothofagus gunnii short rainforest
(RKP) Athrotaxis selaginoides rainforest
(RKS) Athrotaxis selaginoides subalpine scrub
(RKX) Highland rainforest scrub with dead Athrotaxis selaginoides
(RML) Nothofagus - Leptospermum short rainforest
(RMS) Nothofagus - Phyllocladus short rainforest
(RMT) Nothofagus - Atherosperma rainforest
(RMU) Nothofagus rainforest (undifferentiated)
(RPF) Athrotaxis cupressoides - Nothofagus gunnii short rainforest
(RPP) Athrotaxis cupressoides rainforest
(RPW) Athrotaxis cupressoides open woodland
(RSH) Highland low rainforest and scrub
(SAL) Acacia longifolia coastal scrub
(SBM) Banksia marginata wet scrub
(SBR) Broad-leaf scrub
(SCA) Coastal scrub on alkaline sands
(SCH) Coastal heathland
(SCL) Heathland on calcareous substrates


(SED) Eastern scrub on dolerite
(SHS) Subalpine heathland
(SHW) Wet heathland
(SKA) Kunzea ambigua regrowth scrub
(SLG) Leptospermum glaucescens heathland and scrub
(SLL) Leptospermum lanigerum scrub
(SLS) Leptospermum scoparium heathland and scrub
(SMM) Melaleuca squamea heathland
(SMP) Melaleuca pustulata scrub
(SMR) Melaleuca squarrosa scrub
(SRE) Eastern riparian scrub
(SRF) Leptospermum with rainforest scrub
(SRH) Rookery halophytic herbland
(SSC) Coastal scrub
(SSK) Scrub complex on King Island
(SSW) Western subalpine scrub
(SSZ) Spray zone coastal complex
(SWR) Western regrowth complex
(SWW) Western wet scrub
(WBR) Eucalyptus brookeriana wet forest
(WDA) Eucalyptus dalrympleana forest
(WDB) Eucalyptus delegatensis forest with broad-leaf shrubs
(WDL) Eucalyptus delegatensis forest over Leptospermum
(WDR) Eucalyptus delegatensis forest over rainforest
(WDU) Eucalyptus delegatensis wet forest (undifferentiated)
(WGK) Eucalyptus globulus King Island forest
(WGL) Eucalyptus globulus wet forest
(WNL) Eucalyptus nitida forest over Leptospermum
(WNR) Eucalyptus nitida forest over rainforest
(WNU) Eucalyptus nitida wet forest (undifferentiated)
(WOB) Eucalyptus obliqua forest with broad-leaf shrubs
(WOL) Eucalyptus obliqua forest over Leptospermum
(WOR) Eucalyptus obliqua forest over rainforest
(WOU) Eucalyptus obliqua wet forest (undifferentiated)
(WRE) Eucalyptus regnans forest
(WSU) Eucalyptus subcrenulata forest and woodland
(WVI) Eucalyptus viminalis wet forest
Legend: Cadastral Parcels

# TASVEG 4.0 Communities within 1000 metres



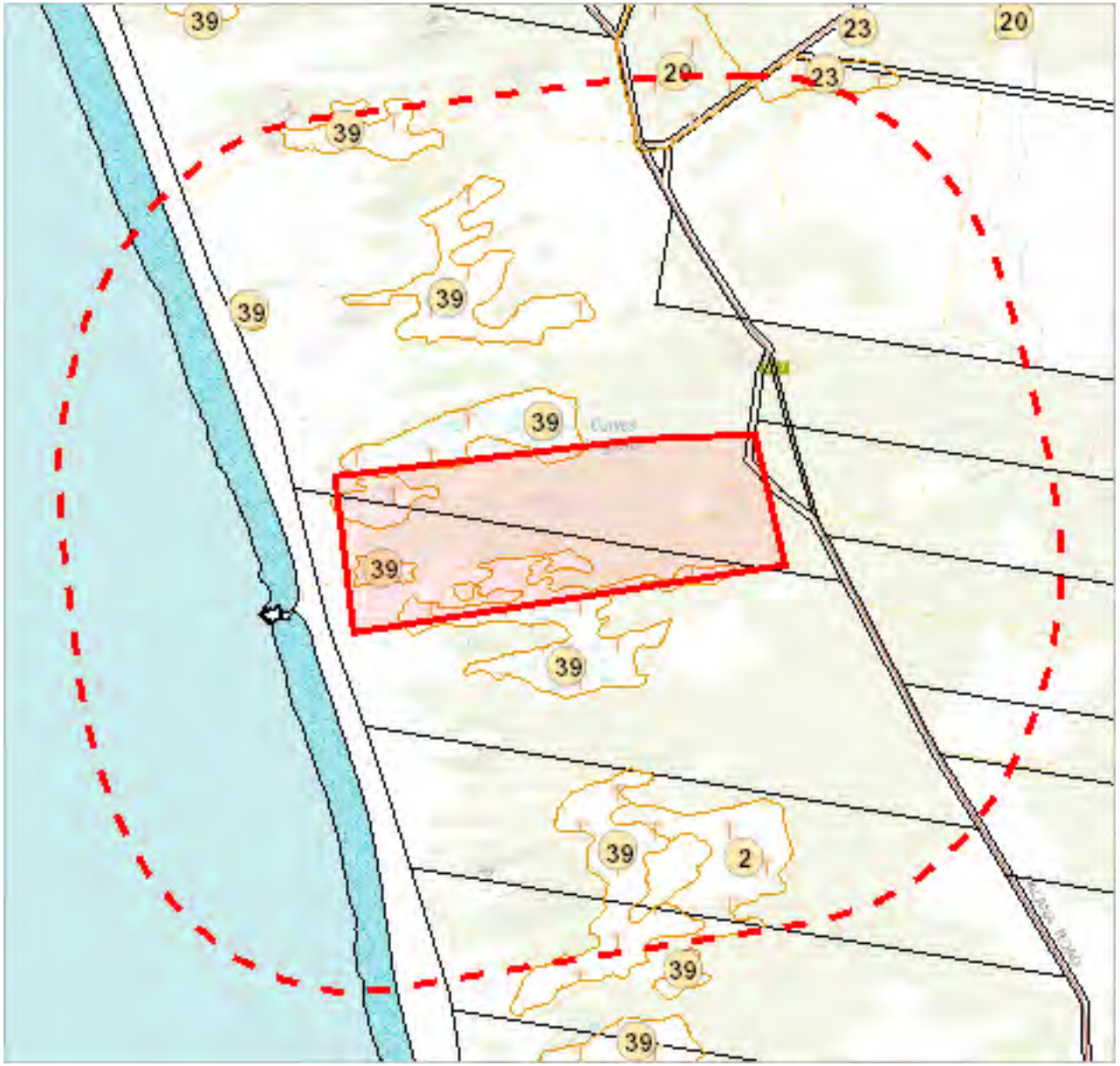
| Code | Community | Canopy Tree |
|---|---|---|
| AHL | (AHL) Lacustrine herbland | |
| DNF | (DNF) Eucalyptus nitida Furneaux forest | |
| DOW | (DOW) Eucalyptus ovata heathy woodland | |
| DVC | (DVC) Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland | |
| FAG | (FAG) Agricultural land | |
| FRG | (FRG) Regenerating cleared land | |
| FUM | (FUM) Extra-urban miscellaneous | |
| GHC | (GHC) Coastal grass and herbfield | |
| NAL | (NAL) Allocasuarina littoralis forest | |
| NAV | (NAV) Allocasuarina verticillata forest | |
| OSM | (OSM) Sand, mud | |
| SAL | (SAL) Acacia longifolia coastal scrub | |
| SCA | (SCA) Coastal scrub on alkaline sands | |
| SLG | (SLG) Leptospermum glaucescens heathland and scrub | |
| SLL | (SLL) Leptospermum lanigerum scrub | |
| SLS | (SLS) Leptospermum scoparium heathland and scrub | EL |
| SLS | (SLS) Leptospermum scoparium heathland and scrub | |

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.
Telephone: (03) 6165 4320
Email: TVMMPSupport@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

# Threatened Communities (TNVC 2020) within 1000 metres



579117, 5579771




575986, 5576792

Please note that some layers may not display at all requested map scales

# Threatened Communities (TNVC 2020) within 1000 metres



Legend: Threatened Communities

- 1 - Alkaline pans
- 2 - Allocasuarina littoralis forest
- 3 - Athrotaxis cupressoides/Nothofagus gunnii short rainforest
- 4 - Athrotaxis cupressoides open woodland
- 5 - Athrotaxis cupressoides rainforest
- 6 - Athrotaxis selaginoides/Nothofagus gunnii short rainforest
- 7 - Athrotaxis selaginoides rainforest
- 8 - Athrotaxis selaginoides subalpine scrub
- 9 - Banksia marginata wet scrub
- 10 - Banksia serrata woodland
- 11 - Callitris rhomboidea forest
- 13 - Cushion moorland
- 14 -Eucalyptus amygdalina forest and woodland on sandstone
- 15 - Eucalyptus amygdalina inland forest and woodland on cainozoic deposits
- 16 - Eucalyptus brookeriana wet forest
- 17 - Eucalyptus globulus dry forest and woodland
- 18 - Eucalyptus globulus King Island forest
- 19 - Eucalyptus morrisbyi forest and woodland
- 20 - Eucalyptus ovata forest and woodland
- 21 - Eucalyptus risdonii forest and woodland
- 22 - Eucalyptus tenuiramis forest and woodland on sediments
- 23 - Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland
- 24 - Eucalyptus viminalis Furneaux forest and woodland
- 25 - Eucalyptus viminalis wet forest
- 26 - Heathland on calcareous substrates
- 27 - Heathland scrub complex at Wingaroo
- 28 - Highland grassy sedgeland
- 29 - Highland Poa grassland
- 30 - Melaleuca ericifolia swamp forest
- 31 - Melaleuca pustulata scrub
- 32 - Notelaea - Pomaderris - Beyeria forest
- 33 - Rainforest fernland
- 34 - Riparian scrub
- 35 - Seabird rookery complex
- 36 - Sphagnum peatland
- 36A - Spray zone coastal complex
- 37 - Subalpine Diplarrena latifolia rushland
- 38 - Subalpine Leptospermum nitidum woodland
- 39 - Wetlands

Legend: Cadastral Parcels

# Threatened Communities (TNVC 2020) within 1000 metres



| Scheduled Community Id | Scheduled Community Name |
|---|---|
| 2 | Allocasuarina littoralis forest |
| 20 | Eucalyptus ovata forest and woodland |
| 23 | Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland |
| 39 | Wetlands |

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.
Telephone: (03) 6165 4320
Email: TVMMPSupport@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

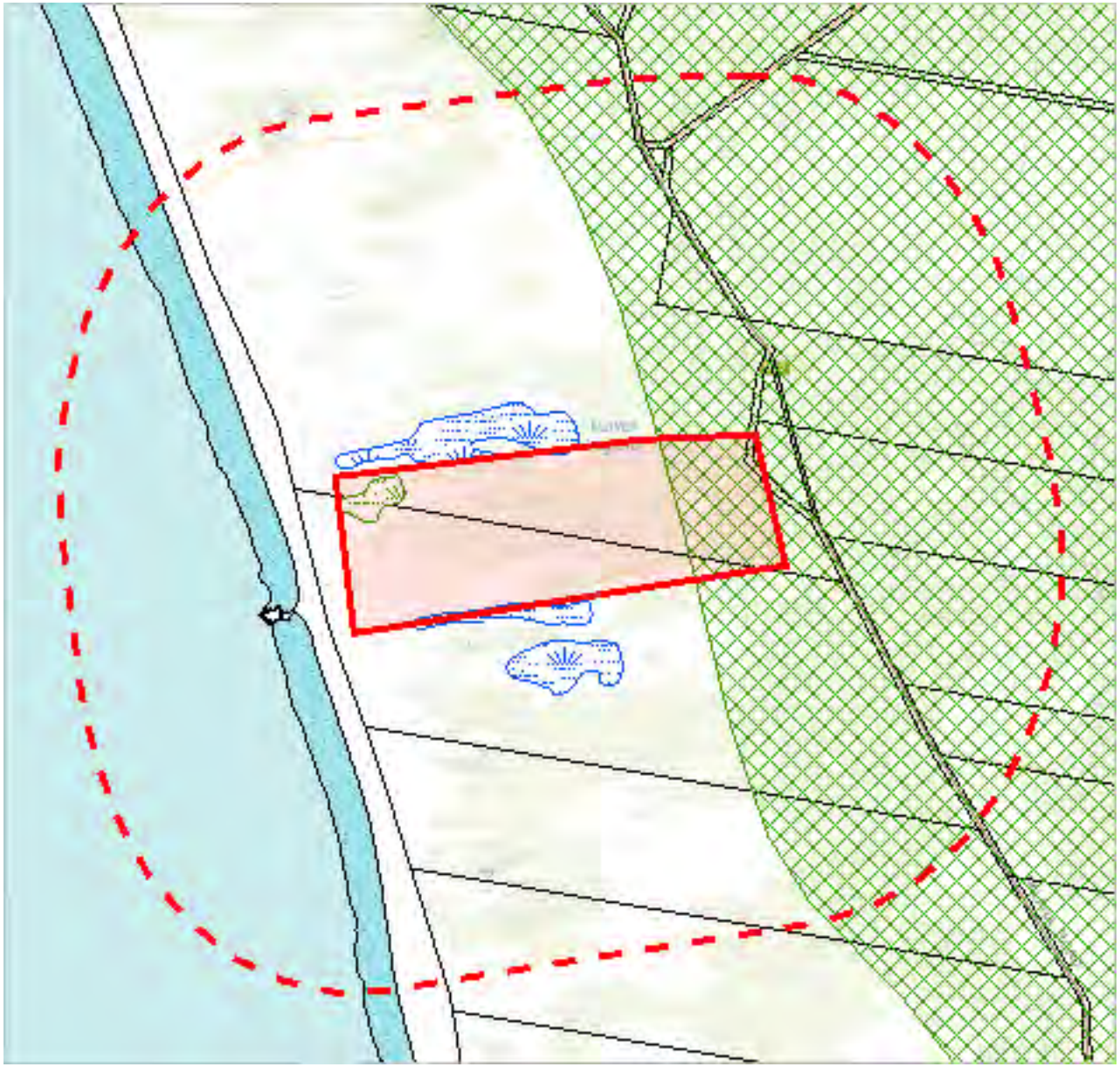
*** No Fire History (All) found within 1000 metres ***

*** No Fire History (Last Burnt) found within 1000 metres ***

# Freshwater Ecosystem Values within 1000 metres



579117, 5579771



575986, 5576792

Please note that some layers may not display at all requested map scales

# Freshwater Ecosystem Values within 1000 metres



Legend: CFEV Rivers - Integrated Conservation Value

Very High | High | Medium | Low | Artificial drainage

Legend: CFEV Waterbodies - Integrated Conservation Value

Very High | High | Medium | Low

Legend: CFEV Wetlands - Integrated Conservation Value

Very High | High | Medium | Low

Legend: CFEV Saltmarshes - Integrated Conservation Value

Very High | High | Medium

Legend: CFEV Estuaries - Integrated Conservation Value

Very High | High | Medium

Legend: CFEV Karst - Integrated Conservation Value

Very High | High | Medium

Legend: CFEV Groundwater Dependent Ecosystems (GDEs)

Legend: Cadastral Parcels

# Freshwater Ecosystem Values within 1000 metres



## Rivers

No River features found within 1000 metres

## Waterbodies

No Waterbody features found within 1000 metres

## Wetlands

| Id | Name | Naturalness | Integrated Conservation Value | Conservation Management Priority | Number of Special Values |
|---|---|---|---|---|---|
| 22122.0 | | High | H | VH | 1.0 |
| 22124.0 | | High | VH | VH | 1.0 |
| 22128.0 | | High | VH | VH | 1.0 |
| 22129.0 | | High | VH | VH | 2.0 |

## Saltmarshes

No Saltmarsh features found within 1000 metres

## Estuaries

No Estuary features found within 1000 metres

## Karst

| Id | Name | Naturalness | Integrated Conservation Value | Conservation Management Priority | Number of Special Values |
|---|---|---|---|---|---|
| 61.0 | Emita - Memana (1) | Medium | H | VH | 0.0 |

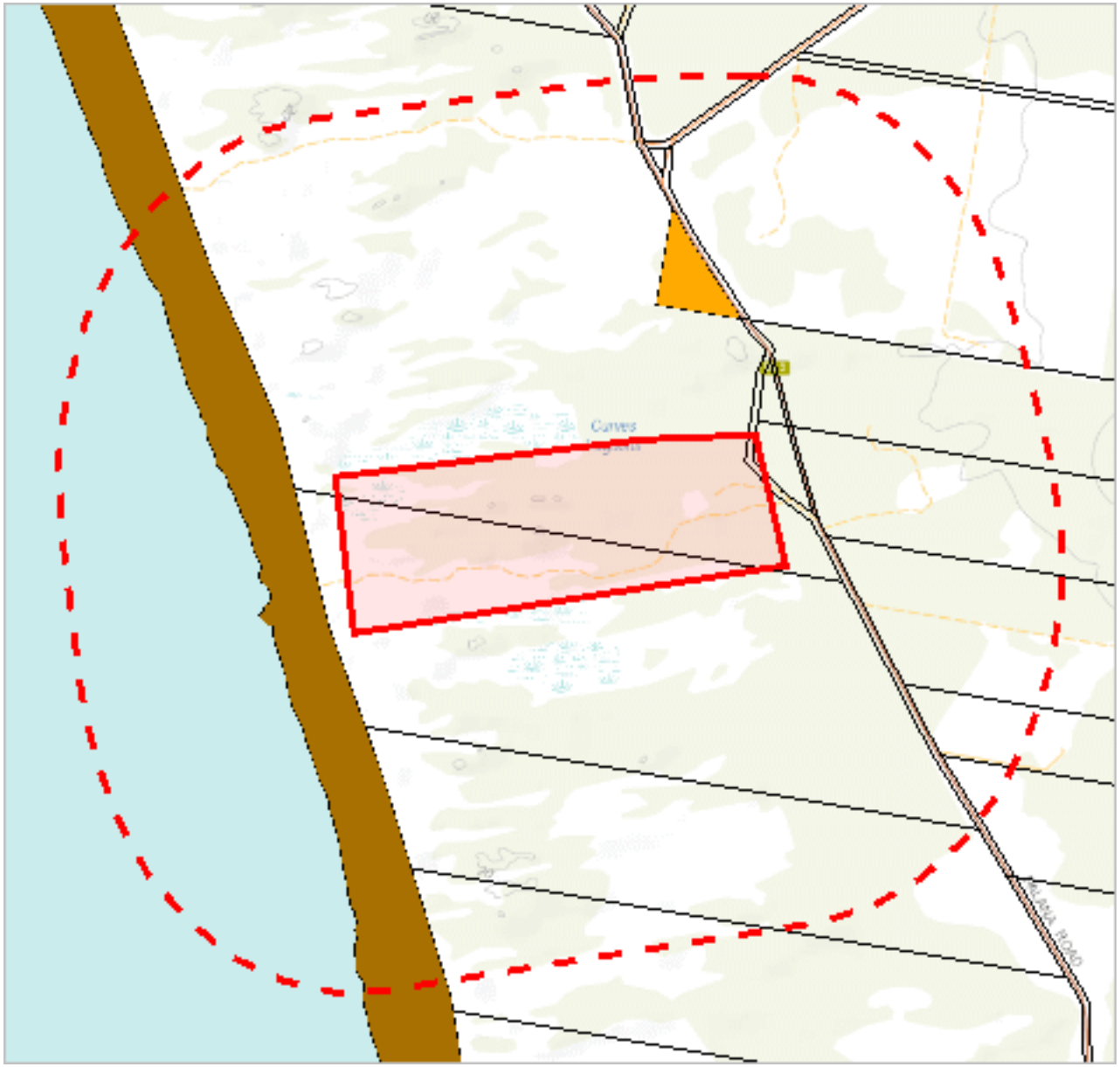
## Groundwater Dependent Ecosystems

No Groundwater Dependent Ecosystem features found within 1000 metres

For more information about Freshwater Ecosystem Values, please contact the Conservation of Freshwater Ecosystem Values Program.
Telephone: (03) 6165 53271
Email: cfev@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000
Website: https://www.nre.tas.gov.au/cfev
For more detailed information on freshwater ecosystems, see the Conservation of Freshwater Ecosystem Values (CFEV) database: https://wrt.tas.gov.au/cfev

# Reserves within 1000 metres

579117, 5579771




575986, 5576792

Please note that some layers may not display at all requested map scales

# Reserves within 1000 metres

Annexure: 16.2.3

Legend: Tasmanian Reserve Estate

- Conservation Area
- Conservation Area and Conservation Covenant (NCA)
- Game Reserve
- Historic Site
- Indigenous Protected Area
- National Park
- Nature Reserve
- Nature Recreation Area
- Regional Reserve
- State Reserve
- Wellington Park
- Public authority land within WHA
- Future Potential Production Forest
- Informal Reserve on Permanent Timber Production Zone Land or STT managed land
- Informal Reserve on other public land
- Roadside Conservation Site
- Conservation Covenant (NCA)
- Private Nature Reserve and Conservation Covenant (NCA)
- Private Sanctuary and Conservation Covenant (NCA)
- Private Sanctuary
- Private land within WHA
- Management Agreement
- Stewardship Agreement
- Part 5 Agreement (Meander Dam Offset)
- Other Private Reserve

Legend: Cadastral Parcels

# Reserves within 1000 metres

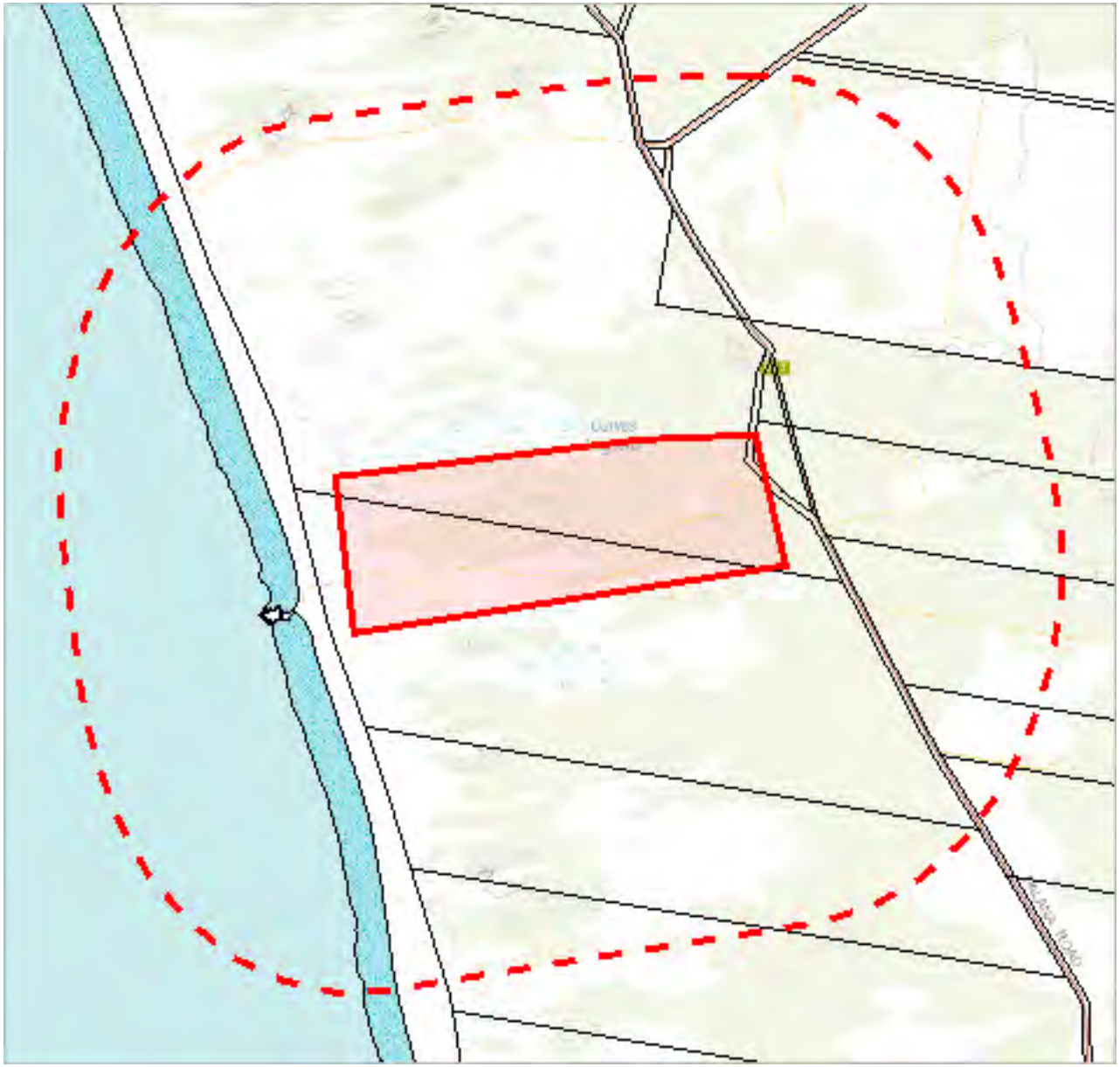


| Name | Classification | Status | Area (HA) |
|---|---|---|---|
| Marshall Beach Conservation Area | Conservation Area | Other Formal Reserve | 0.04421803 |
| Marshall Beach Conservation Area | Conservation Area | Other Formal Reserve | 0.13924016 |
| Marshall Beach Conservation Area | Conservation Area | Other Formal Reserve | 91.37099684 |
| Marshall Beach Conservation Area | Conservation Area | Other Formal Reserve | 120.368685449 |
| | Informal Reserve on other public land | Informal Reserve | 3.12065496 |

For more information about the Tasmanian Reserve Estate, please contact the Natural Values Science Services Branch.
Email: LandManagement.Enquiries@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

# Known biosecurity risks within 1000 meters

579117, 5579771

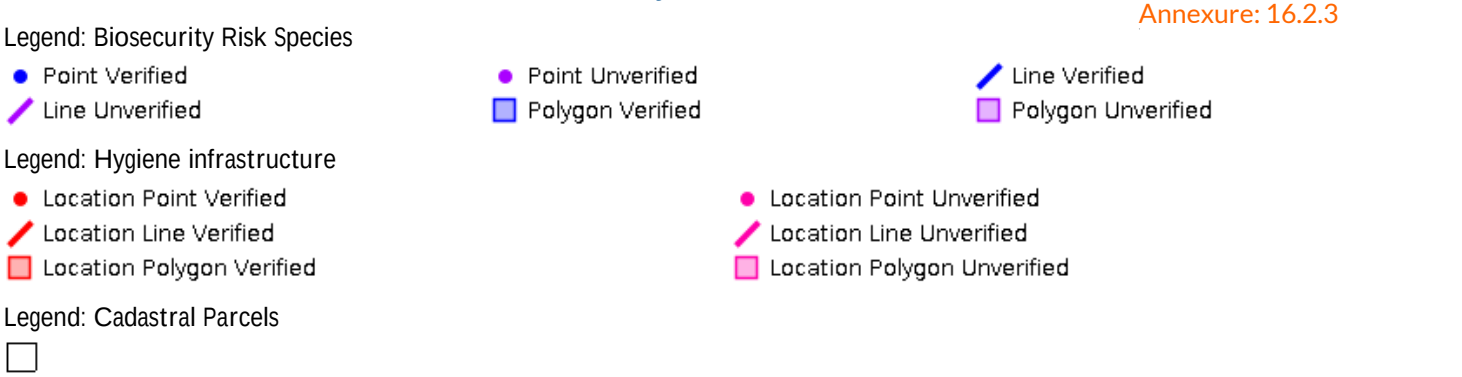


575986, 5576792

Please note that some layers may not display at all requested map scales

# Known biosecurity risks within 1000 meters

Annexure: 16.2.3



# Known biosecurity risks within 1000 meters



## Verified Species of biosecurity risk

No verified species of biosecurity risk found within 1000 metres

## Unverified Species of biosecurity risk

No unverified species of biosecurity risk found within 1000 metres

## Generic Biosecurity Guidelines

The level and type of hygiene protocols required will vary depending on the tenure, activity and land use of the area. In all cases adhere to the land manager's biosecurity (hygiene) protocols. As a minimum always Check / Clean / Dry (Disinfect) clothing and equipment before trips and between sites within a trip as needed https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual

On Reserved land, the more remote, infrequently visited and undisturbed areas require tighter biosecurity measures.

In addition, where susceptible species and communities are known to occur, tighter biosecurity measures are required.

Apply controls relevant to the area / activity:

- Don't access sites infested with pathogen or weed species unless absolutely necessary. If it is necessary to visit, adopt high level hygiene protocols.
- Consider not accessing non-infested sites containing known susceptible species / communities. If it is necessary to visit, adopt high level hygiene protocols.
- Don't undertake activities that might spread pest / pathogen / weed species such as deliberately moving soil or water between areas.
- Modify / restrict activities to reduce the chance of spreading pest / pathogen / weed species e.g. avoid periods when weeds are seeding, avoid clothing/equipment that excessively collects soil and plant material e.g. Velcro, excessive tread on boots.
- Plan routes to visit clean (uninfested) sites prior to dirty (infested) sites. Do not travel through infested areas when moving between sites.
- Minimise the movement of soil, water, plant material and hitchhiking wildlife between areas by using the Check / Clean / Dry (Disinfect when drying is not possible) procedure for all clothing, footwear, equipment, hand tools and vehicles https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene
- Neoprene and netting can take 48 hours to dry, use non-porous gear wherever possible.
- Use walking track boot wash stations where available.
- Keep a hygiene kit in the vehicle that includes a scrubbing brush, boot pick, and disinfectant https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual
- Dispose of all freshwater away from natural water bodies e.g. do not empty water into streams or ponds.
- Dispose of used disinfectant ideally in town though a treatment or septic system. Always keep disinfectant well away from natural water systems.
- Securely contain any high risk pest / pathogen / weed species that must be collected and moved e.g. biological samples.

## Hygiene Infrastructure

No known hygiene infrastructure found within 1000 metres

**ATTACHMENT 3: PROTECTED MATTERS SEARCH TOOL (MNES) REPORT**

# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 19-Sep-2024

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

# Summary



## Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

| | |
|---|---|
| World Heritage Properties: | None |
| National Heritage Places: | None |
| Wetlands of International Importance (Ramsar | None |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Area: | None |
| Listed Threatened Ecological Communities: | 3 |
| Listed Threatened Species: | 53 |
| Listed Migratory Species: | 43 |

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

| | |
|---|---|
| Commonwealth Lands: | None |
| Commonwealth Heritage Places: | None |
| Listed Marine Species: | 79 |
| Whales and Other Cetaceans: | 10 |
| Critical Habitats: | None |
| Commonwealth Reserves Terrestrial: | None |
| Australian Marine Parks: | None |
| Habitat Critical to the Survival of Marine Turtles: | None |

## Extra Information

This part of the report provides information that may also be relevant to the area you have

| | |
|---|---|
| State and Territory Reserves: | 7 |
| Regional Forest Agreements: | 1 |
| Nationally Important Wetlands: | None |
| EPBC Act Referrals: | 1 |
| Key Ecological Features (Marine): | None |
| Biologically Important Areas: | 8 |
| Bioregional Assessments: | None |
| Geological and Bioregional Assessments: | None |

# Details

## Matters of National Environmental Significance

### Listed Threatened Ecological Communities [ Resource Information ]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

| Community Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Giant Kelp Marine Forests of South East Australia | Endangered | Community may occur within area | In buffer area only |
| Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (Eucalyptus ovata / E. brookeriana) | Critically Endangered | Community likely to occur within area | In feature area |
| Tasmanian white gum (Eucalyptus viminalis) wet forest | Critically Endangered | Community likely to occur within area | In feature area |

### Listed Threatened Species [ Resource Information ]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| BIRD | | | |
| Aquila audax fleayi<br>Tasmanian Wedge-tailed Eagle, Wedge-tailed Eagle (Tasmanian) [64435] | Endangered | Breeding likely to occur within area | In feature area |
| Ardenna grisea<br>Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Botaurus poiciloptilus<br>Australasian Bittern [1001] | Endangered | Species or species habitat may occur within area | In feature area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Calidris canutus | | | |
| Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Calidris ferruginea | | | |
| Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area | In feature area |
| Charadrius leschenaultii | | | |
| Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| Diomedea antipodensis | | | |
| Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea antipodensis gibsoni | | | |
| Gibson's Albatross [82270] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea epomophora | | | |
| Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea exulans | | | |
| Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea sanfordi | | | |
| Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Fregetta grallaria grallaria | | | |
| White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| Gallinago hardwickii | | | |
| Latham's Snipe, Japanese Snipe [863] | Vulnerable | Species or species habitat likely to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Halobaena caerulea | | | |
| Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area | In buffer area only |
| Hirundapus caudacutus | | | |
| White-throated Needletail [682] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Lathamus discolor | | | |
| Swift Parrot [744] | Critically Endangered | Species or species habitat likely to occur within area | In feature area |
| Limosa lapponica baueri | | | |
| Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380] | Endangered | Species or species habitat may occur within area | In feature area |
| Macronectes giganteus | | | |
| Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Macronectes halli | | | |
| Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Neophema chrysostoma | | | |
| Blue-winged Parrot [726] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| Numenius madagascariensis | | | |
| Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area | In feature area |
| Pachyptila turtur subantarctica | | | |
| Fairy Prion (southern) [64445] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Pardalotus quadragintus | | | |
| Forty-spotted Pardalote [418] | Endangered | Foraging, feeding or related behaviour may occur within area | In feature area |
| Pterodroma leucoptera leucoptera | | | |
| Gould's Petrel, Australian Gould's Petrel [26033] | Endangered | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Sternula nereis nereis | | | |
| Australian Fairy Tern [82950] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche bulleri | | | |
| Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Thalassarche bulleri platei | | | |
| Northern Buller's Albatross, Pacific Albatross [82273] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Thalassarche carteri | | | |
| Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| Thalassarche cauta | | | |
| Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche chrysostoma | | | |
| Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area | In feature area |
| Thalassarche impavida | | | |
| Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche melanophris | | | |
| Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche salvini | | | |
| Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche steadi | | | |
| White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Thinornis cucullatus cucullatus | | | |
| Eastern Hooded Plover, Eastern Hooded Plover [90381] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Tringa nebularia | | | |
| Common Greenshank, Greenshank [832] | Endangered | Species or species habitat may occur within area | In buffer area only |
| CRUSTACEAN | | | |
| Engaeus martigener | | | |
| Furneaux Burrowing Crayfish [67220] | Endangered | Species or species habitat may occur within area | In feature area |
| FISH | | | |
| Galaxiella pusilla | | | |
| Eastern Dwarf Galaxias, Dwarf Galaxias [56790] | Endangered | Species or species habitat likely to occur within area | In feature area |
| Seriolella brama | | | |
| Blue Warehou [69374] | Conservation Dependent | Species or species habitat known to occur within area | In feature area |
| FROG | | | |
| Litoria raniformis | | | |
| Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828] | Vulnerable | Species or species habitat may occur within area | In feature area |
| MAMMAL | | | |
| Balaenoptera musculus | | | |
| Blue Whale [36] | Endangered | Species or species habitat likely to occur within area | In feature area |
| Eubalaena australis | | | |
| Southern Right Whale [40] | Endangered | Species or species habitat known to occur within area | In feature area |
| Pseudomys novaehollandiae | | | |
| New Holland Mouse, Pookila [96] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| PLANT | | | |
| Caladenia caudata | | | |
| Tailed Spider-orchid [17067] | Vulnerable | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Glycine latrobeana<br>Clover Glycine, Purple Clover [13910] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Pterostylis cucullata<br>Leafy Greenhood [15459] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Senecio psilocarpus<br>Swamp Fireweed, Smooth-fruited Groundsel [64976] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| REPTILE | | | |
| Caretta caretta<br>Loggerhead Turtle [1763] | Endangered | Breeding likely to occur within area | In feature area |
| Chelonia mydas<br>Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Dermochelys coriacea<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area | In feature area |
| SHARK | | | |
| Carcharodon carcharias<br>White Shark, Great White Shark [64470] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Galeorhinus galeus<br>School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453] | Conservation Dependent | Species or species habitat may occur within area | In buffer area only |

## Listed Migratory Species [ Resource Information ]

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Migratory Marine Birds | | | |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area | In feature area |
| Ardenna carneipes<br>Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Foraging, feeding or related behaviour likely to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Ardenna grisea | | | |
| Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Ardenna tenuirostris | | | |
| Short-tailed Shearwater [82652] | | Breeding known to occur within area | In buffer area only |
| Diomedea antipodensis | | | |
| Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea epomophora | | | |
| Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea exulans | | | |
| Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea sanfordi | | | |
| Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Macronectes giganteus | | | |
| Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Macronectes halli | | | |
| Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Sternula albifrons | | | |
| Little Tern [82849] | | Breeding known to occur within area | In feature area |
| Thalassarche bulleri | | | |
| Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Thalassarche carteri | | | |
| Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| Thalassarche cauta | | | |
| Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche chrysostoma | | | |
| Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area | In feature area |
| Thalassarche impavida | | | |
| Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche melanophris | | | |
| Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche salvini | | | |
| Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche steadi | | | |
| White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area | In feature area |
| Migratory Marine Species | | | |
| Balaenoptera musculus | | | |
| Blue Whale [36] | Endangered | Species or species habitat likely to occur within area | In feature area |
| Caperea marginata | | | |
| Pygmy Right Whale [39] | | Foraging, feeding or related behaviour may occur within area | In feature area |
| Carcharodon carcharias | | | |
| White Shark, Great White Shark [64470] | Vulnerable | Species or species habitat known to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Caretta caretta<br>Loggerhead Turtle [1763] | Endangered | Breeding likely to occur within area | In feature area |
| Chelonia mydas<br>Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Dermochelys coriacea<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area | In feature area |
| Eubalaena australis as Balaena glacialis australis<br>Southern Right Whale [40] | Endangered | Species or species habitat known to occur within area | In feature area |
| Lagenorhynchus obscurus<br>Dusky Dolphin [43] | | Species or species habitat may occur within area | In feature area |
| Lamna nasus<br>Porbeagle, Mackerel Shark [83288] | | Species or species habitat likely to occur within area | In feature area |
| Megaptera novaeangliae<br>Humpback Whale [38] | | Species or species habitat known to occur within area | In feature area |
| Orcinus orca<br>Killer Whale, Orca [46] | | Species or species habitat likely to occur within area | In feature area |
| **Migratory Terrestrial Species** | | | |
| Hirundapus caudacutus<br>White-throated Needletail [682] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Myiagra cyanoleuca<br>Satin Flycatcher [612] | | Species or species habitat likely to occur within area | In feature area |
| **Migratory Wetlands Species** | | | |
| Actitis hypoleucos<br>Common Sandpiper [59309] | | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Calidris acuminata | | | |
| Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Calidris alba | | | |
| Sanderling [875] | | Species or species habitat likely to occur within area | In feature area |
| Calidris canutus | | | |
| Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Calidris ferruginea | | | |
| Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area | In feature area |
| Calidris melanotos | | | |
| Pectoral Sandpiper [858] | | Species or species habitat may occur within area | In feature area |
| Charadrius leschenaultii | | | |
| Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| Gallinago hardwickii | | | |
| Latham's Snipe, Japanese Snipe [863] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| Limosa lapponica | | | |
| Bar-tailed Godwit [844] | | Species or species habitat may occur within area | In feature area |
| Numenius madagascariensis | | | |
| Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area | In feature area |
| Tringa nebularia | | | |
| Common Greenshank, Greenshank [832] | Endangered | Species or species habitat may occur within area | In buffer area only |

| Listed Marine Species | | | [ Resource Information ] |
|---|---|---|---|
| Scientific Name | Threatened Category | Presence Text | Buffer Status |
| Bird | | | |
| Actitis hypoleucos | | | |
| Common Sandpiper [59309] | | Species or species habitat may occur within area | In feature area |
| Apus pacificus | | | |
| Fork-tailed Swift [678] | | Species or species habitat likely to occur within area overfly marine area | In feature area |
| Ardenna carneipes as Puffinus carneipes | | | |
| Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Ardenna grisea as Puffinus griseus | | | |
| Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Ardenna tenuirostris as Puffinus tenuirostris | | | |
| Short-tailed Shearwater [82652] | | Breeding known to occur within area | In buffer area only |
| Bubulcus ibis as Ardea ibis | | | |
| Cattle Egret [66521] | | Species or species habitat may occur within area overfly marine area | In feature area |
| Calidris acuminata | | | |
| Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Calidris alba | | | |
| Sanderling [875] | | Species or species habitat likely to occur within area | In feature area |
| Calidris canutus | | | |
| Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area overfly marine area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Calidris ferruginea | | | |
| Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area overfly marine area | In feature area |
| Calidris melanotos | | | |
| Pectoral Sandpiper [858] | | Species or species habitat may occur within area overfly marine area | In feature area |
| Charadrius leschenaultii | | | |
| Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| Diomedea antipodensis | | | |
| Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea antipodensis gibsoni as Diomedea gibsoni | | | |
| Gibson's Albatross [82270] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea epomophora | | | |
| Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea exulans | | | |
| Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Diomedea sanfordi | | | |
| Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Eudyptula minor | | | |
| Little Penguin [1085] | | Breeding known to occur within area | In buffer area only |
| Gallinago hardwickii | | | |
| Latham's Snipe, Japanese Snipe [863] | Vulnerable | Species or species habitat likely to occur within area overfly marine area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Haliaeetus leucogaster<br>White-bellied Sea-Eagle [943] | | Breeding known to occur within area | In feature area |
| Halobaena caerulea<br>Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area | In buffer area only |
| Hirundapus caudacutus<br>White-throated Needletail [682] | Vulnerable | Species or species habitat may occur within area overfly marine area | In feature area |
| Larus pacificus<br>Pacific Gull [811] | | Breeding known to occur within area | In buffer area only |
| Lathamus discolor<br>Swift Parrot [744] | Critically Endangered | Species or species habitat likely to occur within area overfly marine area | In feature area |
| Limosa lapponica<br>Bar-tailed Godwit [844] | | Species or species habitat may occur within area | In feature area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Myiagra cyanoleuca<br>Satin Flycatcher [612] | | Species or species habitat likely to occur within area overfly marine area | In feature area |
| Neophema chrysostoma<br>Blue-winged Parrot [726] | Vulnerable | Species or species habitat likely to occur within area overfly marine area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Numenius madagascariensis | | | |
| Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area | In feature area |
| Pachyptila turtur | | | |
| Fairy Prion [1066] | | Species or species habitat known to occur within area | In feature area |
| Stercorarius antarcticus as Catharacta skua | | | |
| Brown Skua [85039] | | Species or species habitat may occur within area | In buffer area only |
| Sterna striata | | | |
| White-fronted Tern [799] | | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Sternula albifrons as Sterna albifrons | | | |
| Little Tern [82849] | | Breeding known to occur within area | In feature area |
| Thalassarche bulleri | | | |
| Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Thalassarche bulleri platei as Thalassarche sp. nov. | | | |
| Northern Buller's Albatross, Pacific Albatross [82273] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Thalassarche carteri | | | |
| Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| Thalassarche cauta | | | |
| Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche chrysostoma | | | |
| Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area | In feature area |
| Thalassarche impavida | | | |
| Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Thalassarche melanophris | | | |
| Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche salvini | | | |
| Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche steadi | | | |
| White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area | In feature area |
| Thinornis cucullatus as Thinornis rubricollis | | | |
| Hooded Plover, Hooded Dotterel [87735] | | Species or species habitat known to occur within area overfly marine area | In feature area |
| Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis | | | |
| Eastern Hooded Plover, Eastern Hooded Plover [90381] | Vulnerable | Species or species habitat known to occur within area overfly marine area | In feature area |
| Tringa nebularia | | | |
| Common Greenshank, Greenshank [832] | Endangered | Species or species habitat may occur within area overfly marine area | In buffer area only |
| Fish | | | |
| Heraldia nocturna | | | |
| Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227] | | Species or species habitat may occur within area | In feature area |
| Hippocampus abdominalis | | | |
| Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233] | | Species or species habitat may occur within area | In feature area |
| Hippocampus breviceps | | | |
| Short-head Seahorse, Short-snouted Seahorse [66235] | | Species or species habitat may occur within area | In feature area |
| Hippocampus minotaur | | | |
| Bullneck Seahorse [66705] | | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Histiogamphelus briggsii | | | |
| Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242] | | Species or species habitat may occur within area | In feature area |
| Histiogamphelus cristatus | | | |
| Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243] | | Species or species habitat may occur within area | In feature area |
| Hypselognathus rostratus | | | |
| Knifesnout Pipefish, Knife-snouted Pipefish [66245] | | Species or species habitat may occur within area | In feature area |
| Kaupus costatus | | | |
| Deepbody Pipefish, Deep-bodied Pipefish [66246] | | Species or species habitat may occur within area | In feature area |
| Kimblaeus bassensis | | | |
| Trawl Pipefish, Bass Strait Pipefish [66247] | | Species or species habitat may occur within area | In feature area |
| Leptoichthys fistularius | | | |
| Brushtail Pipefish [66248] | | Species or species habitat may occur within area | In feature area |
| Lissocampus caudalis | | | |
| Australian Smooth Pipefish, Smooth Pipefish [66249] | | Species or species habitat may occur within area | In feature area |
| Lissocampus runa | | | |
| Javelin Pipefish [66251] | | Species or species habitat may occur within area | In feature area |
| Maroubra perserrata | | | |
| Sawtooth Pipefish [66252] | | Species or species habitat may occur within area | In feature area |
| Mitotichthys semistriatus | | | |
| Halfbanded Pipefish [66261] | | Species or species habitat may occur within area | In feature area |
| Mitotichthys tuckeri | | | |
| Tucker's Pipefish [66262] | | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Notiocampus ruber<br>Red Pipefish [66265] | | Species or species habitat may occur within area | In feature area |
| Phycodurus eques<br>Leafy Seadragon [66267] | | Species or species habitat may occur within area | In feature area |
| Phyllopteryx taeniolatus<br>Common Seadragon, Weedy Seadragon [66268] | | Species or species habitat may occur within area | In feature area |
| Pugnaso curtirostris<br>Pugnose Pipefish, Pug-nosed Pipefish [66269] | | Species or species habitat may occur within area | In feature area |
| Solegnathus robustus<br>Robust Pipehorse, Robust Spiny Pipehorse [66274] | | Species or species habitat may occur within area | In feature area |
| Solegnathus spinosissimus<br>Spiny Pipehorse, Australian Spiny Pipehorse [66275] | | Species or species habitat may occur within area | In feature area |
| Stigmatopora argus<br>Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276] | | Species or species habitat may occur within area | In feature area |
| Stigmatopora nigra<br>Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277] | | Species or species habitat may occur within area | In feature area |
| Stipecampus cristatus<br>Ringback Pipefish, Ring-backed Pipefish [66278] | | Species or species habitat may occur within area | In feature area |
| Urocampus carinirostris<br>Hairy Pipefish [66282] | | Species or species habitat may occur within area | In feature area |
| Vanacampus margaritifer<br>Mother-of-pearl Pipefish [66283] | | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Vanacampus phillipi | | | |
| Port Phillip Pipefish [66284] | | Species or species habitat may occur within area | In feature area |
| Vanacampus poecilolaemus | | | |
| Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285] | | Species or species habitat may occur within area | In feature area |
| **Mammal** | | | |
| Arctocephalus forsteri | | | |
| Long-nosed Fur-seal, New Zealand Fur-seal [20] | | Species or species habitat may occur within area | In feature area |
| Arctocephalus pusillus | | | |
| Australian Fur-seal, Australo-African Fur-seal [21] | | Species or species habitat may occur within area | In feature area |
| **Reptile** | | | |
| Caretta caretta | | | |
| Loggerhead Turtle [1763] | Endangered | Breeding likely to occur within area | In feature area |
| Chelonia mydas | | | |
| Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Dermochelys coriacea | | | |
| Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area | In feature area |

## Whales and Other Cetaceans [ Resource Information ]

| Current Scientific Name | Status | Type of Presence | Buffer Status |
|---|---|---|---|
| **Mammal** | | | |
| Balaenoptera acutorostrata | | | |
| Minke Whale [33] | | Species or species habitat may occur within area | In feature area |
| Balaenoptera musculus | | | |
| Blue Whale [36] | Endangered | Species or species habitat likely to occur within area | In feature area |
| Caperea marginata | | | |
| Pygmy Right Whale [39] | | Foraging, feeding or related behaviour may occur within area | In feature area |

| Current Scientific Name | Status | Type of Presence | Buffer Status |
|---|---|---|---|
| Delphinus delphis | | | |
| Common Dolphin, Short-beaked Common Dolphin [60] | | Species or species habitat may occur within area | In feature area |
| Eubalaena australis | | | |
| Southern Right Whale [40] | Endangered | Species or species habitat known to occur within area | In feature area |
| Grampus griseus | | | |
| Risso's Dolphin, Grampus [64] | | Species or species habitat may occur within area | In feature area |
| Lagenorhynchus obscurus | | | |
| Dusky Dolphin [43] | | Species or species habitat may occur within area | In feature area |
| Megaptera novaeangliae | | | |
| Humpback Whale [38] | | Species or species habitat known to occur within area | In feature area |
| Orcinus orca | | | |
| Killer Whale, Orca [46] | | Species or species habitat likely to occur within area | In feature area |
| Tursiops truncatus s. str. | | | |
| Bottlenose Dolphin [68417] | | Species or species habitat may occur within area | In feature area |



## Extra Information

| State and Territory Reserves | | | [ Resource Information ] |
|---|---|---|---|
| Protected Area Name | Reserve Type | State | Buffer Status |
| Emita | Nature Recreation Area | TAS | In buffer area only |
| Lughrata | Conservation Covenant | TAS | In buffer area only |
| Marriott Reef | Conservation Area | TAS | In buffer area only |
| Marshall Beach | Conservation Area | TAS | In feature area |
| Mount Tanner | Nature Recreation Area | TAS | In buffer area only |
| Reedy Lagoon | Private Nature Reserve | TAS | In buffer area only |
| Wingaroo | Nature Reserve | TAS | In buffer area only |

## Regional Forest Agreements [ Resource Information ]



Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

| RFA Name | State | Buffer Status |
|---|---|---|
| Tasmania RFA | Tasmania | In feature area |

## EPBC Act Referrals [ Resource Information ]

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|---|---|---|---|---|
| Not controlled action | | | | |
| Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia | 2015/7522 | Not Controlled Action | Completed | In feature area |

## Biologically Important Areas [ Resource Information ]

| Scientific Name | Behaviour | Presence | Buffer Status |
|---|---|---|---|
| Seabirds | | | |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | Breeding | Known to occur | In buffer area only |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | Foraging | Known to occur | In feature area |
| Eudyptula minor<br>Little Penguin [1085] | Foraging | Known to occur | In buffer area only |
| Pelagodroma marina<br>White-faced Storm-petrel [1016] | Foraging | Known to occur | In feature area |
| Pelecanoides urinatrix<br>Common Diving-petrel [1018] | Foraging | Known to occur | In feature area |
| Phalacrocorax fuscescens<br>Black-faced Cormorant [59660] | Foraging | Known to occur | In feature area |
| Thalassarche cauta cauta<br>Shy Albatross [82345] | Foraging likely | Likely to occur | In feature area |
| Whales | | | |
| Balaenoptera musculus brevicauda<br>Pygmy Blue Whale [81317] | Foraging | Likely to be present | In feature area |

# Caveat

## 1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

## 2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

## 3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

## 4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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**ATTACHMENT 4: MATTERS OF NATIONAL SIGNIFICANCE - OVERVIEW ASSESSMENT**

**ATTACHMENT 4**

**Overview Assessment of MNES and Other EPBC Act Protected Matters**

| MNES (and other matters protected by the Act) | Description of MNES identified in PMST Report | Potential or Likely Significant Impact | Comments |
|---|---|---|---|
| **World Heritage Properties** | | | |
| None | Nil identified in PMST report | No | None identified. |
| **National Heritage Places** | | | |
| None | Nil identified in PMST report | No | None identified |
| **Wetlands of International Importance (Ramsar)** | | | |
| None | Nil identified in PMST report | No | None identified. |
| **Great Barrier Reef Marine Park** | | | |
| None | Nil identified in PMST report | No | None identified. |
| **Commonwealth Marine Area** | | | |
| None | Nil identified in PMST report | No | None identified. |
| **Listed Threatened Ecological Communities** | | | |
| 3 | ▪ Tasmanian Forests and Woodlands dominated by black gum or Brooker's gum (*Eucalyptus ovata / E. brookeriana*)<br>▪ Tasmanian white gum (*Eucalyptus viminalis*) wet forest.<br>▪ Giant Kelp Marine Forests of South East Australia.<br>▪ Lowland Native Grasslands of Tasmania (not identified in the PMST but is considered here given the presence of a TASVEG potential analogue - Coastal grassland and herbfield (TASVEG – Code GCH) | No | None of the 3 PMST Report identified ecological communities are present in or are adjacent to the Survey Area or could be affected (directly or indirectly) by the Activity.<br>No other Listed Threatened Ecological Communities are present in the Survey Area, are adjacent to the Survey Area or could be affected (directly or indirectly) by the Activity.<br>The *Lowland Native Grasslands of Tasmania* ecological community was not identified in the PMST but is considered here given the presence of a TASVEG potential analogue - Coastal grassland and herbfield (TASVEG – Code GCH).<br>In this case, the GCH<br>(1) contains *Poa labillardierei* at less than 50% of the native perennial tussock cover (it is 0 to 20%), and/or<br>(2) Patch size is less than 1 hectare, and/or<br>(3) Weeds (perennial) make up 20% or more than the total ground cover of the patch<br>which excludes it from *the Lowland Native Grasslands of Tasmania* ecological community listed on the EPBC Act |

**Listed Threatened Species**

53

The following species were identified in the PMST Report. Those marked by the blue highlight were specifically considered in more detail, and specifically in the field assessments, as habitat potentially suitable for their occupation and persistence may be present.

Further comments for those highlighted species are provided in **Attachment 5.**

| Scientific Name | Common Name | Class |
|---|---|---|
| *Seriolella brama* | Blue Warehou | Fish |
| *Galeorhinus galeus* | School Shark | Shark |
| *Numenius madagascariensis* | Eastern Curlew | Bird |
| *Lathamus discolor* | Swift Parrot | Bird |
| *Calidris ferruginea* | Curlew Sandpiper | Bird |
| *Balaenoptera musculus* | Blue Whale | Mammal |
| *Pardalotus quadragintus* | Forty-spotted Pardalote | Bird |
| *Thalassarche chrysostoma* | Grey-headed Albatross | Bird |
| *Tringa nebularia* | Common Greenshank | Bird |
| *Macronectes giganteus* | Southern Giant-Petrel | Bird |
| *Limosa lapponica baueri* | Nunivak Bar-tailed Godwit | Bird |
| *Caretta caretta* | Loggerhead Turtle | Reptile |
| *Dermochelys coriacea* | Leatherback Turtle | Reptile |
| *Galaxiella pusilla* | Eastern Dwarf Galaxias | Fish |
| *Eubalaena australis* | Southern Right Whale | Mammal |
| *Pterodroma leucoptera leucoptera* | Gould's Petrel | Bird |
| *Engaeus martigener* | Furneaux Burrowing Crayfish | Crustacean |
| *Thalassarche cauta* | Shy Albatross | Bird |
| *Botaurus poiciloptilus* | Australasian Bittern | Bird |
| *Diomedea sanfordi* | Northern Royal Albatross | Bird |
| *Aquila audax fleayi* | Wedge-tailed Eagle | Bird |
| *Pachyptila turtur subantarctica* | Fairy Prion (southern) | Bird |
| *Thinornis cucullatus cucullatus* | Eastern Hooded Plover | Bird |
| *Thalassarche melanophris* | Black-browed Albatross | Bird |
| *Glycine latrobeana* | Clover Glycine, Purple Clover | Plant |
| *Senecio psilocarpus* | Swamp Fireweed | Plant |
| *Carcharodon carcharias* | Great White Shark | Shark |
| *Pterostylis cucullata* | Leafy Greenhood | Plant |
| *Macronectes halli* | Northern Giant Petrel | Bird |
| *Litoria raniformis* | Green and Golden Frog | Frog |
| *Hirundapus caudacutus* | White-throated Needletail | Bird |
| *Chelonia mydas* | Green Turtle | Reptile |
| *Halobaena caerulea* | Blue Petrel | Bird |

**Yes, further assessment is required for some species** (those highlighted in blue)**.**

**See section *C.3.1 Overview of listed species in Survey Area***

Species considered were those where there are recorded locations nearby, such as at Marshall Bay (**Figure 5**), or there is likely to be suitable habitat present at least in or near the Survey Area.

Most listed species are of no relevance to the Activity because they are:

(1) highly specialised in their habitat requirements which are absent from the Survey Area (e.g. Furneaux burrowing crayfish), and/or are

(2) marine and/or terrestrial migratory (e.g. albatross species, fairy prion) where the Activity will not affect them nor their habitat, and/or are

(3) inhabitants of large wetland systems (e.g., Australasian bittern), or the tidal and aquatic marine environment neither of which are in or adjacent to the Survey Areat, and/or are

(4) shark, whale, semi-aquatic reptile (turtles), estuarine/mudflat, and fully marine(pelagic)/migratory species that are not to be affected by the Activity.

| | | | | | |
|---|---|---|---|---|---|
| | *Thalassarche carteri* | Indian Yellow-nosed Albatross | Bird | | |
| | *Thalassarche steadi* | White-capped Albatross | Bird | | |
| | *Thalassarche salvini* | Salvin's Albatross | Bird | | |
| | *Thalassarche bulleri* | Buller's Albatross | Bird | | |
| | *Thalassarche bulleri platei* | Northern Buller's Albatross | Bird | | |
| | *Neophema chrysostoma* | Blue-winged Parrot | Bird | | |
| | *Gallinago hardwickii* | Latham's Snipe | Bird | | |
| | *Charadrius leschenaultii* | Greater Sand Plover | Bird | | |
| | *Calidris acuminata* | Sharp-tailed Sandpiper | Bird | | |
| | *Caladenia caudata* | Tailed Spider-orchid | Plant | | |
| | *Diomedea antipodensis gibsoni* | Gibson's Albatross | Bird | | |
| | *Pseudomys novaehollandiae* | New Holland Mouse | Mammal | | |
| | *Ardenna grisea* | Sooty Shearwater | Bird | | |
| | *Diomedea exulans* | Wandering Albatross | Bird | | |
| | *Diomedea epomophora* | Southern Royal Albatross | Bird | | |
| | *Fregetta grallaria grallaria* | White-bellied Storm-Petrel | Bird | | |
| | *Calidris canutus* | Red Knot, Knot | Bird | | |
| | *Thalassarche impavida* | Campbell Albatross | Bird | | |
| | *Diomedea antipodensis* | Antipodean Albatross | Bird | | |
| | *Sternula nereis nereis* | Australian Fairy Tern | Bird | | |
| **Listed Migratory Species** | | | | | |
| 43 | The following species were identified in the PMST Report. Those marked by blue highlights were specifically considered in the field assessments as habitat potentially suitable for their occupation and persistence may be present.<br>Comments for those highlighted species are also provided in **Attachment 5.** | | | No | The listed species either have –<br>• highly specialised habitat requirements which are absent from the Survey Area,<br>• are marine (including estuarine based and fully aquatic) and/or terrestrial migratory, and/or are<br>• species of large wetland systems which are absent from the Survey Area.<br>The action is unlikely to cause any impact to most of these species or their habitat. |
| | **Scientific Name** | **Common Name** | **Class** | | |
| | *Caperea marginata* | Pygmy Right Whale | Mammal | | |
| | *Numenius madagascariensis* | Eastern Curlew | Bird | | |
| | *Balaenoptera musculus* | Blue Whale | Mammal | | |
| | *Megaptera novaeangliae* | Humpback Whale | Mammal | | |
| | *Thalassarche melanophris* | Black-browed Albatross | Bird | | |
| | *Thalassarche chrysostoma* | Grey-headed Albatross | Bird | | |
| | *Carcharodon carcharias* | White Shark, Great White Shark | Shark | | |
| | *Tringa nebularia* | Common Greenshank | Bird | | |
| | *Actitis hypoleucos* | Common Sandpiper | Bird | | |
| | *Macronectes giganteus* | Southern Giant-Petrel | Bird | | |
| | *Macronectes halli* | Northern Giant Petrel | Bird | | |
| | *Apus pacificus* | Fork-tailed Swift | Bird | | |
| | *Hirundapus caudacutus* | White-throated Needletail | Bird | | |

| | | | | | |
|---|---|---|---|---|---|
| | *Chelonia mydas* | Green Turtle | Reptile | | |
| | *Caretta caretta* | Loggerhead Turtle | Reptile | | |
| | *Dermochelys coriacea* | Leatherback Turtle | Reptile | | |
| | *Lamna nasus* | Porbeagle, Mackerel Shark | Shark | | |
| | *Thalassarche carteri* | Indian Yellow-nosed Albatross | Bird | | |
| | *Thalassarche steadi* | White-capped Albatross | Bird | | |
| | *Thalassarche salvini* | Salvin's Albatross | Bird | | |
| | *Thalassarche bulleri* | Buller's Albatross | Bird | | |
| | *Sternula albifrons* | Little Tern | Bird | | |
| | *Myiagra cyanoleuca* | Satin Flycatcher | Bird | | |
| | *Gallinago hardwickii* | Latham's Snipe | Bird | | |
| | *Charadrius leschenaultii* | Greater Sand Plover | Bird | | |
| | *Calidris acuminata* | Sharp-tailed Sandpiper | Bird | | |
| | *Orcinus orca* | Killer Whale, Orca | Mammal | | |
| | *Eubalaena australis* | Southern Right Whale | Mammal | | |
| | *Calidris alba* | Sanderling | Bird | | |
| | *Lagenorhynchus obscurus* | Dusky Dolphin | Mammal | | |
| | *Limosa lapponica* | Bar-tailed Godwit | Bird | | |
| | *Ardenna tenuirostris* | Short-tailed Shearwater | Bird | | |
| | *Thalassarche cauta* | Shy Albatross | Bird | | |
| | *Ardenna grisea* | Sooty Shearwater | Bird | | |
| | *Diomedea exulans* | Wandering Albatross | Bird | | |
| | *Diomedea epomophora* | Southern Royal Albatross | Bird | | |
| | *Calidris melanotos* | Pectoral Sandpiper | Bird | | |
| | *Calidris ferruginea* | Curlew Sandpiper | Bird | | |
| | *Ardenna carneipes* | Flesh-footed Shearwater | Bird | | |
| | *Calidris canutus* | Red Knot, Knot | Bird | | |
| | *Diomedea sanfordi* | Northern Royal Albatross | Bird | | |
| | *Thalassarche impavida* | Campbell Albatross | Bird | | |
| | *Diomedea antipodensis* | Antipodean Albatross | Bird | | |
| **Commonwealth Land** | | | | | |
| None | Nil identified in PMST report | | | No | None identified. |
| **Commonwealth Heritage Places** | | | | | |
| None | Nil identified in PMST report | | | No | None identified. |

**Listed Marine Species**

79

The following species were identified in the PMST Report:

| Scientific Name | Common Name | Class |
|---|---|---|
| *Stigmatopora argus* | Spotted Pipefish, Gulf Pipefish | Fish |
| *Maroubra perserrata* | Sawtooth Pipefish | Fish |
| *Sterna striata* | White-fronted Tern | Bird |
| *Stigmatopora nigra* | Widebody Pipefish | Fish |
| *Numenius madagascariensis* | Eastern Curlew | Bird |
| *Thinornis cucullatus cucullatus* | Eastern Hooded Plover | Bird |
| *Kimblaeus bassensis* | Trawl Pipefish | Fish |
| *Kaupus costatus* | Deepbody Pipefish | Fish |
| *Thalassarche melanophris* | Black-browed Albatross | Bird |
| *Hippocampus minotaur* | Bullneck Seahorse | Fish |
| *Thalassarche chrysostoma* | Grey-headed Albatross | Bird |
| *Stercorarius antarcticus* | Brown Skua | Bird |
| *Tringa nebularia* | Common Greenshank | Bird |
| *Solegnathus spinosissimus* | Spiny Pipehorse | Fish |
| *Solegnathus robustus* | Robust Pipehorse | Fish |
| *Lissocampus runa* | Javelin Pipefish | Fish |
| *Arctocephalus pusillus* | Australian Fur-seal | Mammal |
| *Actitis hypoleucos* | Common Sandpiper | Bird |
| *Arctocephalus forsteri* | New Zealand Fur-seal | Mammal |
| *Larus pacificus* | Pacific Gull | Bird |
| *Stipecampus cristatus* | Ringback Pipefish | Fish |
| *Histiogamphelus cristatus* | Rhino Pipefish | Fish |
| *Macronectes giganteus* | Southern Giant-Petrel | Bird |
| *Hypselognathus rostratus* | Knifesnout Pipefish | Fish |
| *Leptoichthys fistularius* | Brushtail Pipefish | Fish |
| *Macronectes halli* | Northern Giant Petrel | Bird |
| *Lissocampus caudalis* | Australian Smooth Pipefish | Fish |
| *Apus pacificus* | Fork-tailed Swift | Bird |
| *Pachyptila turtur* | Fairy Prion | Bird |
| *Histiogamphelus briggsii* | Crested Pipefish | Fish |
| *Hirundapus caudacutus* | White-throated Needletail | Bird |
| *Chelonia mydas* | Green Turtle | Reptile |
| *Caretta caretta* | Loggerhead Turtle | Reptile |
| *Halobaena caerulea* | Blue Petrel | Bird |
| *Dermochelys coriacea* | Leatherback Turtle | Reptile |
| *Haliaeetus leucogaster* | White-bellied Sea-Eagle | Bird |
| *Phyllopteryx taeniolatus* | Common Seadragon | Fish |

**No.**

The Activity is not taking place in the Commonwealth marine (aquatic) environment.

Marine species which are also listed as a threatened species under the EPBC Act will be protected under the threatened species provisions, rather than the marine species provisions, e.g. a development which is likely to have a significant impact on a threatened species will trigger the environmental impact assessment provisions of the EPBC Act.

| | | | |
|---|---|---|---|
| *Phycodurus eques* | Leafy Seadragon | Fish | |
| *Pugnaso curtirostris* | Pugnose Pipefish | Fish | |
| *Notiocampus ruber* | Red Pipefish | Fish | |
| *Mitotichthys tuckeri* | Tucker's Pipefish | Fish | |
| *Mitotichthys semistriatus* | Halfbanded Pipefish | Fish | |
| *Thalassarche carteri* | Indian Yellow-nosed Albatross | Bird | |
| *Thalassarche steadi* | White-capped Albatross | Bird | |
| *Thalassarche salvini* | Salvin's Albatross | Bird | |
| *Thalassarche bulleri* | Buller's Albatross | Bird | |
| *Sternula albifrons* | Little Tern | Bird | |
| *Thalassarche bulleri platei* | Northern Buller's Albatross | Bird | |
| *Myiagra cyanoleuca* | Satin Flycatcher | Bird | |
| *Lathamus discolor* | Swift Parrot | Bird | |
| *Neophema chrysostoma* | Blue-winged Parrot | Bird | |
| *Gallinago hardwickii* | Latham's Snipe | Bird | |
| *Charadrius leschenaultii* | Greater Sand Plover | Bird | |
| *Calidris acuminata* | Sharp-tailed Sandpiper | Bird | |
| *Diomedea antipodensis gibsoni* | Gibson's Albatross | Bird | |
| *Calidris alba* | Sanderling | Bird | |
| *Hippocampus abdominalis* | Big-belly Seahorse | Fish | |
| *Bubulcus ibis* | Cattle Egret | Bird | |
| *Limosa lapponica* | Bar-tailed Godwit | Bird | |
| *Ardenna tenuirostris* | Short-tailed Shearwater | Bird | |
| *Thalassarche cauta* | Shy Albatross | Bird | |
| *Ardenna grisea* | Sooty Shearwater | Bird | |
| *Diomedea exulans* | Wandering Albatross | Bird | |
| *Diomedea epomophora* | Southern Royal Albatross | Bird | |
| *Eudyptula minor* | Little Penguin | Bird | |
| *Vanacampus phillipi* | Port Phillip Pipefish | Fish | |
| *Calidris melanotos* | Pectoral Sandpiper | Bird | |
| *Hippocampus breviceps* | Short-head Seahorse | Fish | |
| *Calidris ferruginea* | Curlew Sandpiper | Bird | |
| *Ardenna carneipes* | Flesh-footed Shearwater | Bird | |
| *Thinornis cucullatus* | Hooded Plover | Bird | |
| *Calidris canutus* | Red Knot, Knot | Bird | |
| *Heraldia nocturna* | Upside-down Pipefish | Fish | |
| *Diomedea sanfordi* | Northern Royal Albatross | Bird | |
| *Thalassarche impavida* | Campbell Albatross | Bird | |
| *Diomedea antipodensis* | Antipodean Albatross | Bird | |
| *Urocampus carinirostris* | Hairy Pipefish | Fish | |
| *Vanacampus poecilolaemus* | Longsnout Pipefish | Fish | |

<table>
<tr><td></td><td>Vanacampus margaritifer</td><td>Mother-of-pearl Pipefish</td><td>Fish</td><td></td><td></td></tr>
<tr><td colspan="6">Whales and Other Cetaceans</td></tr>
<tr><td>10</td><td colspan="3">The following species were identified in the PMST Report.<br><br><table><tr><th>Scientific Name</th><th>Common Name</th><th>Class</th></tr><tr><td>Caperea marginata</td><td>Pygmy Right Whale</td><td>Mammal</td></tr><tr><td>Balaenoptera musculus</td><td>Blue Whale</td><td>Mammal</td></tr><tr><td>Balaenoptera acutorostrata</td><td>Minke Whale</td><td>Mammal</td></tr><tr><td>Megaptera novaeangliae</td><td>Humpback Whale</td><td>Mammal</td></tr><tr><td>Orcinus orca</td><td>Killer Whale, Orca</td><td>Mammal</td></tr><tr><td>Eubalaena australis</td><td>Southern Right Whale</td><td>Mammal</td></tr><tr><td>Lagenorhynchus obscurus</td><td>Dusky Dolphin</td><td>Mammal</td></tr><tr><td>Grampus griseus</td><td>Risso's Dolphin</td><td>Mammal</td></tr><tr><td>Delphinus delphis</td><td>Common Dolphin</td><td>Mammal</td></tr><tr><td>Tursiops truncatus s. str.</td><td>Bottlenose Dolphin</td><td>Mammal</td></tr></table></td><td>No</td><td>Whales, dolphins and porpoises (marine mammals or cetaceans) enjoy special protection under the EPBC Act through the Australian Whale Sanctuary and under a specialised permit system.<br><br>The Activity is not taking place in the marine (aquatic) environment and is therefore not within the Australian Whale Sanctuary.</td></tr>
<tr><td colspan="6">Critical Habitats</td></tr>
<tr><td>None</td><td colspan="3">Nil identified in PMST report</td><td>No</td><td>None identified.</td></tr>
<tr><td colspan="6">Commonwealth Reserves Terrestrial</td></tr>
<tr><td>None</td><td colspan="3">Nil identified in PMST report</td><td>No</td><td>None identified.</td></tr>
<tr><td colspan="6">Australian Marine Parks</td></tr>
<tr><td>None</td><td colspan="3">Nil identified in PMST report.</td><td>No</td><td>None identified.</td></tr>
<tr><td colspan="6">Habitat Critical to the Survival of Marine Turtles</td></tr>
<tr><td>None</td><td colspan="3">Nil identified in PMST report.</td><td>No</td><td>None identified.</td></tr>
<tr><td colspan="6">State and Territory Reserves</td></tr>
<tr><td>7</td><td colspan="3">The following were identified in the PMST Report:<br><br><table><tr><th>Protected Area ID</th><th>Protected Area Name</th><th>Reserve Type</th></tr><tr><td>TAS_20461</td><td>Lughrata</td><td>Conservation Covenant</td></tr><tr><td>TAS_50733</td><td>Marshall Beach</td><td>Conservation Area</td></tr><tr><td>TAS_50356</td><td>Wingaroo</td><td>Nature Reserve</td></tr><tr><td>TAS_50368</td><td>Reedy Lagoon</td><td>Private Nature Reserve</td></tr><tr><td>TAS_50272</td><td>Mount Tanner</td><td>Nature Recreation Area</td></tr><tr><td>TAS_50260</td><td>Emita</td><td>Nature Recreation Area</td></tr><tr><td>327</td><td>Marriott Reef</td><td>Conservation Area</td></tr></table></td><td>No</td><td>None of the identified places intersect the Site.</td></tr>
</table>

<table>
<tr><td colspan="4">Regional Forest Agreements</td></tr>
<tr><td>1</td><td>Tasmanian RFA</td><td>Not relevant</td><td>The action has no requirement for a Forest Practices Plan, which is administered under the Tasmanian Forest Practices Act 1985.</td></tr>
<tr><td colspan="4">Nationally Important Wetlands</td></tr>
<tr><td>None</td><td>Nil identified in PMST report.</td><td>No</td><td>Nil identified in PMST report</td></tr>
<tr><td colspan="4">EPBCA Act Referrals</td></tr>
<tr><td>1</td><td>The following were identified in the PMST Report:<br>2015/7522 Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia</td><td>No</td><td>None of the identified referrals are related to the action.</td></tr>
<tr><td colspan="4">Key Ecological Features (Marine)</td></tr>
<tr><td>None</td><td>Nil identified in PMST report</td><td>No</td><td>None identified.</td></tr>
<tr><td colspan="4">Biologically Important Areas (BIAs)</td></tr>
<tr><td>8</td><td>The following species were identified in the PMST Report:
<table>
<tr><th>Scientific Name</th><th>Common Name</th><th>Behaviour</th><th>Presence</th></tr>
<tr><td>Ardenna tenuirostris</td><td>Short-tailed Shearwater</td><td>Breeding</td><td>Known to occur</td></tr>
<tr><td>Ardenna tenuirostris</td><td>Short-tailed Shearwater</td><td>Foraging</td><td>Known to occur</td></tr>
<tr><td>Eudyptula minor</td><td>Little Penguin</td><td>Foraging</td><td>Known to occur</td></tr>
<tr><td>Pelagodroma marina</td><td>White-faced Storm-petrel</td><td>Foraging</td><td>Known to occur</td></tr>
<tr><td>Pelecanoides urinatrix</td><td>Common Diving-petrel</td><td>Foraging</td><td>Known to occur</td></tr>
<tr><td>Phalacrocorax fuscescens</td><td>Black-faced Cormorant</td><td>Foraging</td><td>Known to occur</td></tr>
<tr><td>Thalassarche cauta cauta</td><td>Shy Albatross</td><td>Foraging likely</td><td>Likely to occur</td></tr>
<tr><td>Balaenoptera musculus brevicauda</td><td>Pygmy Blue Whale</td><td>Foraging</td><td>Likely to be present</td></tr>
</table></td><td>No</td><td>BIAs are areas and times used by protected marine species for carrying out critical life functions, such as reproduction, feeding, migration or resting.<br>BIAs are designated for marine species protected under the EPBC Act. Protected marine species include species listed nationally as marine, threatened (Critically Endangered, Endangered, Vulnerable, Conservation Dependent), migratory, and all cetaceans. The action is not taking place in the marine (aquatic) environment, nor is the action likely to cause any direct or indirect impacts to the aquatic marine environment.<br>There are no BIAs in or adjacent to the Survey Area.</td></tr>
<tr><td colspan="4">Bioregional Assessments</td></tr>
<tr><td>None</td><td>Nil identified in PMST report</td><td>No</td><td>None identified.</td></tr>
<tr><td colspan="4">Geological and Bioregional Assessments</td></tr>
<tr><td>None</td><td>Nil identified in PMST report</td><td>No</td><td>None identified.</td></tr>
</table>

**ATTACHMENT 5: FLORA SPECIES (OBSERVED) LIST FOR THE SITE**

| INTRO | ENDEMIC | APGIV | FULLNAME |
|---|---|---|---|
| | | Aizoaceae | Carpobrotus rossii (Haw.) Schwantes |
| | | Aizoaceae | Disphyma crassifolium subsp. clavellatum (Haw.) Chinnock |
| | | Aizoaceae | Tetragonia implexicoma (Miq.) Hook.f. |
| | | Alstroemeriaceae | Drymophila cyanocarpa R.Br. |
| | | Amaranthaceae | Atriplex cinerea Poir. |
| | | Amaranthaceae | Atriplex paludosa R.Br. subsp. paludosa |
| i | | Amaranthaceae | Chenopodium album L. |
| | | Amaranthaceae | Einadia nutans (R.Br.) A.J.Scott subsp. nutans |
| | | Amaranthaceae | Rhagodia candolleana Moq. subsp. candolleana |
| | | Amaranthaceae | Threlkeldia diffusa R.Br. |
| | | Apiaceae | Apium insulare P.S.Short |
| | | Apiaceae | Apium prostratum Labill. ex Vent. var. prostratum |
| | | Apiaceae | Daucus glochidiatus (Labill.) Fisch., C.A.Mey. & Avé-Lall. |
| | | Apiaceae | Xanthosia pilosa Rudge |
| | | Apiaceae | Xanthosia tasmanica Domin |
| | | Apiaceae | Xanthosia ternifolia J.M.Hart & Henwood |
| | | Apocynaceae | Alyxia buxifolia R.Br. |
| | | Araliaceae | Hydrocotyle hirta R.Br. ex A.Rich. |
| | | Araliaceae | Hydrocotyle muscosa R.Br. ex A.Rich. |
| | | Araliaceae | Hydrocotyle sibthorpioides Lam. |
| | | Asphodelaceae | Bulbine glauca (Raf.) E.M.Watson |
| | | Asphodelaceae | Dianella tasmanica Hook.f. |
| | | Asteraceae | Actites megalocarpus (Hook.f.) Lander |
| | | Asteraceae | Apalochlamys spectabilis (Labill.) Steud. |
| i | | Asteraceae | Arctotheca calendula (L.) K.Lewin |
| | | Asteraceae | Argentipallium dealbatum (Labill.) Paul G.Wilson |
| | e | Asteraceae | Bedfordia linearis var. oblongifolia Orchard |
| i | | Asteraceae | Carduus tenuiflorus Curtis |
| | | Asteraceae | Cassinia aculeata (Labill.) R.Br. subsp. aculeata |
| i | | Asteraceae | Cirsium vulgare (Savi) Ten. |
| | | Asteraceae | Coronidium scorpioides (Labill.) Paul G.Wilson |
| i | | Asteraceae | Hypochaeris glabra L. |
| i | | Asteraceae | Hypochaeris radicata L. |
| | | Asteraceae | Lagenophora stipitata (Labill.) Druce |
| i | | Asteraceae | Leontodon rhagadioloides (L.) Enke & Zidorn |
| | | Asteraceae | Leucophyta brownii Cass. |
| | | Asteraceae | Olearia axillaris (DC.) F.Muell. ex Benth. |
| | | Asteraceae | Olearia glutinosa (Lindl.) Benth. |
| | e | Asteraceae | Olearia phlogopappa (Labill.) DC. subsp. phlogopappa |
| | | Asteraceae | Ozothamnus cinereus (Labill.) Sw. |
| | | Asteraceae | Podolepis jaceoides (Sims) Voss |
| | | Asteraceae | Senecio biserratus Belcher |
| i | | Asteraceae | Sonchus oleraceus L. |
| | | Boraginaceae | Hackelia suaveolens (R.Br.) Dimon & M.A.M.Renner |
| | | Campanulaceae | Lobelia anceps L.f. |
| i | | Caryophyllaceae | Cerastium glomeratum Thuill. |

| INTRO | ENDEMIC | APGIV | FULLNAME |
|---|---|---|---|
| | | Caryophyllaceae | Scleranthus biflorus (J.R.Forst. & G.Forst.) Hook.f. |
| | | Casuarinaceae | Allocasuarina verticillata (Lam.) L.A.S.Johnson |
| | | Celastraceae | Stackhousia monogyna Labill. |
| | | Convolvulaceae | Dichondra repens J.R.Forst. & G.Forst. |
| | | Crassulaceae | Crassula sieberiana (Schult. & Schult.f.) Druce |
| | | Cyperaceae | Carex appressa R.Br. |
| | | Cyperaceae | Ficinia nodosa (Rottb.) Goetgh., Muasya & D.A.Simpson |
| | | Cyperaceae | Isolepis cernua (Vahl) Roem. & Schult. |
| | | Cyperaceae | Isolepis fluitans (L.) R.Br. |
| | | Cyperaceae | Lepidosperma concavum R.Br. |
| | | Cyperaceae | Lepidosperma elatius Labill. |
| | | Cyperaceae | Lepidosperma gladiatum Labill. |
| | | Cyperaceae | Lepidosperma longitudinale Labill. |
| | | Cyperaceae | Uncinia flaccida S.T.Blake |
| | | Dennstaedtiaceae | Hypolepis rugosula (Labill.) J.Sm. |
| | | Dennstaedtiaceae | Pteridium esculentum (G.Forst.) Cockayne subsp. esculentum |
| | | Dilleniaceae | Hibbertia sericea (R.Br. ex DC.) Benth. var. sericea |
| | | Droseraceae | Drosera macrantha subsp. planchonii (Hook.f. ex Planch.) N.G.Marchant |
| | | Ericaceae | Acrotriche serrulata R.Br. |
| | | Ericaceae | Leucopogon parviflorus (Andrews) Lindl. |
| | | Ericaceae | Styphelia humifusa (Cav.) Pers. |
| | | Euphorbiaceae | Amperea xiphoclada (Sieber ex Spreng.) Druce var. xiphoclada |
| | | Euphorbiaceae | Beyeria lechenaultii (DC.) Baill. |
| i | | Euphorbiaceae | Euphorbia paralias L. |
| | | Fabaceae | Acacia longifolia subsp. sophorae (Labill.) Court |
| | | Fabaceae | Acacia melanoxylon R.Br. |
| | e | Fabaceae | Acacia mucronata Willd. ex H.L.Wendl. subsp. mucronata |
| | | Fabaceae | Acacia uncifolia (J.M.Black) O'Leary |
| | | Fabaceae | Acacia verticillata (L'Hér.) Willd. subsp. verticillata |
| | | Fabaceae | Bossiaea cinerea R.Br. |
| | | Fabaceae | Bossiaea cordigera Benth. ex Hook.f. |
| | | Fabaceae | Goodia lotifolia Salisb. |
| i | | Fabaceae | Vicia sativa L. subsp. sativa |
| i | | Gentianaceae | Centaurium erythraea Rafn |
| | | Geraniaceae | Pelargonium australe Willd. |
| | | Goodeniaceae | Goodenia lanata R.Br. |
| | | Haloragaceae | Gonocarpus teucrioides DC. |
| | | Hypericaceae | Hypericum gramineum G.Forst. |
| | | Juncaceae | Juncus australis Hook.f. |
| | | Juncaceae | Juncus caespiticius E.Mey. |
| | | Juncaceae | Juncus kraussii subsp. australiensis (Buchenau) Snogerup |
| | | Juncaceae | Juncus pallidus R.Br. |
| | | Juncaceae | Juncus pauciflorus R.Br. |
| | | Juncaceae | Luzula densiflora (H.Nordensk.) Edgar |
| | | Juncaceae | Luzula flaccida (Buchenau) Edgar |
| | | Lamiaceae | Ajuga australis R.Br. |

| INTRO | ENDEMIC | APGIV | FULLNAME |
|---|---|---|---|
| i | | Lamiaceae | Marrubium vulgare L. |
| | | Lauraceae | Cassytha melantha R.Br. |
| | | Lauraceae | Cassytha pubescens R.Br. |
| | | Mazaceae | Mazus pumilio R.Br. |
| | | Myrtaceae | Eucalyptus willisii Ladiges, Humphries & Brooker |
| | | Myrtaceae | Kunzea ambigua (Sm.) Druce |
| | e | Myrtaceae | Leptospermum glaucescens S.Schauer |
| | | Myrtaceae | Leptospermum laevigatum (Gaertn.) F.Muell. |
| | | Myrtaceae | Leptospermum lanigerum (Sol. ex Aiton) Sm. |
| | | Myrtaceae | Leptospermum scoparium J.R.Forst. & G.Forst. |
| | | Onagraceae | Epilobium billardiereanum Ser. ex DC. subsp. billardiereanum |
| | | Orchidaceae | Acianthus caudatus R.Br. |
| | | Orchidaceae | Acianthus pusillus D.L.Jones |
| | | Orchidaceae | Caladenia carnea R.Br. |
| | | Orchidaceae | Caladenia latifolia R.Br. |
| | | Orchidaceae | Caleana major R.Br. |
| | | Orchidaceae | Cyrtostylis reniformis R.Br. |
| | | Orchidaceae | Eriochilus cucullatus (Labill.) Rchb.f. |
| | | Orchidaceae | Gastrodia procera G.W.Carr |
| | | Orchidaceae | Microtis unifolia (G.Forst.) Rchb.f. |
| | | Orchidaceae | Pterostylis nutans R.Br. |
| | | Orchidaceae | Pterostylis pedunculata R.Br. |
| | | Oxalidaceae | Oxalis perennans Haw. |
| | | Phyllanthaceae | Phyllanthus gunnii Hook.f. |
| | | Phyllanthaceae | Poranthera microphylla Brongn. |
| | | Pittosporaceae | Bursaria spinosa Cav. subsp. spinosa |
| i | | Plantaginaceae | Plantago coronopus L. subsp. coronopus |
| | | Plantaginaceae | Plantago varia R.Br. |
| i | | Poaceae | Agrostis capillaris L. |
| i | | Poaceae | Agrostis stolonifera L. |
| i | | Poaceae | Aira caryophyllea L. subsp. caryophyllea |
| | | Poaceae | Austrostipa flavescens (Labill.) S.W.L.Jacobs & J.Everett |
| | | Poaceae | Austrostipa stipoides (Hook.f.) S.W.L.Jacobs & J.Everett |
| i | | Poaceae | Briza maxima L. |
| i | | Poaceae | Briza minor L. |
| i | | Poaceae | Cynosurus echinatus L. |
| i | | Poaceae | Dactylis glomerata L. |
| | | Poaceae | Deyeuxia quadriseta (Labill.) Benth. |
| | | Poaceae | Dichelachne crinita (L.f.) Hook.f. |
| | | Poaceae | Distichlis distichophylla (Labill.) Fassett |
| i | | Poaceae | Holcus lanatus L. |
| i | | Poaceae | Hordeum marinum Huds. |
| | | Poaceae | Lachnagrostis filiformis (G.Forst.) Trin. |
| | | Poaceae | Microlaena stipoides (Labill.) R.Br. var. stipoides |
| | | Poaceae | Poa labillardierei Steud. var. labillardierei |
| | | Poaceae | Poa poiformis (Labill.) Druce var. poiformis |

| INTRO | ENDEMIC | APGIV | FULLNAME |
|---|---|---|---|
| | | **Poaceae** | **Poa rodwayi Vickery** |
| | | **Poaceae** | **Poa tenera F.Muell. ex Hook.f.** |
| **i** | | **Polygonaceae** | **Acetosella vulgaris Fourr.** |
| | | **Polypodiaceae** | **Microsorum pustulatum (G.Forst.) Copel. subsp. pustulatum** |
| | | **Proteaceae** | **Banksia marginata Cav.** |
| | | **Ranunculaceae** | **Ranunculus lappaceus Sm.** |
| | | **Ranunculaceae** | **Ranunculus sessiliflorus R.Br. ex DC. var. sessiliflorus** |
| | | **Rosaceae** | **Acaena novae-zelandiae Kirk** |
| | | **Rutaceae** | **Correa alba Andrews var. alba** |
| | | **Rutaceae** | **Correa reflexa (Labill.) Vent. var. reflexa** |
| | | **Solanaceae** | **Solanum laciniatum Aiton** |
| | | **Stylidiaceae** | **Stylidium graminifolium Sw.** |
| | | **Thymelaeaceae** | **Pimelea curviflora R.Br.** |
| | | **Urticaceae** | **Parietaria cardiostegia Greuter** |
| | | **Urticaceae** | **Urtica incisa Poir.** |
| | | **Violaceae** | **Viola hederacea Labill.** |
| | | **Zygophyllaceae** | **Roepera billardierei (DC.) G.Don** |

**ATTACHMENT 6: WINTER ORCHID SURVEY – AUGUST 2022**

Van Diemen Consulting
PO Box 1
New Town TAS 7008
Mob: 0438 588 695
Email: rwbarnes73@gmail.com

# MEMO

**To:** Mr George Adams, Markarna Grazing Company Pty Ltd

**From:** Drs Richard Barnes and Colin McCoull, Van Diemen Consulting

**Date:** August 22, 2022

**Re:** Orchid Survey – winter flowering period August 2022

## BACKGROUND AND SCOPE

Van Diemen Consulting Pty Ltd (VDC) was engaged to conduct a survey of the 30-year extraction extent of the proposed lime sand pit in Mining Lease 2117P/M (the Development). The survey area also included the associated infrastructure location of the shed and access road depicted in the DA.

Other areas of the Mining Lease are proposed to be used to extract lime sand (as noted in the DA) in the future. These areas were not the focus of this survey given the proposed timeframe to commence the extraction of sand exceeds 30 years.

## FIELD ASSESSMENT METHODS

Timing and personnel

The survey was conducted on 12 to 13 August 2022 by Drs McCoull and Barnes. The survey focused on the 30-year extraction footprint of the Development and occasionally areas outside that to determine if orchids were present in other locations (e.g., other areas of scrub on alkaline sands, coastal grasslands on the edge of wet areas).

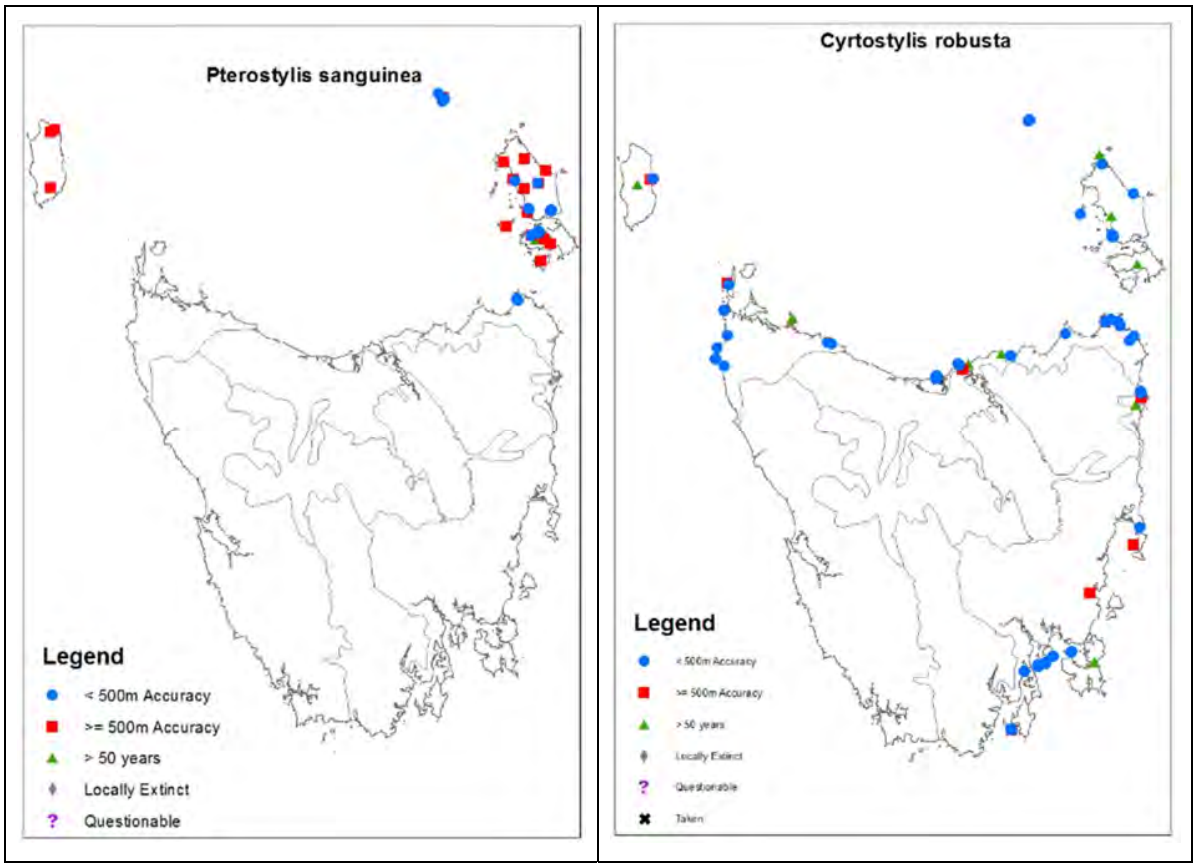
Conservation significant flora species

The Natural Values Atlas Report in **Attachment 1** provides a list of the other threatened/conservation significant species observed in the Survey Area and nearby. In addition to those in the NVA Report, several conservation significant orchid species are known from Flinders Island, with some flowering during the winter to early spring season. Examples include those listed in **the table below**, with listing statements in **Attachment 1**. **Table 2** provides information about the flowering periods with the peak period) for the significant orchids and other species that may have been flowering or preparing to flower.

| Species name | Common name | Status (TSPA/EPBC)[1] | Vegetation types in the Survey Area most likely to support species (if present) |
|---|---|---|---|
| *Cyrtostylis robusta* | Large gnat orchid | r/- | Coastal grassland – scrub interface<br>Disturbed (windthrow) areas in scrub |
| *Pterostylis sanguinea* | Banded greenhood | r/- | Scrub vegetation on alkaline sands |

Recorded locations of ***Pterostylis sanguinea*** on Flinders Island (see image below left – NVA held data) are widespread and predominantly occur in forest and woodland (eucalypt) vegetation but some are associated with non-eucalypt woodlands and scrub. *Pterostylis sanguinea* is an orchid of well-drained gravelly to sandy soils often in association with deep organic litter.

***Cyrtostylis robusta*** is a very coastal to near-coastal species in Tasmania (see recorded locations in figure below right – NVA held data), rarely occurring more than 100 m from the coastal edge. It generally grows on sandy soils in dune vegetation which includes heathland, scrub, grasslands, and grassy woodlands.




[1] TSPA – *Threatened Species Protection Act 1995*, EPBC – *Environment Protection and Biodiversity Conservation Act 1999*

Survey areas and associated vegetation types

The Survey Area included the Development footprint, but a greater focus was given to the vegetation types (in and adjacent to the Development footprint) that could support the species of significance. Of particular focus was the interface between the scrub on alkaline sands and the coastal grassland vegetation as these areas often support orchids which receive higher light levels than in the scrub but also receive some protection from herbivores by growing amongst tussock grasses (mainly *Poa poiformis* and *P. labillardierei*).

Two vegetation communities in the Development represent potential habitat for conservation significant orchid species and possibly other species not detected in the March 2022 survey.

*Coastal scrub on alkaline sands (TASVEG code - SCA)*

The dominant species in eastern Bass Strait for this community type are typically *Beyeria lechenaultii* var. *latifolia, Leptospermum laevigatum* and *Myoporum insulare*, although the structure and exact composition depends on biogeography, disturbance regime and, to some extent, soil depth.

The Survey Area supports a very low species diversity form of this scrub type. It is dominated by *Leptospermum laevigatum* with only sporadic and occasional *Allocasuarina verticillata* and *Bursaria spinosa. Myoporum insulare* becomes more common towards the western side of the Survey Area (towards the Marshall bay littoral zone) however it never becomes more than a minor component of the vegetation structure (i.e., <10% of foliage cover).

Leaf litter is of variable depth, and in some areas it is absent due to mammal activity (e.g., wombat and wallaby runs). The canopy cover is mostly 100% with only occasional open areas where there is a disused vehicle track or windthrow damage to the trees – these areas have less foliage cover and therefore have grasses, herbs and some sedges in the ground layer.



The *Leptospermum laevigatum* scrub generally has a closed canopy with little vegetation as the ground layer.



*Leptospermum laevigatum* dominates the scrub canopy.

*Coastal grassland and herbfield (TASVEG code – GCH)*

This community is dominated by *Austrofestuca littoralis, Austrostipa stipoides, Poa poiformis*, *P. rodwayi* and *P. labillardierei*.

Common non-dominant grasses include *Distichlis distichophylla* and the sedge *Ficinia nodosa*. Herbs include *Acaena nova-hollandiae, Carpobrotus rossii, Centaurium erythraea, Pelargonium australe, Ranunculus lappaceus, Samolus repens, Apium prostratum, Dichondra repens, Tetragonia tetragonioides, Rhagodia candolleana* and *Selliera radicans*.



Costal grassland and moss areas (areas where there is little direct sunlight during the winter months) occur in the hollows and flat areas between the drier ridgelines of scrub and in some cases also extend onto the slope itself.



**Results**

Orchid Flora Species Observed

Three species of orchid were located and identified during the survey, which include the following:

| Species | Occurrence and observational comments | Status (TSPA/EPBC)[2] |
|---|---|---|
| *Acianthus caudatus* | Prolific but colonial on unburnt peaty soils over granite gravels, full flower to partial flower, some early capsule development. Not observed on burnt soils/fire damaged soils – only on undisturbed soils with leaf litter/lichen coverage. | - / - |
| *Acianthus pusillus* | Leaf and developing capsules were observed sporadically in areas where there was a deep litter layer over sand. | - / - |
| *Cyrtostylis reniformis* | Prolific but colonial on unburnt peaty soils over granite gravels, full flower to partial flower, some early capsule development. Mainly observed on undisturbed soils with leaf litter/lichen coverage but occasional plants observed in fire affected areas (soil partly burnt, leaf litter removed etc). | - / - |
| *Caladenia latifolia*<br><br>(Leaf and habitat identification only – no flowers present) | Numerous leaves (very lax, hairy) were observed in sporadic locations around the Survey Area. Most patches were observed in canopy gaps in the scrub where the ground layer receives more light) and areas of grassland on the south-facing slopes of the dunes. The leaves are hairy, lax and broadly lanceolate and likely represent the common *pink fairies* which inhabits the type of environments present (coastal or near-coastal sands, often under tea-tree thickets), and is in leaf in August – flowers September to October. | - / - |

None of the orchid species observed are listed on the Tasmanian *Threatened Species Protection Act 1995* or Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

[2] TSPA – *Threatened Species Protection Act 1995*, EPBC – *Environment Protection and Biodiversity Conservation Act 1999*

**Table 2. Flowering periods for selected winter – early spring orchids recorded from Flinders Island (from Wapstra 2018)**

| | S | S | O | O | N | N | D | D | J | J | F | F | M | M | A | A | M | M | J | J | J | J | A | A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Acianthus caudatus*** | | | | | | | | | | | | | | | | | | | | | | | | |
| This species often forms quite massive colonies, but not all plants may produce flowers. The species has a wide flowering period but there is a definite peak in early to mid-spring (September). | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Acianthus pusillus*** | | | | | | | | | | | | | | | | | | | | | | | | |
| While there is no overlap in the main flowering period of the two species, old flowers of *A. pusillus* may still be detectable during the flowering period of *A. caudatus*. However, the two species are so distinct as to make identification easy, even if the two species co-occur (which is common). | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Caladenia latifolia*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Populations of this species appear to produce flowering plants over a long period, with an apparent peak in October with records from September through to early November. Plants can be identified prior to flowering from the rather lax, broadly lanceolate leaf that is very hairy on both surfaces. Mainland populations are reported from August through to December. | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Cyrtostylis reniformis*** | | | | | | | | | | | | | | | | | | | | | | | | |
| This is the more widespread of the two species. Where the two species co-occur, *C. robusta* tends to begin flowering about two weeks earlier than *C. reniformis*. However, differentiation is easy because of their distinctive leaves: *C. reniformis* has dull grey-green leaves and *C. robusta* has bright green (and often larger) leaves. This character is so consistent and obvious that identification is possible many weeks before and after flowering. | | | | | | | | | | | | | | | | | | | | | | | | |
| **** Cyrtostylis robusta*** | | | | | | | | | | | | | | | | | | | | | | | | |
| See comments under *C. reniformis* and also note the earlier peak and overall shorter flowering period, which can be a further aid to identification. It is an extremely coastal species, often confined to a few hundred metres from the shoreline. | | | | | | | | | | | | | | | | | | | | | | | | |
| **** Pterostylis sanguinea*** | | | | | | | | | | | | | | | | | | | | | | | | |
| A winter-flowering greenhood from the far northeast and Bass Strait islands distinguished by its large red flowers and leafy stem, but rosettes absent at flowering time. In Tasmania, flowering is mainly in late June to late July. | | | | | | | | | | | | | | | | | | | | | | | | |

Potential habitat for *Pterostylis cucullata* ssp. *cucullata*

Leafy greenhood (*Pterostylis cucullata* ssp. *cucullata)* has been recorded at the northern end of Marshall Bay, where it grows in coastal grassland vegetation adjacent to *Leptospermum laevigatum* scrub on alkaline sands – a vegetation type that supports the species elsewhere in its range (e.g., Hunter Island, King Island).

The species is listed as vulnerable on the Tasmanian *Threatened Species Protection Act 1995* and Vulnerable on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.*

The image below shows the emergence of leaves of leafy greenhood at the known site (north of Marshall Bay) on Flinders Island taken on 11 August 2022. The site was attended to determine if the species is still extant there, and if so, at what life-cycle stage were the plants (e.g., slight leaf emergence, partial or full emergence).



The species has a peak flowering period in late October into early November but can be identified into December by the seed pods. Leaves can be hard to find in grassy habitats but if flowers are found then that area can be more intensively searched to count the number of plants present.

| * *Pterostylis cucullata* | S | S | O | O | N | N | D | D | J | J | F | F | M | M | A | A | M | M | J | J | J | J | A | A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A late spring species that forms massive colonies but is surprisingly difficult to detect because plants can occur amongst dense grass and beneath low coastal scrub. Once found, however, even in the absence of flowering plants, the distinctive rosettes can be easily counted. There is a peak in flowering between mid-October and mid-November but often within one colony there are plants from early bud through to fully fertilised flowers. The most recent colony detected near Temma flowers as early as mid-August. | | | | | | | | | | | | | | | | | | | | | | | | |

The confirmed presence of the species at its known location near Marshall Bay meant that it was possible to at least look for emerging leaves in the Survey Area. High to moderate quality habitat is present in the Survey Area – being alkaline sands with grassland vegetation (south facing slopes) adjacent to scrub dominated by *Leptospermum laevigatum*. Plants may be present, but none were observed. The cryptic nature of the species when in early leaf emergence makes it difficult o detect in its typically grassy habitat.

The images below show the type of potential habitat present.

| | |
|---|---|
| *Poa rodwayi* dominated slope on the south-facing side of a dune of lime sands with *Leptospermum laevigatum* dominating the scrub canopy |  |
| *Poa labillardierei* grassland on the edge of a dune dominated by *Leptospermum laevigatum* scrub |  |

**Conclusions**

A survey for *Pterostylis sanguinea* and *Cyrtostylis robusta* was conducted in suitable habitat associated with the Development footprint in proposed ML 2117P/M at Marshall Bay on Flinders Island. No *Pterostylis sanguinea* and *Cyrtostylis robusta* plants were found, but suitable habitat is present. Given the absence of the two species based on the survey effort, a permit issued under the *Threatened Species Protection Act 1995* is not required.

Suitable habitat for the leafy greenhood (*Pterostylis cucullata* ssp*. cucullata*) occurs in the Survey Area in the form of grassland around the southern edge of the scrub dominated ridges and dunes. The species is listed as vulnerable on the Tasmanian *Threatened Species Protection Act 1995* and Vulnerable on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.* Given the listing status the species It is recommended that another survey be conducted in late October to determine if any flowering plants can be seen, and then numbers counted of the population present (if any).

**ATTACHMENT 1**

# Natural Values Atlas Report

*Authoritative, comprehensive information on Tasmania's natural values.*

Reference:
Requested For:
Report Type: Summary Report
Timestamp: 01:34:09 PM Monday 22 August 2022
Threatened Flora: buffers Min: 500m Max: 5000m
Threatened Fauna: buffers Min: 500m Max: 5000m
Raptors: buffers Min: 500m Max: 5000m
Fire History: buffer 1000m



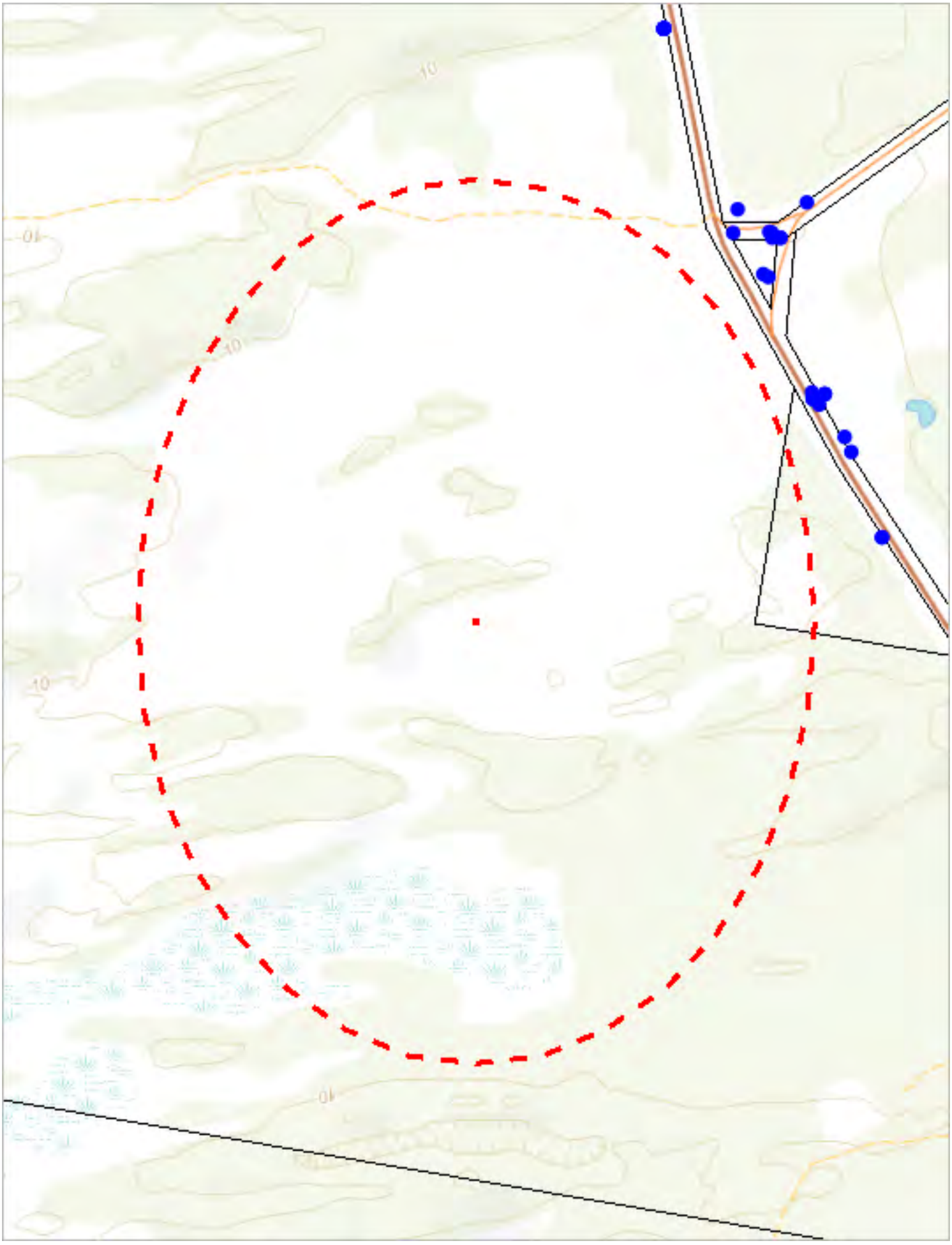

The centroid for this query GDA94: 577510.0, 5578920.0 falls within:

Property: 3513143

# Threatened flora within 500 metres



578056, 5579625



576964, 5578215

Please note that some layers may not display at all requested map scales

# Threatened flora within 500 metres



Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Threatened flora within 500 metres



## Verified Records

| Species | Common Name | SS | NS | Bio | Observation Count | Last Recorded |
|---|---|---|---|---|---|---|
| Eutaxia microphylla | spiny bushpea | r | | n | 1 | 17-Nov-2008 |
| Pimelea curviflora var. sericea | silky curved riceflower | r | | n | 4 | 15-Mar-2018 |
| Pomaderris oraria subsp. oraria | bassian dogwood | r | | n | 1 | 20-Nov-2017 |
| Scaevola albida | pale fanflower | v | | n | 5 | 03-Nov-2019 |

## Unverified Records

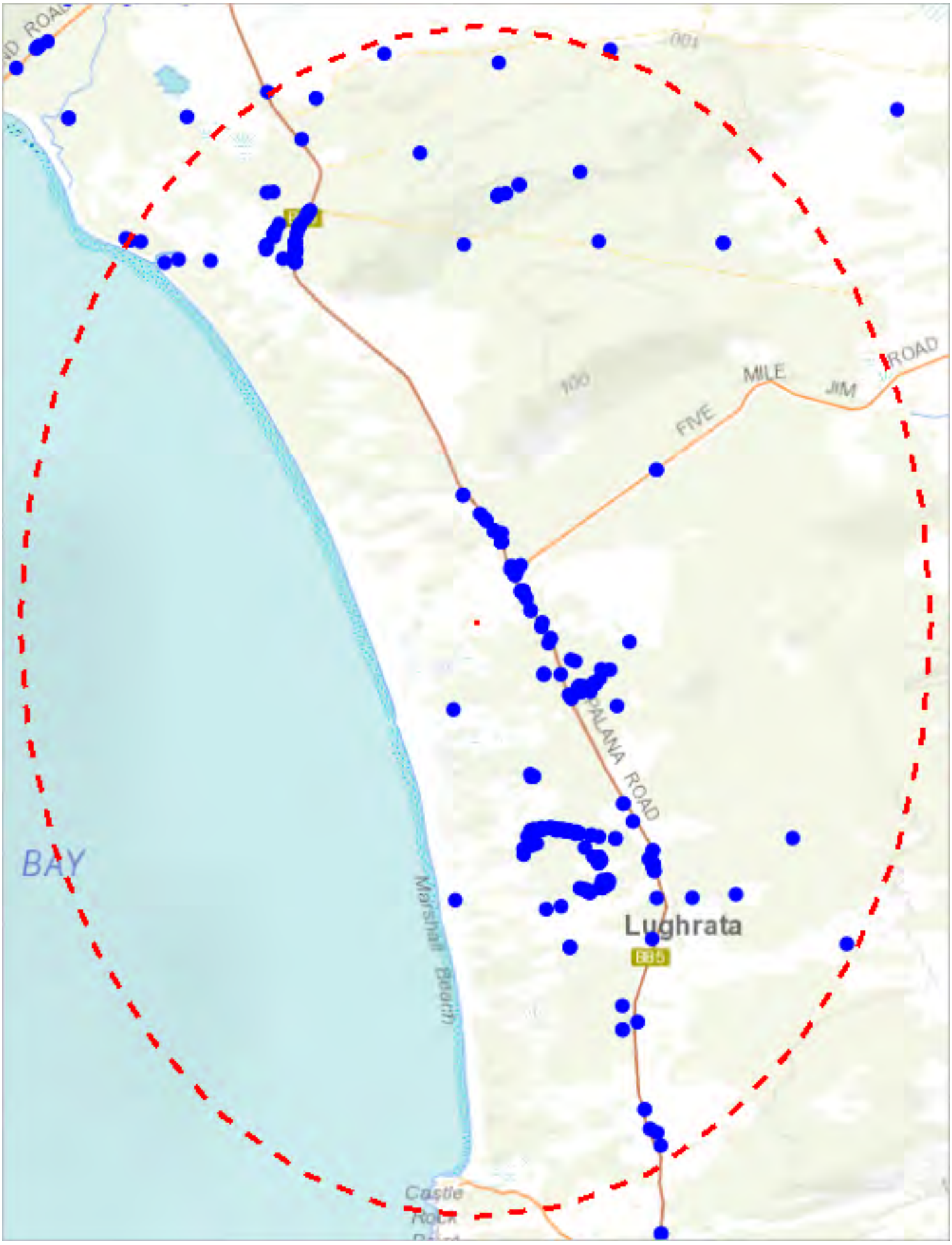
No unverified records were found!

For more information about threatened species, please contact Threatened Species Enquiries.
Telephone: 1300 368 550
Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

# Threatened flora within 5000 metres



581567, 5584158




573458, 5573680

Please note that some layers may not display at all requested map scales

# Threatened flora within 5000 metres



Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Threatened flora within 5000 metres



## Verified Records

| Species | Common Name | SS | NS | Bio | Observation Count | Last Recorded |
|---|---|---|---|---|---|---|
| Acacia uncifolia | coast wirilda | r | | n | 36 | 15-Mar-2018 |
| Acrotriche cordata | coast groundberry | v | | n | 1 | 24-Nov-2015 |
| Asperula minima | mossy woodruff | r | | n | 4 | 06-Nov-2018 |
| Banksia serrata | saw banksia | r | | n | 6 | 25-Mar-2014 |
| Drosera glanduligera | scarlet sundew | r | | n | 2 | 08-Sep-2021 |
| Eutaxia microphylla | spiny bushpea | r | | n | 21 | 19-Nov-2019 |
| Hydrocotyle comocarpa | fringefruit pennywort | r | | n | 1 | 10-Sep-2006 |
| Isopogon ceratophyllus | horny conebush | v | | n | 8 | 21-Mar-2014 |
| Lasiopetalum baueri | slender velvetbush | r | | n | 1 | 01-Jan-1985 |
| Leucopogon affinis | lanceleaf beardheath | r | | n | 1 | 29-Sep-2005 |
| Parietaria debilis | shade pellitory | r | | n | 3 | 29-Sep-2005 |
| Pimelea curviflora | curved riceflower | p | | n | 60 | 06-Nov-2018 |
| Pimelea curviflora var. sericea | silky curved riceflower | r | | n | 23 | 15-Mar-2018 |
| Pomaderris intermedia | lemon dogwood | r | | n | 3 | 20-Nov-2017 |
| Pomaderris oraria subsp. oraria | bassian dogwood | r | | n | 6 | 20-Nov-2017 |
| Pomaderris paniculosa subsp. paralia | shining dogwood | r | | n | 2 | 29-Sep-2005 |
| Pterostylis cucullata subsp. cucullata | leafy greenhood | e | VU | n | 4 | 13-Nov-2008 |
| Scaevola albida | pale fanflower | v | | n | 78 | 19-Nov-2019 |
| Schenkia australis | spike centaury | r | | n | 1 | 15-Nov-1981 |
| Schoenoplectus tabernaemontani | river clubsedge | r | | n | 1 | 01-Jan-1979 |
| Scleranthus fasciculatus | spreading knawel | v | | n | 1 | 30-Sep-2005 |
| Styphelia esquamata | swamp beardheath | r | | n | 1 | 09-Dec-2012 |
| Zygophyllum billardierei | coast twinleaf | r | | n | 19 | 19-Nov-2019 |

## Unverified Records

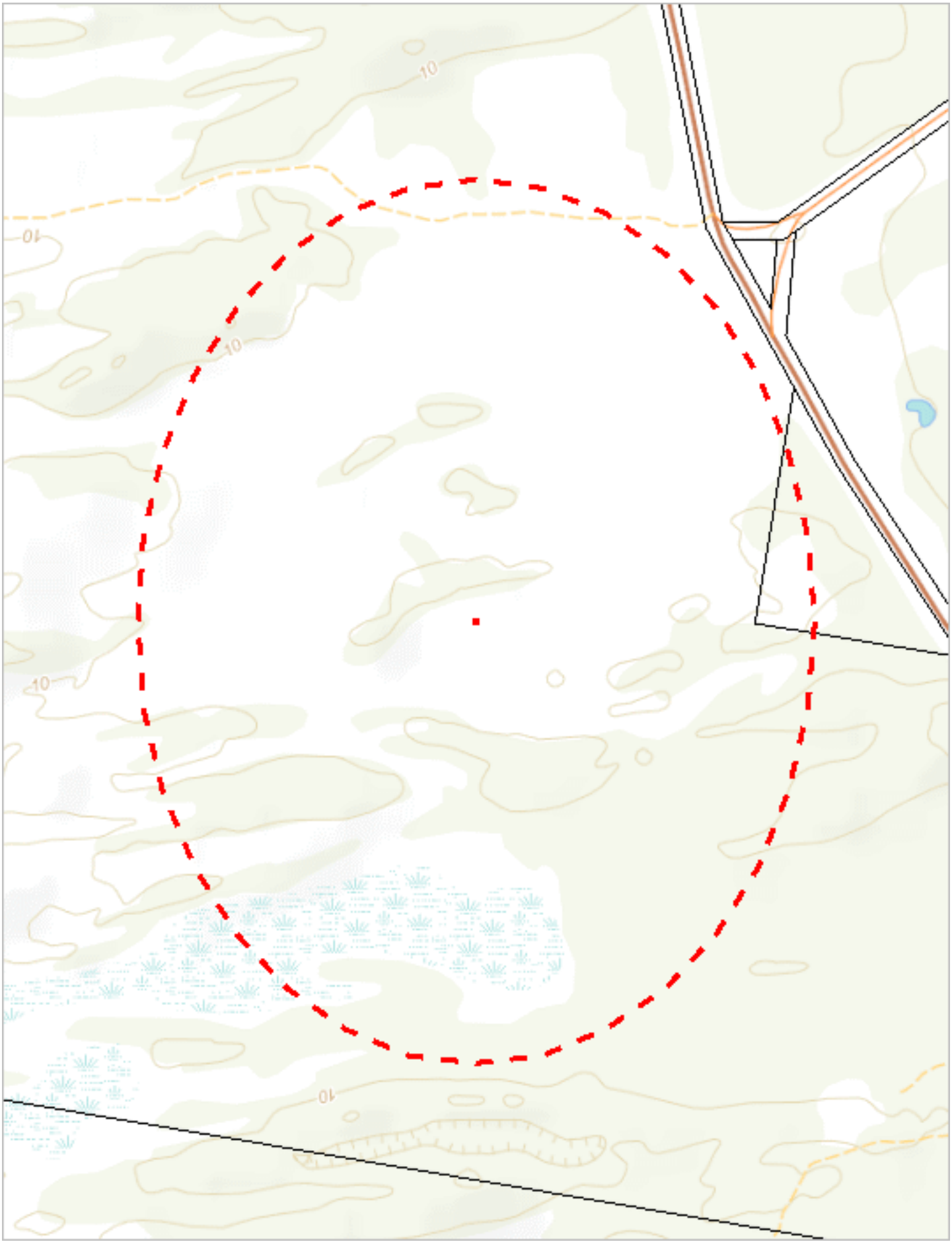
No unverified records were found!

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Telephone: 1300 368 550
Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

# Threatened fauna within 500 metres



578056, 5579625




576964, 5578215

Please note that some layers may not display at all requested map scales

# Threatened fauna within 500 metres



Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Threatened fauna within 500 metres

## (based on Range Boundaries)

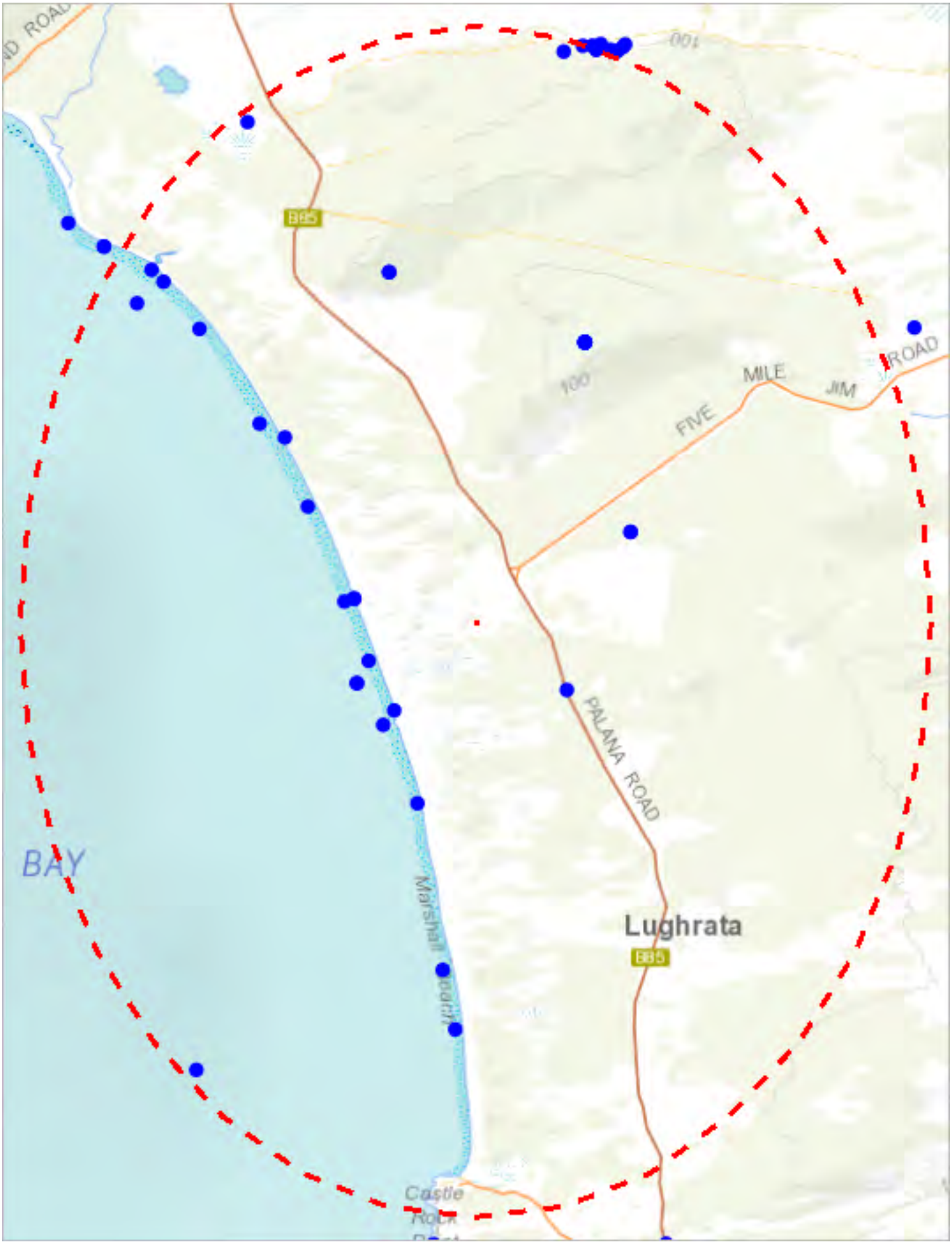
| Species | Common Name | SS | NS | BO | Potential | Known | Core |
|---|---|---|---|---|---|---|---|
| Pseudomys novaehollandiae | new holland mouse | e | VU | n | 1 | 0 | 0 |
| Litoria raniformis | green and gold frog | v | VU | n | 1 | 0 | 0 |
| Prototroctes maraena | australian grayling | v | VU | ae | 1 | 0 | 0 |
| Antipodia chaostola | chaostola skipper | e | EN | ae | 1 | 0 | 0 |
| Pseudemoia pagenstecheri | tussock skink | v | | n | 1 | 0 | 0 |
| Haliaeetus leucogaster | white-bellied sea-eagle | v | | n | 2 | 0 | 0 |
| Limnodynastes peroni | striped marsh frog | e | | n | 1 | 0 | 0 |
| Galaxiella pusilla | eastern dwarf galaxias | v | VU | n | 1 | 0 | 0 |
| Pardalotus quadragintus | forty-spotted pardalote | e | EN | e | 1 | 0 | 0 |
| Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | e | EN | e | 1 | 0 | 0 |

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# Threatened fauna within 5000 metres



581567, 5584158




573458, 5573680

Please note that some layers may not display at all requested map scales

# Threatened fauna within 5000 metres

Annexure: 16.2.3

Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Threatened fauna within 5000 metres



## Verified Records

| Species | Common Name | SS | NS | Bio | Observation Count | Last Recorded |
|---|---|---|---|---|---|---|
| Aquila audax | wedge-tailed eagle | pe | PEN | n | 2 | 30-Aug-2020 |
| Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | e | EN | e | 5 | 08-Dec-2004 |
| Botaurus poiciloptilus | australasian bittern | | EN | n | 1 | 14-Jan-1979 |
| Diomedea cauta subsp. cauta | shy albatross | pv | PVU | | 1 | 14-Nov-1981 |
| Eubalaena australis | southern right whale | e | EN | m | 1 | 26-Aug-2014 |
| Haliaeetus leucogaster | white-bellied sea-eagle | v | | n | 3 | 30-Aug-2020 |
| Hirundapus caudacutus | white-throated needletail | | VU | n | 2 | 27-Mar-2014 |
| Macronectes giganteus | southern giant-petrel | v | EN | n | 1 | 25-Jul-1988 |
| Pseudomys novaehollandiae | new holland mouse | e | VU | n | 10 | 11-Nov-2021 |
| Sternula nereis subsp. nereis | fairy tern | v | VU | n | 1 | 06-Nov-2004 |
| Thalassarche chrysostoma | grey-headed albatross | e | EN | n | 1 | 09-Jul-1971 |
| Thalassarche melanophris | black-browed albatross | e | VU | n | 1 | 03-Jul-1969 |
| Thinornis cucullatus | hooded plover | | PVU | n | 12 | 07-Nov-2011 |
| Thinornis rubricollis | hooded plover | | VU | n | 6 | 19-Dec-1998 |

## Unverified Records

No unverified records were found!

# Threatened fauna within 5000 metres

(based on Range Boundaries)

| Species | Common Name | SS | NS | BO | Potential | Known | Core |
|---|---|---|---|---|---|---|---|
| Pseudomys novaehollandiae | new holland mouse | e | VU | n | 1 | 0 | 2 |
| Litoria raniformis | green and gold frog | v | VU | n | 1 | 0 | 0 |
| Prototroctes maraena | australian grayling | v | VU | ae | 14 | 0 | 0 |
| Antipodia chaostola | chaostola skipper | e | EN | ae | 1 | 0 | 0 |
| Pseudemoia pagenstecheri | tussock skink | v | | n | 1 | 0 | 0 |
| Haliaeetus leucogaster | white-bellied sea-eagle | v | | n | 2 | 0 | 0 |
| Limnodynastes peroni | striped marsh frog | e | | n | 1 | 0 | 0 |
| Galaxiella pusilla | eastern dwarf galaxias | v | VU | n | 14 | 0 | 0 |
| Pardalotus quadragintus | forty-spotted pardalote | e | EN | e | 1 | 0 | 0 |
| Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | e | EN | e | 1 | 0 | 0 |

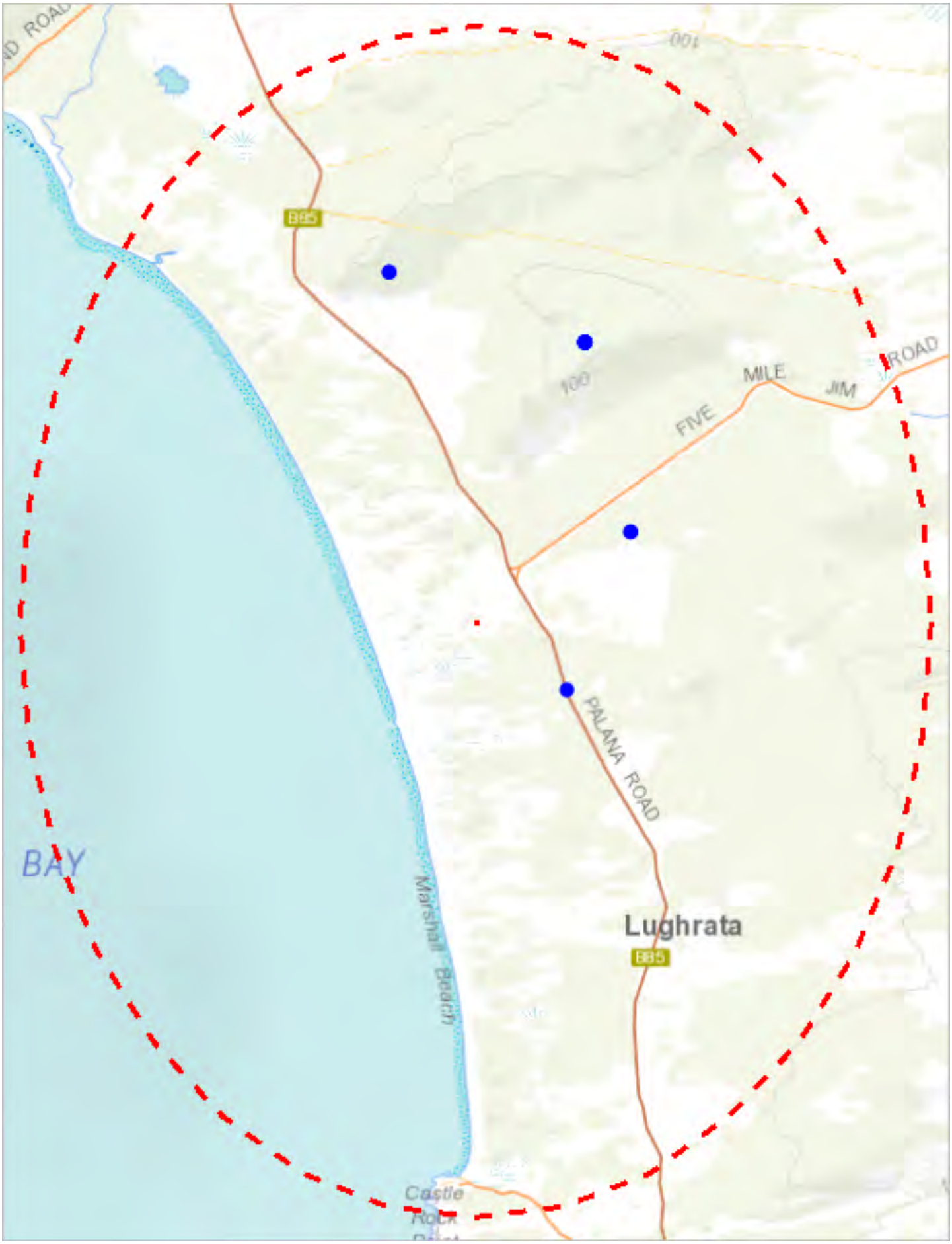
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Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

*** No Raptor nests or sightings found within 500 metres. ***

# Raptor nests and sightings within 5000 metres



581567, 5584158




573458, 5573680

Please note that some layers may not display at all requested map scales

# Raptor nests and sightings within 5000 metres

Annexure: 16.2.3

Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

# Raptor nests and sightings within 5000 metres



## Verified Records

| Nest Id/Location Foreign Id | Species | Common Name | Obs Type | Observation Count | Last Recorded |
|---|---|---|---|---|---|
| 603 | Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | Nest | 2 | 08-Dec-2004 |
| | Aquila audax | wedge-tailed eagle | Camera Trap | 1 | 30-Aug-2020 |
| | Aquila audax | wedge-tailed eagle | Not Recorded | 1 | 17-Feb-2014 |
| | Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | Sighting | 3 | 01-Mar-1979 |
| | Falco cenchroides | nankeen kestrel | Sighting | 4 | 09-Jan-1981 |
| | Haliaeetus leucogaster | white-bellied sea-eagle | Camera Trap | 1 | 30-Aug-2020 |
| | Haliaeetus leucogaster | white-bellied sea-eagle | Sighting | 2 | 14-Nov-1981 |

## Unverified Records

No unverified records were found!

# Raptor nests and sightings within 5000 metres

(based on Range Boundaries)

| Species | Common Name | SS | NS | Potential | Known | Core |
|---|---|---|---|---|---|---|
| Aquila audax subsp. fleayi | tasmanian wedge-tailed eagle | e | EN | 1 | 0 | 0 |
| Haliaeetus leucogaster | white-bellied sea-eagle | v | | 2 | 0 | 0 |

For more information about raptor nests, please contact Threatened Species Enquiries.
Telephone: 1300 368 550
Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

*** No Fire History (All) found within 1000 metres ***

*** No Fire History (Last Burnt) found within 1000 metres ***

**ATTACHMENT 2**

# *Pterostylis sanguinea*



*Pterostylis sanguinea.*
H & A Wapstra.

**FAMILY:** ORCHIDACEAE

**BOTANICAL NAME:** *Pterostylis sanguinea,* D.L.Jones & M.A.Clem., *Austral. Orchid Res*. 1: 126 (1989)

**COMMON NAME:** Banded greenhood

**COMMONWEALTH STATUS:** (*EPBC Act*) Not Listed

**TASMANIAN STATUS:** (*TSP Act*) rare

This species was previously known as *Pterostylis vittata* (*sensu* W.M. Curtis 1979). A listing statement is currently being compiled for this species. Please refer to page 239 of *'The Orchids of Tasmania'* by David Jones, Hans Wapstra, Peter Tonelli & Stephen Harris (1999) for further information.

**Note:** A taxonomic review of the greenhoods has split *Pterostylis* into several new genera. This species has been renamed *Urochilus sanguineus*. Until this change becomes widely accepted, for management purposes the Threatened Species Unit has chosen to continue dealing with this species as part of the *Pterostylis* genus.

# *Cyrtostylis robusta*



*Cyrtostylis robusta.*
H & A Wapstra.

**FAMILY:** ORCHIDACEAE

**BOTANICAL NAME:** *Cyrtostylis robusta,* D.L.Jones & M.A.Clem., *Lindleyana* 2(3): 157 (1987)

**COMMON NAME:** Large gnat orchid

**COMMONWEALTH STATUS:** (*EPBC Act*) Not Listed

**TASMANIAN STATUS:** (*TSP Act*) rare

A listing statement is currently being compiled for this species. Please refer to page 129 of *'The Orchids of Tasmania'* by David Jones, Hans Wapstra, Peter Tonelli & Stephen Harris (1999) for further information.



Image by Matt Larcombe

# *Pterostylis cucullata* subsp. *cucullata*

## leafy greenhood

TASMANIAN THREATENED SPECIES LISTING STATEMENT

**Scientific name:** ***Pterostylis cucullata*** R.Br., *Prodr.* 327 (1810) **subsp. *cucullata***
**Common name:** leafy greenhood (Wapstra et al. 2005)
**Group:** vascular plant, monocotyledon, family **Orchidaceae**
**Name history:** *Pterostylis cucullata*

**Status:** *Threatened Species Protection Act 1995*: **endangered**
*Environment Protection and Biodiversity Conservation Act 1999*: **Vulnerable**

**Distribution:** Endemic status: **Not endemic to Tasmania**
Tasmanian NRM Regions: **Cradle Coast, North**

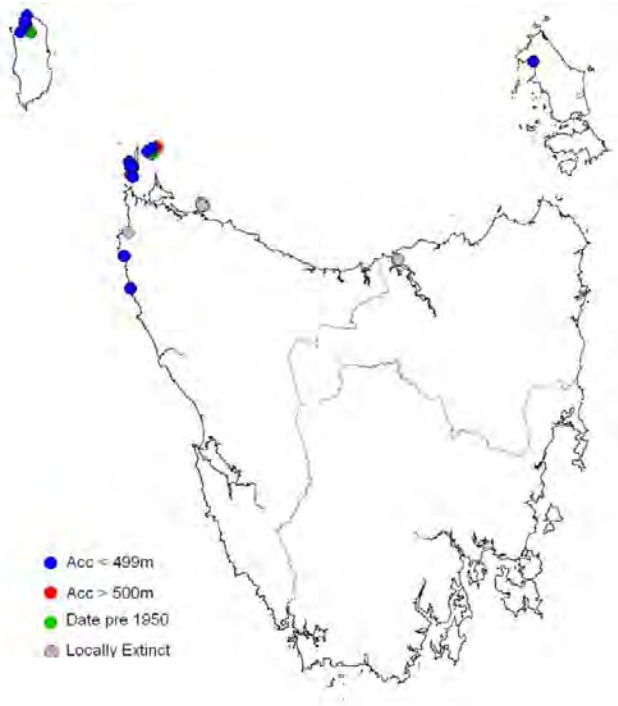



**Figure 1**. Distribution of *Pterostylis cucullata* subsp. *cucullata* within Tasmania



**Plate 1.** *Pterostylis cucullata* subsp. *cucullata* (image by Richard Schahinger)

## IDENTIFICATION AND ECOLOGY

*Pterostylis cucullata* subsp. *cucullata* is a terrestrial orchid with a loose basal rosette of large dark-green, elliptical leaves and an underground tuber. It has a flowering stem up to 12 cm tall with a solitary semi-nodding flower (Jones 2006). The species can be identified when flowering from October to November, with a peak in early November (Wapstra et al. 2008).

*Pterostylis cucullata* subsp. *cucullata* belongs to a group of orchids commonly known as greenhoods because the dorsal sepal and petals are united to form a predominantly green, hood-like structure that dominates the flower. When triggered by touch, the labellum flips inwards towards the column, trapping any insect inside the flower, thereby facilitating pollination as the insect struggles to escape (Jones et al. 1999).

The specific pollination vector for the species is unknown, although greenhood flowers in general are pollinated by gnats and occasionally by mosquitoes in larger species. Some species may also be self-pollinating.

*Pterostylis cucullata* subsp. *cucullata* grows on calcareous dunes in near-coastal areas, and generally occurs in shaded sites. Wind and salt pruning contribute to the maintenance of habitat suitable for the species in more exposed areas, while grazing by native animals and fire are likely to play significant roles in suppressing potentially invasive dune scrubs.

### Description

*Pterostylis cucullata* subsp. *cucullata* has 5 to 7 fleshy dark green leaves in a loose, stem-encircling basal rosette. The leaves are oblong to elliptical, 40 to 100 mm long and 15 to 30 mm wide. The solitary, semi-nodding flower is 35 to 40 mm long and 20 to 25 mm wide, on a stout stem, 5 to 12 cm tall, with the uppermost leaf sheathing the base of the flower. The flowers are green, white and dark reddish brown. The hood is curved forward in a semicircle with the shortly hairy, lateral sepals, loosely embracing the hood. The lateral sepals are fused at the base, with the free ends often curved and 9 to 12 mm long. The labellum is dark brown, oblong and 14 to 17 mm long, and is shortly curved near the apex. [description by Jones et al. 1999, Jones 2006]

### Taxonomic issues

*Pterostylis cucullata* subsp. *cucullata* is a short coastal subspecies of *Pterostylis cucullata*, a taxon described originally from a specimen collected at Port Dalrymple in northern Tasmania sometime prior to 1810 (Jones et al. 1999). *Pterostylis cucullata* is now considered to comprise three subspecies (DEWHA 2009) including a tall subspecies from forests in inland Victoria and South Australia (*Pterostylis cucullata* subsp. *sylvicola*), and a yet to be described species from Barrington Tops, New South Wales.

### Confusing species

None in Tasmania (Jones et al. 1999).

## DISTRIBUTION AND HABITAT

On mainland Australia *Pterostylis cucullata* subsp. *cucullata* occurs in southern Victoria where it is considered to be extremely rare and in South Australia where it is thought to be extinct (Jones 2006, DEWHA 2009).

In Tasmania *Pterostylis cucullata* subsp. *cucullata* is known from near-coastal areas in the northwest, including King Island, Hunter Island and Three Hummock Island, with an outlying occurrence on Flinders Island (Figure 1). There are also nineteenth century records from the north coast at Circular Head and George Town, though these sites are now presumed to be extinct (Table 1).

*Pterostylis cucullata* subsp. *cucullata* grows on near-coastal calcareous dunes and sand-sheets, within closed scrubs dominated by either *Leptospermum laevigatum* (coast teatree) or *Beyeria lechenaultii* var. *latifolia* (pale turpentine-bush). Associated species include *Leucopogon parviflorus* (coast beardheath), *Poa poiformis* var. *poiformis* (coastal tussockgrass) and *Poa rodwayi* (velvet tussockgrass). The sites are typically sheltered, facing south or south-easterly to westerly, with seasonally damp but well-drained humus-rich sandy loams, often with moss and deep leaf litter.

In Tasmania the species grows within an altitude range of 10 to 30 m above sea level. It has a linear range of 350 km, an extent of occurrence of 31,400 km$^2$ (which includes large areas of sea), and an area of occupancy of about 80 ha (Table 1).



**Plate 2.** *Pterostylis cucullata*: coast teatree habitat on King Island (image by Richard Schahinger)

## POPULATION ESTIMATE

*Pterostylis cucullata* subsp. *cucullata* is known from at least 16 extant subpopulations in Tasmania, with a total of around 10,000 to 11,000 plants (Table 1). The subpopulations on King Island appear to be the most extensive, with an absolute count of over 6,500 individuals in 2008/2009 (Branson 2008; Threatened Species Section surveys). Flowering plants typically comprise about 10% of any given subpopulation, with fewer flowers in more exposed situations.

The plant numbers cited above are considered to be conservative due to the difficulties associated with locating the species in its shrubby habitat. It is also likely that additional subpopulations occur in large areas of unsurveyed potential habitat on private property on both King and Flinders Island, and in large areas of reserved habitat on Three Hummock Island.

## RESERVATION STATUS

*Pterostylis cucullata* subsp. *cucullata* is reserved in Arthur-Pieman Conservation Area, Hunter Island Conservation Area and Three Hummock Island State Reserve.

## CONSERVATION ASSESSMENT

*Pterostylis cucullata* subsp. *cucullata* was listed as rare (as *Pterostylis cucullata*) on the original schedules of the Tasmanian *Threatened Species Protection Act 1995*. It was uplisted to endangered in 2002 when the species was thought to be extinct on mainland Tasmania (Jones et al. 1999).

## THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

The greatest threats to the known *Pterostylis cucullata* subpopulations in northwestern Tasmania and the Bass Strait islands are land clearance, cattle grazing and inappropriate fire regimes. Climate change and stochastic events also pose a threat to the species, while browsing by garden snails may have a local impact.

**Habitat loss:** Considerable areas of potential habitat on the northwest coasts of Tasmania are likely to have been lost in the past as a result of dune destabilisation in the 19$^{th}$ century triggered by a combination of cattle and fire (Stockton 1982), with the subsequent planting of the introduced marram grass (*Arenaria ammophila*) creating habitat unsuitable for the species. In addition, available habitat along Tasmania's northern coastal strip has been reduced significantly as a result of past agricultural and urban development.

All known subpopulations on King Island and Flinders Island are on private land, and consequently are at risk from a range of activities that can lead to degradation and loss of habitat.

**Cattle grazing and fire:** Much of the species' preferred habitat in Tasmania has been burnt at frequent intervals to maintain grasslands and grassy shrublands suitable for cattle grazing. Cattle grazing and associated activities may lead to physical trampling of the species, as well as causing dune destabilisation, nutrient enrichment and the introduction of weeds. Cattle continue to be an issue of concern for the subpopulations on King and Hunter Islands, as well as the Possum Banks subpopulation in Arthur-Pieman Conservation Area.

**Table 1.** Population summary for *Pterostylis cucullata* subsp. *cucullata* in Tasmania

| | Subpopulation | Tenure | NRM region | 1:25 000 mapsheet | Year last (first) seen * | Area of occupancy (ha) | Number of plants |
|---|---|---|---|---|---|---|---|
| 1 | King Island (Rocky Point) | Private | Cradle Coast | Wickham | 2009 (2009) | | 1 |
| 2 | King Island (Cape Wickham) | Private | Cradle Coast | Wickham | 2009 (1998) | 1 ^ | 1700–1900 |
| 3 | King Island (Yellow Rock north) | Private | Cradle Coast | New Year | 2008 (2008) | 5 ^ | 2000 |
| 4 | King Island (Yellow Rock middle) | Private | Cradle Coast | New Year | 2009 (2009) | 27 ^ | 1700 |
| 5 | King Island (Yellow Rock south) | Private | Cradle Coast | New Year | 2009 (1998) | 21 ^ | 1060 |
| 6 | Three Hummock Island (North) | State Reserve | Cradle Coast | Rochon | 2002 | 0.12 | 76 |
| 7 | Three Hummock Island (South) | State Reserve | Cradle Coast | Kerauden | 2002 | 0.02 | 20 |
| 8 | Three Hummock Island (West Telegraph) | State Reserve | Cradle Coast | Kerauden | 2008 | 1 | 32 |
| 9 | Hunter Island (Lighthouse Dune system) | Conservation Area | Cradle Coast | Cuvier | 2002 | 0.02 | 150 (3 sites) |
| 10 | Hunter Island (Cuvier Bay track) | Conservation Area | Cradle Coast | Cuvier | 2002 | 0.001 | 10 |
| 11 | Hunter Island (Homestead Lagoon) | Conservation Area | Cradle Coast | Cuvier | 2002 | | 100 |
| 12 | Hunter Island (Homestead Dune system) | Conservation Area | Cradle Coast | Cuvier | 2002 | 9 ^ | 900 (7+ sites) |
| 13 | Hunter Island (South) | Conservation Area | Cradle Coast | Cuvier | 2001 | | 2+ |
| 14 | Arthur-Pieman (Gardiner Point) | Conservation Area | Cradle Coast | Bluff | 2007 (2001) | 0.004 | 23 |
| 15 | Arthur-Pieman (Possum Banks) | Conservation Area | Cradle Coast | Temma | 2007 (2002) | 9 ^ | 2000–3000 |
| 16 | Flinders Island (Tanners Bay) | Private | North | Tanner | 2008 (2005) | 0.0004 | 11 |
| 17 | Marrawah | | Cradle Coast | Marrawah | 1906 (1906) | Presumed extinct | |
| 18 | Circular Head | | Cradle Coast | Stanley | 1900? (1837) | Presumed extinct | |
| 19 | Near George Town | | North | Bell Bay | 1844 (prior to 1810) | Presumed extinct | |

* first collected from King Island in 1888, Three Hummock Island in 1944 and Hunter Island in 1971; ^ Area of occupancy taken to be the subpopulation's extent of occurrence.

Cattle grazing on Hunter Island is currently the subject of negotiations between the Tasmanian Parks and Wildlife Service and a preferred leaseholder, while the agistment of cattle in the Arthur-Pieman Conservation Area is governed by prescriptions in the *Arthur-Pieman Conservation Area Management Plan* (PWS 2002).

Fire management of the species' coastal dune habitat may be a pertinent issue in less exposed sites, with the likely development of invasive scrub vegetation in the absence of targeted ecological burns. In terms of those subpopulations on public land, only those within the Arthur-Pieman Conservation Area have a fire management plan in place (PWS 2003). Prescriptions are being developed for Hunter Island Conservation Area as part of a grazing lease, while passive fire management is expected to continue into the foreseeable future for Three Hummock Island State Reserve.

**Browsing by garden snails**: The introduced brown garden snail (*Helix aspersa*) was cited as a threat to the Hunter Island subpopulations by Jones et al. (1999), though more recent surveys by Threatened Species Section personnel have not revealed any substantive impact (Dalgleish & Schahinger 2006).

**Climate change & stochastic events:** A reduction in rainfall associated with global climate change may lead to a diminution of suitable habitat and also exacerbate the risk of fire, while the small size of some of the subpopulations exposes them to a stochastic risk of extinction.

## MANAGEMENT STRATEGY

### What has been done?

- Baseline surveys of known sites were conducted in 2002 (Dalgleish & Schahinger 2006).
- The Possum Banks site in the Arthur-Pieman Conservation Area has been identified as a cattle exclusion area (Schahinger 2002). It is anticipated that an area containing about half the known plants will be fenced in the near future.
- A management plan and fire management plan has been published for the Arthur-Pieman Conservation Area (PWS 2002, 2003).
- Potential habitat in the Arthur-Pieman Conservation Area between Preminghana and the Interview River was surveyed in 2001 and 2004 (Schahinger 2002, 2005).
- Extension surveys of suitable habitat were undertaken in 2007, 2008 and 2009. Target areas included the Arthur-Pieman Conservation Area, King Island, Three Hummock Island and Flinders Island. The surveys revealed the presence of significant new subpopulations on King Island and Three Hummock Island, and increased the number of known plants in the Arthur-Pieman Conservation Area.
- The species was included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (TSU 2006).

### Management objectives

The main objective for the recovery of *Pterostylis cucullata* subsp. *cucullata* is to prevent the inadvertent destruction of subpopulations, maintain the viability of existing subpopulations, and promote conditions for its successful recruitment.

### What is needed?

- provide information and extension support to the Cradle Coast and Northern Natural Resource Management committees, relevant local councils, government agencies and the local community on the locality, significance and management of known *Pterostylis cucullata* subsp. *cucullata* subpopulations and areas of potential habitat;
- undertake extension surveys to determine the species' full extent on King, Three Hummock and Flinders islands (including determining the status of all reported but undescribed subpopulations, and the identification of management issues);
- pursue increased security and improved management of subpopulations on private land through private land conservation programs;

- prepare and implement fire and grazing management plans for Hunter Island and Three Hummock Island to take the requirements of the species into account;
- monitor known subpopulations at two-yearly intervals to determine the level of recruitment and/or plant loss and to better inform management prescriptions;
- implement the threatened orchid recovery plan (TSU 2006) and include the species in any revision of the plan.

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Wapstra, H., Wapstra, A., Wapstra, M., & Gilfedder, L. (2005). *The Little Book of Common Names for Tasmanian Plants.* Department of Primary Industries, Water and Environment, Hobart.

**Prepared** in 2009 under the provisions of the Tasmanian *Threatened Species Protection Act 1995*. Approved by the Secretary and published in July 2010.

**Cite as:** Threatened Species Section (2010) *Listing Statement for* Pterostylis cucullata *subsp.* cucullata *(leafy greenhood),* Department of Primary Industries, Parks, Water and Environment, Tasmania.

**View:**
www.dpipwe.tas.gov.au/threatenedspecieslists

**Contact details:** Threatened Species Section, Department of Primary Industries, Parks, Water and Environment, GPO Box 44, Hobart, Tasmania, Australia 7001. Ph (03) 6233 6556; fax (03) 6233 3477.

**Permit:** It is an offence to collect, disturb, damage or destroy this species unless under permit.

**ATTACHMENT 7: *SCHOENOPLECTUS TABERNAEMONTANI* NVA RECORD**

Annexure: 16.2.3



Tasmanian Government

www.tas.gov.au

# Natural Values Atlas

Authoritative, comprehensive information on Tasmania's natural values

Version 3.12.8



**Species**

Species Home

Species Search
Species Search Help
Observation Search
Observation Search Help
Individuals Search
Sample Search
Populations
Populations Search
Taxonomy Tree

Range Boundary Metadata
Conservation Significance Definitions
Taxonomy and Attribute Uploads and References

Data Entry
Lookups

**Reports**

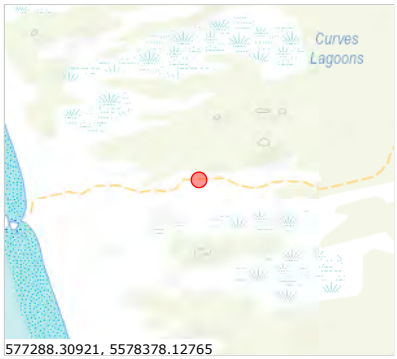
Natural Values Report
Natural Values Report Help
Raptor Report
Biosecurity Report
Census Report
View Completed Reports

## Species Observation

Back Refresh

## Observation details

| | |
|---|---|
| **Id** | 919339 |
| **Source** | *Department of Natural Resources and Environment, Tasmania (NRE) (dpipwe) |
| **Program** | |
| **Project** | Wetlands Database |
| **Activity** | |
| **Observation Foreign Id** | wl:wl:423/4 |
| **Individual** | |
| **Estimated Birth Date** | |
| **Gender** | |
| **Original Name** | Schoenoplectus validus |
| **Species Name** | Schoenoplectus tabernaemontani |
| **Host Species Name** | |
| **Population** | |
| **Position** | **GDA94 Zone 55 Easting/Northing** POINT(577312 5578183) |




577288.30921, 5578378.12765




717129.03100, 5209904.45596

Click on the map to open a large version

| | |
|---|---|
| **Position Accuracy (m)** | 250 |
| **Location Desc** | |
| **Collection Method** | |
| **Mapping Method** | |
| **Observation Date** | 01-Jan-1979 |
| **Date Accuracy** | Unknown |
| **Observation Time** | |
| **Observer Names** | Unknown Unknown (23130) |
| **Reporter Names** | |
| **Reported Date** | |
| **Identified By** | |
| **Investigator Names** | |
| **Investigation Date** | |
| **Observation Type** | Sighting |
| **Observation Type Qualifier** | |
| **Observation State** | Present |
| **Observation State Qualifier** | |
| **Record Status** | Accepted |
| **Questionable Record?** | No |
| **Notes** | |

## Report data issues

You can enter a comment to highlight any issues about this record

Annexure: 16.2.3

Send Comment

## Data quality tests

| Test Name | Result |
|---|---|
| Species has a complete name | Passed |
| Position accuracy is valid | Passed |
| Position accuracy is within 100 metres | Failed |
| Observation date is valid | Passed |
| Observation date is current | Passed |
| Date accuracy is valid | Failed |
| Date accuracy is to the day | Failed |
| Location description has been provided | Failed |
| Mapping method has been provided | Failed |
| Observer name is a valid name | Failed |
| Observer verified expert | Failed |
| Reporter name is a valid name | Unchecked (no data available) |
| Reporter verified expert | Unchecked (no data available) |
| Identifier name is a valid name | Unchecked (no data available) |
| Identifier is a verified expert | Unchecked (no data available) |
| Investigator name is a valid name | Unchecked (no data available) |
| Investigator is a verified expert | Unchecked (no data available) |
| Record hasn't been flagged as questionable | Passed |

## Attachments

| Attachment | Description | File Name | Uploaded Date | Restricted? | Preferred Image? |
|---|---|---|---|---|---|

There was no data found for your request

## Abundance details

**Reproduction Status**

**Individuals Count**

**Individuals Count Variation (+/-)**

**Individuals Count Notes**

**Adult %**

**Juvenile %**

**Coverage Area (m²)**

**Coverage %**

**Area Occupied Notes**

**Recruitment?**

**Average Height (m)**

## Habitat details

**Habitat Extent Area (Ha)**

**Vegetation Community**

**Vegetation Notes**

**Landform**

**Geology**

**Substrate Type**

**Drainage**

**Rock %**

**Bare Ground %**

**Shading %**

**Aspect**

**Slope (°)**

**Altitude (m)**

**Land Use**

**Disturbance Type**

**Disturbance Date**

**Permit Number**

**Disturbance Notes**

**Threat Notes**

## Samples

Annexure: 16.2.3

| | Id | Accession No | Sample Type | Sampler Names | Lodgement Location | Lodgement Date | Analysis Result Count |
|---|---|---|---|---|---|---|---|

There was no data found for your request

Page: 1 of 0 1-1 of 0

## Record details

Attribution fields for data harvested from external repositories

**Licence Type**

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Tasmanian Government

**ATTACHMENT 8: SURVEY OF THE GEOMORPHOLOGY AND SOIL CHARACTERISTICS OF THE MARKARNA GRAZING COMPANY PTY LTD PROPERTY, MARSHALL BEACH, FLINDERS ISLAND**

# Survey of the Geomorphology and Soil characteristics of the Markarna Grazing Company Pty Ltd Property, Marshall Beach, Flinders Island

**18 January 2024**



**This report was compiled by Dr Adrian Slee, Earth Sciences and Cultural Heritage, Forest Practices Authority, 30 Patrick Street, Hobart 7000**

**Email:** adrian.slee@fpa.tas.gov.au

**Citation**

Slee, A. 2023. Survey of the Geomorphology and Soil characteristics of the Markarna Grazing Company Pty Ltd Property, Marshall Beach, Flinders Island, November 2023, Forest Practices Authority, Hobart 27p.

**FPA file reference**

D24-20638

**Disclaimer for report**

The advice contained in this document has been prepared for Markarna Grazing Company Pty Ltd and Van Diemen Consulting Pty Ltd only.

Whilst the Forest Practices Authority has used its best endeavours to ensure accuracy, it does not warrant that the material is free of error. Consequently, the advice is provided on the basis that the Forest Practices Authority will not be liable for any error or omission, in contract, tort or otherwise. However, should any error or omission be notified, the Forest Practices Authority will use its best endeavours to correct the advice.

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**Glossary**

*Optically Stimulated Luminescence (OSL) dating*: A method of dating sand grains. This method measures the period of time since burial of the sand grains and therefore indicates the age of the host landform (i.e. dune ridge).

*Tasmanian Geoconservation Database (TGD):* A database that provides a source of information about geodiversity features, systems and processes of conservation significance in the State of Tasmania.

**Cover Image (Image 1)**

*View eastwards from the coastal foredune backing Marshall Beach, looking across isolated outcrops of granite towards the large west-to-east orientated longitudinal dunes forming the main Markarna Lime Sands resource*

# 1. Project scope and Aims

Van Diemen Consulting Pty Ltd engaged the Forest Practices Authority (FPA) to investigate the geomorphology and soils present on a 364.1 ha mining lease owned by the Markarna Grazing Company between Palana Road and Marshall Beach near the settlement of Lughrata on Flinders Island. The proposal by Markarna Grazing Company is to develop and extend an existing old lime sand extraction pit located within the dune fields located between Palana Road and Marshall Beach near the settlement of Lughrata. The priority area is an 800 m long west to east oriented sand dune complex covering approximately 4 ha that forms a lime sand resource immediately west of the current old extraction pit.

The aim of the project was to provide a detailed report on the dune field and other landforms including swamps and potential Tertiary limestone karst features in the vicinity of the proposed extraction pit. Soils were also be investigated in this area. A secondary focus was a general documentation of the dune field and other sites of geomorphic significance in the overall mining lease in the event of expansion of operations in the future.

**The report addresses the following issues:**

- Documentation of any karst features present and management recommendations.
- Overview of the sand dunes present at the proposed pit site and mine lease in general and dune special values management recommendations.
- Comment on sand blow risks and mediation recommendations.
- Documentation of other geomorphic landforms.
- Soil observations and management.

# 2. Previous Work

## Granite Bedrock

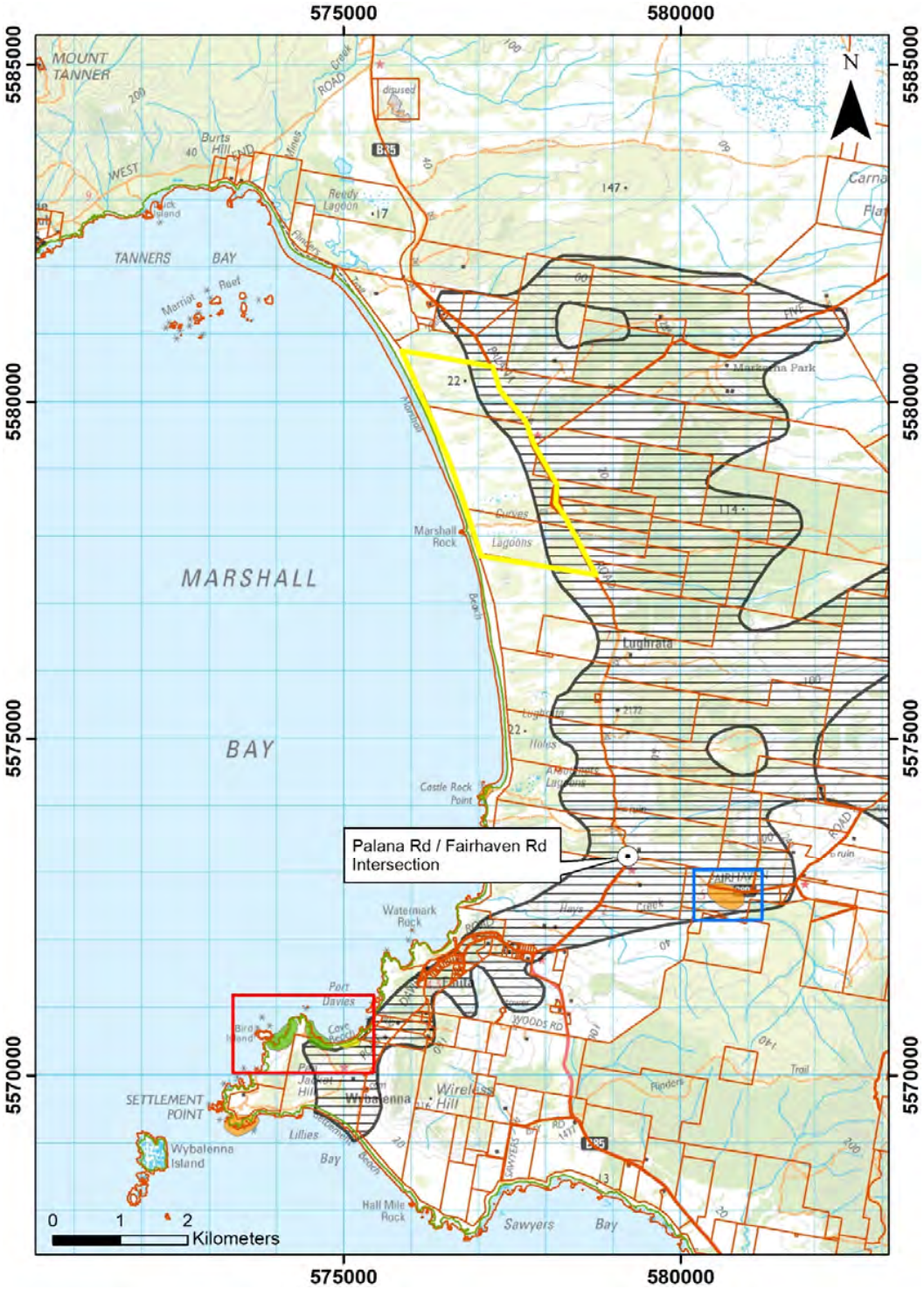
Devonian granite plutons are the dominant bedrock that floors Flinders Island and upon which the Tertiary Limestone and Quaternary deposits lie. White syenogranite/ monzogranite (I-type) granite outcrops in the vicinity of Five Mile Road immediately east of the study site. No granite was mapped on the 1:250,000 geological map (available on www.theList.tas.gov.au) within the study area (Mineral Resources Tasmania 2023). However aerial photographs clearly show that Marshall Rock (outcropping on Marshall Beach) is granitic.

## Karst

Tertiary dune limestone is mapped on the 1:250,000 Tasmanian geological maps. It forms the hills rising east of Palana Road immediately inland of the Markarna Lime Sands mining lease. The hills are part of an extensive belt of limestone extending from the vicinity of Five Mile Road in the north, inland to the Memana district and south along the coast to Wybalenna. The area is listed as a category B karst area (Emita-Memana BS17) (Kiernan 1995; see also map 1, below). The karst B classification indicates that karst processes are active in the area. The area has received limited attention from geoscientists and cavers. Limestone has been mapped on the hills to the east of the study site to altitudes approaching 130 m asl. The limestone is likely to be mantling granite and possibly sedimentary rock at depth and may be quite thin i.e., in the order of tens of metres. However, the topographic relief of the limestone here is more than 100 m which is more than enough for significant karst landforms and processes to develop. Kiernan and the author have observed subtle sinkholes in the vicinity of Palana Road/Fairhaven Road intersection (Map 1 and Image 2). Some of these depressions could be dune swales, but the presence of exposed limestone outcrops around others suggest sinkhole development.

A low hill north of Hays Creek has limestone cliff outcrops. The most notable karst landforms occur at Cave Beach where significant limestone exposures in a coastal setting display very rugged limestone weathering pinnacles and solutional forms (karren) associated with several notches and small caves formed at or near the contact between the limestone and the underlying granite (Image 3). The karst landforms in the vicinity of Cave Bay (red box on map 1) and the sinkholes along Fairhaven Road (Blue box on map 1) are listed as Geoconservation sites ID:2254 and ID:2298 in the Tasmanian Geoconservation Database (TGD) accessible on the Tasmanian Natural Values Atlas (NVA.tas.gov.au).

*Geomorphology and soils of the Markana Grazing Company Pty Ltd Property*




*Map 1: Marshall Bay. The striped area is the mapped extent of the Emita – Memana (BS17) karst according to Kiernan 1995; yellow square is the lease area; red and blue squares highlight TGD sites with notable karst development.*



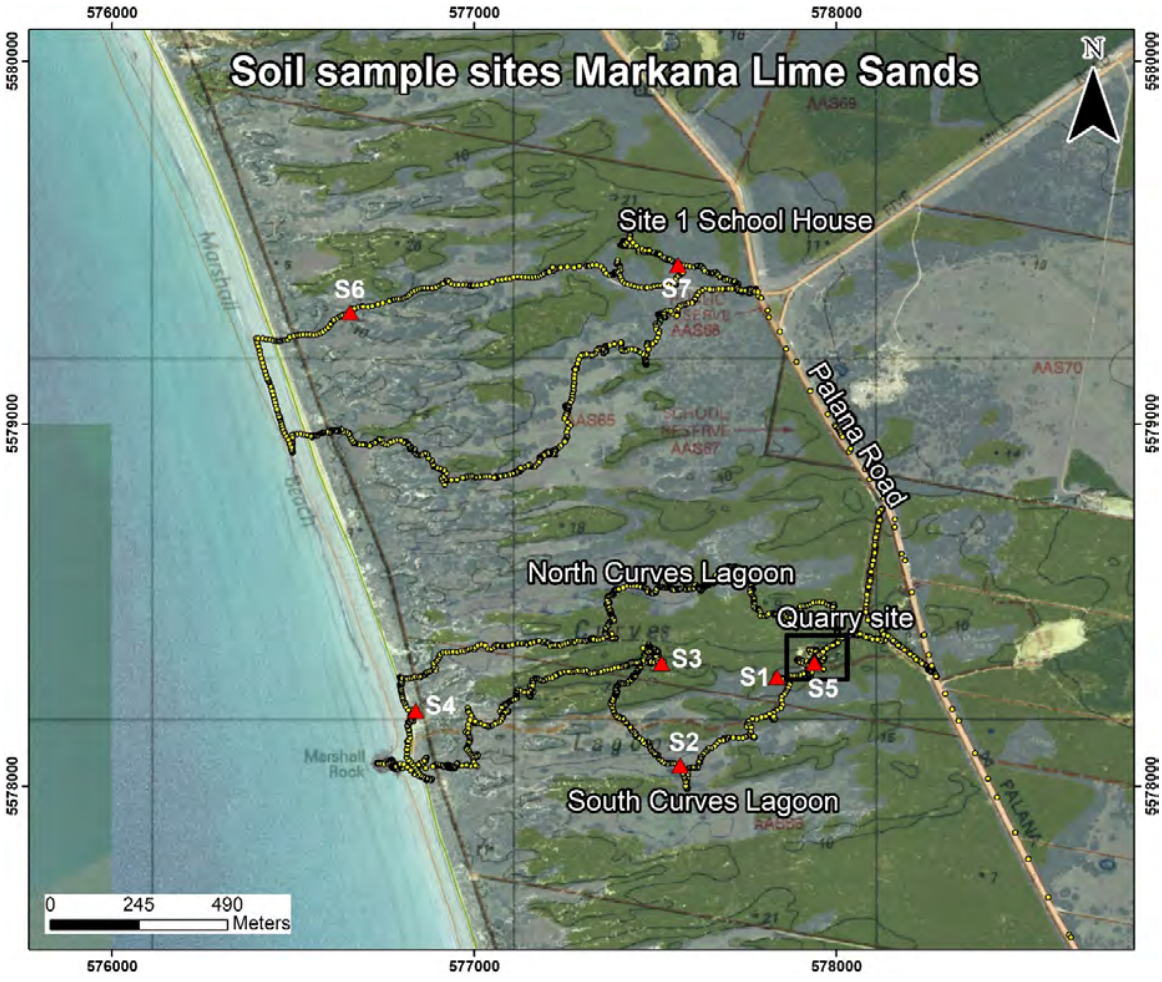
*Image 2: One of a large number of shallow basins (circled) associated with limestone outcrops (foreground and background) in the vicinity of the Palana Road/Fairhaven Road intersection (Map 1). The lack of dune cover and exposed outcrops suggest shallow soils and that these depressions are solution sinkholes associated with a subsurface karst aquifer.*



*Image 3: The Tertiary Limestone at Cave Bay features significant karst landforms including small caves, notches and solutional (karren) surface weathering forms. The area is a listed TGD site and the limestone outcrops are contiguous with the limestone bedrock in the vicinity of the mine lease.*

## 3. METHODS

Observations of the site were made over two days of fieldwork on the 7th and 8th of November 2023. Waypoints and route tracking were recorded using a Garmin Etrex 22s. The route taken during the field work and the location of the soil samples taken are shown in Map 2. Maps were drawn using ARC-Map 10.8.1. Soil samples were taken using an Eijkelkamp auger. A sample for Optically Stimulated Luminescence (OSL) dating was taken from the lower dune horizon in the old pit face. This was done by cutting back and benching out the sand dune before a sample was taken using a PVC tube hammered vertically into a dug bench approximately 5 m below the top of the dune.




*Map 2: Soil sample sites and survey route (yellow tracks) taken during fieldwork.*

# 4. OBSERVATIONS

## BEDROCK GEOLOGY OF THE SITE

### Granite

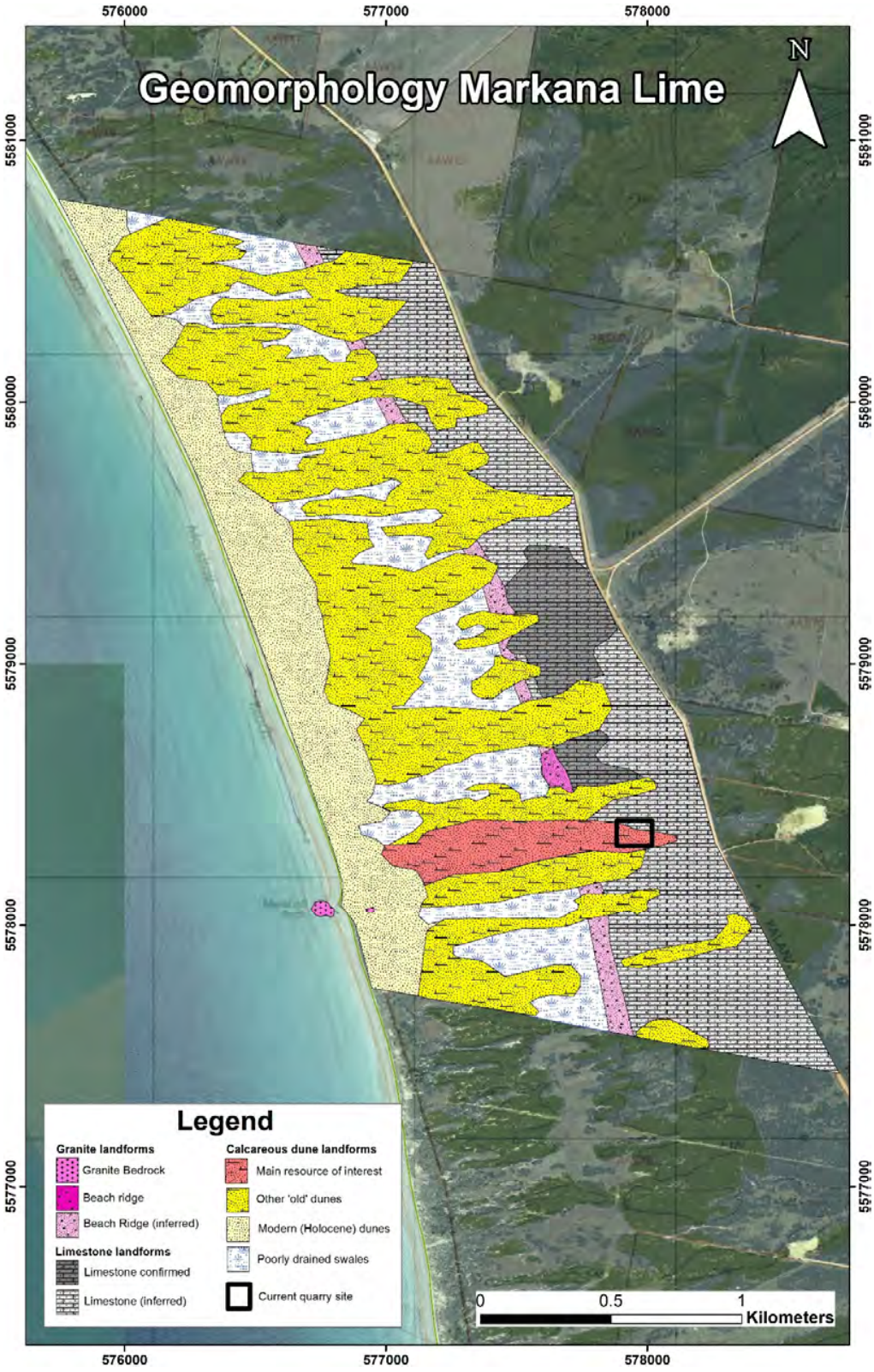
The general geomorphology of the mine lease is presented in Map 3. The Marshall Rock and other granite outcrops located within the sand dunes 150 m to the east of the pit and just within the lease (see Image 1) were visited during the survey. Both are unmapped on geological sheets and feature large, rounded outcrops of white crystalline granite. While the granites are not the focus of proposed operations on the mine lease their presence on the coast and in particularly within the foredunes indicates the likelihood that granite outcrops are present beneath the sand dunes on the property. Granite bedrock rarely forms flat surfaces but rather undulates quite substantially over short distances hence it is impracticable to define the depth of the dunes and further east Tertiary limestones above the granite contact. Exploration could help assess the depth of the lime sands. However, it would be costly over large areas, and possibly yield little additional information.

### Limestone

A continuous flat bench approximately 15 m above sea level is present in the eastern section of the study area. In places this bench is overlain by dune sands. Significant lag deposits of fossiliferous limestone in the form of boulders and cobbles are found on this bench associated with a distinctive open vegetation community in contrast to the thicker vegetation associated with the younger dune sequences (Image 4). The bench appears to be the western edge of the limestone outcrop and its western margin may have once been a shoreline open to Bass Strait. It now forms a paleo-shoreline. Areas of outcropping limestone are very limited as most of the edges of the limestone plain appear to be buried by Quaternary coastal and dune deposits. Only one small in-situ outcrop of limestone was observed at 577509mE: 5579301mS. This was associated with the blowout of a low 1 m tall sand dune.



*Image 4: Flat limestone bench in the east of the property.*




*Map 3: Geomorphology summary map.*

## KARST LANDFORMS

### WEATHERING LANDFORMS (KARREN)

Very minor but sharp solutional karren weathering forms were located at the larger limestone outcrop (Image 5) and other smaller blocks in the area but no significant solutional karst landforms were observed.



*Image 5: Small limestone outcrop*

### SINKHOLES

Large, elongated depressions are a feature of the property. Some of these are large enough to have warranted definition as enclosed basins on the 1:25,000 topographic map sheets of the area and the largest are defined as lagoons (e.g. Curves Lagoons to the immediate south of the proposed resource). These depressions are elongated. They are not flat floored but have rather undulating forms. Although a small intermittent pond appears to be present in the lowest basin of the northern Curves Lagoon, elsewhere flowing and pooling surface water appears to be very limited; surface water accumulation may be confined to times of intense rainfall. In contrast to enclosed rounded basins associated with limestone bedrock, outcrops interpreted to be probable sinkholes have been described by the author and others near the Palana Road/Fairhaven Road intersection and further south in paddocks north of Trousers Point. The depressions at the study site appear to be all related to either broad west-east oriented interdune swales or (closer to the coast) roughly square

depressions developed behind the active Marshall Beach foredune complex. Depressions of conclusive karstic origin were not identified and are considered unlikely to be present within the study area.

### SPRINGS

No obvious streams or springs were located on the property. A possible very small spring rises from beneath Marshall Beach immediately east of Marshall Rock. Here at low tide a small stream flows for approximately 20 m to the ocean, dropping 20–40 cm in altitude. The scale and location of the spring does not imply karstic drainage in the Tertiary limestone several hundred meters inland but rather small-scale subsurface drainage out of the local beach-bordering Holocene dunes. The lack of surface streams is interesting as there are no inlets or obvious streams entering the ocean for the length of Marshall Beach between the outflow of Arbothnots Lagoon to the south and a small inlet to the north at 574850mE: 5582000mN. A series of disappearing stream channels are mapped in the limestone hills southeast and northeast of the study area. The absence of defined stream channels flowing off the limestone in the area does suggest subsurface drainage is occurring in karst.

### SUMMARY OF KARST LANDFORMS

An extensive Tertiary dune limestone bench is present in the eastern section of the study area. This bench is overlain in locations by the Quaternary dunes and has open predominantly *Leptospermum laevigatum* dominated forest. The lack of streams (and channels) flowing from the higher limestone hills to the east of the property may indicate that a karst aquifer is present in the area. However, no obvious springs were noted. No sinkholes were observed on the property, and as the largest limestone outcrop observed covered only a few square meters, caves are unlikely to be present in the priority study area. However, the author did not cover the entire mining lease and LiDar coverage is not available for the area so the presence of isolated karst landforms including bedrock bluffs with karren, sinkholes or small caves cannot be entirely ruled out.

### OLD BEACH RIDGE

North Curves Lagoon is a large dune swale basin. It is surrounded to the west, south and north by Quaternary and Holocene dune ridges and to the east by the low Tertiary limestone bench. On the eastern margin of the basin at 577625mE: 5578543mN approximately 6–10 m above sea level (asl) white sandy gravels are exposed (Image 6). These are not typical fine sands associated with the beach ridges in the area but are rounded coarse quartz sands that appear to mantle the lower western slopes of the limestone bench. The quartz-rich nature of the sediments suggests two potential sources

1. That granite bedrock is shallowly buried in the vicinity of the eastern end of north Curves Lagoon and the soils at the site are primary granitic soils (known as gruss) formed from weathered granite.

2. That the coarse quartzite sands that contain some shelly carbonate fragments carbonate were deposited on the western edge of the limestone bench in a high energy coastal environment (surf beach).

The latter explanation appears to be more likely as no granite bedrock was observed at the site. It can be assumed that the coastline of Bass Strait was once a high energy environment supplied with coarse sands sourced from offshore granite outcrops such as Marshall Rock or reworked sands from upslope granite sources east of Palana Road. The presence of this beach ridge indicates that the coastline has prograded (advanced) >900 m to the west while becoming a lower energy environment. Given the altitude of the beach it appears likely that it could have formed during the penultimate interglacial high stand, approximately 130,000 years ago when sea levels were 6-8 m higher than today. The presence of granitic soils in this area defines the northern margin of the economic resource in lime-rich dune sands to the south. It is likely that the beach ridge extends beneath the overlying Quaternary carbonate-rich sand dunes, as the dunes appear to have formed over the top of the older granite sands and Tertiary limestones in the east of the property. If this is the case a contact between the carbonate sand resource and the quartz sands may be encountered during mining.



*Image 6: Beach ridge composed of quartzite gravel sands (inset) derived from granite bedrock immediately east of North Curves Lagoon.*

## SAND DUNES

Extensive sand dunes cover most of the mining lease. Except for the granitic sediments east of North Curves Lagoon described on page 8, the sand dunes are composed of fine-grained white quartz and carbonate deposits. Two significant sand dune assemblages are present. In the west are the modern foredune and back dunes behind Marshall Beach. Inland are a series of elongated west-to-east trending parallel dunes that rise up to 24 m above sea level.

These inland dunes are largely vegetated and stable in comparison to the foredunes that have fewer woody and tree species, instead being dominated by grasses, herbs, wind-pruned shrubs and sedges. The coastal foredunes climb onto the older dunes but can be broadly demarcated by their hummocky forms and presence of sand blow-outs that contrast to the more elongated uniform stabilised ridges of the older dunes.

### MAIN DUNE

The 1:25000 topographic map of the main dune (resource) shows a single large dune approximately 180 m wide and 10–25 m high. Two large internal depressions are present west of the current sand pit. The actual landscape is more complex than the contours suggest with at least 8 dune crests identified between North Curves Lagoon and South Curves Lagoon. The dune ridges have narrow rounded tops and steep side slopes, generally >30°. The multi-peaked nature of the dune ridges and the deep wide interdune swales are not well expressed on the 1:25000 topographic map.

The existing pit is located near the narrowest and easternmost part of the dune sequence. Here past pit operations have exposed a cutting through the main dune that has some scientific interest as described in the next section of this report.

### EXISTING PIT

The existing pit is located at 577936mE: 5578343mN, 350 m west of Palana Road and is accessible by an overgrown FWD track. The pit exposes a 75 m wide section through the eastern limb of the main dune. Most of the exposure is either overgrown or of limited interest. The floor of the pit appears to be in solid Tertiary limestone bedrock. Some of the floor material could have been brought in by past operations to provide a solid working base. The best exposure through the dune is on the upper southern face of the pit where an approximately 5.5 m deep section is exposed. A modern topsoil and two buried paleosols are exposed in this face while calcified tree roots (rhizoliths) and branches are present within the dune below the lower of the two paleosols. The dune profile was described and photographed (Table 1 and Image 7) and samples were taken from the main horizons.

**Table 1. Description of soil profile at the pit site.**

| Unit 1 | Depth (cm) | Description |
|---|---|---|
| **1** | **0 – 20** | Grey sandy topsoil with abundant modern root mats |
| **2** | **20 – 95** | Yellow sands with abundant animal burrows |
| **3** | **95 – 110** | Dark grey / brown horizon in sands – paleosol 1 |
| **4** | **110 – 260** | Light yellow to white sands |
| **5** | **260 – 280** | Grey / Brown horizon laterally extensive and forming a stratigraphic bench – paleosol 2. |
| **6** | **280 – 550 (approx.)** | White sands, predominantly carbonate; prominent surface carbonate cementation highlighting stratigraphic beds, calcified tree root and possible calcified small tree stump. |
| **7** | **Pit Floor** | Fossiliferous limestone (Tertiary) |




*Image 7: Annotated view looking east over the southern wall of the old pit showing dune and paleosol horizons.*

## PALEOSOLS

The term 'paleosol' refers to a buried soil horizon within a sedimentary profile. Paleosols are darker band of sediment which may or may not contain woody debris, organic matter and charcoal surrounded by lighter and less charcoal-rich sediments. Paleosols can be important indicators of past stability between depositional events. In this case organic topsoils (indicating stability) have been buried by a non-organic deposits (sand dunes). Two prominent paleosols are present in the exposure. The upper paleosol 1 (Image 8) lies between 95 cm and 115 cm depth and forms a prominent but laterally patchy dark brown organic-rich layer in the upper dune profile. The lower paleosol at 260 cm depth is a thinner and lighter compact sand unit that appears to not be as organic rich. However, this paleosol is laterally extensive and forms a prominent grey bench on the mid slope of the cutting. In the case of the dune systems the presence of paleosols indicates a substantial time of dune stability, allowing an organic topsoil to form prior to renewed dune instability resulting in topsoil burial. At the pit site at least three periods of dune stability can be inferred as indicated by the two buried paleosols and the darker modern topsoil associated with thick root mats on the crest of the dune.



*Image 8: Top 1.5 m of the pit face showing prominent brown paleosol at about 1 m depth.*

## RHIZOLITHS

A feature of the main pit exposure is the rhizoliths located in Unit 6 of the profile (Table 1; Images 9 and 10) formed by dissolution of carbonate by percolating water and its subsequent precipitation around roots.

Rhizoliths observed at the pit include narrow straw-like tree root rhizoliths up to 20 cm long and 1–5 cm across many of which still contain inner woody root material and larger cylindrical-shaped rhizoliths up to 30 cm long and 15 cm thick, which may have formed around tree branches. Small columns are present at other locations in locations suggesting calcification of the stumps of *Melaleuca* and other small trees found at the site.





*Images 9 and 10: Tree root rhizoliths exposed in the lower dune horizon in the pit face. These rhizoliths form from leached calcium carbonate which has precipitated around rough surfaces such as tree roots.*

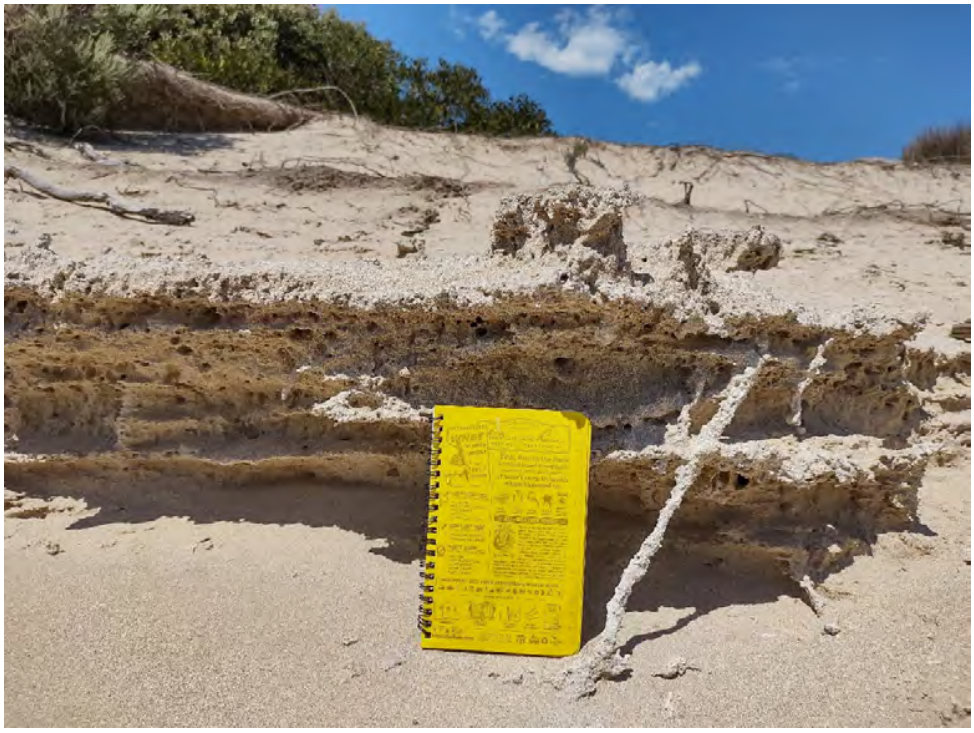


*Image 11: Small carbonate benches have formed in the lower dune horizon but unlike the rhizoliths appear to have formed since the pit last operated.*

The cut sand bank also features several distinct carbonate layers (poorly developed calcretes) that indicate slight differences in the carbonate content of the sand dune horizons (Image 11). These layers stand out as hard surfaces in the dune but on cutting back the surface exposure no stratigraphic difference was noted between these layers and those above and below (Image 12). It was concluded that these layers form by surface hardening by carbonate precipitation on the exposed surface since sediment exposure by past pit operations.



*Image 12: A cut through the weakly developed calcrete on the cut surface of the pit revealed compact fairly uniform bedded sands.*

## DATING

A sample for Optically Stimulated Luminescence (OSL) dating was taken from a freshly cut bench in the lowermost dune unit, 1.5 m below the lower paleosol (Images 13 and 14). This sample will be submitted to the OSL laboratory at the University of Wellington (New Zealand) for dating. The date will provide a maximum age for the formation of the lower paleosol and will help establish whether the dunes formed during glacial or interglacial periods.



*Image 13: Taped transect of the face from the top of the dune horizon to the sample site for OSL dating on the cut bench. Image 14: The sample was taken by hammering a sample tube into the cut bench vertically and then removing the sediment for extraction.*

## MODERN (LATE HOLOCENE DUNES)

Modern dune ridges run parallel to Marshall Beach for the length of the mining lease. They consist of an almost continuous elongated beach foredune backed by a complex of hummocky back dunes separated by roughly bowl-shaped dune swales (depressions). At the western margin of the main resource area these dunes intercept the older west – east longitudinal dunes considered above. The modern dunes are composed of fine loose sands with no evidence of significant calcite crust or rhizolith development; however the carbonate content of the dunes is high. No paleosols were observed in these dunes but thin buried soil horizons may be present. The lack of calcite cementation in the modern dunes suggests a significantly younger age for these deposits as may be expected from their near-coastal setting. Cuttings through the coastal foredune and a low back dune deposit on the main central access track were investigated. The coastal foredune (beach dune) was exposed in a blowout (Images 15 and 16) and displays a uniform profile composed of unconsolidated loose sands. The inland back dune was exposed where the access track cuts through the dune (images 17 and 18). The dune has three horizons: a slightly brown upper 55 cm: a white layer at approximately 55–70 cm and a yellowish layer at >70 cm depth. The profile development indicates a period of dune stability possibly extending back ~1000 years. The brown upper layer is an A1 horizon. The middle white layer is a leached A2 horizon. The deeper yellowish zone is a B horizon. Inappropriate track development and other activities associated with operations on the mining lease could lead to re-activation of these young dunes, which are more exposed to coastal winds than dunes further inland.



*Image 15: Steep modern Marshall Beach foredune looking south from Marshall Rock.*



*Image 16: Natural windblow exposure through the foredune at soil sample site 6 map 2.*



*Image 17: The modern semi-stabilised back dune.*



*Image 18: The dune has a similar composition to the active foredune however has been stabilised for some time as a soil profile has developed.*

## SOIL SURVEY

Soils were sampled and bagged for transport from several locations in the vicinity of the main resource deposit (Map 2). Soils were sampled at depths of 30 cm, 50 cm and where possible 1 m using either natural cuttings or the Eijkelkamp soil auger. This was to identify any unusual characteristics of the soils and to sample for laboratory assessment of soil acidity (pH). pH was measured after shaking soils and water (1:25 ratio) and allowing the mixture to stand for 2 hours A Milwaukee MW 100 pH meter was used, calibrated at the time of analysis using standard solutions at pH 4 and pH 7.

### Dune swale: Site 1

The centre of a low dune swale southwest of the pit was augered. Soil samples at 30 cm and 50 cm depth were taken from this site. No peat deposits were noted.

### South Curved Lagoons Dune swale 2: Site 2

Soils were augered at the lowest point of South Curved Lagoons on a marsupial grazed lawn that appears to hold water at times forming a small pond. The upper 30 cm and 50 cm samples contained yellow white carbonate sands while dark brown swampy organic rich lacustrine sediments were encountered below about 80 cm.

### Dune Swale 3: Site 3

The deepest part of the large dune swale that is visible on topographic maps (as an enclosed depression) was sampled at depths of 30, 50 cm and 1 m. The entire profile displayed fine white sands beneath a slightly browner topsoil and no sign of dark organic horizons or peat.

### Modern active foredune Site 4:

A grab sample of a cutting in an active foredune exposed in a blowout was sampled at approximately 2.5m depth in a uniform unconsolidated sand with no topsoil.

### Main dune exposure: Site 5

Grab samples were taken of the upper dune deposit, Paleosol 1, middle dune deposit, paleosol 2 and the lower dune deposit (Image 7).

### Modern (Holocene) back dune Site 6

Three samples were taken from a track cutting through a low dune in the Marshall Beach back dune complex.

### Limestone Bench Site 7

Two samples were taken from a thin soil developed on the Tertiary limestone bench.

## pH RESULTS

The results of the pH analysis are presented in Table 2. Results for all samples indicated alkaline soil conditions with no indications of highly acidic soil horizons or acid sulphate soils being present in the vicinity of the proposed mining operations. The samples varied in pH between 7.4 and 8.6 with most soils sampled being classified as moderately to strongly alkaline (Blakemore et al. 1987). The topsoil at the large interdune swale (Site 3) returned a

pH of 7.4 that classifies as slightly alkaline (Acid soils have a pH of below 6.5 with strongly acidic soils having pH of <5.2 (Blakemore et al. 1987)).

**Table 2. Results of pH determinations**

| Site | Description | Depth | pH |
|---|---|---|---|
| **Site 1** | Small swale in older dune Southwest of Pit Face | 30 cm | **8.1** |
| | Small swale in older dune Southwest of Pit Face | 50 cm | **8.2** |
| **Site 2** | Lowest point of South Curves Lagoon | 30 cm | **8.0** |
| | Lowest point of South Curves Lagoon | 50 cm | **8.0** |
| | Lowest point of South Curves Lagoon – Organic brown muds | 100 cm | **7.7** |
| **Site 3** | Lowest point of large elongate dune swale brown topsoil | 30 cm | **7.4** |
| | Lowest point of large elongate dune swale - gradational | 50 cm | **7.9** |
| | Lowest point of large elongate dune swale – white sands | 100 cm | **8.4** |
| **Site 4** | Holocene Foredune | ~250 cm | **8.0** |
| **Site 5** | Course quartz rich sands (rocky base) | 30 cm | **8.2** |
| | Course quartz rich sands | 45 cm | **8.3** |
| **Site 6** | Main Pit profile – Upper sand unit | 60 cm | **8.5** |
| | Main Pit profile – Paleosol 1 | 100 cm | **8.2** |
| | Main Pit profile – Middle sand unit | 120 cm | **8.3** |
| | Main Pit profile – Paleosol 2 | 270 cm | **7.8** |
| | Main Pit profile – Lower sand unit (dating sample site) | 430 cm | **8.1** |
| **Site 7** | Holocene dune – Upper topsoil | 15 cm | **8.3** |
| | Holocene dune – Gradational soil (A2) | 60 cm | **8.3** |
| | Holocene dune – Lower yellow / white sands | 95 cm | **8.6** |
| **Site 8** | Shallow limestone soil profile | 30 cm | **8.1** |
| | Shallow limestone soil profile (rocky base) | 50 cm | **8.1** |

The high pH values obtained from the soil samples indicate an alkaline environment where extensive acidic soils are unlikely to be present. The reason for this is that the entire region is buffered by the abundance of dissolved calcium carbonate within the soil profiles and sand dunes and the underlying Tertiary limestone. Low pH conditions are usually associated with deep organic soils or forested areas. While topsoil development is present within the dune fields, they are weakly developed and do not have a significant organic component capable of producing acidic soils, particularly in a carbonate dominated environment. This can be clearly seen by the gradation of pH in the site 3 dune swale samples (Table 2). Here weakly developed topsoil has a pH of 7.4 and pH rises to 7.9 at 50 cm and 8.4 in the white dune sands at >80 cm.

It is notable that although both the site 2 dark organic soil at 100 cm in South Curves Lagoon and the granite-derived soils at site 5 are in locations that should potentially have low pH soils at neither site do pH values drop below pH 7. This is due to the abundance of carbonate in the environment. The lack of deep well-developed topsoils indicate that since the dune formation wet forests or large eucalypt dominated forests may have never been present in this dry landscape. Although the Holocene dune (site 7) clearly shows a period of stability and soil development, the soil is thin and low in organic content. It is notable that at the main pit face (site 5) the two paleosols are also poorly developed and show very limited changes in pH. Previous eucalypt forest cover at these sites is unlikely.

# 5. SUMMARY AND MANAGEMENT RECOMMENDATIONS

## SCIENTIFIC VALUES

The dune field within the study site is a landscape of geoscientific interest which can be and should be managed appropriately to limit the footprint of any extraction activities. The main dune resource identified for extraction under the current development application (not the entire mining lease) is actually a series of up to 8–10 dunes formed between South and North Curves lagoons mapped on the 1:25000 map sheets of the area. Two dune ridges rising to altitudes of around 24 m asl are dominant in the centre of the resource site. The dune ridges have steep profiles and sharp crests indicative of their fairly young age. A central deep elongate depression (mapped as a sinkhole on topographic maps) is a dune swale around 15 m deep. The large dunes and their lower-relief companions (generally 2–4 m high) are oriented west-to-east across the lowland plain. On the eastern margins of the study area they climb onto a bench of Tertiary limestone. The existing pit is near the easternmost end of the two main dunes which at this location have combined into one ridge.

The current face of the old pit provides an interesting profile of dune stratigraphy and is of local scientific interest as it provides evidence of the history of formation of the dunes in this part of Flinders Island and could potentially be used to indicate paleoclimate conditions prevalent on the Island. While this is an interesting exposure, many of the other unimpacted dunes in the region are likely to host similar paleosols and rhizoliths and therefore the features of the pit face are likely to be fairly common within the landscape. The exposure is only visible because of past sand mining operations and has been photographed, sampled and described during this study. Obscuring of the exposure by erosion and tree overturn means that this exposure has a limited lifetime; formal preservation of this site is likely to be impractical.

Resumption of sand mining extending west from the current pit face will destroy and remove the studied deposits but equally it is likely that the mining activities will expose further paleosols and tree root and stump rhizoliths in the sand dune. There is also a remote potential for archaeological deposits to be found within the dune particularly owing to its carbonate-rich nature which is conducive to preserving organic material such as bones (e.g. there is a possibility that large bones associated with megafauna could be exhumed as could ancient human remains or evidence of occupation (fire hearths etc)). Therefore, I suggest that contractors keep an eye out for unusual deposits or large bones during operations. In summary I recommend the following:

Contractors should look out for:

- Thick dark continous bands within the dunes.
- Buried tree stumps or large calcareous deposits that appear to be parts of a tree.
- Stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand.

- Large accumulations of shells.
- Large bones and accumulations of smaller bones buried >1m under he surface.

In the event notable examples of these deposits are encountered the first task should be to photograph the area and move operations away from the immediate working face until a suitably qualified person (in the context of the item/items discovered) can assess any values.

## KARST MANAGEMENT (GENERAL)

While bedrock Tertiary Limestone is present in the east of the mine lease no karst landforms apart from very minor surface solution sculpture (karren) landforms have been identified during this survey. Given the extensive nature and relief of the limestone on the hills east of the mining lease subsurface water flow through karst aquifers is likely but significant karst landforms are unlikely to be present. In the absence of evidence for significant karst formulation of mitigation measures is unnecessary.

### SINKHOLES

It is difficult to differentiate shallow sinkhole depressions from dune swales and this is particularly so in the area of the mining lease. However, all the depressions noted were identified as dune swales so I do not believe they should be treated as karst.

Collapse sinkholes form steep sided depressions and are a sign of significant active karst erosion. In the event a steep sided depression forms during operations work should stop at this location and the area should be avoided during operations until expert advice is obtained. Collapse sinkholes can occur in random locations and are potentially hazardous to machinery and the environment as they may continue to expand following the initial collapse and could indicate changes in subsurface karst aquifer conditions.

### CAVES

While highly unlikely, if any caves are located within the sand dune or in the mining lease, operations should avoid the area, advice from a suitably qualified person should be obtained before operations resume.

**Karst recommendations**

- In the event a steep sided depression forms during operations that has signs of collapse these should be recorded and avoided during operations until expert advice is obtained.
- In the event a cave is located on site operations should avoid the area and seek expert advice.

## EROSION RISKS

Blowouts of the coastal dunes backing the beach are quite common within the mine lease area. However, away from the coast most of the larger dunes appear to be stable. The blowout on the southern edge of the pit face has resulted in minor sand deposition and tree burial south of the highest point of the dune (Image 19). The current location of the pit in the leeward side of the main dune reduces the ability of westerly winds to significantly erode the exposed sands in the pit through deflation, although some loss of sand by wind deflation is likely to have occurred (and may still be occurring). There is a risk that once the operations extend to more of a windward face of the dune, dominant westerly winds may deflate (erode) the dune. This could lead to loss of resource and transport of the sediment. Maintaining a high vegetation cover above the working face and active efforts to revegetate the site away from the working face are key to minimising wind erosion. While easterly winds are common on Flinders Island, they are generally less strong than the westerly winds as evidenced by the strongly deformed vegetation caused by westerlies present at exposed locations on the mining lease (Image 20). Also, easterly winds are generally linked to low pressure systems in the Tasman Sea and rainfall, the wet conditions act to stabilise sand dunes and inhibit wind deflation. Deflation of the sand towards the Marshall Beach Conservation area to west of the proposed pit appears to be unlikely.

**Recommendations to minimise wind erosion.**

- Avoid, if possible, but otherwise minimise working on faces exposed to westerly winds.
- Maintain vegetation above and to the west of any active face
- Re-establish vegetation on a progressive basis, this could include stockpiling cleared tea tree for covering exposed surface as operations progress.



*Image 19: Sand blow deposition burying tree trunks immediately south of the old working face of the sand pit.*



*Image 20: Vegetation growth strongly impacted by the dominant westerlies.*

## SOIL MANAGEMENT

Well drained soils in the area of the Markarna lime sands mining lease in the vicinity of the main proposed resource are strongly alkaline Calcarosols. Acidic soils are unlikely to be present over extensive areas and may be totally absent. While organic topsoils, buried paleosols and lake/swamp sediments are present, none of these soils contain adequate organic material to significantly reduce the pH within the dune sands. However, it should be noted that this survey was not comprehensive, and it is possible that the some swampy depressions could host thicker organic horizons having a lower pH. These horizons however will not be directly impacted by sand mining of the high-relief dune ridges.

## WETLANDS

The extent of wetlands at both North and South Curves Lagoons are significantly smaller than indicated on the topographic map and the TASVEG mapping. Significant areas of these features are undulating grassy dune fields. No wetlands (swamps) as defined by the Forest Practices Code 2020 (Forest Practices Authority 2020, page 98) were documented in the main resource area.

## 6. REFERENCES

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**ATTACHMENT 5. SITE & SOIL EVALUATION AND DESIGN REPORT (WASTEWATER DISPOSAL)**

# Site & soil evaluation and design report.

## New onsite wastewater management system at “Markana Park,” 368 Five Mile Jim Road, Memana TAS 7255. (Sand mine - Southern site)

---

**Richard Mason, Onsite Assessments Tas**

**20 Adelong Drive, Kingston**

**richardmason@iprimus.com.au**

**Mobile 0418 589309**

## BACKGROUND

The information provided in this Report provides Design Information, Plans and Specifications suitable for inclusion in supporting documentation for a Plumbing Permit for installation of an on-site wastewater management system servicing a new machinery shed proposed to support an existing agricultural operation and proposed sand mining development on the site.

## Part 1. Site and soil evaluation (S&SE)

**Location:** 368 Five Mile Jim Road, Memana, TAS 7255 (Sand mine - Southern site)

**Developer:** Markarna Grazing Company Pty Ltd

**PID:** 3513143

**Title Ref:** 215120/1

**Project Summary:** New on-site wastewater management system to treat and apply wastewater derived from workforce toilets and ablution facilities.

This assessment is for a machinery shed with cribroom and sanitary/ablution facilities located 220m to the East of Palana Road, at 39°56'25"S 147°54'45"E .

The building will service an expanded sand mine on the site.

It is proposed to install a septic tank absorption bed discharging to an in-ground absorption bed.

Soil profile sampling and assessment was undertaken using a 350mm diameter tractor PTO driven auger.

**Site Area:** 200+Ha.

**Dominant Soil Categories:**

*(as per AS/NZS 1547-2012)*

**1**,….2,…3,…4,….5,….6

Modified Emerson Test Required? **No**

If Yes, Emerson Class No:

**Soil Profile:**

A horizon: 0-1000mm; sand, yellow 10YR 7/6, loose, damp, massive, Category 1

B horizon: 1100-1200mm; consolidated sand (calcareous cement) sand, yellow 10YR 7/6, damp, massive, Category 1

C horizon: 1200-2000mm+, sand, yellow 10YR 7/6, loose, damp, massive, Category 1.

Evidence of ground water was not encountered; depth to water table is believed to exceed 4m.

**Measured or Estimated Soil Permeability** (m/d)

Estimated from textural classification.

A Horizon: >3.0mm/day

B Horizon: 0.12-0.5m/day

C Horizon: >3.0mm/day

**Effluent Application Rates**

Absorption trench/bed – 20mm/day (primary treated)
50mm/day (secondary treated)

**Geology:**
The site is underlain by Quaternary deposits of windblown sand of marine origin (coastal sand dunes); this is consistent with soil profiles observed on-site.

The marine sands contain a high proportion of calcareous material (marine mollusc shell derived), which makes them attractive for extraction for agricultural usage, for soil pH modification.

Calcium carbonate from shell grit present in the wind-blown beach sand id subject to solution by rainwater and redeposition as a calcareous matrix, cementing sand grains together, forming discrete layers of hardpan, which is considerably less permeable than the unconsolidated sands.

This was encountered at a depth of 1100-1200mm; however, it is likely that this hard pan could be present at varying depths, therefore, soil profile modifications to ensure uniform permeability under the land application area basal area will be required. This will be achieved by excavating absorption beds to a minimum depth of 1500mm and backfilling with loose, unconsolidated sand, prior to installing the absorption bed infrastructure.

**Topography**

Slopes: Sand dune topography, undulating but uniform gentle slope of less than 2° to east, in vicinity of land application area.

Drainage lines / water courses:
Wetland in swale approximately 335m WNW of the development site.

Vegetation: The site in the vicinity of the proposed land application area comprises coastal heath described as SHW – Scrub, heathland and coastal complexes, by Tas Veg 3.0.

**Site History (land use)**
Subdivided and developed for agriculture several decades ago, including historical sand mining activities; there are no previous known land uses or other activities

which would compromise the suitability of the site for use for onsite wastewater management.

**Site Exposure and Climate.**

Aspect: The site has open northerly aspect, experiencing day-round sun throughout the year.

Pre-dominant wind direction: South-west to north-west.

Climate: Annual rainfall averages 740mm/year (Flinders Airport)), with maximum daily average temperature of 22.7ºC and minimum of 13.4ºC, giving an annual point potential evapotranspiration of 1000mm+ and an annual rainfall deficit of 300mm.

**Environmental Issues**

Location of sensitive vegetation, high water table, swamps, waterways etc.

Disturbed site with coastal heath vegetation; the land application area will lie within vegetation cleared and managed for bushfire protection purposes.

The buffer distance of 350m to the nearest saltmarsh/wetland is consistent with the Acceptable Solutions under the Director's Guidelines for on-site wastewater management systems, for separation from surface water for a land application area for primary treated effluent.

Shallow slopes, significant distance to downslope boundary mitigates against risk of off-site runoff in the event of inground absorption system failure.

**Site Stability**

The site is gently sloping and unaffected by any Landslip Hazard banding on the Interim Planning Scheme overlay.

**Drainage/Groundwater**

Depth to seasonal groundwater (m)

Groundwater depth is believed to exceed 4m; vertical separation from base of land application area is consistent with Acceptable Solutions for application of primary treated effluent under the Director's Guidelines.

The MRT Groundwater Information Access Portal at http://wrt.tas.gov.au/groundwater-info/ indicates that there are no known operating water bores within 1600m of the site.

**Primary and Reserve Land Application Area**

Primary and reserve land application area is to be located 6m west of the NW corner of the serviced building and 10m south of the extant access track which tuns north of the building.

**Water Supply**
Tankwater derived from roof runoff. Any boreholes utilised for potable water extraction should be located at least 75m from the land application area.

**Modification to Development Application Supporting Information Report**
The site plan shown at Page 17 of the above report by Van Diemen Consulting should be modified to show the drain along the northern edge of the site, terminating approximately 40m east of its westerly end point, in order to permit installation of the land application area cross-slope of the ablutions/crib room portion of the machinery shed.

**Existing onsite wastewater management system.**
Not applicable.

## Part 2. Design of on-site wastewater management system.

**Proposed On Site Wastewater Management System.**
Suitable on-site wastewater management systems for this site would include a septic tank discharging to an in-ground absorption bed.

**Loadings.**
The on-site wastewater management system design caters for a daily design loading of up to 5 persons with a per capita loading of 40L/person/day.

Design hydraulic loading - 200L/day.

See “Staff ablutions, workplace installations” in Appendix E “On-site wastewater systems Code” Dept of Health & Ageing, Govt of South Australia.

The premises will be used during periods of sand extraction on the site; this is a sporadic activity with anticipated usage considered to be less than 26 weeks per year.

Design loadings are therefore highly conservative, with actual loadings anticipated as 20% or less, when averaged out through the year.

**Wastewater characteristics**
The wastewater discharge from the premises will be broadly similar to domestic wastewater; there will be no industrial or trade-waste discharge to the installation; this is consistent with Clause 1.2.1 of AS/NZS 1547:2012 Domestic on-site waste-water management.

**DLR**
A DLR of 20mm/day (Category 1 soil – conservative rate) is adopted.

**Wastewater Land Application Area.**

Absorption bed required basal area (minimum)

= daily wastewater loading / Design loading rate for bed/trench on Cat 1 soil

= 200 litres per day / 20mm day

= **10m²**

Design provides for an in-ground absorption bed 10m x 1.0m x 450mm deep, providing 2500mm vertical separation to groundwater.

**Upslope drainage**
Given the characteristics of the site, upslope cut-off drainage is not required, however, care should be taken to ensure that run-off from buildings, hard-standings, roads, rainwater tanks overflows etc do not discharge on or near to the septic tank land application area.

In particular, the proposed drain along the northern edge of the site, should be modified to terminate approximately 40m east of its westerly end point, in order to permit installation of the land application area cross-slope of the ablutions/crib room portion of the machinery shed.

**Compliance with Directors Guidelines for On-Site Wastewater Management Systems (2017)**

A modified onsite wastewater management system on this site can meet the requirements of the above Guidelines as follows:

| **Compliance Table** | **Directors Guidelines for OSWM** | |
|---|---|---|
| Acceptable Solutions | Performance Criteria | Compliance achieved by |
| **5.1 To ensure sufficient land is available for sustainable onsite wastewater management for buildings.** | | |
| A1<br>A new dwelling must be provided with a land application area that complies with Table 3. | P1<br>A new dwelling must be provided with a land application area that meets all of the following:<br><br>a) The land application area is sized in accordance with the requirements of AS/NZS 1547; and<br>b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable. | N/A |
| **5.2 To ensure sustainable onsite wastewater management for commercial and non-residential buildings (Class 3-9).** | | |
| A1<br>An onsite wastewater management system including the land application area for non-residential | P1<br>An onsite wastewater management system including the land application area for non-residential building must | A1(a)<br>Land application area sized to 40L/person/day and |

| | | |
|---|---|---|
| buildings must satisfy all of the following:<br><br>(a) be sized based on the hydraulic and organic loadings contained in Table 4 and design loading or irrigation rates contained in AS/NZS 1547;<br>(b) be located in accordance with clause 7.1 | satisfy all of the following:<br><br>a) A site and soil evaluation and design report prepared by a suitably person determined by the Director demonstrating that the land application area is of sufficient size to treat and manage the wastewater generated from the proposed building within the property boundaries.<br>b) The SSE report and system design demonstrates the design is consistent with AS/NZS 1547 and uses appropriate hydraulic and organic loading rates for the proposed activity.<br>c) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.<br>d) The land application area is to be located in accordance with the acceptable solution or performance criteria specified in clause 7.1. | 15g/BOD/day and AS/NZS1547.2012 Table L1.<br><br>A1(b)<br>Land application area located in accordance with Acceptable Solution under Clause 7.1 |
| **6 Area required for on-site wastewater management – building extensions, alterations or outbuildings (Building Class 1-10)** | | |
| A2<br>An outbuilding, addition or alteration to an existing building, or change of use of that building, must not encroach onto or be within 2m (if upslope) or 6m (if downslope) of an existing land application area (including land reserved for a future land application area) or a wastewater treatment unit and comply with at least one of the following:<br><br>a) not increase the number of bedrooms (or rooms reasonably capable of being used as a bedroom) or otherwise increase the potential volume of wastewater generated onsite; and<br>b) not increase the number of bedrooms (or rooms reasonably capable of being used as a bedroom) or otherwise increase the potential volume of wastewater generated onsite to greater than that allowed for in the design of the existing OWMS. | P2<br>An outbuilding addition or alteration to an existing building or change of use of that building, must be provided with a land application area (including land reserved for a future land application area) that meets all of the following:<br><br>a) The land application area is of sufficient size to comply with the either Appendix L, M or N and setback distances are consistent with Appendix R of AS/NZS 1547; and<br>b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable. | N/A |
| **7. Standards for Wastewater Land Application Areas** | | |

| | | |
|---|---|---|
| A1<br>Horizontal separation distance from a building to a land application area must comply with one of the following:<br>a) be no less than 6m;<br>b) be no less than:<br>(i) 3m from an upslope boundary or level building;<br>(ii) If primary treated effluent to be no less than 4m plus 1m for every degree of average gradient from a downslope building;<br>(iii) If secondary treated effluent and subsurface application, no less than 2m plus 0.25m for every degree of average gradient from a downslope building. | P1<br>The land application area is located so that the risk of wastewater reducing the bearing capacity of a building's foundations is acceptably low. | P1<br>Land application area setback from building is 15m. |
| A2<br>Horizontal separation distance from downslope surface water to a land application area must comply with (a) or (b)<br>(a) be no less than 100m; or<br>(b) be no less than the following:<br>(i) if primary treated effluent 15m plus 7m for every degree of average gradient to downslope surface water; or<br>(ii) if secondary treated effluent and subsurface application, 15m plus 2m for every degree of average gradient to down slope surface water. | P2<br>Horizontal separation distance from downslope surface water to a land application area must comply with all of the following:<br><br>a) Setbacks must be consistent with AS/NZS 1547 Appendix R;<br>b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable. | A2(a)<br>Land application area is 350m from nearest surface water. |
| A3<br>Horizontal separation distance from a property boundary to a land application area must comply with either of the following:<br>(a) be no less than 40m from a property boundary; or<br>(b) be no less than:<br>(i) 1.5m from an upslope or level property boundary; and<br>(ii) If primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or<br>(iii) If secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary. | P3<br>Horizontal separation distance from a property boundary to a land application area must comply with all of the following:<br><br>(a) Setback must be consistent with AS/NZS 1547 Appendix R; and<br>(b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable. | A3(b)(i)<br>90m from eastern (cross-slope) boundary, |
| A4<br>Horizontal separation distance from a downslope bore, well or similar | P4<br>Horizontal separation distance from a downslope bore, well or similar | A4<br>No known bore within 1600m of land |

| | | |
|---|---|---|
| water supply to a land application area must be no less than 50m and not be within the zone of influence of the bore whether up or down gradient. | water supply to a land application area must comply with all of the following:<br><br>(a) Setback must be consistent with AS/NZS 1547 Appendix R; and<br>(b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 demonstrates that the risk is acceptable. | application area. |
| A5<br>Vertical separation distance between groundwater and a land application area must be no less than:<br>(a) 1.5m if primary treated effluent; or<br>(b) 0.6m if secondary treated effluent | P5<br>Vertical separation distance between groundwater and a land application area must comply with the following:<br><br>(a) Setback must be consistent with AS/NZS 1547 Appendix R; and<br>(b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 that demonstrates that the risk is acceptable | A5(a)<br>3500mm+ separation to groundwater. |
| A6<br>Vertical separation distance between a limiting layer and a land application area must be no less than:<br>(a) 1.5m if primary treated effluent; or<br>(b) 0.5m if secondary treated effluent | P6<br>Vertical setback must be consistent with AS/NZS1547 Appendix R. | A6(a)<br>At least 3500mm separation. |
| A7<br>Nil | P7<br>A wastewater treatment unit must be located a sufficient distance from buildings or neighbouring properties so that emissions (odour, noise or aerosols) from the unit do not create an environmental nuisance to the residents of those properties<br><br>Note: Part 6 of the Building Act 2016 specifies | P7<br><br>Septic tanks do not cause odour or other nuisances under normal operation. |

**Date of Site Visit:** 25/05/2022

**Weather Conditions:**
*(on the day of evaluation and during the last week)*
Cool and fine, 75mm of rain fell at Flinders Island Airport since 01/05/2022.

## *Further Information.*

For further detailed assessment and design information, together with operation and maintenance advice, please refer to the Appendices.

# Statement.

I certify that this Site and Soil Evaluation and Design for an on-site wastewater management system at 368 Five Mile Jim Road, Memana (Sand mine - Southern site), has been has been undertaken in accordance with the relevant provisions of AS/NZS 1547:2012. Onsite Domestic Wastewater Management and also the requirements of the Director of Building's Guidelines for On-site Wastewater Management Systems and is therefore compliant with the deemed to satisfy requirements of the NCC Vol 3.

The design of this on-site wastewater system is suitable for the proposed residence referred to in this report.

This report is copyrighted to me as the author. I authorise Markarna Grazing Company Pty Ltd, Flinders Island Council and their respective agents and/or employees to make copies or extracts of this report for the purposes of Planning and/or Building Applications etc for the above-mentioned project on this site by or on behalf of Markarna Grazing Company Pty Ltd. It is not to be otherwise published or reproduced for the benefit of third parties without my explicit permission as author.

**Please Note:**

**It is generally understood that the successful operation of an on-site wastewater disposal system is dependent upon a number of complex, interacting factors and that the operating life of in-ground absorption systems in particular may be limited. This system may require future maintenance or modification to ensure its continued satisfactory operation. The client is advised that such works are the responsibility of the property owner.**

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Due to the possibility of variation in subsurface conditions & materials, the characteristics of materials can vary between sample & observation sites. OAT takes no responsibility for changed or unexpected variations in ground conditions that may affect any aspect of the project. The classifications in this report are based on samples taken from specific sites. The information is not transferable to different sites, no matter how close (ie if the development site is moved from the original assessment site an additional assessment will be required).

It is recommended to notify the author should it be revealed that the sub-surface conditions differ from those presented in this report, so additional assessment & advice may be provided.

Investigations are conducted to standards outlined in relevant Australian Standards, codes and guidelines, including:

- AS1547-2012: Onsite Domestic Wastewater Management
- AS3959.2009: Construction of Buildings in Bushfire Prone Areas
- Director's Guidelines for on-site wastewater management systems. (CBOS)
- Director's Determination – Requirements for Building in Bushfire-Prone Areas. (CBOS)

All new developments should subject to strict site maintenance. Attention is drawn to the relevant appendices of this report.

Any assessment that has included an onsite wastewater system design will require a further site visit once the system has been installed if certification of an installation/works is required (to verify that the system has been installed as per OAT's design). An additional fee may apply for the site visit & issuing the certificate.

OAT is not responsible for the correct installation of wastewater systems. Any wastewater installation is the sole responsibility of the owner/agent and certified plumber. Any variation to the wastewater design must be approved by OAT, and an amended Special Plumbing Permit obtained, if required from the relevant council. The registered plumber must obtain a copy and carefully follow the details in the council issued Plumbing Permit. Certification of completion of works will be based on surface visual inspection only, to verify the location of the system. All underground plumbing works are the responsibility of the certified plumber.

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SITE ASSESSOR AND SYSTEM DESIGNER

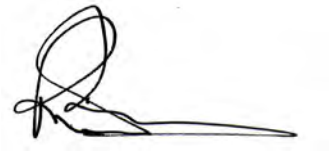
NAME: Richard Mason, Environmental Health Professional and Building Services Designer Hydraulic Restricted.

NAME OF ORGANISATION: Onsite Assessments Tas

ADDRESS: 20 Adelong Drive, Kingston, Tasmania, 7050

CONTACT DETAILS: 0418 589 309; richardmason@iprimus.com.au

SIGNED:

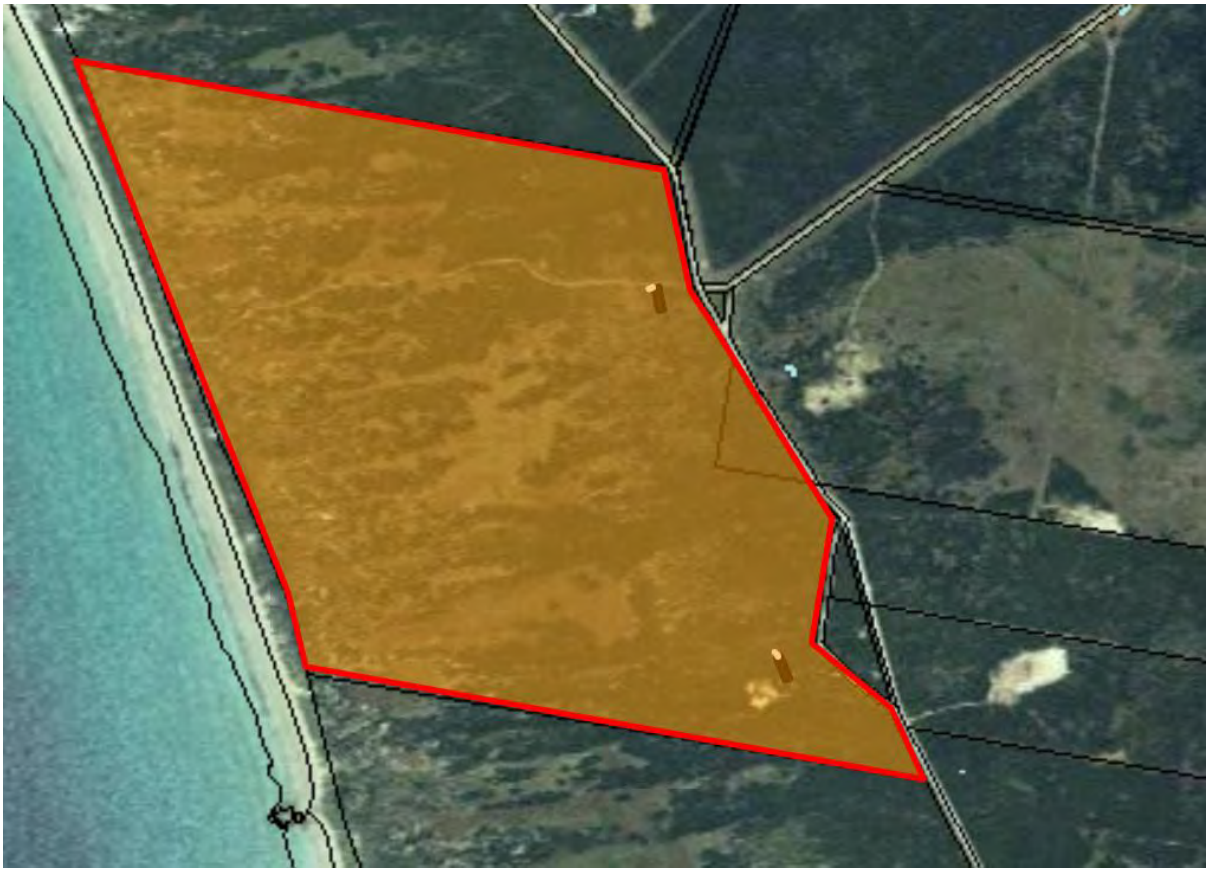


DATED: 22/08/2022

# APPENDICES


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## Appendix 1 - Site Location





## Appendix 2 – Soil testing

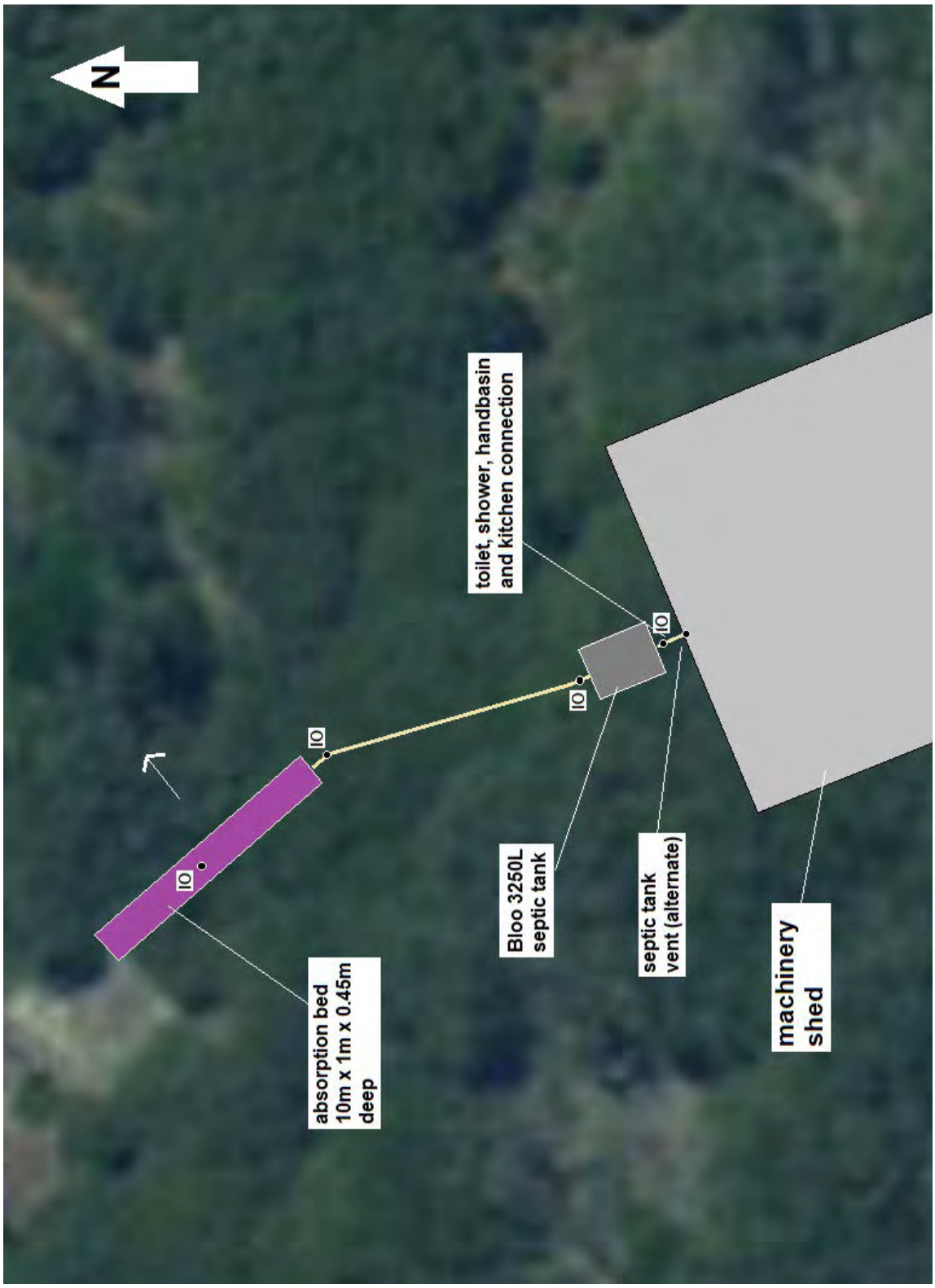



**(above) Soil profile samples on auger.**

## Appendix 3 – Design plans

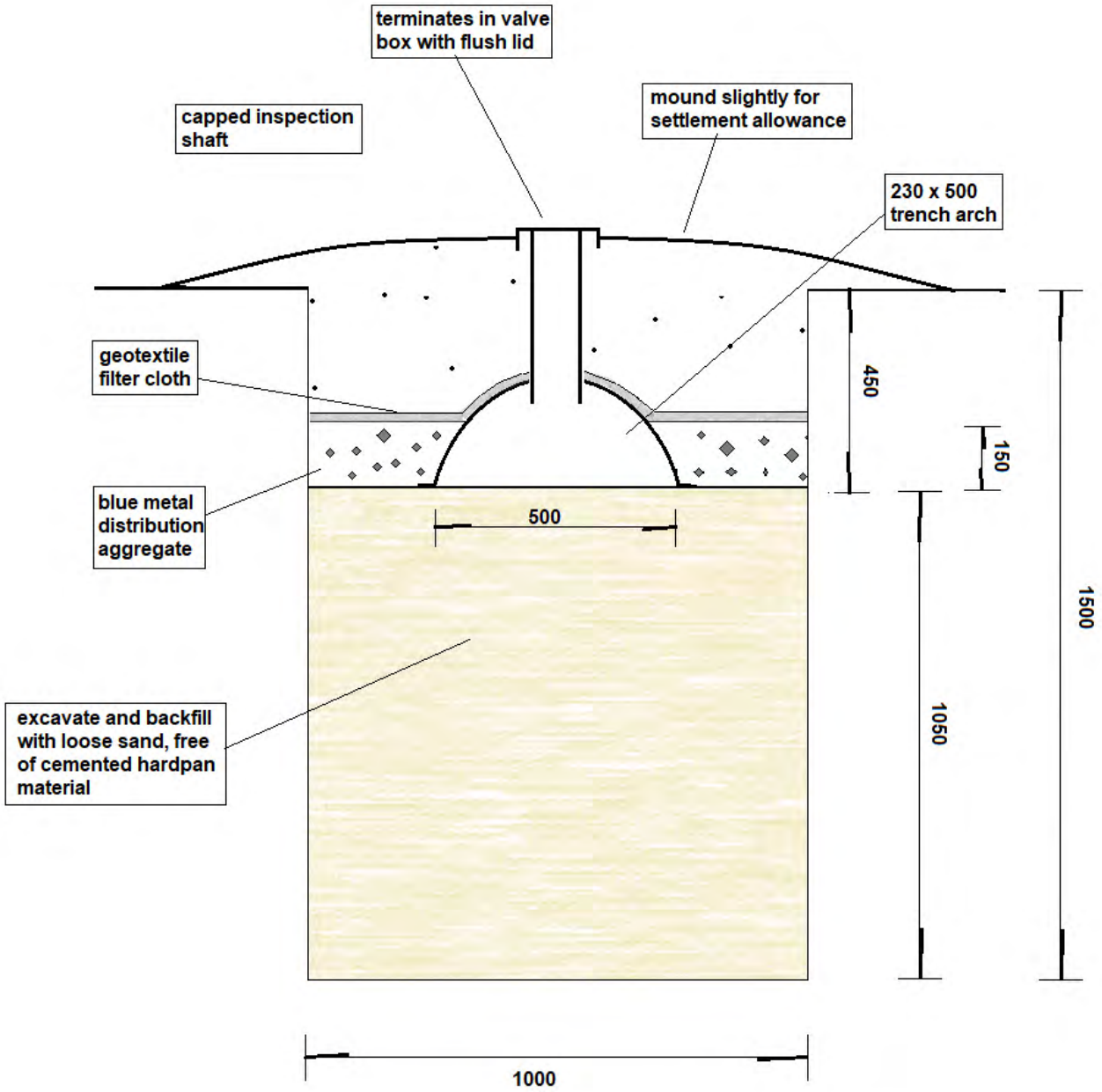



**Site Plan**



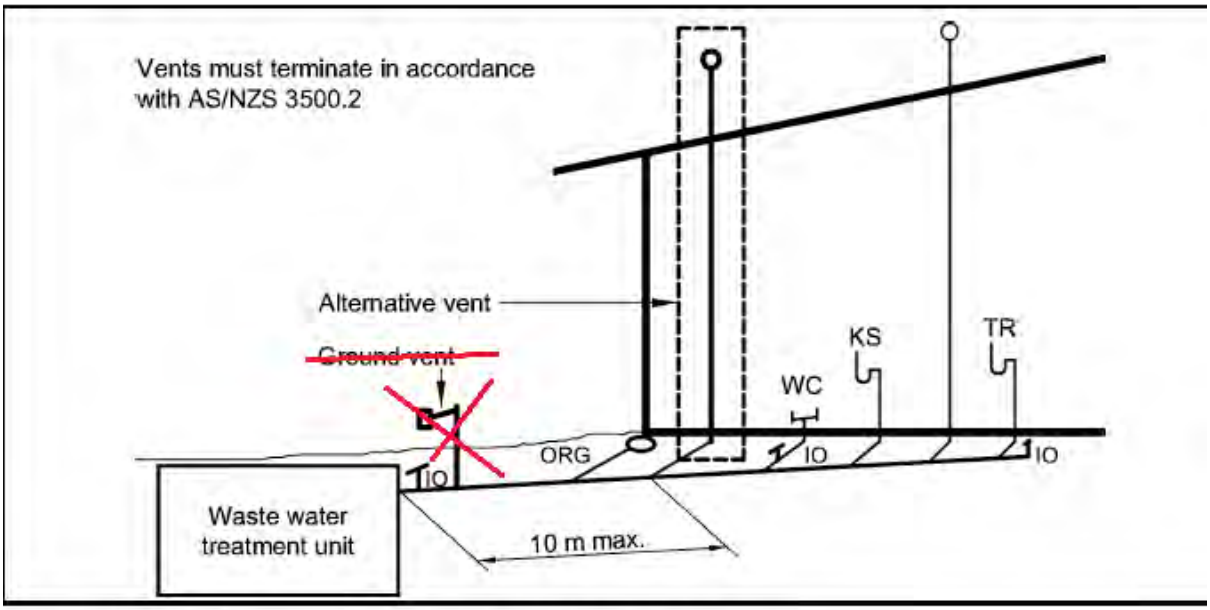

**Drainage plan**

**Please note:** Drain along northern boundary of parking area in Development Proposal Additional Information Report by Van Diemen Consulting is to terminate 40m to the East, well clear of the land application area.




**Cross-section through proposed absorption bed (10m x 1.0m)**

**Note: Installation and venting to be in accordance with NCC Pt 3, Tas H101.2 and Tas Figure H101.2 and Parts C1 and C2**




**Tas Figure H101.2 Alternative venting arrangements**

**Please note: A septic tank ground level vent must not be installed**

**Septic tank venting detail – alternative vent configuration to be used to minimise odour impacts.**

## Appendix 4 – Design specifications.

**Wastewater treatment.**

- 3250L Bloo septic tank to be installed, receiving all wastes from toilet, handbasins, sinks etc.

- Septic tank outlet to discharge to land application area configured as in-ground absorption bed.

**New absorption bed**

- Single absorption bed, 10m long x 1.0m wide x 450mm deep.

- 500mm x 230mm high trench arch, 150mm depth of 20mm diameter blue metal distribution aggregate with geotextile filter cloth over, backfilled with sandy fill sourced on site.

- The land application area is to be excavated to a minimum depth of 1500mm and back-filled with clean, loose sand, free of hard pan or other cemented material, to a depth of 450mm of the surface.

- Capped IO to be provided and brought to surface midway along absorption bed, penetrating to full depth of bed with several 8mm perforations in lower 100mm to enable monitoring of wastewater depth in absorption bed.

**Exclusion of surface/stormwater**

- Cut-off drains are not required; however, care should be taken to ensure that run-off from buildings, hard-standings, roads, rainwater tanks overflows etc do not discharge on or near to the septic tank land application area.

- Drain along northern boundary of parking area in Development Proposal Additional Information Report by Van Diemen Consulting is to terminate 40m to the East, well clear of the land application area.

Attention is drawn to AS/NZS1547.2012 On-site domestic wastewater management, Part L7 Construction techniques which states the following:

**L7 CONSTRUCTION TECHNIQUES**

L7.1 Good construction technique
The following excavation techniques shall be observed so as to minimise the risk of damage to the soil:

- Plan to excavate only when the weather is fine;

- Avoid excavation when the soil has a moisture content above the plastic limit. This can be tested by seeing if the soil forms a ‘wire’ when rolled between the palms;

(c) During wet seasons or when construction cannot be delayed until the weather becomes fine,
smeared soil surfaces may be raked to reinstate a more natural soil surface, taking care to use
fine tines and only at the surface;

(d) When excavating by machine, fit the bucket with ‘raker teeth’ if possible, and excavate in small
‘bites’ to minimise compaction; and

(e) Avoid compaction by keeping people off the finished trench or bed floor.

In particular for trenches and beds:

(f) If rain is forecast then cover any open trenches, to protect them from rain damage;

(g) Excavate perpendicular to the line of fall or parallel to the contour of sloping ground; and

(h) Ensure that the inverts are horizontal.

***CL7.1***
***Damage can be done by:***
***(a) Smearing, where the soil surface is smoothed, filling cracks and pores;***

***(b) Compacting, where the soil porosity is reduced; and***

***(c) Puddling, where washed clay settles on the base of the trench to form a relatively impermeable layer.***

***In particular, cohesive soils, or soils containing a significant quantity of clay, are susceptible to damage by excavation equipment during construction.***

## Appendix 5 – Advice to Project manager and installer

**Important notes for Project Manager**.

It is vitally important to the future of the on-site wastewater management system to avoid damage to soil structure on the site, which would reduce soil permeability, leading to possible early failure of the effluent absorption trenches.

**Actions which may damage soil structure include:**

- Compaction, which reduces soil porosity;

The Effluent Land Application Area must be carefully constructed to ensure its optimal operation.

**Project Manager Responsibilities**.

The Project Manager must ensure that:

- Before project construction work commences, the Effluent Absorption Area is properly identified on site and barricaded, fenced, roped or taped to prevent unauthorised access. This action should be documented both on the site plan and with the local Council.

- Vehicles, earth-moving plant etc do not park or manoeuvre on the Effluent Absorption Area.

- The Effluent Absorption Area is not used for the stockpiling of construction materials, excavated fill or other materials.

- All water runoff resulting from the construction of driveways, cut & fill and other excavations is directed to discharge well away from and downslope of the Effluent Absorption Area.

- The effluent absorption bed excavations etc are not left open and exposed to the weather.

## Appendix 6 – Loading Certificate and Operation & Maintenance Requirements

This loading certificate is provided in accordance with Clause 7.4.2(d) of AS/NZS 1547.2012.

**Loading Certificate for on-site wastewater management system at 368 Five Mile Jim Road, Memana.**

i. **System capacity** (medium-long term) – up to 5 employees
ii. **Design criteria summary**:

- Effluent quality – septic tank, primary treated with septic tank outlet filter fitted.
- Soil category - Category 1 (and)
- Land application system - Absorption bed (see Appendix L of AS/NZS1547.2012)

**iii. Reserve area.**

Approximately 40m$^2$ of land in the vicinity of the proposed primary land application area should be reserved from further development (such as buildings, driveway, paths, paved areas, decks, importation of fill or excavations etc), for use as an alternate land application area in the event of a system failure which cannot be addressed without constructing a duplicate absorption bed. There is sufficient suitably located land available on the site for this purpose.

**iv. Water efficient fittings etc**

Design assumes use of water efficient fixtures and fittings, eg 3L/4.5L flush toilets, 9L/min (max) showerheads, aerator fittings on taps and clothes washing machines/dishwashers with WELSS star ratings of 4.5 stars or above. (See http://www.waterrating.gov.au/)

**v. Variation from design flows etc.**

The system should successfully manage additional peak loadings which may result from up to 10 workers on the site provided that this does not exceed 5 days in any 20 day period.

**vi. Consequences of changing wastewater characteristics.**

The building operator should avoid disposing of wastes which would be additional to those normally disposed in a household sewerage system; in particular increases, in organic loadings such as from the use of sink-waste disposal units are to be avoided.

Use of household disinfectants or bactericides in anything more than small amounts and at recommended rates of dilution should also be avoided, as should the disposal of solvents, antibiotics or antimicrobial pharmaceuticals and other chemicals which may kill bacteria and other microorganisms required for effective wastewater treatment.

**vii.** **Consequences of overloading the system.**

Long term use by more than four residents or equivalent may cause overloading of the system, surfacing of effluent, public and environmental health nuisances, pollution of surface waters etc.

**viii.** **Avoid overloading the system by observing the following:**

Installation of water conserving fittings (eg dual flush 4.5:3 litre toilets; shower flow restrictors; aerator taps and water conserving automatic washing machine).

**ix.** **Consequences of underloading the system.**

Nil.

x. **Consequences of lack of operation, maintenance and monitoring attention.**

The septic tank system requires minimal intervention; however it is not a zero-maintenance system; it will require regular desludging of the septic tank and periodic monitoring of wastewater depth in the absorption bed area.

Consequences of failure to observe these requirements may include any or all of the following:

- Spread of infectious diseases to your family and neighbours.
- Breeding of mosquitos and attraction of flies and rodents.
- Nuisance and unpleasant odours.
- Pollution of waterways.
- Contamination of bores, wells and groundwater.
- Excessive and unsightly weed growth.
- Alteration of local ecology

**Operation & Maintenance Requirements**

- Ensure that the septic tank is desludged by an authorised contractor at five-yearly intervals. Failure to do this at the required frequency may result in carry-over of solids into the absorption bed, causing failure of the land application area, which may then require expensive reconstruction works.
- Discourage access by visitors or pets to the land application area.
- Livestock should not be allowed on or near the absorption bed; if such animals are kept, the land application area should be fenced off to prevent system damage and/or soil compaction.
- Do not allow vehicles on or near the land application area.
- Keep the surface and sub-surface cut-off drain above the land application area open and clear of debris to prevent rainwater flowing into the effluent absorption area.

- Problems can occur with systems which have not been properly maintained and where absorption areas have become blocked or clogged. The warning signs are obvious and include:

- Effluent absorption area is wet or soggy with wastewater ponding on the surface of the ground.
- “Sewage” smells near the absorption bed area.

# Appendix 7 – Form 55

## CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: Markarna Grazing Company Pty Ltd (Owner /Agent)
(Address)
Whitemark 7255 (Suburb/postcod)

**Qualified person details:**

Qualified person: Richard Mason
Address: 20 Adelong Drive
Kingston 7050
Phone No. 0418589309
Fax No.
Licence No: CC6157T
Email address: richardmason@iprimus.com.au

Qualifications and Insurance details: BSc Env Sciences (Salford)

Environmental Health Professional

Prof Indemnity Insurance: Arch Insurance Policy No. P0021114PI2022AU0

*(description from Column 3 of the Director of Building Control's Determination)*

Speciality area of expertise: Site and soil evaluation and land application system design.

*(description from Column 4 of the Director of Building Control's Determination)*

**Details of work:**

Address: 368 Five Mile Jim Road
Memana 7255
Certificate of title No: 215120/1

The assessable item related to this certificate:

Onsite wastewater management – Site and soil evaluation for onsite wastewater management capability;

including:

Characterisation of wastewater and predicted hydraulic loadings.

Selection of onsite wastewater treatment system

Selection of land application area.

Determination of design loading rate.

*(description of the assessable item being certified)*
*Assessable item includes –*
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

**Certificate details:**

Certificate type: On-site wastewater management - Site and soil evaluation

*(description from Column 1 of Schedule 1 of the Director of Building Control's Determination)*

Director of Building Control – Date Approved 1 January 2017 — *Building Act 2016* - Approved Form No. 55

This certificate is in relation to the above assessable item, at any stage, as part of - *(tick one)*

building work, plumbing work or plumbing installation or demolition work: ✓

or

a building, temporary structure or plumbing installation:

In issuing this certificate the following matters are relevant –

| | |
|---|---|
| Documents: | AS/NZS 1547. 2012: On-site domestic-wastewater management. |
| Relevant calculations: | |
| References: | AS/NZS 1547.2012: Onsite Domestic Wastewater Management.<br>Directors Guidelines for on-site wastewater management systems - CBOS - 2017 |

***Substance of Certificate:*** *(what it is that is being certified)*

Site & soil evaluation and design report - New onsite wastewater management system at "Markana Park," 368 Five Mile Jim Road, Memana TAS 7255. (Sand mine - Southern site), TAS 7255, by Richard Mason, Onsite Assessments Tas, dated 22/08/2022.

***Scope and/or Limitations***

**I certify the matters described in this certificate.**

| Qualified person: | *Signed:* | *Certificate No:* | *Date:* |
|---|---|---|---|
| |  | N/A | 22/08/2022 |

# Appendix 8 – Form 35

## CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form 35

To: Markarna Grazing Company Pty Ltd (Owner name)

(Address)

Whitemark 7255 (Suburb/postcode)

**Designer details:**

Name: Richard Mason
Category: Building Services Designer Hydraulic - Restricted
Business name: Onsite Assessments Tas
Phone No: 0418 589 309
Business address: 20 Adelong Drive
Kingston 7050
Fax No:
Licence No: CC6157T
Email address: richardmason@iprimus.com.au

**Details of the proposed work:**

**Owner/Applicant** Markarna Grazing Company Pty Ltd
Designer's project reference No.
**Address:** 368 Five Mile Jim Road
Lot No: 215120/1
Memana 7255

**Type of work:** Building work ☐ Plumbing work ☒ *(X all applicable)*

**Description of work:**

Onsite wastewater management system

*(new building / alteration / addition / repair / removal / re-erection water / sewerage / stormwater / on-site wastewater management system / backflow prevention / other)*

**Description of the Design Work (Scope, limitations or exclusions):** *(X all applicable certificates)*

| Certificate Type: | Certificate | Responsible Practitioner |
|---|---|---|
| | ☒ Hydraulic design | Building Services Designer |
| | ☐ Other (specify) | |

Deemed-to-Satisfy: ☒ Performance Solution: ☐ *(X the appropriate box)*

Other details:

On site wastewater management system servicing farm buildings.

Director of Building Control - date approved: 2 August 2017 *Building Act 2016* - Approved Form No 35

**Design documents provided:**

The following documents are provided with this Certificate –

*Document description:*

| | | |
|---|---|---|
| Drawing numbers: Appendix 3 | Prepared by: Richard Mason | Date: 22/08/2022 |
| Schedules: | Prepared by: Richard Mason | Date: |
| Specifications: Appendix 4 | Prepared by: Richard Mason | Date: 22/08/2022 |
| Computations: pages 5-6 | Prepared by: Richard Mason | Date: 22/08/2022 |
| Performance solution proposals: | Prepared by: | Date: |
| Test reports: | Prepared by: | Date: |

**Standards, codes or guidelines relied on in design process:**

AS/NZS1547.2012 On site domestic waste water management

NCC Part 3

Director's Guidelines for On-site Wastewater Management Systems, Director of Building Control (Tasmania).

**Any other relevant documentation:**

Site & soil evaluation and design report - New onsite wastewater management system at "Markana Park," 368 Five Mile Jim Road, Memana TAS 7255. (Sand mine - Southern site), TAS 7255, by Richard Mason, Onsite Assessments Tas, dated 22/08/2022.

Form 55 dated 22/08/2022 certifying Site & Soil Evaluation and design report.

**Attribution as designer:**

I Richard Mason am responsible for the design of that part of the work as described in this certificate;

The documentation relating to the design includes sufficient information for the assessment of the work in accordance with the *Building Act 2016* and sufficient detail for the builder or plumber to carry out the work in accordance with the documents and the Act;

This certificate confirms compliance and is evidence of suitability of this design with the requirements of the National Construction Code.

| | *Name: (print)* | *Signed* | *Date* |
|---|---|---|---|
| Designer: | Richard Mason |  | 22/08/2022 |
| Licence No: | CC6157T | | |

Director of Building Control - date approved: 2 August 2017 *Building Act 2016* - Approved Form No 35

## Assessment of Certifiable Works: (TasWater)

**Note: single residential dwellings and outbuildings on a lot with an existing sewer connection are not considered to increase demand and are not certifiable.**

**If you cannot check ALL of these boxes, LEAVE THIS SECTION BLANK.**

**TasWater must then be contacted to determine if the proposed works are Certifiable Works.**

**I confirm that the proposed works are not Certifiable Works, in accordance with the Guidelines for TasWater CCW Assessments, by virtue that all of the following are satisfied:**

- [X] The works will not increase the demand for water supplied by TasWater
- [X] The works will not increase or decrease the amount of sewage or toxins that is to be removed by, or discharged into, TasWater's sewerage infrastructure
- [X] The works will not require a new connection, or a modification to an existing connection, to be made to TasWater's infrastructure
- [X] The works will not damage or interfere with TasWater's works
- [X] The works will not adversely affect TasWater's operations
- [X] The work are not within 2m of TasWater's infrastructure and are outside any TasWater easement
- [X] I have checked the LISTMap to confirm the location of TasWater infrastructure
- [X] If the property is connected to TasWater's water system, a water meter is in place, or has been applied for to TasWater.

## Certification:

I Richard Mason being responsible for the proposed work, am satisfied that the works described above are not Certifiable Works, as defined within the *Water and Sewerage Industry Act 2008*, that I have answered the above questions with all due diligence and have read and understood the Guidelines for TasWater CCW Assessments.

Note: the Guidelines for TasWater Certification of Certifiable Works Assessments are available at: www.taswater.com.au

| | *Name: (print)* | *Signed* | *Date* |
|---|---|---|---|
| Designer: | Richard Mason |  | 22/08/2022 |

Director of Building Control - date approved: 2 August 2017 *Building Act 2016* - Approved Form No 35

**ATTACHMENT 6. LAND HEIGHT SURVEY – COASTAL INUNDATION HAZARD**

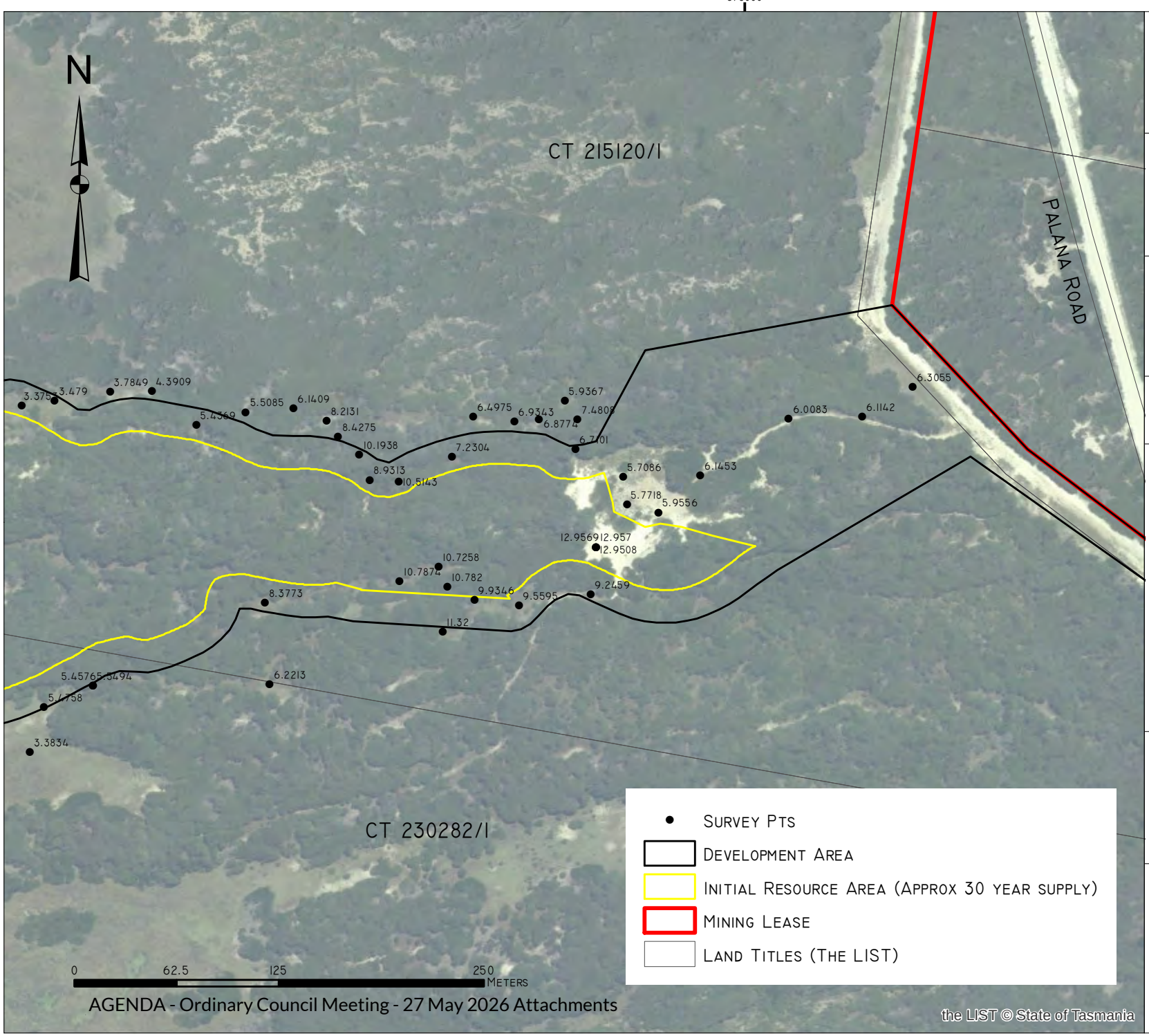
# MARKARNA PARK PTY LTD

## MARKARNA PARK SAND PIT

FIGURE 1: MARKARNA PARK SAND PIT DEVELOPMENT HEIGHT SURVEY (MIN RECORDED HT 2.994 M AHD)

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

NOTE:
SURVEY FOCUSED ON LOW POINT WITHIN AND AROUND THE DEVELOPMENT AREA




BASE DATA BY TASMAP. © STATE OF TASMANIA
BASE IMAGE BY TASMAP. © STATE OF TASMANIA

Van Diemen CONSULTING
PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 16 JUNE 2023



the LIST © State of Tasmania

# MARKARNA PARK PTY LTD

## MARKARNA PARK SAND PIT

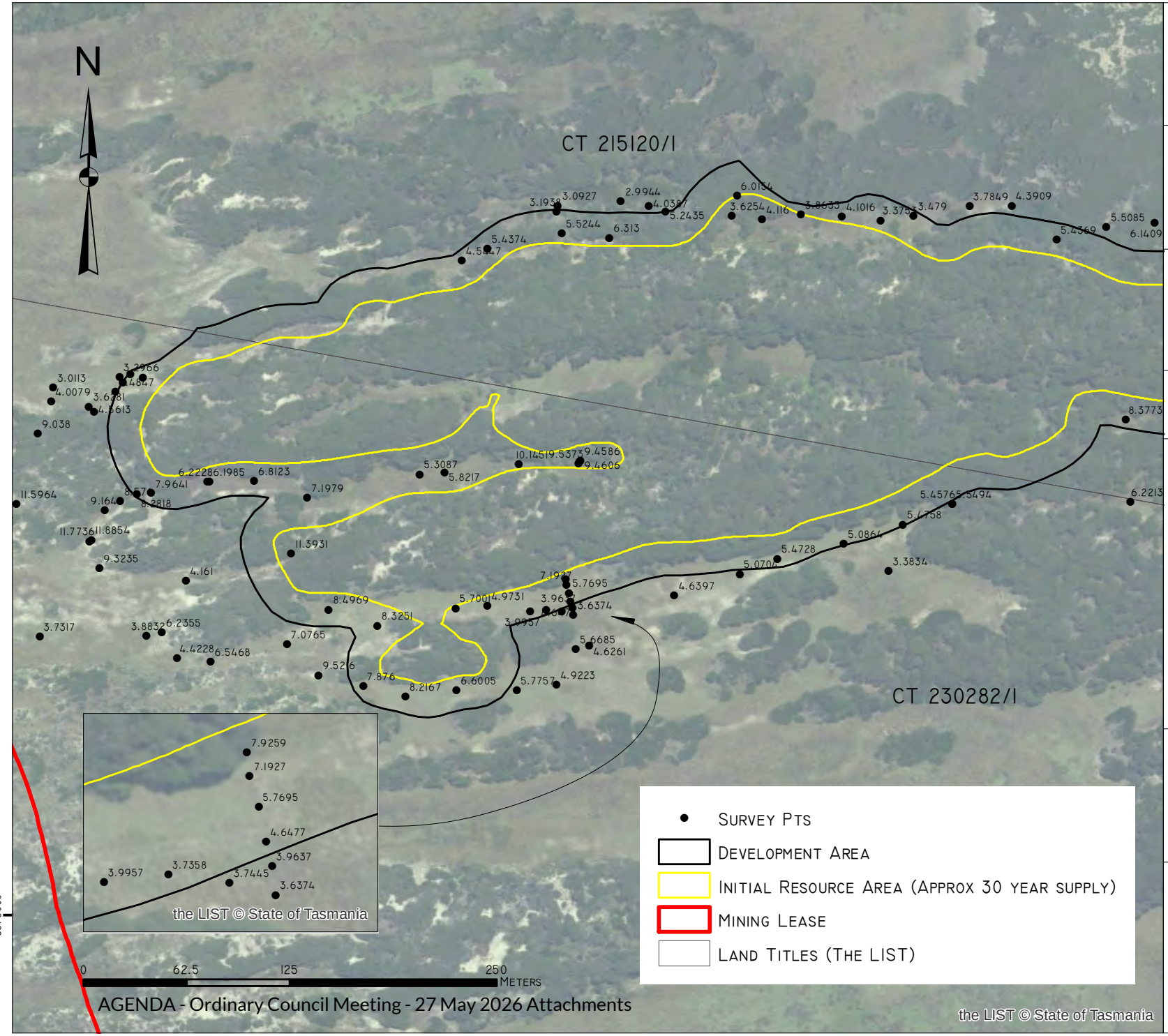



FIGURE 2: MARKARNA PARK SAND PIT DEVELOPMENT HEIGHT SURVEY (MIN RECORDED HT 2.994 m AHD)

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

NOTE:
SURVEY FOCUSED ON LOW POINT WITHIN AND AROUND THE DEVELOPMENT AREA

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Van Diemen CONSULTING
PO Box 1 New Town TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 16 JUNE 2023

**ATTACHMENT 7. STORMWATER MANAGEMENT AND SEDIMENT CONTROL MEASURES REPORT**

# MARSHALL SAND PIT, MEMANA

## STORMWATER MANAGEMENT AND SEDIMENT CONTROL MEASURES ASSESSMENT REPORT

**NOVEMBER 2024**

Van Diemen CONSULTING PO BOX 1, NEW TOWN, TAS 7008

Van Diemen Consulting Pty Ltd

PO Box 1

New Town, Tasmania

T: 0438 588 695 E: rwbarnes73@gmail.com

This document has been prepared in accordance with the scope of services agreed upon between Van Diemen Consulting (VDC) and the Client. To the best of VDC's knowledge, the report presented herein represents the Client's intentions at the time of completing the document. However, the passage of time, manifestation of latent conditions or impacts of future events may result in changes to matters that are otherwise described in this document. In preparing this document VDC has relied upon data, surveys, analysis, designs, plans and other information provided by the client, and other individuals and organisations referenced herein. Except as otherwise stated in this document, VDC has not verified the accuracy or completeness of such data, surveys, analysis, designs, plans and other information.

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Document Status

| REV | Author | Review | Date |
|---|---|---|---|
| 1 | S Ineshka | R Barnes | 18.11.2024 |
| | | | |
| | | | |

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## ACRONYMS

| | |
|---|---|
| DNRET | Department of Natural Resources and Environment Tasmania |
| ASS | Acid Sulphate Soils |
| DPIPWE (now DNRET) | Department of Primary Industries, Parks, Water and Environment |
| EMPCA | the *Environmental Management and Pollution Control Act 1994* |
| EPA | Environment Protection Authority |
| LUPAA | the *Land Use Planning and Approvals Act 1993* |
| MRT | Mineral Resources Tasmania, within the Department of State Growth |
| MRDA | the *Mineral Resources Development Act 1995* |
| PASS | Potential Acid Sulphate Soils |
| QCP | the Tasmanian Quarry Code of Practice 2017 and includes any subsequent versions of this document. |
| VDC | Van Diemen Consulting Pty Ltd |

## GLOSSARY OF TERMS

| | |
|---|---|
| (the) Report | Stormwater Management and Sediment Control Assessment Report at Marshall Sand Pit, Flinders Island |
| Acceptable Standard | Applied in the context of the Quarry Code of Practice which defines the term as:<br>These are commonly agreed standards which will normally ensure that acceptable environmental performance is achieved. Where a specific issue requires attention at a quarry, the acceptable standard may be modified by the approval authority for inclusion in a Permit or Environment Protection Notice. |
| Bund | An earthen mound wall which may be used for noise attenuation or visual screens. Bunds may also be used to contain spillage of liquid materials. In the context of this document, a bund is a sloped embankment or bund constructed from earth designed to withhold, collect and/or direct/divert surface water flows. |
| Contour bank | An earth mound or similar, constructed approximately along the contour and which is designed to control and/or direct water run-off. |
| Contour drain | Drainage channel constructed approximately along the contour, and which is designed to permit the flow of water to a control feature/sediment trap on site. |

| | |
|---|---|
| **Contractor** | the entity/person contracted by the Proponent to operate/manage the quarry on their behalf |
| **Cut-off drain** | A ditch and earth bank constructed to prevent water from building up, for example, along a track, and allowing redirection of running water into surrounding areas. |
| **Disturbed Area** | Means the area of the Land disturbed by the operation of the quarry and includes roads, access tracks, bunds, sediment basins and other ancillary infrastructure. |
| **IECA Guideline** | International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control Guidelines 2008 |
| **Blue Book** | Managing Urban Stormwater, Volume 1 – Soils and Construction, 4th Edition, March 2004 (Landcom 2004) |
| **(the) Land** | means the land on which the activity to which this document relates may be carried out and includes buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land is the area defined by Mining Lease ML 2117 P/M |
| **Mining Lease(s), ML** | the Mining Lease 2117 P/M |
| **Lessee** | Markarna Grazing Company Pty Ltd |
| **Pad Area** | The gravel hardstand area where the shed is located and the Raw/Processed sand stockpiled |
| **Pit** | The area of the sand pit where extraction is occurring and is to occur and includes the Pad Area, internal roading to the working area and stockpiles. The Pit is generally devoid of vegetation and topsoil. |
| **Rehabilitated** | the **result** of Rehabilitation; a Disturbed Area deemed to have to a self-sustaining, stable, and non-polluting state, which is suitable for the proposed future land. |
| **Rehabilitation** | the **process** that encompasses all those measures which seek to repair disturbed or degraded land, and to return such land to a self-sustaining, stable, and non-polluting state, which is suitable for the proposed future land. |
| **Sediment Basin** | A dam (basin) used to capture and retain sediment-laden runoff from a land disturbance primarily through the actions of sedimentation. |
| **stormwater** | means water traversing the surface of The Land because of rainfall falling onto pervious and impervious surfaces |
| **watercourse** | a natural depression carrying perennial or intermittent flows of surface water for part or all of the year in most years. Consisting of a defined channel, with banks and a bed along which water may flow. |

# 1. BACKGROUND

## 1.1. Introduction

The purpose of this Report is to assess proposed stormwater and sediment control measures at Marshall Sand Pit located at 368 Five Mile Jim Road, Memana TAS 7255. The mining activities, including sand extraction and processing, can generate significant amounts of sediment and influence surface water runoff.

This assessment evaluates the current drainage patterns, sediment generation potential, and proposes new stormwater and sediment control measures tailored to the site's geological and operational conditions.

The Report recommend strategies to manage stormwater runoff, mitigate erosion, control sediment dispersion, and ensure compliance with local environmental regulations to minimize the impact of sand extraction operations on surrounding environment.

## 1.2. Proposed Activity

The proposed activity is to extract up to 10,000 cubic metres per annum of material.

The Pit is located on Palana Road, approximately 22 kilometre north of Flinders Island Airport.




*Figure 1.1: Site Location*

# 2. SITE CHARACTERISTICS AND ENVIRONMENTAL PARAMETERS

## 2.1. Site Geology and Soil Conditions

A detailed survey was undertaken in January 2024 by the Forest Practices Authority[1] of the geomorphology and soils present in the Pit area, and broader the Mining Lease.

A map extract from the FPA report is presented in **Figure 2.1.**

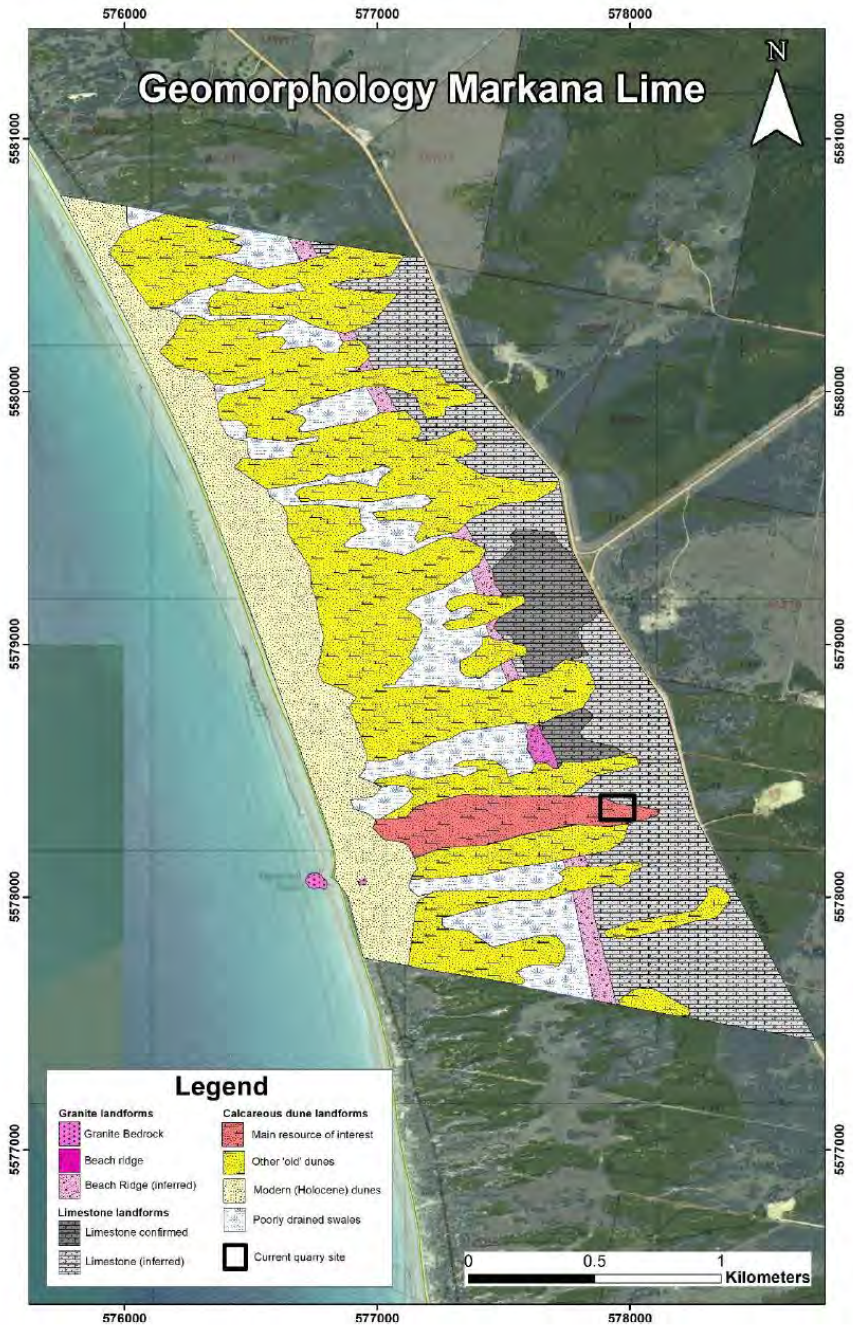



*Figure 2.1: Geomorphology Summary Map from FPA (2024)*

[1] SURVEY OF THE GEOMORPHOLOGY AND SOIL CHARACTERISTICS OF THE MARKARNA GRAZING COMPANY PTY LTD PROPERTY, MARSHALL BEACH, FLINDERS ISLAND. Dr Adrian Slee, Earth Sciences and Cultural Heritage, Forest Practices Authority, 30 Patrick Street, Hobart 7000. January 2024.

The Mining Lease features extensive sand dunes, composed predominantly of fine-grained quartz and carbonate deposits. These dunes are a result of dynamic sedimentary processes, shaped by both wind and water. The top sand layer, particularly important for stormwater and sediment management, is characterised by its high permeability, which influences infiltration rates and stormwater runoff patterns.

### 2.1.1. Soil Hydrologic Group

Based on infiltration and permeability characteristics of soil, Both Blue Book and the IECA Guidelines group soils into four categorises because of their likely effect on the generation of runoff.

| | |
|---|---|
| Group A | very low runoff potential. Water moves into and through these soil materials relatively quickly, when thoroughly wetted. Usually, they consist of deep (>1.0 metres), well-drained sandy loams, sands or gravels. They shed runoff only in extreme storm events. |
| Group B | low to moderate runoff potential. Water moves into and through these soil materials at a moderate rate when thoroughly wetted. Usually, they consist of moderately deep (>0.5 metres), well-drained soils with medium, loamy textures or clay loams with moderate structure. They shed runoff only infrequently. |
| Group C | soils with a low to moderate infiltration capacity. Usually consists of moderately fine clay loams, or loamy clays, or more porous soils that are impeded by poor surface conditions, shallow depth or a low porosity subsoil horizon. |
| Group D | Soils with a low porosity. Usually consists of fine-textured clays, soils with poor structure, surface-sealing (dispersive/sodic) soils, or expansive clays. Included in this group would be soils with a permanent high-water table. |

*Table 2.1: Soil Hydrologic Groups*

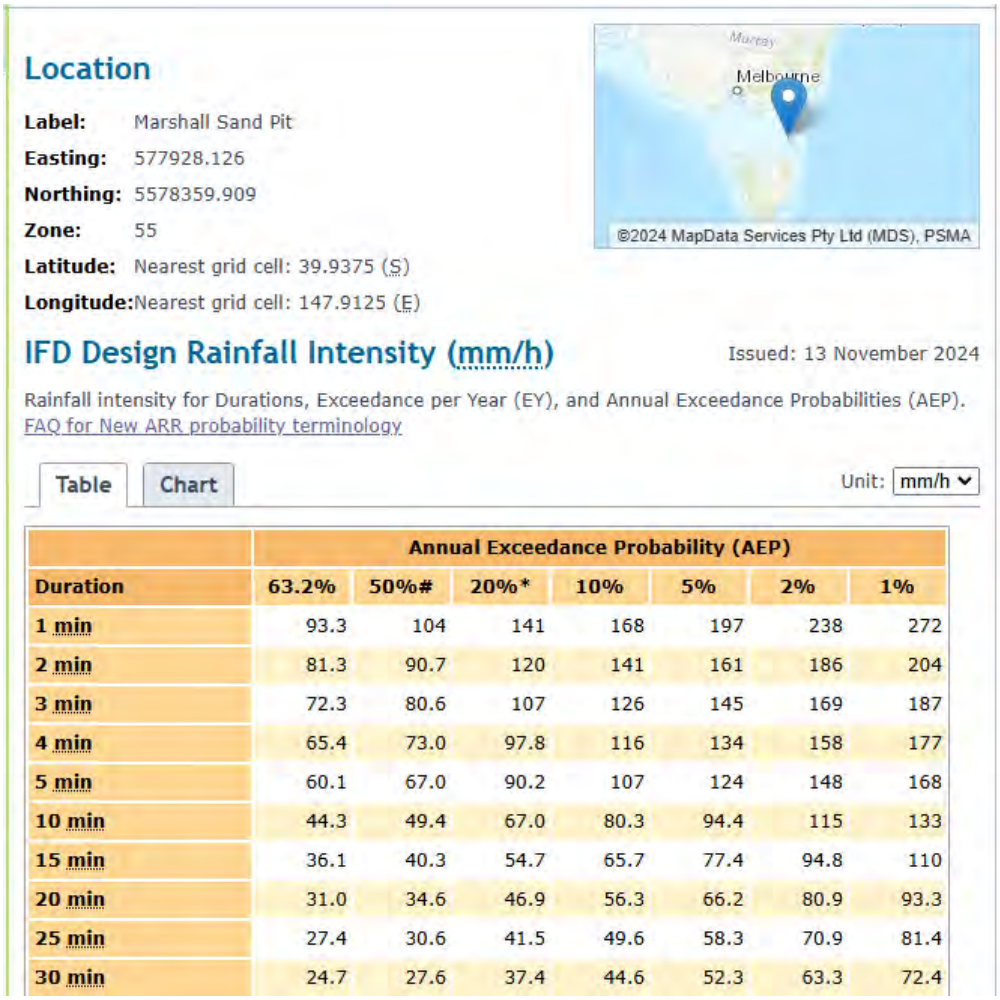
For the purpose of this Report, the site was divided into three (03) zones based on their potential to runoff generation and sediment generation characteristics.

| Sediment and Runoff generating zone | Description | Infiltration potential | Sediment Generation Potential | Soil Hydrologic Group |
|---|---|---|---|---|
| Type 01 | **Disturbed Areas -** Most of the disturbed area will be associated with the Pit floor. Production stockpiles will also occupy this area for storage purposes. | Very High | Low to medium | A |
| Type 02 | **Undisturbed and Rehabilitated Areas -** The sections of the land within the Mining Lease that have remained unaffected by extraction activities and areas which are rehabilitated using stored topsoil/overburden. | High | Low | B |
| Type 03 | **Pad Area -** Gravel hardstand area where the shed is installed and the Raw/Processed sand stockpiled | Medium to Low | Low | C |

*Table 2.2: Sediment and Runoff Generating Zones*

## 2.2. Site specific Rainfall Data

Site specific rainfall intensity data was obtained from the Bureau of Meteorology's (BOM) rainfall Intensity-Frequency Duration (IFD) tables.




| | Annual Exceedance Probability (AEP) | | | | | | |
|---|---|---|---|---|---|---|---|
| **Duration** | **63.2%** | **50%#** | **20%*** | **10%** | **5%** | **2%** | **1%** |
| **1 min** | 93.3 | 104 | 141 | 168 | 197 | 238 | 272 |
| **2 min** | 81.3 | 90.7 | 120 | 141 | 161 | 186 | 204 |
| **3 min** | 72.3 | 80.6 | 107 | 126 | 145 | 169 | 187 |
| **4 min** | 65.4 | 73.0 | 97.8 | 116 | 134 | 158 | 177 |
| **5 min** | 60.1 | 67.0 | 90.2 | 107 | 124 | 148 | 168 |
| **10 min** | 44.3 | 49.4 | 67.0 | 80.3 | 94.4 | 115 | 133 |
| **15 min** | 36.1 | 40.3 | 54.7 | 65.7 | 77.4 | 94.8 | 110 |
| **20 min** | 31.0 | 34.6 | 46.9 | 56.3 | 66.2 | 80.9 | 93.3 |
| **25 min** | 27.4 | 30.6 | 41.5 | 49.6 | 58.3 | 70.9 | 81.4 |
| **30 min** | 24.7 | 27.6 | 37.4 | 44.6 | 52.3 | 63.3 | 72.4 |

*Figure 2.2: IFD Table*

There are several BOM stations in the vicinity of Marshall Sand Pit which have historically collected rainfall accumulations. Data from following stations was assessed.

| STATION NO. | STATION NAME | DISTANCE FROM THE SITE | YEARS OF DATA | 5-DAY 80TH PERCENTILE DEPTH (mm) | 5-DAY 85TH PERCENTILE DEPTH (mm) | 5-DAY 90TH PERCENTILE DEPTH (mm) |
|---|---|---|---|---|---|---|
| 099028 | Wingaroo | 3.4km | 6 | 15.8 | 20.0 | 25.2 |
| 099005 | Flinders Island Airport | 18.5km | 82 | 16.4 | 20.1 | 25.6 |
| 099019 | Killiecrankie | 12.5km | 48 | 16.0 | 20.0 | 25.2 |

*Table 2.3: BOM stations data*

Rainfall data from the Flinders Island Airport station was considered for the calculation of total rainfall (mm) on site.

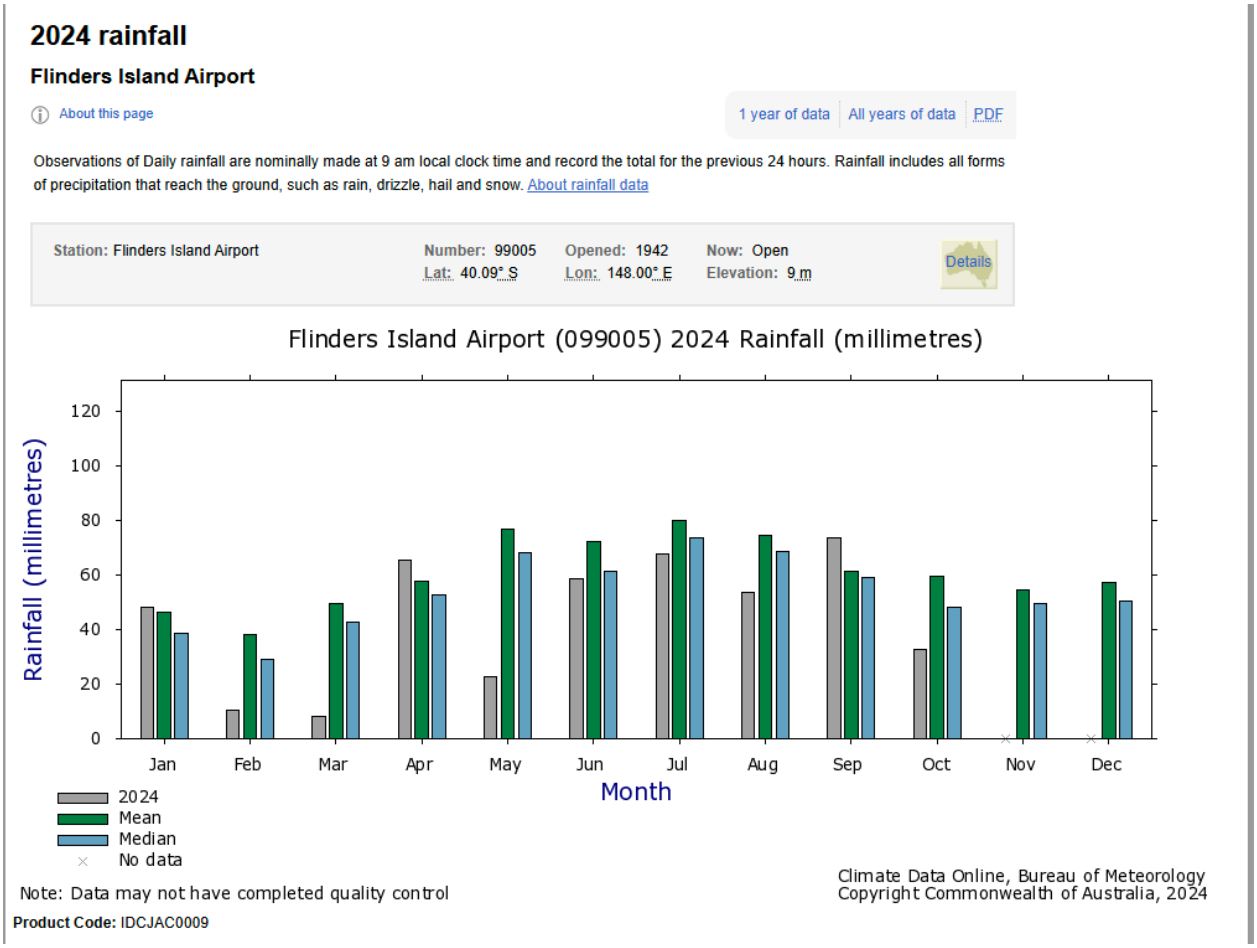



*Figure 2.3: Rainfall (mm) data from Flinders Island Airport station*

# 3. STORMWATER MANAGEMENT

## 3.1. Stormwater Management Principles

In the hierarchy of best practice, as depicted below, effective stormwater management takes precedence, followed by best erosion control practices, and then simply the enactment of sediment control practices. The highest performance of pollution prevention is via the implementation of an effective stormwater management system that integrates all elements; sediment, erosion, and stormwater.

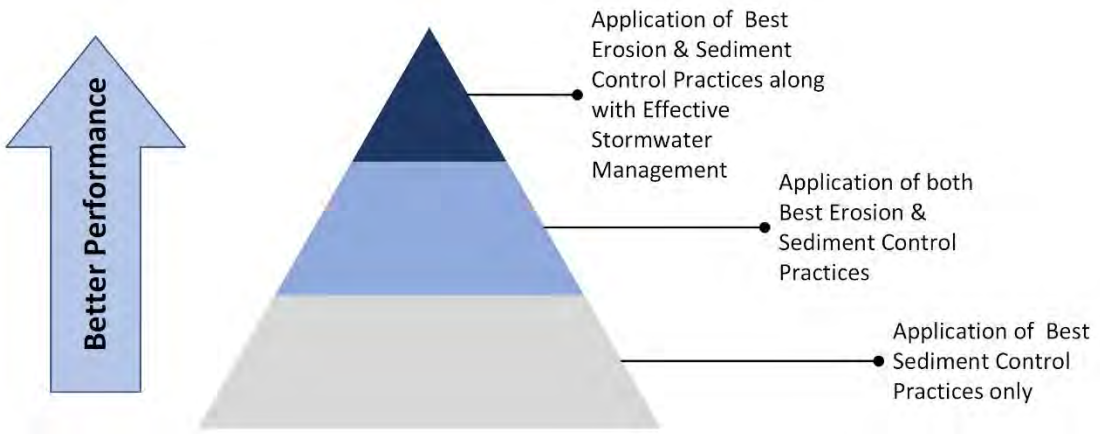



*Figure 3.1: Hierarchy of Best Practice*

The total Rainfall and subsequent on the Mining Lease will be managed using diversion channels, cutoff drains, and diversion banks.

It will be prioritised to divert any rainfall on undisturbed area to prevent entering in to disturbed areas; in effect, a perimeter or cut-off drain (or perimeter bund) which is standard practice for a sand pit. Rainfall on to disturbed areas will be directed into sediment ponds (using surface slope, bunds, drains, etc.), treated, subsequently reused and with any excess discharge into the environment.

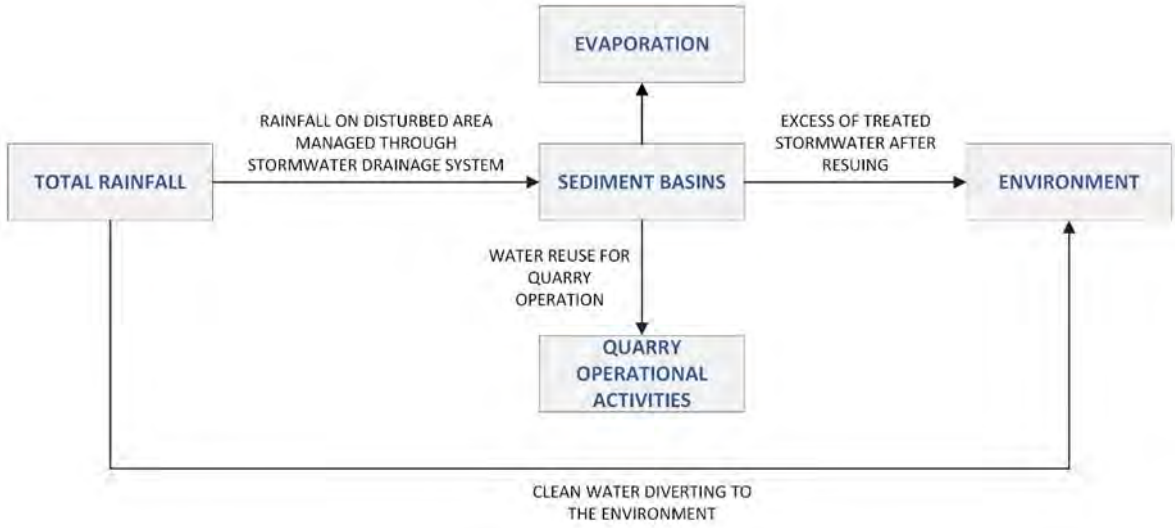



*Figure 3.2: Stormwater Management Principles*

## 3.2. Stormwater Management Structures Design Criteria

The stormwater management structures identified in this Report, including diversion channels and cut-off drains, have been designed to have sufficient capacity to contain runoff that could reasonably be expected to arise during a 1 in 20-year rainfall event.

Maximum channel flow rates are to be determined in accordance with Tables A23 to A28 in the Book 2 of IECA Guidelines to prevent erosion for various channel linings. For those cases where achieving the desirable flow velocity is unfeasible, a channel lining will need to be chosen based on site-specific conditions.

## 3.3. Estimated Peak Runoff Flow Rates

Rainfall falling onto the Extraction Zone will generally flow from the Sand pit into the drains as sheet flow. This will be achieved by sloping the pit floor during material extraction, which is standard practice.

Peak Runoff Flow rates were calculated as per the guidelines stated in Book 2 of IECA Guidelines and Blue Book. Peak flow rates that could be generated at different stages of the sand pit were calculated under difference scenarios. Refer to **Table 3.1** for estimated peak runoff flow rates.

| SCENARIO | NOTES / COMMENTS | TOTAL AREA (ha) | COMPOSITE RUNOFF COEFFICIENT | RAINFALL INTENSITY (mm/hr) | PEAK FLOW RATE ($m^3/s$) |
|---|---|---|---|---|---|
| 1 | Pad Area (excluding roof area of the shed) | 1.47 | 0.725 | 124 | 0.37 |
| 2 | Existing (disused) Pit | 0.30 | 0.210 | 124 | 0.02 |
| 3 | Sand extraction area of the Pitat year 1 | 0.66 | 0.210 | 124 | 0.05 |
| 4 | Sand extraction area of the Pit at year 2 | 0.93 | 0.210 | 124 | 0.07 |
| 5 | Pit with a disturbed area of 1.5ha | 1.50 | 0.210 | 124 | 0.11 |

| | | | | | |
|---|---|---|---|---|---|
| 6 | Pit with a disturbed area of 2.0ha | 2.00 | 0.210 | 124 | 0.14 |
| 7 | Pit with a disturbed area of 3.0ha | 3.00 | 0.210 | 124 | 0.22 |
| 8 | 1ha of Rehabilitated Area | 1.00 | 0.480 | 124 | 0.17 |
| 9 | 2ha or Rehabilitated Area | 2.00 | 0.480 | 124 | 0.33 |

*Table 3.1: Estimated Peak Runoff Flow Rates*

### 3.4. Estimated Runoff Volumes

Total runoff volume that can be predicted during an 80$^{th}$ percentile 5-day rainfall event was calculated for the purpose of this Report and designing of sediment basins.

| SENARIO | NOTES/COMMENTS | TOTAL AREA (ha) | COMPOSITE VOLUMETRIC COEFFICIENT ($C_v$) | TOTAL RUNOFF VOLUME ($m^3$) |
|---|---|---|---|---|
| 1 | Total runoff from Pad Area | 1.47 | 0.27 | 65 |
| 2 | Runoff from the existing Pit | 0.30 | 0.02 | 1 |
| 3 | Runoff reporting to the sediment basin BS-F1 at year 01 | 0.66 | 0.02 | 2 |
| 4 | Runoff reporting to the sediment basin BS-F1 at year 02 | 0.93 | 0.02 | 3 |
| 5 | Runoff reporting to the sediment basin BS-F2 at year 03 | 0.32 | 0.02 | 1 |
| 6 | Runoff reporting to the sediment basin BS-F2 at year 04 | 0.66 | 0.02 | 2 |
| 7 | Runoff reporting to the sediment basin BS-F2 at year 05 | 0.26 | 0.02 | 1 |
| 8 | Runoff from 1ha of disturbed area | 1.00 | 0.02 | 3 |
| 9 | Runoff from 1.5ha of disturbed area | 1.50 | 0.02 | 5 |

*Table 3.2: Estimated Runoff Volumes*

### 3.5. Drainage Specifications

As described in **Section 3.1** of this Report, rainfall falling onto the undisturbed area will be diverted using perimeter bunds or cutoff drains. Subsequently, rainfall falling onto the disturbed areas (sand pit) will flow

into the diversion channels and then to the sediment basins, as shown in the technical drawings in Attachment 1.

Diversion channels and drains will be designed to have maximum flow velocities under 1.0 m/s.

Maximum flow capacities of proposed drains are as follows,

| CHANNEL | CHANNEL LINING TYPE | SLOPE (m/m) | PEAK FLOW VELOCITY DURING A 1 IN 20 YEAR STORMWATER EVENT ($ms^{-1}$) | MAX FLOW RATE CAPACITY ($m^3s^{-1}$) |
|---|---|---|---|---|
| The permanent drain intercepting stormwater runoff from the Pad Area | Grassed | 0.02 | 1 | 0.13 |
| All other drains/channels | Grassed | 0.01 | 0.7 | 0.09 |

*Table 3.3: Maximum Designed Flow Capacities of channels*

It should be noted that rainfall falling onto the shed roof will be collected by water tanks connected to the gutters. Rainfall falling onto the hardstand area will flow towards the diversion channel (swale drain) formed along the northern boundary of the hardstand area as sheet flow. This will be achieved by slightly sloping the finished ground towards the swale drain.

It is anticipated that the alignments of the drainage systems will be modified periodically as the Pit advances to accommodate evolving site conditions. Once established, the Pad Area is unlikely to change in shape or area for the life of the activity.

# 4. SEDIMENT CONTROL

## 4.1. Sediment Basins

All rainfall that falls onto disturbed areas will be collected into sediment basins, treated, and subsequently discharged to the environment. The treated stormwater runoff accumulated in basins will be repurposed for operational activities within the sand pit, including sand processing. Only surplus discharge from sediment basins will be released into the environment.

Book 02 of IECA Guidelines outlines three types of sediment basins, with the design criteria primarily dictated by the soil properties of the site.

| | |
|---|---|
| *Type C Basin* | These basins are mostly suitable for coarse grained, good settling soils. Type C basins may be operated as either "dry" or "wet" basins depending on the requirement for stormwater reuse on the site. The critical design parameter in a Type C basin is the effective surface area of the settling pond. |
| *Type F Basin* | These basins are generally suitable for fine grained soils that can readily settle without the need for flocculating agents. Type F basins can only be operated as wet basins. The critical design parameter for a Type F basin is the volume of the settling pond. |
| *Type D Basin* | These basins are required for the treatment of dispersive soils that do not readily settle without the use of flocculating agents. Type D basins can only be operated as wet basins. The critical design parameter for a Type D basin is the volume of the settling pond |

Based on the soil data detailed in the 'Geomorphology and Soil Characteristics Survey Report (FPA 2024)' it was decided to implement Type F basins for collecting and treating stormwater runoff from the sand pit area. It should also be noted that, due to the high infiltration properties of the soil, the total demand for these basins will be relatively low. This is supported by the calculations shown in **Table 3.2**.

The pad area will consist of compacted graded gravel to form a semi-permeable finish. Sediment generation from such compacted gravels is relatively low. However, over time, the top layer of the compacted gravel may loosen and be carried away with stormwater runoff. Therefore, a Type C sediment basin has been proposed to treat the runoff leaving the pad area.

## 4.2. Settling Zone Volume

Sediment basins are typically divided into two functional zones: the upper settling zone and the lower sediment storage zone. The settling zone is designed to provide sufficient volume for the effective settlement of fine particles during a specified design rainfall event. The sediment storage zone, located below, is intended to store the accumulated sediment until it is removed during scheduled clean-outs.

Type F basins are proposed to treat the sand extraction area of the Pit and those are typically designed for a maximum of 5-day cycle, that being the filling, treatment, and discharge of the basin within a maximum of 5-day period. Table B4, Book 02 of IECA Guidelines suggests 80$^{th}$ percentile 5-day rainfall depth to calculate settling zone volume of the sediment basin for basins with design life greater than 6 months. **Table 4.1** details the settling zone volume requirements for different scenarios.

A Type C basin is proposed to treat runoff from the pad area and this type of basins may be operated as either “dry” or “wet” basins depending on the requirement for stormwater reuse on the site. The critical parameter in a Type C basin is the effective surface area.

| CATCHMENT AREA | REPORTING SEDIMENT BASIN | SETTLING ZONE VOLUME REQUIREMENT ($m^3$) | EFFECTIVE SURFACE AREA REQUIREMENT ($m^2$) |
|---|---|---|---|
| Sand extraction area of the Pit (disturbed area) up to year 02 – Approx. 1ha | BS-F1 | 3 | NA |
| Sand extraction area of the Pitat year 04 – Approx. 0.66ha | BS-F2 | 2 | NA |
| Pad Area – Approx. 1.47ha | BS-C1 | 11 | 32 |

*Table 4.1: Settling Zone Volume Requirement*

## 4.3. Sediment Storage Zone Volume

The “sediment storage zone” lies below the “settling zone”. Table B8 of IECA Book 2, provides the guidelines to size the sediment storage volume.

Expected clean out frequency is 6 months.

| SCENARIO | SEDIMENT BASIN | SEDIMENT STORAGE ZONE VOLUME ($m^3$) |
|---|---|---|
| 1 | BS-F1 | 1.5 |
| 2 | BS-F2 | 1.0 |
| 3 | BS-C1 | 11.0 |

*Table 4.2: Estimated Sediment Storage Zone Volumes*

## 4.4. Total Sediment Basin Volumes

It is not expected the size of the proposed Pad Area (hard stand area) will be significantly changed during the near future. Therefore, the sizing detailed in the **Table 4.3** for BS-C1 will remain unchanged unless otherwise.

However, as the sand extraction area of the Pit advances BS-F1 and BS-F2 will become redundant, and new basins will be installed to treat stormwater runoff from new disturbed areas as required. The Pit operator must refer to the **Table 4.3** to determine the sizes of the basins. Type F basins will be installed as per the conceptual design provided in the **Attachment 1.**

| SCENARIO | COMMENTS | SEDIMENT BASIN NAME | SURFACE AREA ($m^2$) | TOTAL VOLUME ($m^3$) |
|---|---|---|---|---|
| 1 | To capture sediments generated from the Pad Area | BS-C1 | 32 | 22 |
| 2 | To capture sediments generated from the sand extraction area of the Pit Area up to year 2 | BS-F1 | NA | 4.5 |
| 3 | To capture sediments generated from the sand extraction area of the Pit Area up to year 04 | BS-F2 | NA | 3.5 |
| 4 | To capture sediments generated from the sand extraction area of the Pit Area at year 05 | BS-F3 | NA | 1.5 |
| 5 | To capture sediments from a disturbed area of 1ha | - | NA | 5.0 |
| 6 | To capture sediments from a disturbed area of 1.5ha | - | NA | 7.4 |
| 7 | To capture sediments from a disturbed area of 2.0ha | - | NA | 10.0 |
| 8 | To capture sediments from a disturbed area of 2.5ha | - | NA | 12.3 |
| 9 | To capture sediments from a disturbed area of 3.0ha | - | NA | 15.0 |

*Table 4.3: Proposed Sediment Basin Volumes*

## 5. CONCLUSION

1. Total rainfall falling on to the Land will be managed using a combination of perimeter bunds, diversion channels, and surface slopes.

2. Clean up-slope water will be diverted to prevent it from entering the disturbed areas.

3. Diversion channels have been designed for sufficient capacity to contain runoff that could reasonably be expected to arise during a 1 in 20-year rainfall event.

4. Low to medium infiltration rates are expected from the Pad Area, and the floor should be sloped (approx. 1%) towards the diversion channels. These channels will then direct the runoff into the permanent sediment basin (BS-C1)

5. Rainfall falling onto the shed roof will be collected in stormwater tanks. Any overflow from the stormwater tanks will be directed to BS-C1 basin. However, it is highly unlikely that the tanks would overflow due to the water requirement for sand processing activities and the use of the amenities on the site; supplementary water to the activity is to be provided by a water bore.

6. Due to the high infiltration rates in the sand pit area, all necessary controls must be implemented to prevent spills or hazardous substances from entering the groundwater. Environmental controls will be but not limited to;

    - Readily available spill kits on site;
    - Training work personnel to use spill kits and establish emergency procedures; and
    - Daily pre-start checks on machinery.

7. A Type C sediment basin is proposed to treat the stormwater runoff from Pad Area.

8. Type F sediment basins are proposed to treat the stormwater runoff from the exposed (extraction areas) of the Pit . New sediment basins will need to be installed as the Pit advances westwards. The operator must decide the size of the basins using the details in Table 4.3.

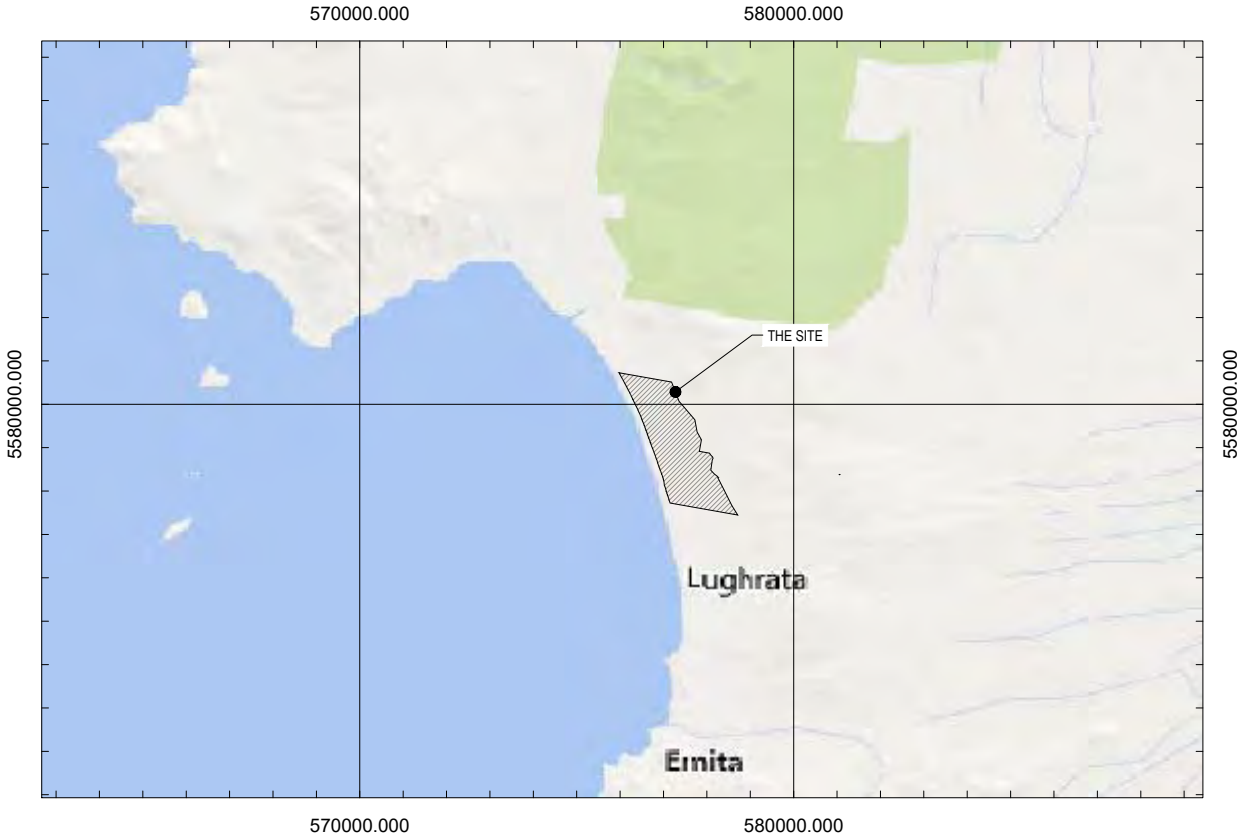
9. Regular monitoring should be undertaken to ensure the effectiveness of the installed stormwater management and sediment control structures.

# 6. ATTACHMENTS

## 6.1. ATTACHMENT 1

# MARSHAL SAND PIT

STORMWATER MANAGEMENT AND SEDIMENT CONTROL MEASURES TECHNICAL DRAWINGS




**LOCALITY MAP**
SCALE: N.T.S.

**DRAWING LIST**

| | DRAWING NO. | REVISION | DESCRIPTION |
|---|---|---|---|
| 1 | VDC/MSP/A/001 | 0.0 | COVER PAGE |
| 2 | VDC/MSP/A/002 | 0.0 | SITE LAYOUT |
| 3 | VDC/MSP/A/003 | 0.0 | CONCEPTUAL TYPE F SEDIMENT BASIN DESIGN |
| 4 | VDC/MSP/A/004 | 0.0 | SEDIMENT BASIN BS-C1 DESIGN |

| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 17/11/2024 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

**STORMWATER MANAGEMENT AND SEDIMENT CONTROL MEASURES ASSESSMENT**

DRAWING NUMBER: VDC/MSP/A/001

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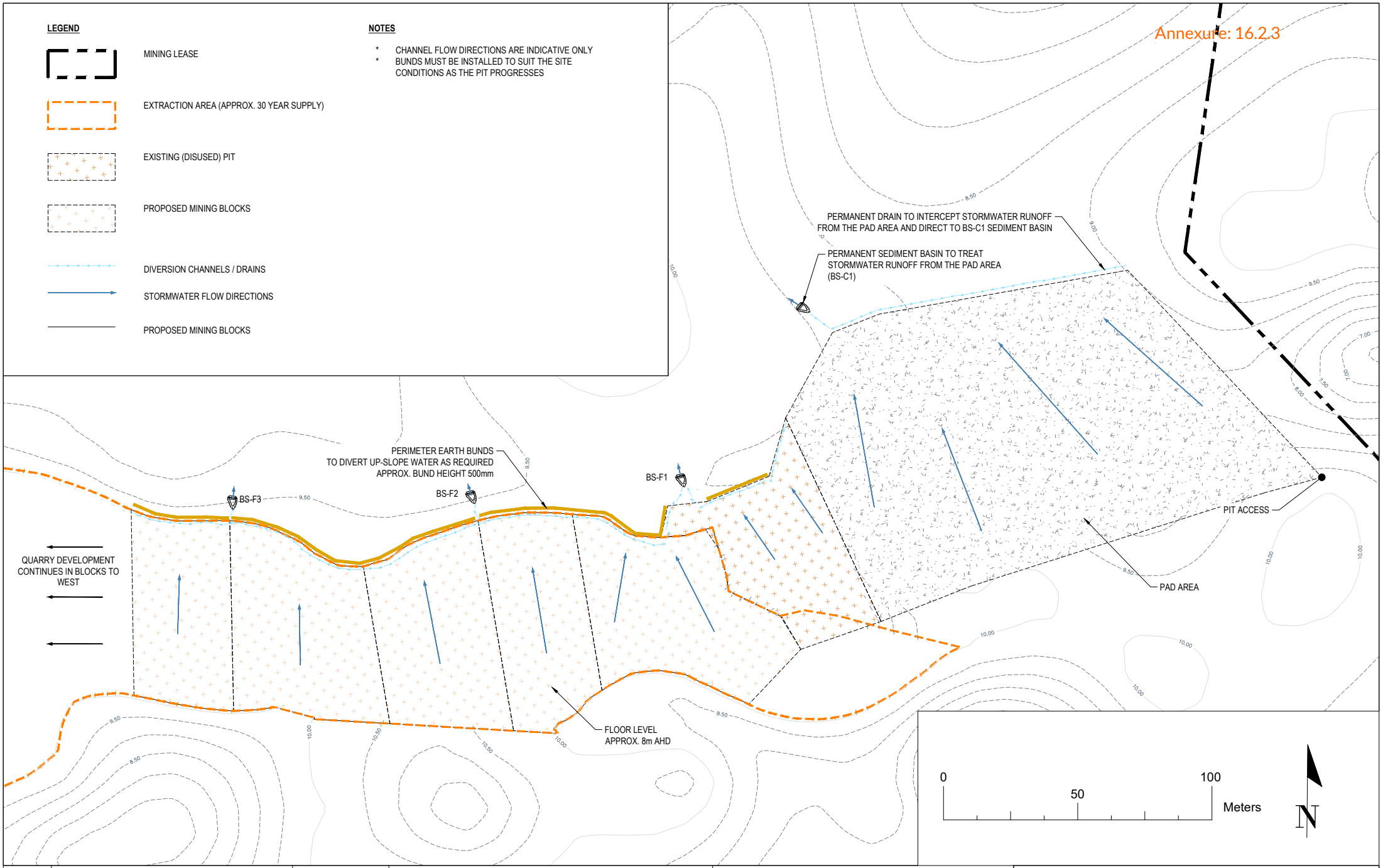
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**LEGEND**

- MINING LEASE
- EXTRACTION AREA (APPROX. 30 YEAR SUPPLY)
- EXISTING (DISUSED) PIT
- PROPOSED MINING BLOCKS
- DIVERSION CHANNELS / DRAINS
- STORMWATER FLOW DIRECTIONS
- PROPOSED MINING BLOCKS

**NOTES**

* CHANNEL FLOW DIRECTIONS ARE INDICATIVE ONLY
* BUNDS MUST BE INSTALLED TO SUIT THE SITE CONDITIONS AS THE PIT PROGRESSES



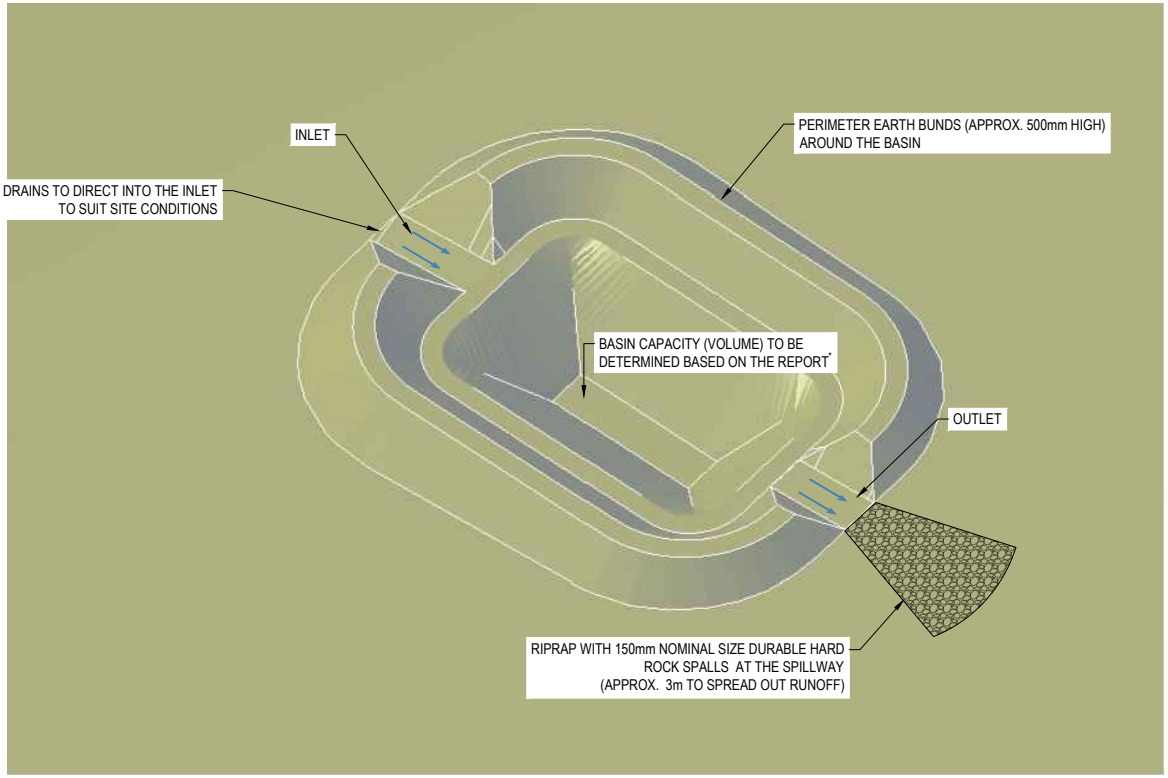

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|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED |
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| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

**SITE LAYOUT**

DRAWING NUMBER: VDC/MSP/A/002

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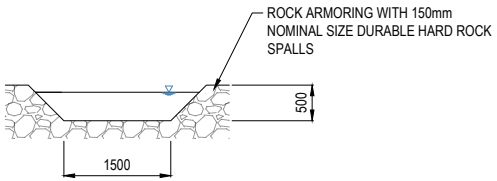

**CONCEPTUAL 3D VISUALIZATION OF TYPE F SEDIMENT BASIN**
SCALE N.T.S.

**NOTES - GENERAL**

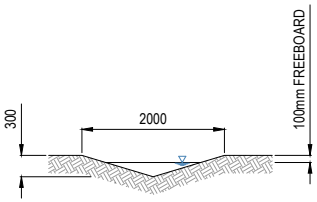
1. REPORT* - STORMWATER AND SEDIMENT CONTROL ASSESSMENT REPORT
2. BASIN CAPACITIES (VOLUMES) MUST BE DETERMINED BASED ON THE GUIDELINES PROVIDED IN THE REPORT (TABLE 4.3)

**NOTES - SEDIMENT BASIN**

1. SEDIMENT BASIN TYPE: TYPE 'F' AS PER IECA GUIDELINES
2. BASIN DESIGN CRITERIA: VOLUME TO RETAIN RAINFALL FROM 5-DAY 80TH PERCENTILE RAINFALL EVENT.
3. SPILLWAY DESIGN CRITERIA: 1 IN 100 YEAR EVENT
4. CLEAN OUT FREQUENCY: 06 MONTHS
5. CLEAN OUT ACCUMULATED SEDIMENT WHEN IT REACHES TO THE SETTLING ZONE, AND RESTORE THE ORIGINAL STORAGE VOLUME.
6. DEPTH TO THE SEDIMENT STORAGE ZONE MUST BE DETERMINE WHEN INSTALLING THE BASIN.
7. AFTER INSTALLATION OF THE POND, INSPECTIONS TO BE CARRIED OUT DURING AND AFTER (OR AS REQUIRED) LARGE STORMWATER EVENTS TO CHECK THE PERFORMANCE OF THE SEDIMENT BASIN.
8. FOLLOWING A RAINFALL EVENT, COLLECTED STORMWATER MUST BE PUMPED OR SIPHONED OUT IN A MANNER THAT DOES NOT DISTURBED SETTLED SEDIMENT. POND WILL BE EMPTIED OUT ONLY WHEN WATER IS CLEAR. IF WATER REMAINS MUDDY AFTER 3 DAYS, VDC'S ENGINEER MUST BE NOTIFIED BEFORE ANY CHEMICAL (FLOCCULANT) TREATMENT IS APPLIED.
9. BASIN LOCATIONS MUST BE SELECTED STRATEGICALLY TO SUIT SITE CONDITIONS AND MUST HAVE ACCESS TO AN EXCAVATOR OF SUITABLE SIZE TO CLEAN SEDIMENTS OUT WHEN NEEDED.




**INLET / SPILLWAY**
SCALE 1:75



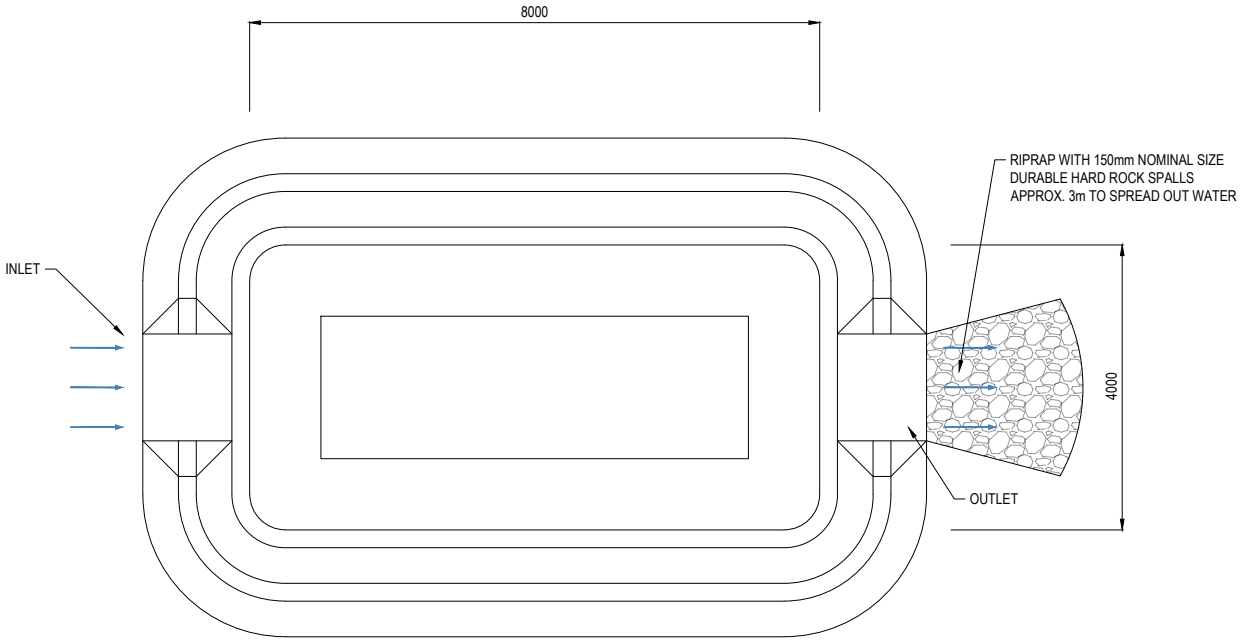

**DIVERSION CHANNEL - SECTIONAL VIEW**
SCALE 1:75

| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 17/11/2024 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

**CONCEPTUAL TYPE F SEDIMENT BASIN DESIGN**

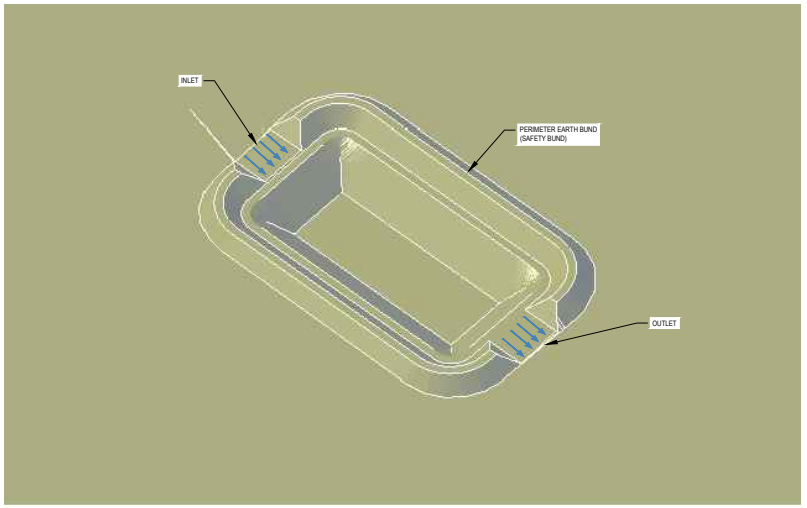
DRAWING NUMBER: VDC/MSP/A/003

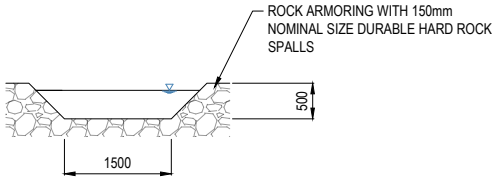
Van Diemen CONSULTING



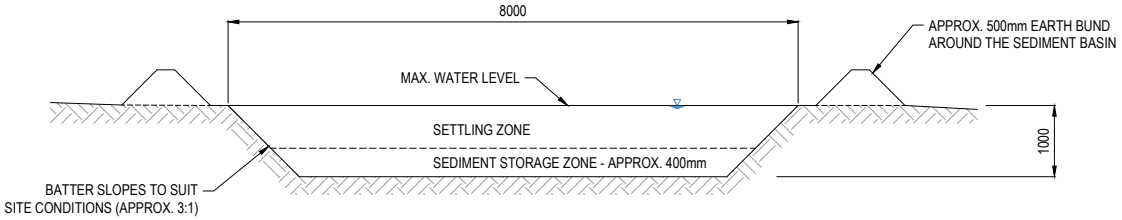

**PLAN VIEW**
SCALE 1:75

**CONCEPTUAL 3D VISUALIZATION OF THE SEDIMENT BASIN**
SCALE 1:75




**INLET / SPILLWAY**
SCALE 1:75




**SECTIONAL VIEW - LONGITUDINAL**
SCALE 1:75

**NOTES**

1. SEDIMENT BASIN TYPE: TYPE 'C' AS PER IECA GUIDELINES
2. BASIN DESIGN CRITERIA: CAPTURE UP TO 0.1mm PARTICLES (CRITICAL PARTICLE SIZE) DURING A 1 IN 20 YEAR STORMWATER EVENT
3. INLET AND SPILLWAY DESIGN CRITERIA: 1 IN 100 YEAR ARI EVENT
4. CLEAN OUT FREQUENCY: 06 MONTHS
5. CLEAN OUT ACCUMULATED SEDIMENTS WHEN IT REACHES TO THE SEDIMENT SETTLING ZONE, AND RESTORE THE ORIGINAL SEDIMENT STORAGE VOLUME
6. SEDIMENT SHOULD BE PLACED OUT IN A DISPOSAL AREA OR IF APPROPRIATE MIX WITH RAW SAND FOR PROCESSING
7. AFTER INSTALLATION OF THE POND, INSPECTIONS MUST BE CARRIED OUT DURING AND AFTER ( OR AS REQUIRED) LARGE STORMWATER EVENTS TO CHECK THE PERFORMANCE OF THE SEDIMENT BASIN
8. SEDIMENT BASIN CAN BE USED AS A DRY OR WET BASIN DEPENDING ON THE REQUIREMENT

| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 17/11/2024 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

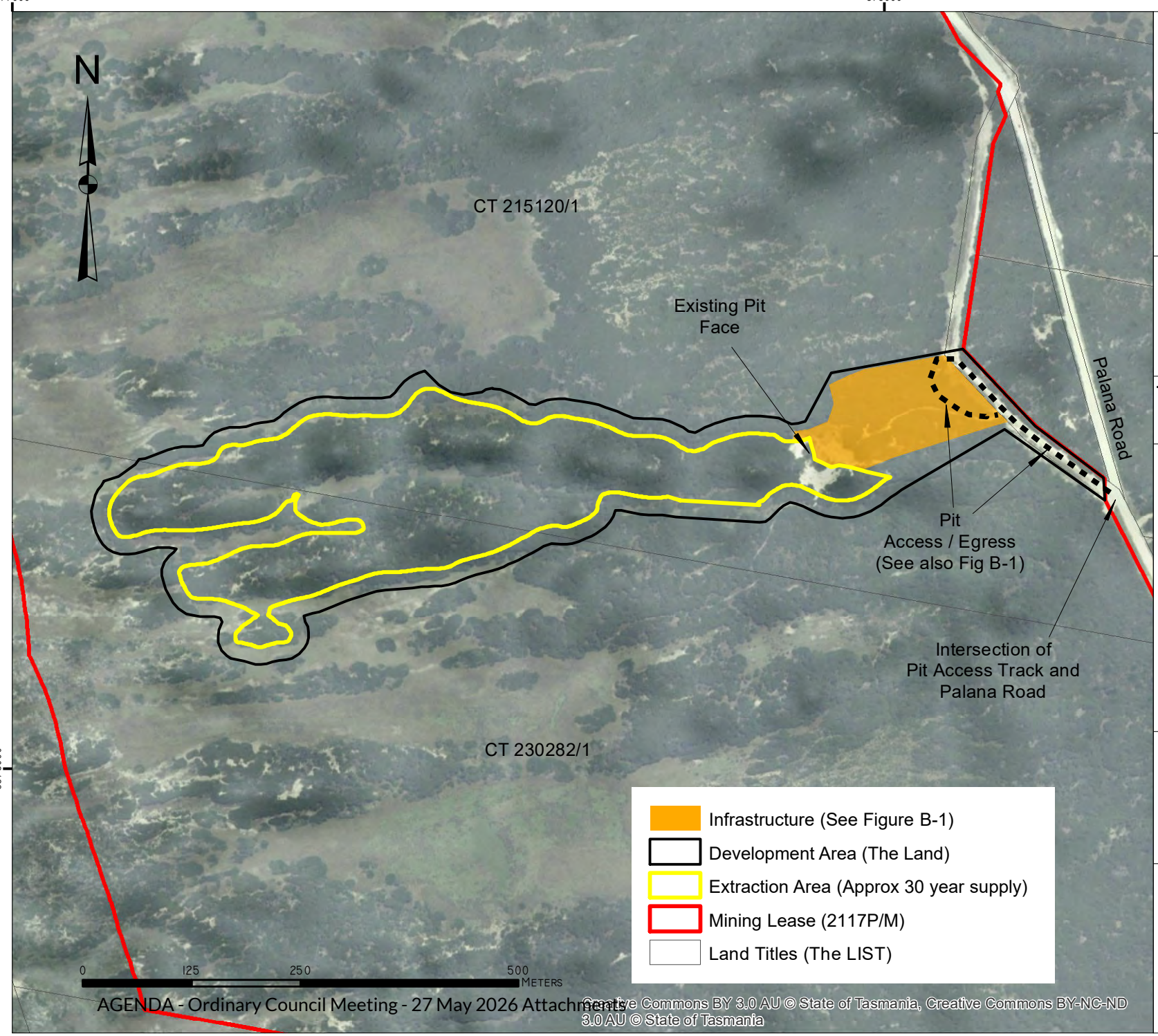
# SEDIMENT BASIN BS-C1 DESIGN

DRAWING NUMBER: VDC/MSP/A/004

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## 6.2. ATTACHMENT 2




# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure A-4: Markarna Park Sand Pit Development Area and Access/Egress

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

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PO Box 1 New Town TAS 7008



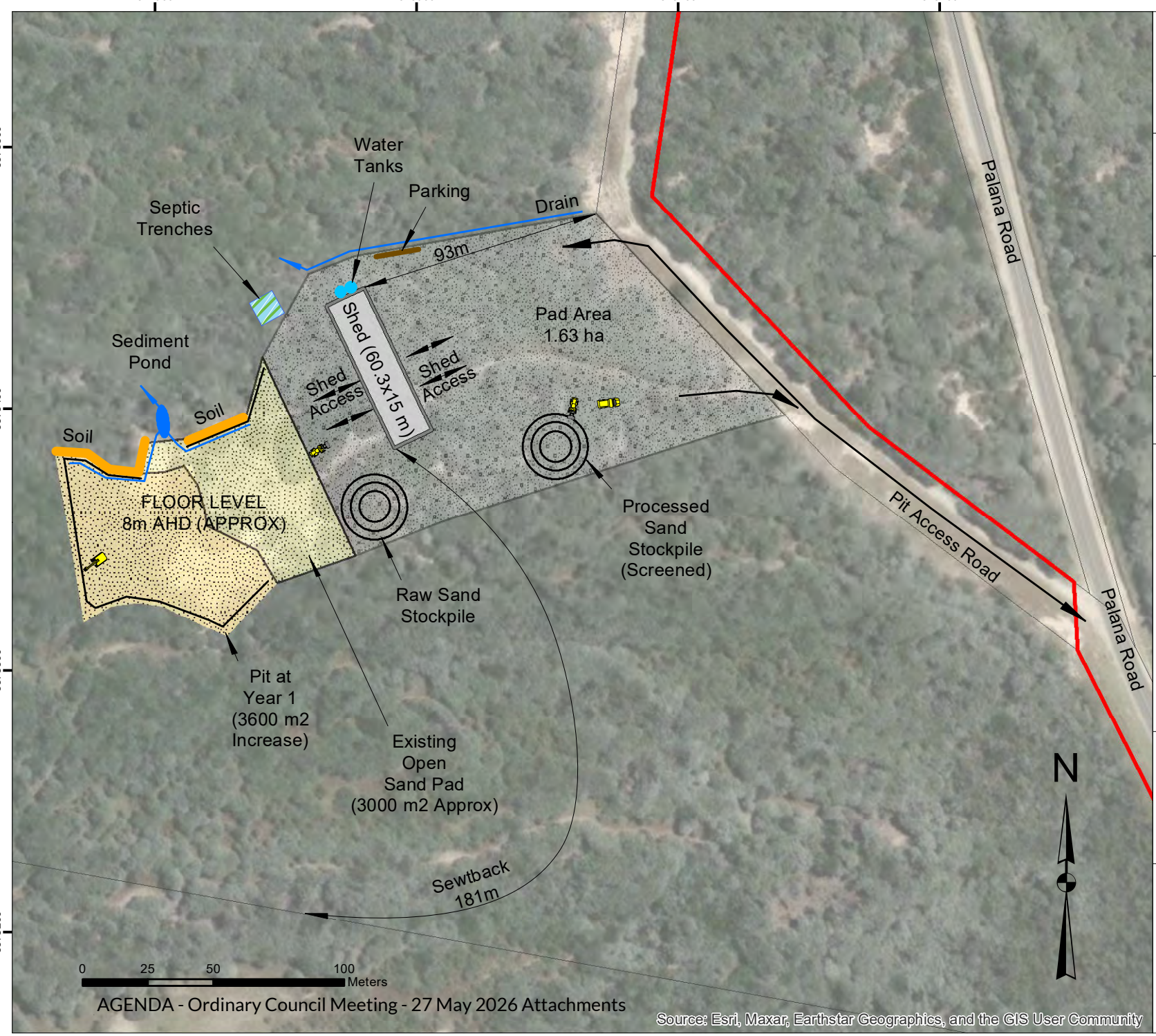
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GRID: MGA ZONE 55
SCALE: @A4 - NA

CLIENT:
MARKARNA GRAZING COMPANY PTY LTD

DATE: 4 JULY 2024



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## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure B-1: Mine Plan Site Set Up / Extraction to Year 1 and Access

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

- Clear Gravel Surface
- Existing Sand Surface
- Shed (60.3 x 15 m)
- Clear Gravel Surface
- Mining Lease (2117P/M)
- Land Titles (The LIST)

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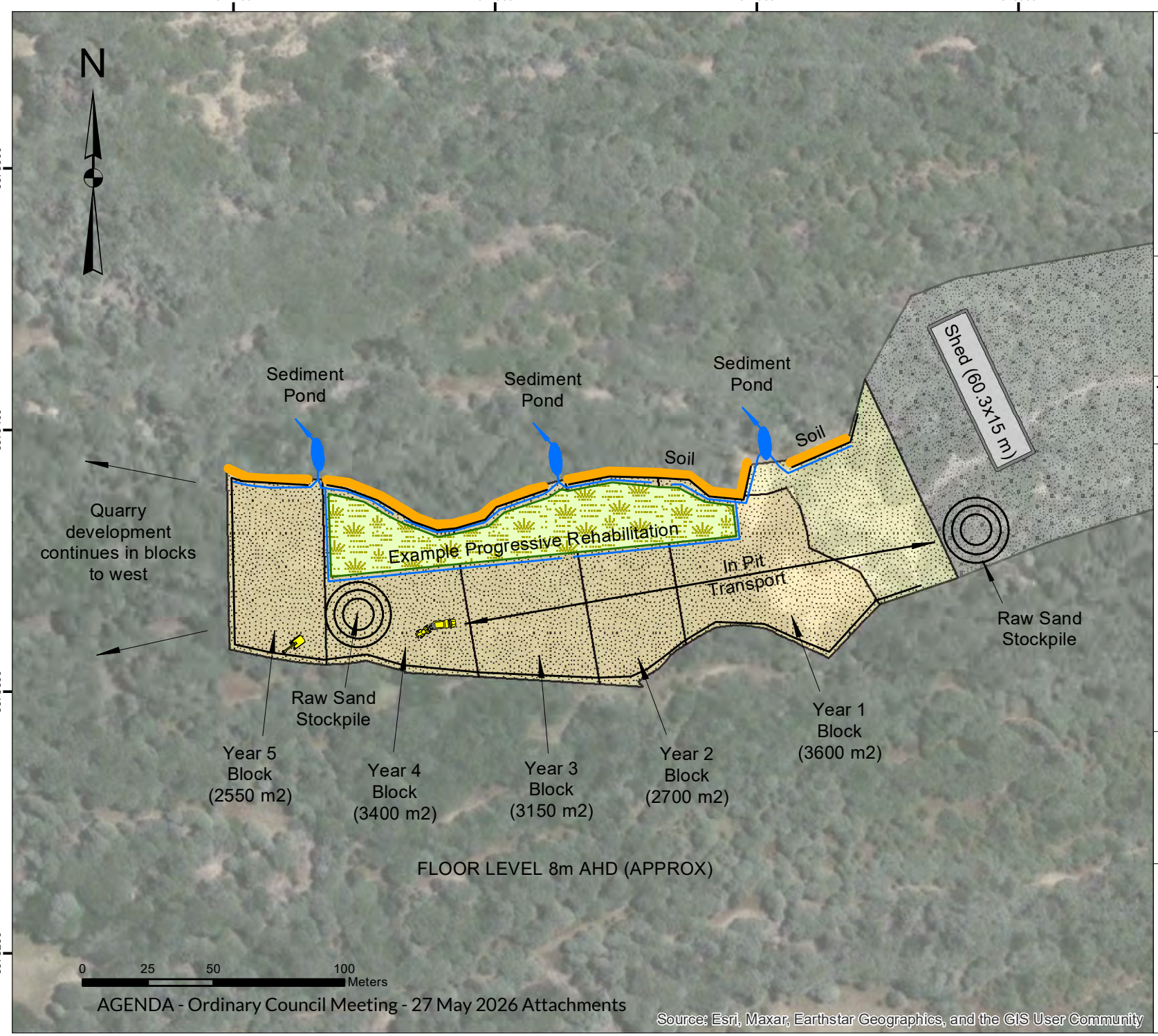
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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community




# MARKARNA GRAZING COMPANY PTY LTD

## MARKARNA PARK SAND PIT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Figure B-2: Mine Plan Extraction (Year 1 to 5)

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

- Clear Gravel Surface
- Existing Sand Surface
- Shed (60.3 x 15 m)
- Clear Gravel Surface

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**ATTACHMENT 8. DRAFT WEED AND DISEASE MANAGEMENT PLAN, NOVEMBER 2024**

# MARSHALL BAY LIME SAND EXTRACTION PIT

## PALANA ROAD, MEMANA, FLINDERS ISLAND

## WEED AND DISEASE MANAGEMENT PLAN



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**DOCUMENT CONTROL**

| Version | Description | Prepared By | Date |
|---|---|---|---|
| 1 | Draft | Van Diemen Consulting Pty Ltd | 10-11-2024 |
| 1 | Comments | | |
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| 2 | | | |
| | | | |
| | | | |

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| ACRONYMS | |
|---|---|
| **DPIPWE (now NRET)** | Department of Primary Industries, Parks, Water and Environment |
| **EMPCA** | *Environmental Management and Pollution Control Act 1994* |
| **EPA** | Environment Protection Authority |
| **GBD** | General Biosecurity Duty |
| **NRET** | Department of Natural Resources and Environment Tasmania |
| **PC** | *Phytophthora cinnamomi* |
| **WDMP** | Weed and Disease Management Plan |
| **WoNS** | Weeds of National Significance |
| **WSP** | Weed Spraying Program |

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| TERMS | |
|---|---|
| **Disease** | Means a condition of the living animal or plant body or of one of its parts that impairs normal functioning and is typically manifested by distinguishing signs and symptoms.<br>For this WDMP, disease includes its cause such as pathogens (living microorganism such as bacterium, virus or fungi that causes diseases in plants and animals). Examples include cinnamon fungus (*Phytophthora cinnamomi*), and chytrid fungus (*Batrachochytrium dendrobatidis*). |
| **Equipment** | Means the set of tools needed to achieve a goal is "equipment". Equipment includes for example cranes, generators, ablutions block, site office, compressors etc. |
| **(the) Lessee** | Markarna Grazing Company Pty Ltd |
| **Machinery Hygiene Inspection Sheet** | Means the form to be completed by a suitably qualified person for Machinery (machines) and Equipment prior to being floated to the Pit to record that it is clean prior to entering the site. |
| **Machinery** | Means a collection or group of machines. |
| **Machines** | Means an apparatus using mechanical power and having several parts, each with a definite function and together performing a task. Machines include bulldozers, diggers, trenchers, heavy-trucks (with or without trailers), excavators and other earth-moving motorised apparatus. |
| **Permit Conditions** | Means those conditions in Permit Part B. Permit Conditions – Environmental No. 10320. |
| **Pit** | Marshall Bay Lime Sand Extraction Pit, Palana Road (in Mining Lease 2117 P/M) |
| **SWMP** | Means statutory weed management plans |
| **vehicle** | Means a motorised thing used for transporting people or goods. This includes 4WD vehicles, light trucks and passenger vans and cars. |
| **Weed** | Means a plant species that has, or is likely to have, an adverse impact on the environment because of the introduction, spread or increase in population size of the species in an area; and includes a declared weed as defined in the *Biosecurity Act 2019* and subordinate regulations (this definition is consistent with the Permit Conditions). |
| **Weed And Disease Guidelines** | Means the document titled *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania*, by the Department of Primary Industries, Parks, Water and Environment, dated March 2015, and any amendment to or substitution of this document (this definition is consistent with the Permit Conditions). |
| **Record** | Means to write an observation. All records will be handed to the Site Supervisor and will be kept on file. All records are to be clearly legible. |

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# SECTION 1 - INTRODUCTION

## 1.1 PURPOSE AND SCOPE

The Marshal Bay Lime Sand Extraction Pit is located at Memana and is accessed from Palana Road (**Figure 1**).

This WDMP identifies measures to control, eradicate and prevent the spread of declared and environmental weeds and the soil pathogen *Phytophthora cinnamomi* (PC) and other pathogens like chytrid fungus. It is consistent with the Natural Resources and Environment Tasmania (NRET, formerly DPIPWE) *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania.*

The broad scope of the WDMP is to provide information on the following:

1. Weed and disease management objectives for the Marshal Bay Lime Sand Extraction Pit (the Pit);
2. The legal and other requirements associated with Weed and Disease management;
3. Roles and responsibilities for persons and/or entities implementing the WDMP;
4. Existing and potential Weed and Disease occurrences at the Pit and management information for staff and contractor inductions;
5. Management measures to mitigate or minimise the risk of introducing and/or transferring weeds and disease; and
6. Incident reporting, performance monitoring, and a plan review mechanism.

## 1.2 BACKGROUND, PLAN STRUCTURE AND OBJECTIVES

This WDMP identifies site-specific mitigation measures and environmental controls to ensure weeds and diseases are effectively managed at the Pit. It is also a practical tool to manage risk associated with weed and disease introduction and spread in the Pit.

Activities such as haulage of material, material stockpiling, vegetation clearance and rehabilitation can increase the spread and exposure of weed seedbanks and weeds and diseases to surrounding soil. Good hygiene practices around the use and movement of vehicles, plant machinery and equipment can minimise the risk of introducing and/or transferring weeds and disease.

### 1.2.1 OBJECTIVES

The objectives of the WDMP for the Pit are to:

- Record the presence and distribution of Weeds declared under the *Biosecurity Act 2019*;
- Record the presence and distribution of significant, non-declared, environmental and agricultural Weeds;
- Record the presence and distribution of Diseases;
- Describe control measures to manage identified Weeds and Diseases, and to prevent as far as possible the entry and establishment of Weeds and Diseases into the Pit;

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- Establish an ongoing monitoring, control and improvement program at the Pit for Weeds and Diseases.

### 1.2.2 PLAN STRUCTURE

The structure of the Weed and Disease Management Plan is outlined in **Table 1.**

**Table 1. Structure of the Weed and Disease Management Plan**

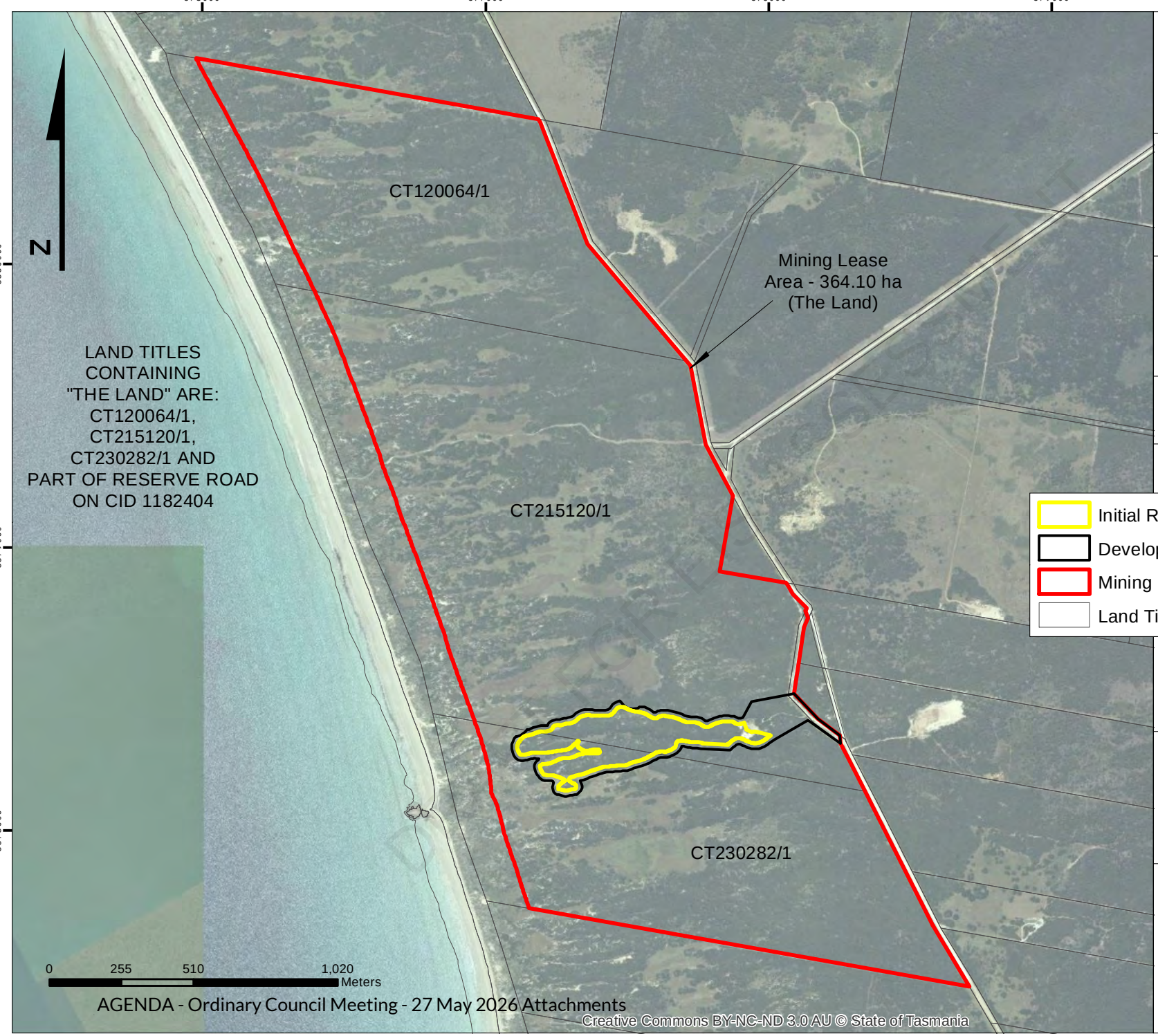
| Section | Content |
|---|---|
| 1 | Provides an overview of the purpose and objectives of the WDMP for the Pit. |
| 2 | Details the statutory requirements and permit conditions for Weed and Disease Management |
| 3 | Details the roles and responsibilities for WDMP implementation |
| 4 | Describes the existing environment at the Pit, the existing and potential occurrence of Weeds, and a risk assessment of each Weed to the local environment |
| 5 | Describes the Weed and Disease Management measures including preventative and responses actions |
| 6 | Outlines monitoring requirements such as weed spraying inspections and surveillance surveys |
| 7 | Outlines the information recording and review requirements |
| 8 | Lists references and attachments |

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### 1.2.3 AREA COVERED BY THE PLAN

The WDMP applies to the Development Area shown in **Figure 2** which includes the Extraction Area, and access road to Palana Road.

The access road is included because the road is a potential corridor for the spread of Weeds and Disease from Palana Road.




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## Weed and Disease Management Plan Marshall Bay Sand Pit

Figure 1: Location of Markarna Park Sand Pit Development Area and Land Titles

| TASMAP: | LGA: |
|---|---|
| TANNER<br>EMITA | FLINDERS |

- Initial Resource Area (Approx 30 year supply)
- Development Area
- Mining Lease (The Land)
- Land Titles (The LIST)

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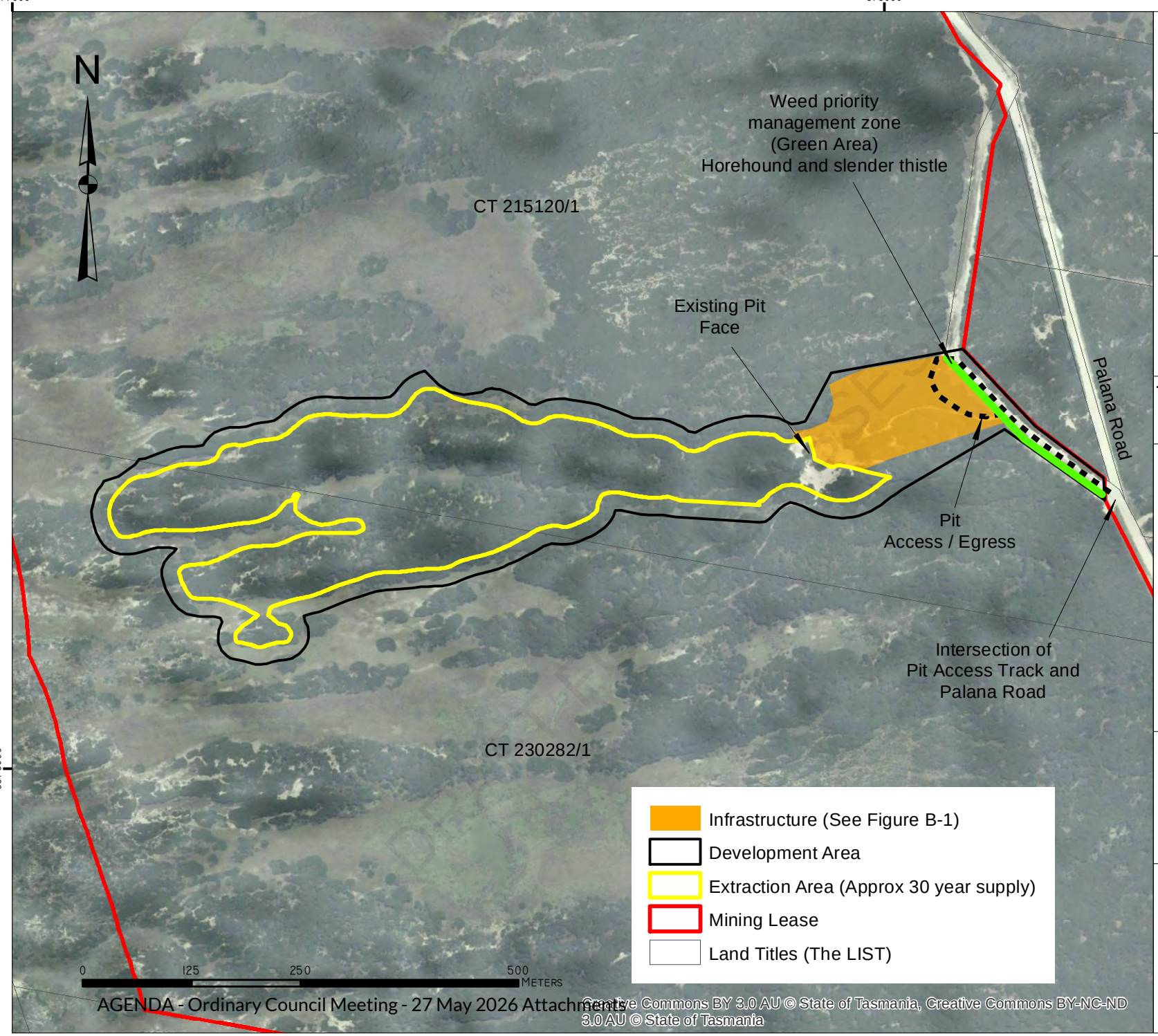
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## Weed and Disease Management Plan Marshall Bay Sand Pit

Figure 2: Markarna Park Sand Pit Development Area and Access/Egress

| TASMAP: | LGA: |
|---|---|
| TANNER EMITA | FLINDERS |

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## 1.3 PIT DESCRIPTION AND LOCATION

### 1.3 THE PIT

The Marshall Bay Lime Sand Pit can extract up to 10,000 cubic metres (equivalent is 15,000 tonnes per annum). Loose bulk density ratio is 1.5) of lime sands per annum.

The material to be extracted is lime sand destined for an agricultural use (soil ameliorant). The lime sand deposits at Marshall Bay are well known and proven in their ENV on agricultural lands.

Extracted (raw) sand will be screened if necessary to remove organic matter and contaminants (e.g., shells, rocks, and stones). Additional agricultural soil ameliorants/additives such as boron may be mixed (by screening) with some of the lime sands prior to carting to the location of use (i.e., spreading on paddocks).

Material is likely to be transported in greater volumes in summer and autumn because these seasons coincide with the peak activity periods for agricultural pasture improvement, maintenance, and establishment.

The Pit has infrastructure at its north-eastern extent, adjacent to the access road which connects it to Palana Road, and includes a hardstand area (made of compacted gravel), shed and amenities (crib room, shower, and toilet).

Weeds of greatest risk of entry to the Pit include slender thistle, horehound, and other species with wind-blown (e.g., thistles) or bird dispersed seed (e.g., *Pittosporum*). Strict hygiene measures applied to vehicle and equipment entry to the Pit are generally ineffective for Weeds that spread by uncontrollable vectors such as birds/mammals, and wind.

Details of the Pit are provided in **Table 2.**

**Table 2. Marshall Bay Lime Sand Extraction Pit location and permit information**

| Item | Description |
|---|---|
| **Address** | 368 Five Mile Jim Road, Memana, Flinders Island, TAS 7255 |
| **Mining Lease** | 2117 P/M |
| **Lessee** | Markarna Grazing Company Pty Ltd |
| **Current Approvals** | Pending |

### 1.3 LESSEE

Markarna Grazing Company Pty Ltd is the Lessee of Mining Lease 2117 P/M. Information about the Lessee and their contact details or provided in **Table 3.**

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**Table 3. Lessee information and contact details**

| Item | Description |
|---|---|
| **Name of proponent** | Markarna Grazing Company Pty Ltd |
| **Registered address of proponent** | Level 3, 302-320 Burwood Road, HAWTHORN VIC 3122 |
| **Postal address of proponent** | 33-41 Agnes Street, East Melbourne VIC 3002 |
| **ACN** | 063 634 444 |
| **ABN** | NA |
| **Contact person's details** | Mr George Adams (Director)<br>Phone: (03) 9333 2400<br>Fax: (03) 9333 1258<br>cynthia.adams@adamsgroup.com.au |

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## SECTION 2 – LEGISLATIVE AND MANAGEMENT CONTEXT

The legislative status of specific weed species determines statutory obligations for weed management. The *Biosecurity Act 2019*[1] (the Act) and supporting *Biosecurity Regulations 2022* provide guidance on weed status and allow for statutory weed management plans (SWMP) to be developed for declared weeds.

The Department of Natural Resources and Environment Tasmania (NRET), formerly the Department of Primary Industries, Parks, Water and Environment (DPIPWE), is responsible for the administration of the Act and its supporting Regulations.

The General Biosecurity Duty (GBD) came into effect in March 2021 as part of the Act, which operates as a legal obligation or "duty of care" in respect to biosecurity. This means that a person (which includes all levels of Government, individuals, and private corporate entities) must take all reasonable and practical measures to prevent, eliminate, or minimise biosecurity risks, including the containment, reduction, and eradication (if possible) of environmental and declared weeds.

Environmental weeds are not listed under legislation, and are not legally required to be controlled, although they have the potential to pose a threat to ecological values and need to be considered in the WDMP.

This WDMP categorises weeds observed into two groups;

1. declared, and
2. pasture/environmental.

Each declared weed has a SWMP that details the regulatory framework for the control and eradication of that weed under the Act. The plans identify zones (eradication – Zone A or containment – Zone B) based on weed prevalence and location within a municipality.

### 2.1 WHAT IS A WEED?

For this WDMP, the definition of weed has been adopted from the Permit Conditions, being:

> 'a plant species that has, or is likely to have, an adverse impact on the environment because of the introduction, spread or increase in population size of the species in an area; and includes a declared weed as defined in the *Biosecurity Act 2019* and subordinate regulations.'

The broad definition includes species introduced to Tasmania, as well as native species because they can sometimes cause an adverse impact to the environment if they have been introduced to and established in areas outside their natural geographic range. Notwithstanding this, and in a general sense, weeds are often

[1] Note the *Biosecurity Act 2019* has replaced the *Weed Management Act 1999*, however the *Weed Management Act 1999* and its regulations is still the primary regulatory regime that applies to weed management in Tasmania. While the SWMP for declared weeds will be changed in name to 'Biosecurity Management Plans' under the *Biosecurity Act 2019*, the content of the management plans for declared weed will remain the same as those that are currently available at the time of writing this WDMP.

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referred to as invasive plants because they often displace or reduce the coverage of native species in native vegetation communities. Some weeds of concern have been listed for priority management or in legislation.

Weeds typically produce large numbers of seeds, assisting their spread. They are often excellent at surviving and reproducing in disturbed environments and are commonly the first species to colonise and dominate in these conditions. A weed can be an exotic species or a native species that colonises and persists in an ecosystem in which it did not previously exist.

The broad categories of weeds adopted for this WDMP are provided below.

#### *WEEDS OF NATIONAL SIGNIFICANCE*

Weeds of National Significance (WoNS) have been identified by the Australian governments based on an assessment process that prioritised these weeds based on their invasiveness, potential for spread and environmental, social, and economic impacts. The classification of a species as of WoNS also considered its ability to be successfully managed.

#### *DECLARED WEEDS*

The *Biosecurity Act 2019* is the principal legislation concerned with the identification and management of Declared Weeds in Tasmania. A SWMP includes the name of the target weed, area of the State covered by the plan, distribution and extent of the weed, the reasons for declaring the weed and include restrictions and measures required to control, eradicate, or restrict the spread of a weed. While the SWMP for declared weeds will be changed in name to 'Biosecurity Management Plans' under the *Biosecurity Act 2019*, the content of the management plans for declared weed will remain the same as those that are currently available at the time of writing this WDMP.

#### *ENVIRONMENTAL WEEDS*

Environmental weeds are non-local plants that invade and change our landscapes, threatening the survival of native plants and animals but they may not be listed as a Declared Weed. They often include 'garden escape' species, and plants that have been introduced through the importation of materials to Tasmania (e.g., straw, hay, seeds).

## 2.2 CONTEXT OF WEED AND DISEASE MANAGEMENT

### WEED AND DISEASE PLANNING AND HYGIENE GUIDELINES

The Weed and Disease Planning and Hygiene Guidelines (the 'Weed and Disease Guidelines') provide management guidance to those undertaking developments in Tasmania that may result in the introduction, spread and establishment of weeds and diseases.

The Weed and Disease Guidelines aim to:

- Improve weed and disease management planning in Tasmania;
- Increase the number of industry-based plans covering weed and hygiene management that are being implemented;

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- Improve weed and disease hygiene practices at the planning and operational level; and
- Provide the necessary tools to allow for effective and informed planning tailored to the situation.

In accordance with the Permit Conditions, the Weed and Disease Guidelines were used to develop this WDMP.

## 2.3 PERMIT REQUIREMENTS

The WDMP relevant Permit Conditions are provided below.

| Permit Conditions |
| --- |
| TBC |

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## SECTION 3 - ROLES AND RESPONSIBILITIES

The WDMP is to be implemented by Markarna Grazing Company Pty Ltd (the Lessee).

**Table 4** provides a detailed list of tasks and responsibilities for key staff who perform a role in the management and operation of the Pit.

Broadly, the General Manager has responsibility for implementing the WDMP with a focus on providing the financial resources to implement it, and to conduct reporting and review functions. The Pit Manager has day-to-day responsibility for implementation including the provision of training and inductions to Pit Personnel.

A suitably qualified and experienced person/entity will be engaged on an ad hoc basis to provide advice and information to support the General Manager and Pit Manager with WDMP implementation.

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**Table 4. Roles and responsibilities for WDMP implementation at the Marshall Bay Lime Sand Pit**

| Role | Tasks and responsibilities for WDMP implementation |
|---|---|
| **General Manager** | • Ensure financial resources are available to fully implement the WDMP.<br>• Review and endorse revisions of the WDMP(s).<br>• Liaise with the Pit Manager to discuss WDMP implementation, and to identify breaches, areas for improvement and/or reviews.<br>• Approve monitoring and compliance reports for submission to regulators (if required).<br>• Notify (in writing) the Environment Protection Authority of any significant breaches of the WDMP. |
| **Pit Manager** | • Manage the implementation of the Weed Spraying Program.<br>• Coordinate the implementation of, and assure compliance with, the WDMP, including the preparation of compliance reports.<br>• Implement training and awareness of weed and disease management measures to Pit Personnel through site induction and tool-box meetings.<br>• Ensure that all personnel and contractors that conduct work at the Pit are aware of their obligations under the WDMP.<br>• Engage external advice providers/consultant(s) to conduct weed surveys of the Pit.<br>• Review risk mitigation and management controls and apply adaptive management techniques to meet compliance with WDMP. |
| **Pit Personnel** | • Apply weed hygiene measures at the Pit for which they have received training. |

| Role | Tasks and responsibilities for WDMP implementation |
|---|---|
| | • Report breaches of the WDMP to the Pit Manager as soon as practical, providing written details of the breach, and any measures that were immediately taken to reduce the likelihood of any environmental harm.<br>• Report new occurrences of Weeds to the Pit Manager within 5 business days of their detection. |
| **Weed Contractor**<br>(if an external contractor is used to conduct weed control works) | • Treat (herbicide) declared and pasture/environmental weeds when requested to do so by the Pit Manager.<br>• Provide written documentation of each spraying event to the Pit Manager within 10 business days of the completion of the spraying program.<br>• Utilise a Weed Spraying Record template to record the following:<br>- areas treated for weeds,<br>- weeds treated (names, abundance, growth stage)<br>- chemicals used and the application rate,<br>- additives/surfactants used and their application rate,<br>- weather conditions at the time during and after the spraying, and<br>- any other comments about the spraying event. |
| **External advice providers and/or consultants** | On an as needs basis at the request of the Pit Manager, provide expert advice and information including for example –<br>• Conduct Weed surveys as required.<br>• Provide location data of Weed species and advice on control methods.<br>• Provide on-site assistance and advice with the implementation and performance auditing of the WDMP.<br>• Notify (in writing) the Pit Manager or General Manager of any known or likely WDMP breaches observed when in the Pit within 5 business days of detection. |

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## SECTION 4 – EXISTING CONDITIONS AND WEED AND DISEASE RISKS

### 4.1 EXISTING CONDITIONS

The Pit is free of Weeds, with only localised occurrences of Weed species of concern, such as declared weeds like horehound (*Marrubium vulgare*) and slender thistle (*Carduus tenuiflorus*) near the access from Palana Road. See **Plate 1** for images of these two weed species.

This area is mapped as a Priority Weed Management Zone – see **Figure 2.**

The Development Area does support other introduced species, but these are generally agricultural weeds which include grasses and herbs from when the area was more actively used for livestock grazing (e.g. *Briza minor, Poa annua, Vulpia bromoides*, *Cerastium glomeratum*, *Acetosella vulgaris, Hypochaeris radicata, H. glabra, Leontodon saxatilis*). These exotic species are widespread on Flinders Island in the locations where the lime sands are to be spread (i.e. agricultural land).

**Plate 1. Images of some Weeds observed in the Marshall Bay Lime Sand Extraction Pit**

| **Horehound** | **Slender thistle** |
|---|---|
|  |  |

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## 4.2 WEEDS

### 4.2.1 IDENTIFICATION

Various sources of information were compiled to identify those species with known or potential occurrences at the Pit and adjoining land.

The sources of information included:

- Site surveys conducted in mid-2023 and early 2024 by Dr Richard Barnes; and
- Existing recorded locations held in the Natural Values Atlas (see **Attachment 1**).

'Weed Groups' are also identified because it is likely that species of exotic herbs and grasses are likely to be present (but may not be listed as a Declared Weed) but were not specifically detected in previous surveys; many of these 'pasture' weeds can be treated as a functional group for management purposes.

### 4.2.2 RISK ASSESSMENT

To identify the most significant or likely problematic weed species in the Pit, a risk category rating was developed and applied to each Weed listed in **Table 6.** **Table 5** provides a list of the risk categories developed for this WDMP.

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**Table 5. Risk categories developed and used for Weed species in the Pit**

| Risk Category | Description of category | Example of Weed and primary actions for management |
|---|---|---|
| **1** | Declared Weed and/or WONS, **known** to be present in Pit and/or on adjoining land. | Highly invasive species, often produces high number of seeds, hardy and can persist to the detriment of desirable plant species; examples are slender thistles, and horehound.<br><br>Detection and eradication are the WDMP management objectives. |
| **2** | All other Declared Weed/WONS species. | Often invasive, to highly invasive species, can establish rapidly if left unmanaged; example is Paterson's curse.<br><br>Monitoring/surveillance and then eradication if detected are the WDMP management objectives. |
| **3** | A highly to moderately invasive environmental weed known to be present in the Pit, on adjoining land and/or in the region. | Monitoring/surveillance followed by eradication (Declared Weeds) or control (other Weeds) if the species is detected.<br><br>The level of control effort ought to be commensurate with the species (Weed) and the level of risk specifically posed to the Pit and surrounding lands; advice may need to be sought from a suitably qualified person on a case-by-case basis. |

| | | |
|---|---|---|
| **4** | Includes known occurrences of common pasture grasses, herbs and other exotic species that on balance pose little to no threat to the environment in the Pit. Species that are common and/or naturalised in many environments in Tasmania are also included in this category. | Common, widespread, or naturalised species which include pasture grasses, exotic herbs, ornamental species; example is cocksfoot, sheep sorrel, dock, spear thistle, dandelion. |

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**Table 6. Compiled weed list and assessment of risk and management requirements for the Marshall Bay Lime Sand Extraction Pit**

| Common name | *Scientific name* | WoNS? | Declared? (SWMP Flinders Municipality objective*) | Type of occurrence in Development Area | | Risk category for this WDMP |
|---|---|---|---|---|---|---|
| | | | | Access Road to Pad (WPMZ[2]) | Extraction Pit | |
| blackberry | *Rubus fruticosus* agg. | **Y** | **Y (A)** | Absent | Absent | **2** |
| briar rose | *Rosa rubiginosa* | N | N | Absent | Absent | 3 |
| bridle creeper | *Asparagus asparagoides* | | **Y (A)** | Absent | Absent | **2** |
| Californian thistle | *Cirsium arvense* | N | **Y (A)** | Absent | Absent | **2** |
| capeweed | *Arctotheca calendula* | N | N | **Present** | **Present** | 3 |
| Cat's ear (smooth and rough) | *Hypochaeris radicata* and *H. glabra* | N | N | **Present** | **Present** | 4 |
| chickweed | *Stellaria media* | N | N | **Present** | **Present** | 4 |
| chilean needlegrass | *Nassella neesiana* | N | **Y (A)** | Absent | Absent | **2** |
| Clover (including sweet clover) | *Trifolium* spp. | N | N | **Present** | **Present** | 4 |
| cocksfoot | *Dactylis glomerata* | N | N | Absent | **Present** | 4 |

[2] Weed Priority Management Zone

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| | | | | | | |
|---|---|---|---|---|---|---|
| espartillo | *Amelichloa caudata* | N | **Y (A)** | Absent | Absent | **2** |
| Fennel | *Foeniculum vulgare* | N | **Y (A)** | Absent | Absent | **2** |
| gorse | *Ulex europaeus* | **Y** | **Y (A)** | Absent | Absent | **2** |
| hawkbit | *Leontodon saxatilis* | N | N | **Present** | **Present** | 4 |
| Horehound | *Marrubium vulgare* | N | **Y (B)** | **Present** | Absent | **1** |
| Montpelier broom | *Genista monspessulana* | **Y** | **Y (A)** | Absent | Absent | **2** |
| patersons curse | *Echium plantagineum* | **Y** | **Y (A)** | Absent | Absent | **2** |
| radiata pine | *Pinus radiata* | N | N | Absent | Absent | 3 |
| ragwort | *Senecio jacobea* | N | **Y (A)** | Absent | Absent | **2** |
| sheep sorrel | *Acetosella vulgaris* | N | N | **Present** | **Present** | 4 |
| slender thistle | *Carduus tenuiflorus* | N | **Y (B)** | **Present** | Absent | **1** |
| spear thistle | *Cirsium vulgare* | N | N | **Present** | **Present** | **3** |
| wild mignonette | *Reseda luteola* | N | N | Absent | Absent | **3** |
| Yorkshire fog grass | *Holcus lanatus* | N | N | Absent | **Present** | 4 |

* **A** = Eradication is the most appropriate management objective for Zone A municipalities, or when a credible plan for eradicating existing infestations is being developed and implemented. The ultimate management outcome for Zone A municipalities is achieving and maintaining the total absence of the weed from within municipal boundaries. **B** = Containment within municipal boundaries, protection of specified areas within municipal boundaries, prevention of spread to Zone A municipalities. This applies to all Zone B municipalities).

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## 4.3 DISEASES AND PATHOGENS

Pathogens and the diseases can be very difficult to eradicate, and once detected, containment may be the only practical management solution. Prevention is the most effective management strategy, and that can be best achieved by having robust hygiene measures in place.

### 4.3.1 PHYTOPHTHORA CINNAMOMI, PC

Phytophthora dieback is an introduced pathogenic water mould. Water moulds were once included in the fungi kingdom and, as a result, *Phytophthora* dieback has been called a fungus in earlier interpretation literature. Its scientific name is *Phytophthora cinnamomi,* but it is also known by the names root rot, cinnamon fungus, jarrah dieback (Western Australia) and wildflower dieback.

It is one of the worst invasive plant pathogens in the world, and in Australia is recognised as a Key Threatening Process that severely degrades susceptible vegetation communities and kills susceptible plants. It is believed to have been introduced to Tasmania during early European settlement and is now well established in many areas of moorland, heathland, and dry Eucalypt forest in Tasmania. Some threatened plant species in Tasmania are known to be declining because of *Phytophthora* dieback and more threatened species could also be affected should the fungus be introduced to their populations. People can transport the pathogen into new areas in dirt adhering to vehicles, items they are carrying or footwear.

#### *BIOLOGY AND IDENTIFICATION*

PC belongs to a group of micro-organisms known as water moulds – these have a motile or animal-like stage which fungi do not. Water moulds require moist conditions to thrive. Its food source is the root and basal stem tissue of living plants where PC grows as microscopic sized filaments (mycelium) in susceptible host plants. It consumes the host plant causing lesions (areas that appear rotten) which weaken or kill the plants by reducing or stopping the movement of water and nutrients within the plant. Infected plants often have dead new growth, or wilting tips of new foliage.

PC may reproduce through production of microscopic spores. Two types of spores, zoospores and chlamydospores, are most likely to be formed in Tasmanian habitats:

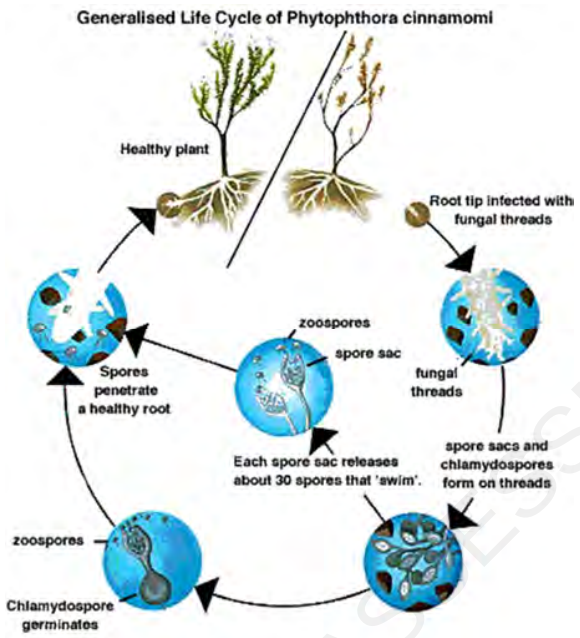
1. Zoospores are released in very large numbers under moist soil conditions. They have flagella (tails), which are used to propel the spore through the soil water towards other plant roots. The movement of water down slope, through or over the soil, can also passively disperse these spores over considerable distances. Zoospores are attracted by the root secretions of some plants. They then penetrate the root, germinate and the cycle repeats itself.

2. Chlamydospores are larger, long-lived spores with thick protective walls. These spores can withstand dry conditions for months, germinating when warm moist soil conditions re-occur. They are one of the mechanisms the fungus has developed to help it survive adverse conditions. These spores may survive being transported long distances in dry soil.

PC may also spread through mycelial growth along roots and spread between closely connecting plant roots within the soil. There are many diseases which occur in native vegetation and the majority of these are natural events which play an important ecological role. The patterns of disease expression in time and space as well as the species affected, and dieback symptoms need to be assessed to identify potential PC infestations.

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Conclusive identification of PC as the cause of disease requires analysis of soil or root samples in a laboratory, but soil/root samples are pointless to have assessed if there are no plant host species present.




Source: DPIPWE.

Good indicators for recent or active PC are:

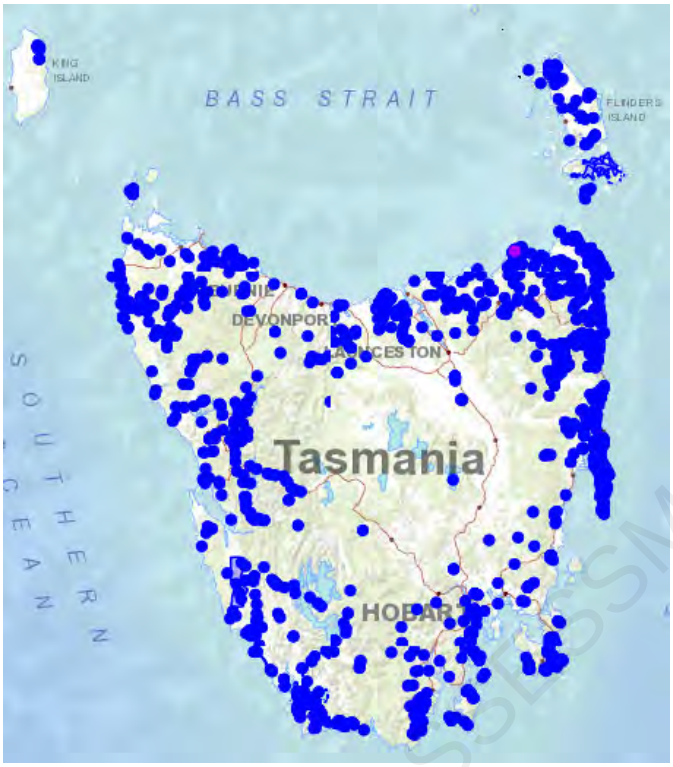
- Death or disease in known susceptible species (note: not all individual plants will be attacked simultaneously in a diseased area),
- Diseased plants show discolouration of the foliage (especially new foliage), most commonly reds and yellows,
- Known resistant species remain healthy,
- There is a temporal sequence of disease across a site (e.g., the oldest death in the centre or towards the uphill end of infections on slopes), and
- Sharp disease fronts or boundaries between healthy and diseased vegetation may be present.

In the absence of plant host species (especially resistant species) it is likely that PC can disappear or become inactive at a site until a suitable host plant recolonises the PC affected area.

### *DISTRIBUTION AND IMPACT*

PC requires warm moist soils if it is to reproduce and spread which its distribution in Tasmania to areas that are generally below about 700 m in altitude and prevents it affecting low rainfall areas such as the Tasmanian midlands. The figure below provides an indication of the occurrence of PC in Tasmania (NVA held data). Cold soil conditions can also occur at altitudes below 700 metres where a dense forest canopy shades the ground. For this reason, wet forest and rainforest communities are not susceptible to PC in their undisturbed state.

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The vegetation types most affected in Tasmania are heathland, moorland, dry sclerophyll forest. These vegetation types occur within the climatically susceptible areas and contain susceptible plant species. Moorland and heathland communities are perhaps the most severely affected as many of the shrub species present in these communities are susceptible to *P. cinnamomi*.

Because of this management environment, the approach taken has been to focus on protecting plant species and communities that are most at risk, where goals are practicable and achievable in the long term. It is accepted that the disease epidemic will inevitably run its course in many areas through wildlife and water mediated spread. Preventing infestation of disease-free areas is the primary goal for managing biodiversity assets. The assets identified for management are threatened species that are susceptible to disease, large disease-free areas of susceptible native vegetation and highly susceptible communities.

The report *Conservation of Tasmanian Plant Species & Communities Threatened by Phytophthora cinnamomi* (Schahinger *et al.* 2003) identifies all the priority areas for management of the biodiversity assets at risk in Tasmania. These sites capture the large disease-free areas and biographically representative sites for the highly susceptible communities and at least three populations where possible for each PC susceptible threatened species.

Prescriptions that apply to prevent the introduction of Phytophthora root rot to uninfected areas include:

- managing developments and works that increase the risk of introduction e.g., roads and walking tracks,
- track rerouting, track hardening and drainage management, one-way tracks and access management sourcing materials to be used in management works from PC-free stock,
- sequencing and timing operations to reduce risk of introduction, and

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- hygiene prescriptions such as washdown requirements.

### *PC AND THE PIT*

**Previous Information**

The Natural Values Atlas holds one historical location of PC to the north of the Pit, in an area of heathland on the side of Palana Road (i.e., confirmed location). PC symptoms in susceptible species have not been observed in the Pit over the past 3 years of attendance by ecologists at the site for surveys and assessments of the available resource.

The Pit is not within a ***P. cinnamomi* Management Area**[3] hence, the recommendations and management requirements stipulated in Schahinger *et al.* (2003) are not relevant to the Pit.

**Vegetation**

There is native forest vegetation adjacent to working areas. The vegetation is dry coastal scrub on alkaline sands which is generally not highly susceptible to PC in an undisturbed state[4].

Drier vegetation with a scrubby understorey occurs to the north of the Active Management Zone and there are numerous susceptible species present, and some have a high percentage of coverage in the vegetation community (e.g. species of Ericaceae, Proteaceae, and Fabaceae).

No symptoms of PC have been observed in the susceptible species present in the adjacent and surrounding vegetation since 2019.

**Conclusion**

The risk assessment conducted indicates that the potential for PC to be present and/or active at the Pit is small. No specific recommendations are made for the management of PC because management measures, such as vehicle/hygiene measures described in this WDMP, are adequate to keep the risk to a low level.

## 4.3.2 MYRTLE WILT

Myrtle wilt, caused by a wind-borne fungus (*Chalara australis*), occurs naturally in rainforest where myrtle beech (*Nothofagus cunninghamii*) is present. The fungus enters wounds in the tree, usually caused by damage from wood-boring insects, wind damage and forest clearing. The incidence of myrtle wilt often increases forest clearing events such as windthrow and wildfire.

*Nothofagus cunninghamii* is not present within the Pit nor on Flinders Island (it is naturally absent). As such, no special management measures are considered warranted.

[3] Report on Conservation of Tasmanian Plant Species & Communities Threatened by *Phytophthora cinnamomi*. Copyright Government of Tasmania 2003. Written by Schahinger, R., Rudman T., and Wardlaw, T. J. (DPIWE). ISSN 1441-0680.

[4] Flora Technical Note No. 8: Management of Phytophthora cinnamomi in production forest. Version 2.4 August 2019

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### 4.3.3 MYRTLE RUST

Myrtle rust is a disease limited to plants in the Myrtaceae family. This plant disease is a member of the guava rust complex caused by *Austropuccinia psidii*, a known significant pathogen of Myrtaceae plants outside Australia. Infestations are currently limited to NSW, Victoria, Queensland, and Tasmania (DPIPWE 2015).

Based on database records, there is no evidence of myrtle rust ever being observed or formally recorded at or near the Pit. As such, no special management measures are considered warranted.

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# SECTION 5 – MANAGEMENT CONTROLS

## 5.1 INDUCTIONS AND AWARENESS TRAINING

To reduce the risk of weeds entering and establishing within the Pit, staff and contractors should be aware of the required weed control measures for the Pit.

Training and inductions for staff and contractors, as well as the provision of information/posters at the site office, will enhance the knowledge of those working on the site which in turn should improve outcomes for early detection and an appropriate response. Weed 'detection' surveys conducted by a suitably qualified person will complement these measures.

All personnel and contractors and their employees must undergo an induction which is to include basic weed and disease management awareness training.

Additional information will be provided to Pit Personnel and contractors where there are specific Weed related issues associated with their roles on the site, including for example –

- The floating of machinery and equipment to and from the Pit;
- Operating, moving, and/or cleaning heavy machinery and equipment; and
- Handling earth-based material.

The Pit Manager is responsible for including appropriate information into the induction process.

**ACTIONS**

| Management Measure | Description | Guidance for implementation |
|---|---|---|
| 1 | **Provide a hard copy of the WDMP at the Site Office at the Pit.**<br>The location of the WDMP in the Site Office is to form part of the Site Induction process. | A hard copy of the WDMP is to be stored at the Site Office in the Pit and is replaced with newer versions as they are approved by the EPA. |
| 2 | **Provide images/posters of the highest risk Weeds at the Site Office.**<br>The highest risk weeds are to be discussed with staff during the Site Induction and resources provided to enable Pit Personnel to know what some of the highest risk weeds look like. | Provide information/posters at the Site Office for the following species:<br>• Horehound<br>• Slender thistle<br>• Spear thistle |

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## 5.2 PREVENTATIVE MEASURES

The best approach to Weed and Disease management is to –

1. minimise the spread of known Weed occurrences within the Pit;
2. prevent the introduction of Weeds to the Pit that are not already present or on adjoining land; and to
3. prevent the introduction of PC to the Pit.

### VEHICLE AND MACHINERY FLOATED TO SITE – 'CLEAN POLICY'

A 'Clean Policy' is to be applied for all Machinery and Equipment entering the Pit.

Heavy machinery, such as excavators and bulldozers, can carry large clods of dirt and mud in which propagules (e.g. seeds, rhizome) can be lodged. Clods can fall of at the Pit, and the propagules or PC spores are then able to commence germination and colonisation of the disturbed ground at the Pit.

The highest risk of transporting propagules is from heavy machinery, such as excavators, as these can carry clods of dirt and mud in which seed propagules can be lodged. Transport trucks pose little risk to the transportation of Weed propagules if they remain on the hard surface of the roads (even if they are unsealed) and loading area **and** that these areas are managed to exclude Weeds.

A suitably qualified person is to inspect Machinery and Equipment prior to it entering the Pit.

Specific inspection locations on If the Machinery or Equipment fails to pass an inspection, it will be refused entry to the Weed Management Area and sent away for further cleaning.

A **Machinery Hygiene Inspection Sheet** is to be used to record the machine/equipment brought into the Pit, and from where it has been floated.

**ACTIONS**

| Management Measure | Description | Guidance for implementation |
|---|---|---|
| **3** | **Machinery (e.g. excavators, bulldozers, cranes, etc) must be brought to the Pit in a clean condition;** free of weed propagules, clods of dirt and vegetative matter.<br>If the Machinery or Equipment fails an inspection, it will be refused entry to the Weed Management Area until it has undergone additional cleaning. | See **Attachment 3** for key inspection points when examining Machinery and Equipment. |
| **4** | A **Machinery Hygiene Inspection Sheet** is to be used to record the machine/equipment brought into the Weed Management Area, and from where it has been floated. | See **Attachment 3** for example Inspection Sheets for each type of Machinery or Equipment. |

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### VEHICLE TRAVELLING TO THE PIT ON PUBLIC ROADS

Transport trucks (excluding those carting earth-based materials) pose little risk of transporting Weed propagules or Disease if they remain on the hard surface of the roads (even if they are unsealed). Accordingly, heavy and light vehicles travelling on public roads to the Pit do not need to be washed down as the risk of transporting Weed propagules to the Pit is very low.

### SOIL IMPORTATION

No earth-based material including for example topsoil, roadside excavated spoil, overburden, and/or clay, is to be brought into the Pit.

## 5.3 RESPONSIVE MEASURES

If Weeds are spread within or introduced to the Pit then it is critical that an appropriate response is initiated as soon as possible. Early detection is the key to successful control/eradication measures for the lowest possible price. Weeds left undetected or unmanaged can become a major problem and their impact may cost time and funds to ameliorate.

**Table 7** provides a summary of the key Weed species for early detection and subsequent management at the Pit.

**Table 7. Main dispersal vectors and management options for significant Weeds**

| Common Name | Scientific name | Main dispersal vector | Options for management and control |
|---|---|---|---|
| pampas grass | *Cortaderia* sp. | Seed (prolific) | Spraying<br>Physical removal |
| Californian thistle | *Cirsium arvense* | Rhizome and seed | Spraying |
| English broom | *Cytisus scoparius* | Seed | Spraying<br>Physical removal |
| Ragwort | *Senecio jacobea* | Seed | Spraying<br>Physical removal |
| slender thistle | *Carduus tenuiflorus* and *Carduus pycnocephalus* | Seed (prolific) | Spraying |
| gorse | *Ulex europaeus* | Seed | Spraying |
| Montpelier broom | *Genista monspessulana* | Seed | Spraying |

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| | | | |
|---|---|---|---|
| capeweed | *Arctotheca calendula* | Seed | Spraying |
| blackberry | *Rubus fruticosus* agg. | Seed | Spraying |
| Fennel | *Foeniculum vulgare* | Seed | Spraying |
| Horehound | *Marrubium vulgare* | Seed | Spraying<br>Physical removal |
| spear thistle | *Cirsium vulgare* | Seed (prolific) | Spraying |
| wild mignonette | *Reseda luteola* | Seed (prolific) | Spraying<br>Physical removal |

## PHYSICAL REMOVAL

In some cases, it may be possible to physically remove and/or dispose of Weeds.

Such cases are likely to be possible where there are few plants and/or they cover a small area, or they are weeds which can be easily pulled out without leaving a rhizome or rootstock behind – any rhizome or rootstock left behind may reshoot and cause higher number of plants to be present (e.g., Californian thistle spreads well by rhizome). This method of control can be very time consuming, and labour intensive for large areas.

Weeds physically removed should be bagged and placed into a suitable disposal bin or they can be buried.

If weeds have seeds or flowerheads present then these can be removed, bagged, and disposed of prior to the main part of the plant being sprayed or excavated and buried. The removal of flowerheads and/or seed (e.g., thistles can produce thousands of seeds per mature plant) can assist with reducing the number of weed propagules that may otherwise spread in the Pit.

## WEED SPRAYING PROGRAM

Despite preventative measures, it is inevitable that Weeds will establish and grow somewhere in the Pit, especially for seed dispersed seeds where birds and wind are the primary dispersal vectors. Weeds will continue to sporadically recruit and grow as expected for any disturbed/modified landscape with a moderate to high abundance of weed propagule sources in adjoining areas. Weed for example may include thistles, woody weeds, and pasture herbs and grasses.

A Weed Spraying Program (the 'WSP') will be implemented at the Pit.

The weed spraying program will be in accordance with the Rivercare 'Guideline for Safe and Effective Herbicide Use near Water' (**Attachment 2**).

The WSP will be reviewed each growing season (September to October) and updated as new information about the occurrence of Weeds within the Pit become available.

The Program each year will take the form of a Works Plan which will comprise the following –

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1. **A map showing the areas where weeds occur**, what species they are and a works area number (to reference to the associated spreadsheet); and

2. **A spreadsheet to identify the works area**, weed(s) of concern and the management of that weed or group of weeds (see **Attachment 4** for an example).

The WSP spreadsheet will be updated electronically with a new worksheet for each Work Plan to maintain a record of the works recorded and completed. The printed version of the Works Plan once implemented will be signed by the officer responsible for the works and filed at the site office for future reference and/or auditing.

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# SECTION 6 – MONITORING

This section details the monitoring program for the WDMP.

## 6.1 WEED SPRAYING PROGRAM

The areas where weed spraying has occurred will be assessed no more 3 weeks after the treatment was applied to determine if the measures implemented were successful or likely to be effective if the effect is delayed due to colder or inclement weather.

Where measures have proved unsuccessful, repetition and/or modification of the weed control technique(s) will be employed.

## 6.2 WEED SURVEILLANCE

The early detection of Weeds is important to ensure that any control or eradication program has the highest likelihood of success.

### 6.2.1 SURVEY FREQUENCY

Surveillance surveys are to be conducted to identify Weeds within the Pit at regular intervals (at least once annually) that coincide with the peak weed growth periods and/or the weed spraying season. This approach should enable the early detection of Weeds before they reach an extent where control and eradication are costly and/or difficult to achieve. **Table 8** provides the minimum frequency at which surveillance surveys are to be conducted for each management zone.

**Table 8. Management zones for weed and disease management at the Marshall Bay Lime Sand Pit**

| Zone | Zone Name | Survey frequency and recommended timing |
|---|---|---|
| **1** | Weed Priority Management Zone | Monthly |
| **2** | Remainder of Development Area | At least once every two years; generally, between October and January. |

### 6.2.2 SURVEY METHODS

The following survey regime will be applied to each zone:

1. Surveys and assessments by a suitably qualified person are to –
    a. identify, record, and map any new weed species not previously recorded;

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b. assess and map the extent of known Weed infestations to determine if they are becoming larger and/or more significant such that control measures can be modified; and

c. review/assess the control works that have been conducted and provide advice on the management of Weeds.

2. Areas where Weed control/eradication works have occurred (e.g., spraying) will also be assessed during a surveillance survey to determine if the measures implemented were successful. Where measures have proved unsuccessful, repetition and/or modification of the weed control technique(s) will be employed.

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# SECTION 7 – RECORDS AND REVIEW

## 7.1 RECORDS

Compliance and corrective actions taken to address any non-compliances with the WDMP will be managed by operational management, which includes the collection and keeping of records.

### WEED SPRAYING RECORDS

Details of each WSP (see section 6.1) are to be provided to the Pit Manager by the Weed Contractor (if engaged to provide weed spraying services) which are to include as a minimum:

- the date of spraying, and general weather conditions;
- the name of the herbicide/chemical mix applied, volumes of each chemical used, and the weeds targeted with each herbicide/chemical mix; and
- a map (hand-drawn is acceptable) of the area sprayed with each chemical mix (if different chemical mixes were applied).

Records will be stored and retained by the Pit Manager for at least 5 years.

### WEED SURVEILLANCE RECORDS

Details of each Weed surveillance monitoring event (see section 6.2) will be recorded in the form of a report (to be prepared by the person conducting the surveillance survey).

A Weed surveillance report prepared under this WDMP must include the following:

- a list of the Weed species observed;
- a map of the observed Weed locations; and
- management recommendations to control or eradicate the Weeds identified in the report.

Reports will be submitted to and retained by the Pit Manager for at least 5 years.

## 7.2 REVIEW

### CONTINUAL IMPROVEMENT

Opportunities for improvement of Weed management measures will be discussed internally at toolbox meetings and in conjunction with other personnel, contractors, and consultants.

### PLAN REVIEW

The WDMP is to be reviewed every 3 years from the date of EPA approval.

A review may be of short duration and not result in any change to the WDMP, especially if there are no non-compliances to report.

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If necessary, to improve environmental performance, cater for a modification, or comply with a direction, this WDMP must be revised, to the satisfaction of the EPA and submitted to the Director for approval.

The existing EPA approved WDMP would continue to apply until a new WDMP is approved by the EPA Director.

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# SECTION 8 - ATTACHMENTS

## ATTACHMENT 1 – NATURAL VALUES ATLAS REPORT JULY 2024

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# Natural Values Atlas Report

*Authoritative, comprehensive information on Tasmania's natural values.*

Reference:
Requested For:
Report Type: Summary Report
Timestamp: 06:13:44 PM Saturday 16 November 2024

Tasmanian Weed Management Act Weeds: buffers Min: 500m Max: 5000m
Priority Weeds: buffers Min: 500m Max: 5000m
Biosecurity Risks: buffer 1000m



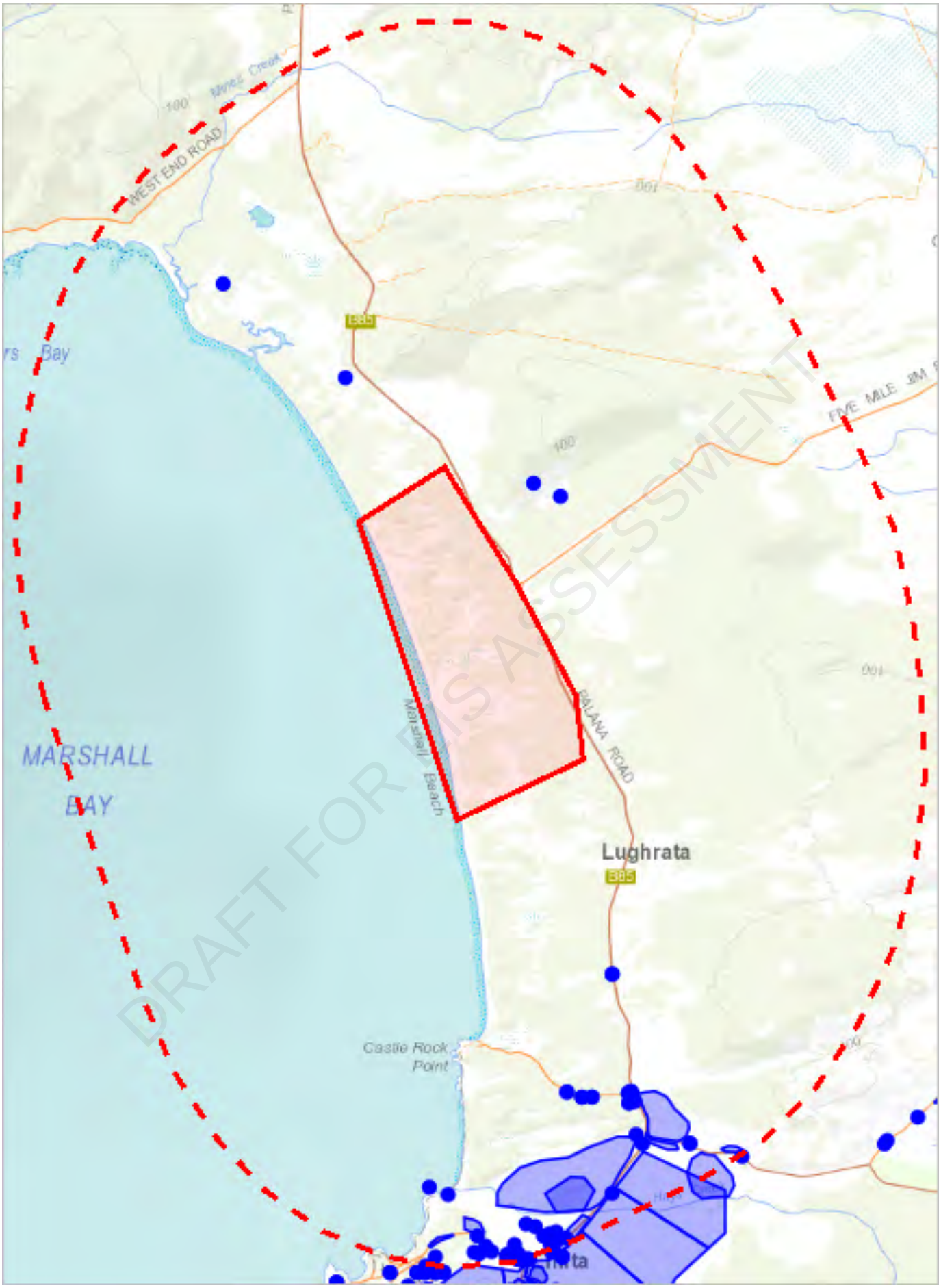

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The centroid for this query GDA94: 577284.0, 5578649.0 falls within:

Property: 3513143

*** No Tas Management Act Weeds found within 500 metres ***

582624, 5585914




571959, 5571480

Please note that some layers may not display at all requested map scales

# Tas Management Act Weeds within 5000 m



Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

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# Tas Management Act Weeds within 5000 m



## Verified Records

| Species | Common Name | Observation Count | Last Recorded |
|---|---|---|---|
| Amelichloa caudata | espartillo | 15 | 11-Sep-2023 |
| Asparagus asparagoides | bridal creeper | 2 | 06-May-2023 |
| Echium plantagineum | patersons curse | 5 | 01-Nov-2001 |
| Foeniculum vulgare | fennel | 2 | 05-Dec-2012 |
| Genista monspessulana | montpellier broom or canary broom | 1 | 05-Dec-2012 |
| Lycium ferocissimum | african boxthorn | 20 | 05-Nov-2019 |
| Marrubium vulgare | white horehound | 21 | 18-Aug-2022 |
| Nassella neesiana | chilean needlegrass | 12 | 18-Aug-2022 |
| Senecio jacobaea | ragwort | 1 | 09-Sep-2023 |

## Unverified Records

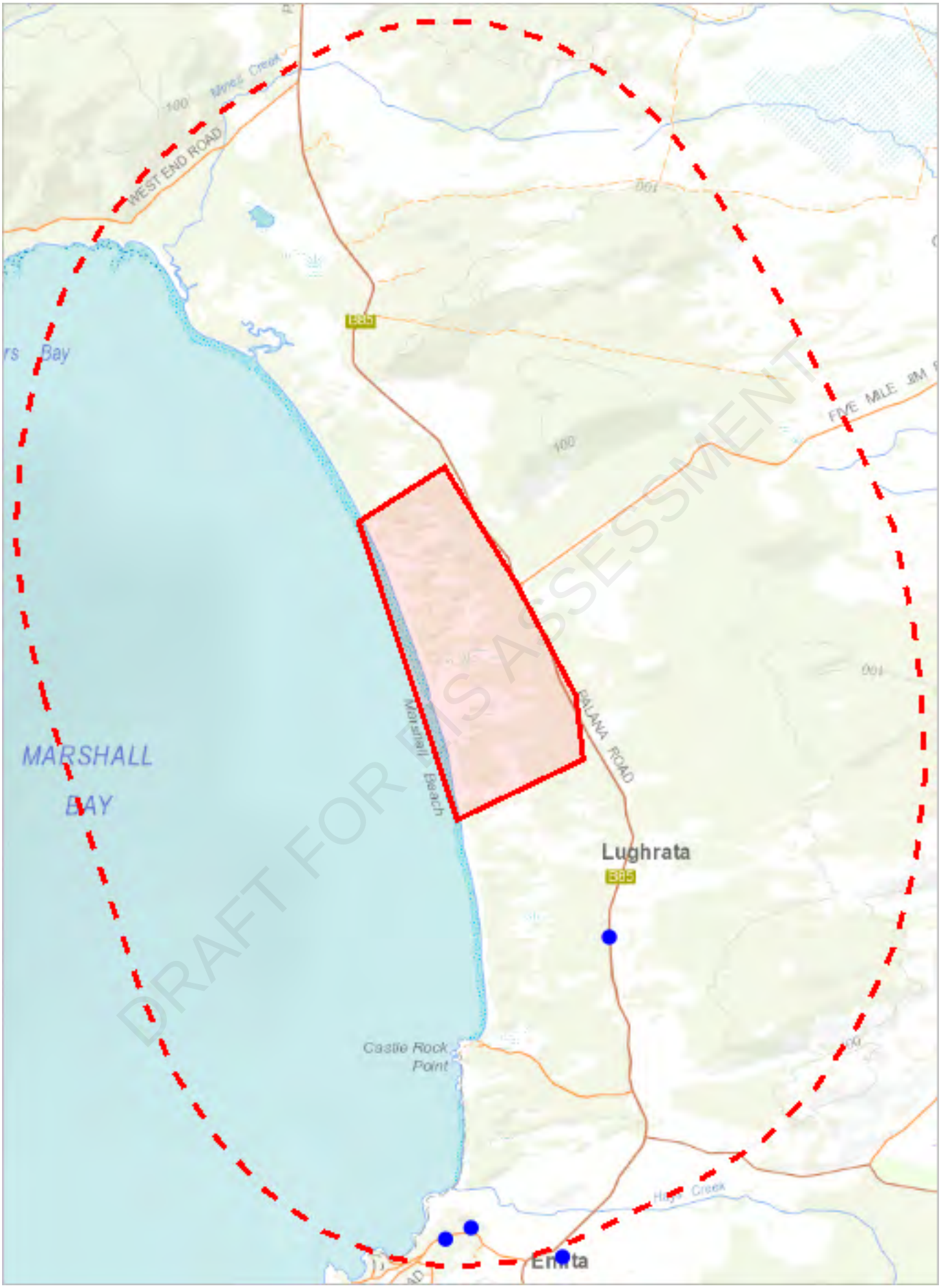
For more information about introduced weed species, please visit the following URL for contact details in your area:

https://www.nre.tas.gov.au/invasive-species/weeds

*** No Priority Weeds found within 500 metres ***

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582624, 5585914




571959, 5571480

Please note that some layers may not display at all requested map scales

# Priority Weeds within 5000 m

Annexure: 16.2.3

Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

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# Priority Weeds within 5000 m



## Verified Records

| Species | Common Name | Observation Count | Last Recorded |
|---|---|---|---|
| Billardiera heterophylla | bluebell creeper | 1 | 24-Jun-2023 |
| Polygala myrtifolia | myrtleleaf milkwort | 1 | 13-May-2023 |
| Reseda luteola | weld | 1 | 04-Dec-2012 |

## Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

https://www.nre.tas.gov.au/invasive-species/weeds

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# Known biosecurity risks within 1000 meters



579504, 5581895

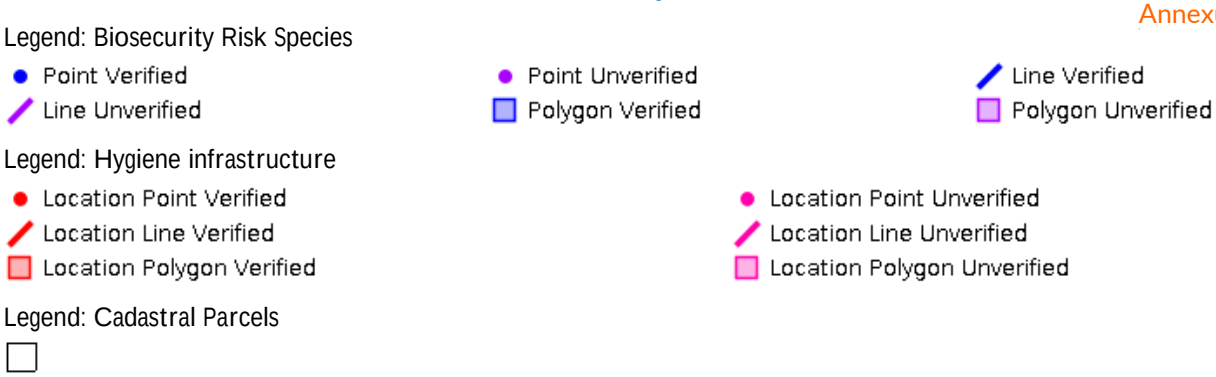



575072, 5575510

Please note that some layers may not display at all requested map scales

# Known biosecurity risks within 1000 meters

Annexure: 16.2.3




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# Known biosecurity risks within 1000 meters



## Verified Species of biosecurity risk

No verified species of biosecurity risk found within 1000 metres

## Unverified Species of biosecurity risk

No unverified species of biosecurity risk found within 1000 metres

## Generic Biosecurity Guidelines

The level and type of hygiene protocols required will vary depending on the tenure, activity and land use of the area. In all cases adhere to the land manager's biosecurity (hygiene) protocols. As a minimum always Check / Clean / Dry (Disinfect) clothing and equipment before trips and between sites within a trip as needed https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual

On Reserved land, the more remote, infrequently visited and undisturbed areas require tighter biosecurity measures.

In addition, where susceptible species and communities are known to occur, tighter biosecurity measures are required.

Apply controls relevant to the area / activity:

- Don't access sites infested with pathogen or weed species unless absolutely necessary. If it is necessary to visit, adopt high level hygiene protocols.
- Consider not accessing non-infested sites containing known susceptible species / communities. If it is necessary to visit, adopt high level hygiene protocols.
- Don't undertake activities that might spread pest / pathogen / weed species such as deliberately moving soil or water between areas.
- Modify / restrict activities to reduce the chance of spreading pest / pathogen / weed species e.g. avoid periods when weeds are seeding, avoid clothing/equipment that excessively collects soil and plant material e.g. Velcro, excessive tread on boots.
- Plan routes to visit clean (uninfested) sites prior to dirty (infested) sites. Do not travel through infested areas when moving between sites.
- Minimise the movement of soil, water, plant material and hitchhiking wildlife between areas by using the Check / Clean / Dry (Disinfect when drying is not possible) procedure for all clothing, footwear, equipment, hand tools and vehicles https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene
- Neoprene and netting can take 48 hours to dry, use non-porous gear wherever possible.
- Use walking track boot wash stations where available.
- Keep a hygiene kit in the vehicle that includes a scrubbing brush, boot pick, and disinfectant https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual
- Dispose of all freshwater away from natural water bodies e.g. do not empty water into streams or ponds.
- Dispose of used disinfectant ideally in town though a treatment or septic system. Always keep disinfectant well away from natural water systems.
- Securely contain any high risk pest / pathogen / weed species that must be collected and moved e.g. biological samples.

## Hygiene Infrastructure

No known hygiene infrastructure found within 1000 metres

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## ATTACHMENT 2 – GUIDELINES FOR SAFE AND EFFECTIVE HERBICIDE USE NEAR WATERWAYS

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Photograph: Lynn Broos

# *Guidelines* for Safe and Effective Herbicide Use Near Waterways

The control and management of weeds near waterbodies is a challenge faced by many landholders across Tasmania. Waterbodies are particularly sensitive to herbicide contamination, so the decision to apply herbicides in the vicinity must be taken with great care.

Weed control near waterbodies requires a long-term commitment to eradication, perhaps 5–10 years or more, as the seed banks of many 'woody' weed species (eg blackberries, gorse) may remain viable for decades. Weeds can also spread along watercourses, making their control difficult. A staged, planned approach to weed control, alongside a program to re-establish native riparian species, is necessary to ensure the safe restoration of riparian areas. Restoring native vegetation helps to reduce the presence of weed species, ensures the stability of banks, shades the waterway (which helps prevent future weed invasion), and provides habitat for local fauna.

## Definitions

For the purposes of this guideline, the following definitions apply:

| | |
|---|---|
| **Riparian land** | Any land that adjoins, directly influences, or is influenced by a body of water at any time of the year. |
| **Waterbody** | Includes natural watercourses (streams, creeks, rivers), natural wetlands, ponds, lagoons, constructed drainage channels, dams and ponds, reservoirs and lakes. |
| **Permanently inundated/perennial** | These areas have water all year round. |
| **Occasionally inundated/ intermittent** | These areas have water some time of the year. |
| **Rarely inundated/ephemeral** | These are areas that rarely contain water (eg areas that flood on rare occasions). |
| **Toxicity** | The inherent poisonous quality/qualities of a substance, measured by what size dose is likely to cause harm (acute toxicity is measured by the amount of active ingredient - mg/kg live body weight - required to kill 50% of a test group of animals - this is called LD50). |

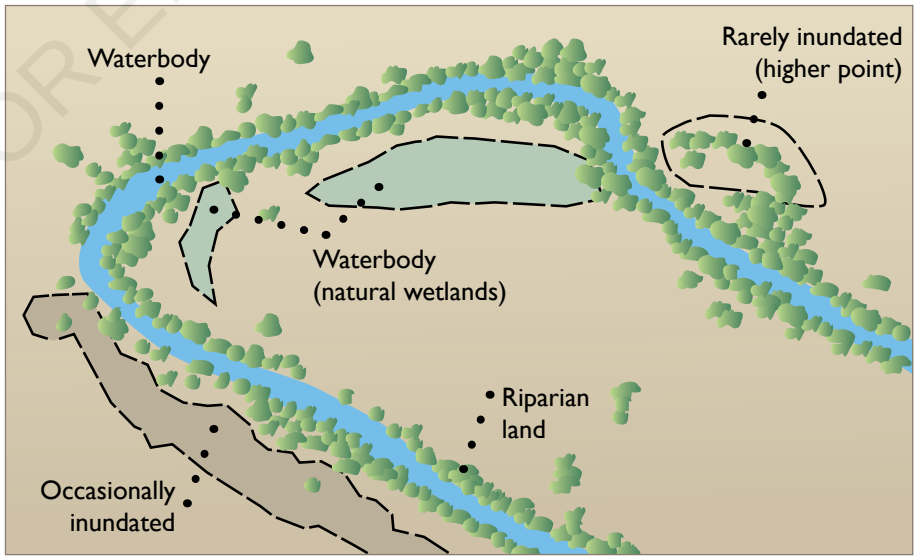



*Figure 1: Appropriate and effective herbicide usage near water requires consideration of specific situations*

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## A Planned Approach

### Assess your site

*What type of waterbody is it?*

If your site is permanently inundated, you need to consider very carefully the choice of herbicide, recognising the risk to your aquatic ecosystem and the danger that the herbicide may pose to the surrounding environment. You also need to identify points of access to the site.

If your site is occasionally or rarely inundated, choose a time when the chance of rainfall is low and therefore the risk of runoff contaminated with herbicide is likely to be low. Figure 1. illustrates the different zones found in aquatic situations which may affect herbicide use.

*What types of weeds are present?*

Identify the species of weed and the extent of the infestation. Table 2 details the recommended herbicide control for a number of riparian weeds, the method and time of year for application. It also suggests alternatives to the use of chemicals.

*Do the weeds have value at the site?*

Consider whether the weeds are serving a useful purpose at the site. They may be acting as a buffer to control erosion, or as a filter to promote water quality. They may have a value to animal species as a source of food or shelter.

If you believe that you have native plants or animals that might be adversely affected by your proposed weed control, seek professional advice.

You may be able to stage the removal of weeds to minimise any impact on erosion or on animal life. You will almost certainly need to restore the habitat once weeds have been eradicated.

*Are native species present at the site?*

Identify any native plant species at your site. You may need to protect these species from overspray or mark them to prevent accidental spraying. These native plants will be the starting point to restoring the riparian zone.

### Choose your control method

Landholders should always consider non-chemical solutions as a preferred option before deciding to use herbicides. These include biological control (eg by introduction of gorse mite, see photo below), slashing, mulching, controlled grazing (controlling timing, intensity and frequency), or hand removal. Often a combination of chemical and non-chemical methods is most appropriate. Whichever method or combination of methods is used, it is important to consider the potential negative impacts on the environment and limit these as much as possible.



*Biological agents such as Gorse spider mite may be options for use near waterways, courtesy of Tasmanian Institute of Agriculture.*

*Understanding herbicides*

Herbicides are designed to control and eradicate pest plants ('weeds'). However, it is important to realise that many herbicides have toxic effects in aquatic ecosystems. Native plants, invertebrates, frogs and fish may be harmed by herbicides. The inappropriate use of herbicides may also cause significant risks to human health where water is pumped from a bore for domestic use, or flows to reservoirs.

Herbicides can enter waterbodies either directly through spray or spray drift, or they can move into waterbodies via surface water run-off or leaching and sub-surface draining.

Herbicides can be broadly classified according to their chemical structures and modes of action. Table 1 shows the three major types of herbicide.

*Table 1: Herbicide classification*

| | |
|---|---|
| **Pre-emergent (residual)** | These herbicides are designed to inhibit the germination of pest plants. They are therefore applied before the pest plant germinates and are often residual in the soil for long periods. They are generally not considered to be safe for use near waterbodies and are not recommended for use due to their persistence in the environment. |
| **Knockdown non-selective** | These herbicides are designed to be applied directly to the target pest plant, either through being sprayed onto foliage or applied directly to the cambium layer using any of the direct application methods described in Table 3. They may vary in mode of action and some may persist as residues in the environment. |
| **Selective** | Selective herbicides are designed to act on only one type of pest plant. Generally, selective herbicides will control either broadleaf (eg capeweed), grasses (eg phalaris) or woody weeds (eg broom). These herbicides are useful when the focus may be on controlling a particular weed species (eg phalaris amongst native shrubs). These herbicides may persist as residues in the environment. |

Herbicides applied to the edge of a waterbody, or in wetted areas around its edge, must be registered for use in aquatic environments by the Australian Pesticides & Veterinary Medicines Authority (APVMA).

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### Consider the tools available to mitigate against offsite movement of your pesticide

*PIRI-Tas*

PIRI-Tas is a simple screen tool that predicts the off-site migration potential of pesticides into surface or ground-water. PIRI-Tas assesses both the likelihood of off-site-migration and the risk to different species based on the toxicity of the pesticide to a range of aquatic organisms.

PIRI-Tas is a risk indicator and uses a risk-based approach to decision making by taking into consideration a range of factors associated with site conditions, soil and environmental scenarios, pesticide properties, application rates and time of spraying as well as considering impacts on target species being protected by receiving environments. PIRI-Tas outputs can also be used to construct annual spray schedules to assist with future planning.

PIRI was first developed by CSIRO and is being used both nationally and internationally by a number of organisations. PIRI-Tas CD's and onsite training are available for free through the DPIPWE to key users of chemical pesticides, including those in the agriculture, forestry, amenity, glasshouse and municipal sectors.

Further information is available at http://www.dpipwe.tas.gov.au/inter.nsf/WebPages/SSKA-7JA3N4?open

*Consider integrated pest management (IPM)*

Integrated pest management (IPM) is a planned approach that coordinates environmentally acceptable methods of pest control with careful and minimal use of toxic pesticides. IPM programs are based on a comprehensive assessment of local conditions, including factors such as climate, season, the biology of the pest species, and government regulations.

Strategies employed may include the staged removal of weeds, biological control and re-planting of riparian areas with native species to discourage the regeneration of weeds.

## Consult and plan

Draw up a calendar for action. The time of year when herbicides will be most effective on the weed should be a major influence on the make-up of this calendar. Herbicides are generally most effective during the growing season of the weed rather than when it is dormant or approaching dormancy. The staged removal of weeds over several seasons may be less disturbing to your aquatic environment and minimise any adverse impact on fauna.

Consult with neighbours who may be affected by your weed control operation, especially if you think there is any risk of spray drift to adjoining properties or downstream. You may also decide to seek advice from experts before taking further action, or approach commercial spray contractors to assess your particular situation.

If the work involves a significant length of river or multiple properties it is advisable to develop a plan that covers all aspects of the weed control work and restoration, including potential risks. You should also be mindful of:

- feasibility/practicability of the work
- physical characteristics of the job site
- optimal pest control method, including alternatives to herbicides
- characteristics of the herbicide (physical, chemical and environmental)
- buffer zones
- the possibility of spray drift and other off-target migration
- weather conditions.

## Do you need to spray?

It is recommended that only trained, licensed contractors carry out spraying operations near waterbodies because of the sensitivity of these environments. Check that they have experience and an understanding of the issues around using herbicides near aquatic environments.

The following points are critical to the application of herbicides near waterbodies:

- Always follow the label
- When you are working near the edge of a waterbody, direct the spray away from the waterbody where possible.
- Spray only to the extent of covering foliage with droplets.
- Spray when weather is calm; strong winds may carry herbicide drift into waterbodies.
- Use a flat fan nozzle and a low pump/spray pressure to reduce the likelihood of spray drift.
- Do not spray when rainfall is forecast within four hours as herbicide can be washed off the pest plant and run off into aquatic ecosystems.

## Appropriate herbicides and application

The type of weed problem will determine both the type of herbicide and its application method. Table 2 shows recommended herbicide and application methods for some common weeds, along with alternatives to herbicide use. Table 3 illustrates application techniques and equipment need to undertake control works.

Uses described in this table are either covered by the respective product label or Off-label Permit No. 13160 issued by the Australian Pesticides and Veterinary Medicines Authority.

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*Table 2. Common weeds and recommended treatment and herbicides*

| Area | Weed | Permitted Herbicide (active ingredient) | Example of commercial product (concentration of active ingredient) | Recommended Herbicide Control Technique | Non-chemical Alternatives |
|---|---|---|---|---|---|
| Permanently inundated/ perennial | **Submerged and partially submerged plants** | | | | |
| | Parrot's feather (*Myriophyllum aquaticum*) | Glyphosate (registered for aquatic use only **Don't add surfactants!** | Roundup Biactive® or Weedmaster Duo® | Foliar spray | Hand removal and excavation (with roots/rhizomes) can be used as part of a well planned approach. Care must be taken to avoid losing fragments |
| | Egeria (*Egeria densa*) | | | | |
| | Canadian Pondweed (*Elodea canadensis*) | | | | |
| | Cumbungi (*Typha* spp) | | | | Hand removal (small plants)<br>Excavation (with roots/rhizomes)<br>Cultivation (expose roots/rhizomes to frosts)<br>Cut into soil surface regularly (to cut rhizomes)<br>Drowning by cutting stems and leaves below water surface |
| | *Glyceria* (syn. Poa aquatica or reed sweet grass) (*Glyceria maxima*) NB Take extreme caution not to spread Glyceria seed through soil transport (eg on machinery) | | | Foliar spray (combine with dense local native species revegetation for long-term results through stream shading)<br>Wiper | Clearance or drainage of growth area (combine with dense re-vegetation of local native species for long-term results through stream shading) |
| | **Woody weeds** | | | | |
| | Blackberry (*Rubus fruticosus*) | Glyphosate (registered for aquatic use only) **Don't add surfactants!** | Roundup Biactive® or Weedmaster Duo® | Cut and paint with Roundup Biactive® or Weedmaster Duo® | Hand removal (small plants)<br>Controlled grazing (goats or sheep only) can be effective<br>Bio-control (eg gorse mite, blackberry rust) where other techniques are not suitable<br>Gorse mulching combined with follow-up grazing and revegetation on mulched sites |
| | Gorse (*Ulex europaeus*) | | | | |
| | **Trees** | | | | |
| | Hawthorn (*Crataegus monogyna*) | Glyphosate (registered for aquatic use only) **Don't add surfactants!** | Roundup Biactive® or Weedmaster Duo® | Cut and paint<br>Drill or stem injection<br>Axe or frill and paint<br>Foliar spray hawthorn and crack willow (only spray to a height of 2m) | Hand removal (small plants)<br>Controlled grazing can assist in limiting Hawthorn regrowth and thicket density |
| | Crack Willow (*Salix fragilis*) | | | | |
| | Sycamore (*Acer pseudoplatanus*) | | | | |

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*The product trade names in this publication are supplied on the understanding that no preference between equivalent products is intended and that the inclusion of a product does not imply endorsement by DPIPWE over any other equivalent product from another manufacturer.*

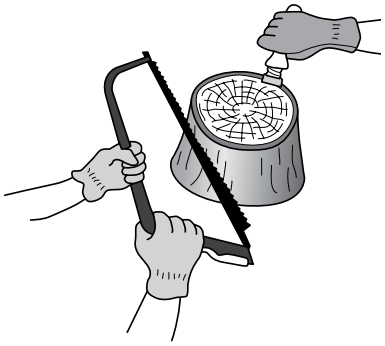
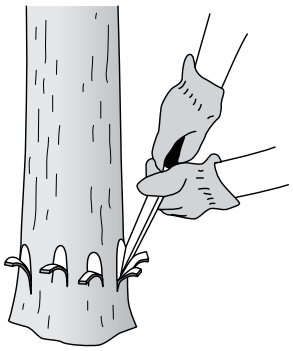
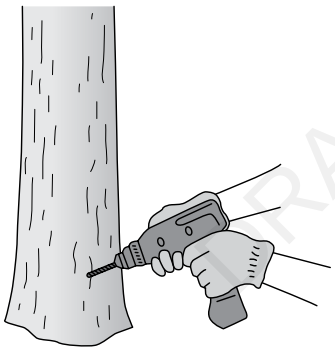
*Table 2. Common weeds and recommended treatment and herbicides continued*

| Area | Weed | Permitted Herbicide (active ingredient) | Example of commercial product (concentration of active ingredient) | Recommended Herbicide Control Technique | Non-chemical Alternatives |
|---|---|---|---|---|---|
| Occasionally or rarely inundated sites | **Woody weeds** | | | | |
| | Blackberry (*Rubus fruticosus*) | Metsulfuron-methyl<br>Triclopyr<br>Triclopyr + Picloram | eg Associate or Brush-Off®<br>eg Garlon 600®<br>eg Grass-up™ or Grazon Extra®) | Foliar spray | Hand removal (small infestations)<br>Controlled grazing by goats can be effective<br>Bulldoze and deep cultivate (in suitable circumstances)<br>Bio-control (a rust with limited impact) |
| | Gorse (*Ulex europaeus*) | Glyphosate (registered for aquatic use only)<br>Triclopyr<br>Triclopyr + Picloram | eg Roundup Biactive® or Weedmaster Duo®<br>eg Garlon 600®<br>eg Grass-up™ or Grazon Extra®) | Cut and paint<br>Foliar spray, preferably Garlon 600® | Mulching/bulldozing/slashing combined with follow-up grazing and revegetate on mulched sites<br>Bio-control (e.g gorse mite) where other techniques are not suitable |
| | English Broom (*Cytisus scoparius*)<br>Montpellier Broom (*Genista monspessulana*) | Glyphosate (registered for aquatic use only).<br>Metsulfuron-methyl<br>Triclopyr herbicide<br>Triclopyr + Picloram | eg Roundup Biactive® or Weedmaster Duo®<br>eg Associate or Brush-Off®<br>eg Garlon 600®<br>eg Grass-up™ or Grazon Extra®) | Cut and paint.<br>Foliar spray, preferably Garlon 600® (only if under 2m in height) | Hand removal.<br>Mechanical removal (eg rip or bulldoze)<br>Mulching/bulldozing/slashing of hawthorn combined with follow-up grazing and revegetate on mulched sites |
| | **Trees** | | | | |
| | Hawthorn (*Crataegus monogyna*) | Glyphosate (registered for aquatic use only).<br>Metsulfuron-methyl<br>Triclopyr herbicide<br>Triclopyr + Picloram | eg Roundup Biactive® or Weedmaster Duo®<br>eg Associate or Brush-Off®<br>eg Garlon 600®<br>eg Grass-up™ or Grazon Extra®) | Cut and paint<br>Foliar spray, preferably Garlon 600® (only if under 2m in height) | Hand removal<br>Mechanical removal (eg rip or bulldoze)<br>Mulching/bulldozing/slashing of hawthorn combined with follow-up grazing and revegetate on mulched sites |
| | Sycamore (*Acer pseudoplatanus*) | Glyphosate (registered for aquatic use only) | eg Roundup Biactive® or Weedmaster Duo® | Stem injection, cut and paint (plus foliar spray for young plants) | Hand removal<br>Bulldoze and revegetate<br>Plough-in small plants |
| | **Herbaceous plants** | | | | |
| | Ragwort (*Senecio jacobaea*)<br>Paterson's curse (*Echium plantagineum*)<br>Thistles (*eg Cirsium arvense*) | MCPA<br>Metsulfuron-methyl | eg MCPA 500 or L.V.E Agritone<br>eg Associate or Brush-Off® | Foliar spray | Hand removal<br>Controlled grazing (sheep)<br>Ploughing/cultivation (combine with dense revegetation of local native plants for long-term results through shading) |

More information on weed identification and weed control can be found at **www.dpipwe.tas.gov.au/weeds**

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*Table 3. Herbicide application techniques*

| Illustration | Method | Type of weed | Equipment Required | Notes |
|---|---|---|---|---|
|  | Foliar Spray | Herbaceous plants,<br>Woody weeds | Knapsack<br>Vehicle mounted tank<br>Herbicide mix<br>Personal protective equipment (see product label) | Ensure herbicide is being applied at right concentration and rate to cover the foliage of the pest plant with fine droplets and avoid run-off. A flat fan nozzle and low pump pressure will assist in reducing spray drift |
|  | Cut and paint | Woody weeds, shrubs and trees | Saw, chainsaw, loppers<br>Herbicide mix<br>Personal protective equipment (goggles and gloves as a minimun)<br>Bush/sponge for herbicide application | Ensure herbicide is applied quickly to cut stump (within15 seconds in most cases)<br>Apply during active growth period of plant for best results<br>Do not apply herbicide to the point of run-off |
|  | Frilling | Shrubs and trees | Axe, hatchet<br>Herbicide mix<br>Personal protective equipment (goggles and gloves as a minimum)<br>Brush for herbicide application | Frill trunk thoroughly, also treat major surface roots where visible<br>Expose sapwood and apply herbicide to it immediately<br>For deciduous species, apply during active growth period |
|  | Drill and poison | Shrubs and trees | Drill<br>Application bottle, injection gun<br>Herbicide<br>Personal protective equipment (goggles and gloves as a minimun) | Drill to sapwood only and apply herbicide to drill hole immediately<br>Drill and fill major surface roots where appropriate<br>For deciduous species, apply during active growth period |

Illustrations: Brett Littleton ILS Design Unit

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## After Spraying

### Clean up

Equipment should always be cleaned in a safe location where spills can be contained and will not result in environmental harm. Using water to clean equipment will further dilute any residual herbicide to low levels, and the resulting solution is best sprayed onto a lawned area or bare ground taking the following precautions:

- Do not apply wash-water to the point of saturation so that run-off occurs.
- Do not apply wash-water along boundary fence lines as this will increase the chance of herbicides escaping from your property.
- Do not dispose of wastewater into areas where children play, or pets have access, as low levels of herbicide are still likely to be present.
- Do not deposit wastewater where it will run into waterways, drainage lines or stormwater systems.

*Disposal*

If you do happen to have surplus spray mix or herbicide waste, label it with the herbicide name, including any risk and safety information displayed on the original label. Store it safely until it can be disposed of appropriately. Contact a chemical collection organisation eg Chem Clear.

You must follow label directions for the disposal of wastes and herbicide containers. Only dispose of waste herbicides at authorised collection centres, such as licensed waste disposal centres.

Do not dispose herbicide waste:

- through sewerage systems, where it can interfere with the sewage treatment process
- down the drain or gutter, where it can pass through the stormwater system and into waterways
- to landfill via dumping or domestic waste, as it can contaminate soil and leach into groundwater and stormwater.

### Monitor, evaluate and follow up

*Monitor*

Observe and keep records of your weed problems and the impact of any measures you take to control them. This could involve:

- the use of visual records, including property maps, aerial and other photography
- the use of a calendar or diary to record when actions were taken.

*Evaluate*

Evaluate the success of any weed control program by considering the current extent of the weed problem and reviewing your control measures. Important questions might include:

- Is my weed control work going to plan, or do my goals need reviewing?
- What is the appropriate weed control measure now?
- Is there a need for external (expert) assistance?

*Follow up*

Re-implement weed control actions following the results of your monitoring and evaluation. Continue to monitor this follow-up work, and so begin an ongoing cycle of weed management.

These guidelines have been updated by Kiowa Fenner and are based on guidelines prepared by Michael Noble and Janice Miller.

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*Important disclaimer*

To the extent permitted by law, the Tasmanian Department of Primary Industries, Parks, Water and Environment (including its employees and consultants) excludes all liability to any person for any consequences, including but not limited to all losses, damages, costs, expenses and any other compensation, arising directly or indirectly from using this material (in part or in whole) contained in this publication



Design and layout - ALS Design Unit, DPIPWE

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Tasmania
Explore the possibilities

CONTACT DETAILS

Invasive Species Branch

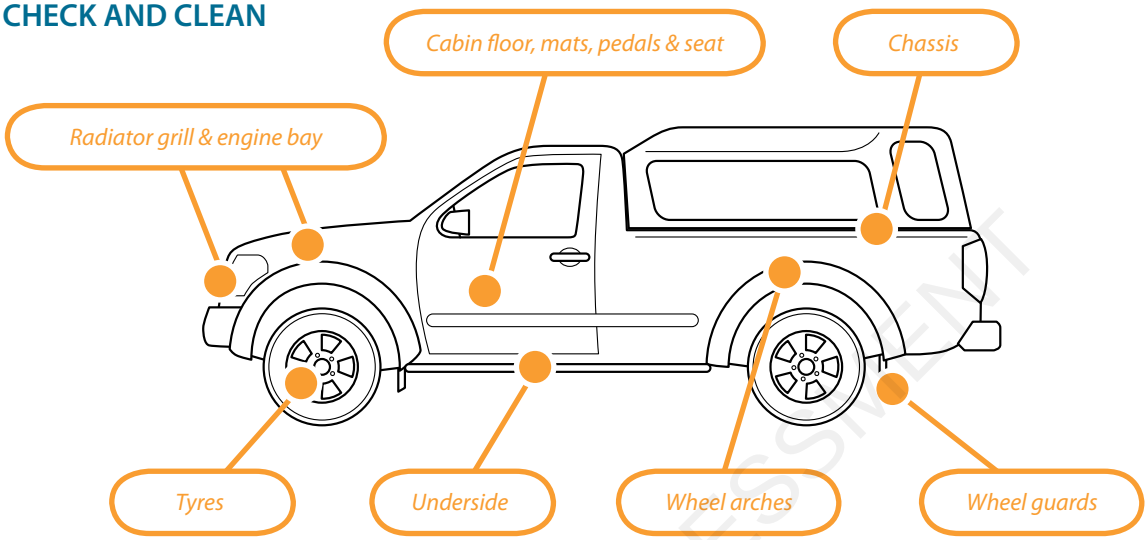
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**www.dpipwe.tas.gov.au/weeds**

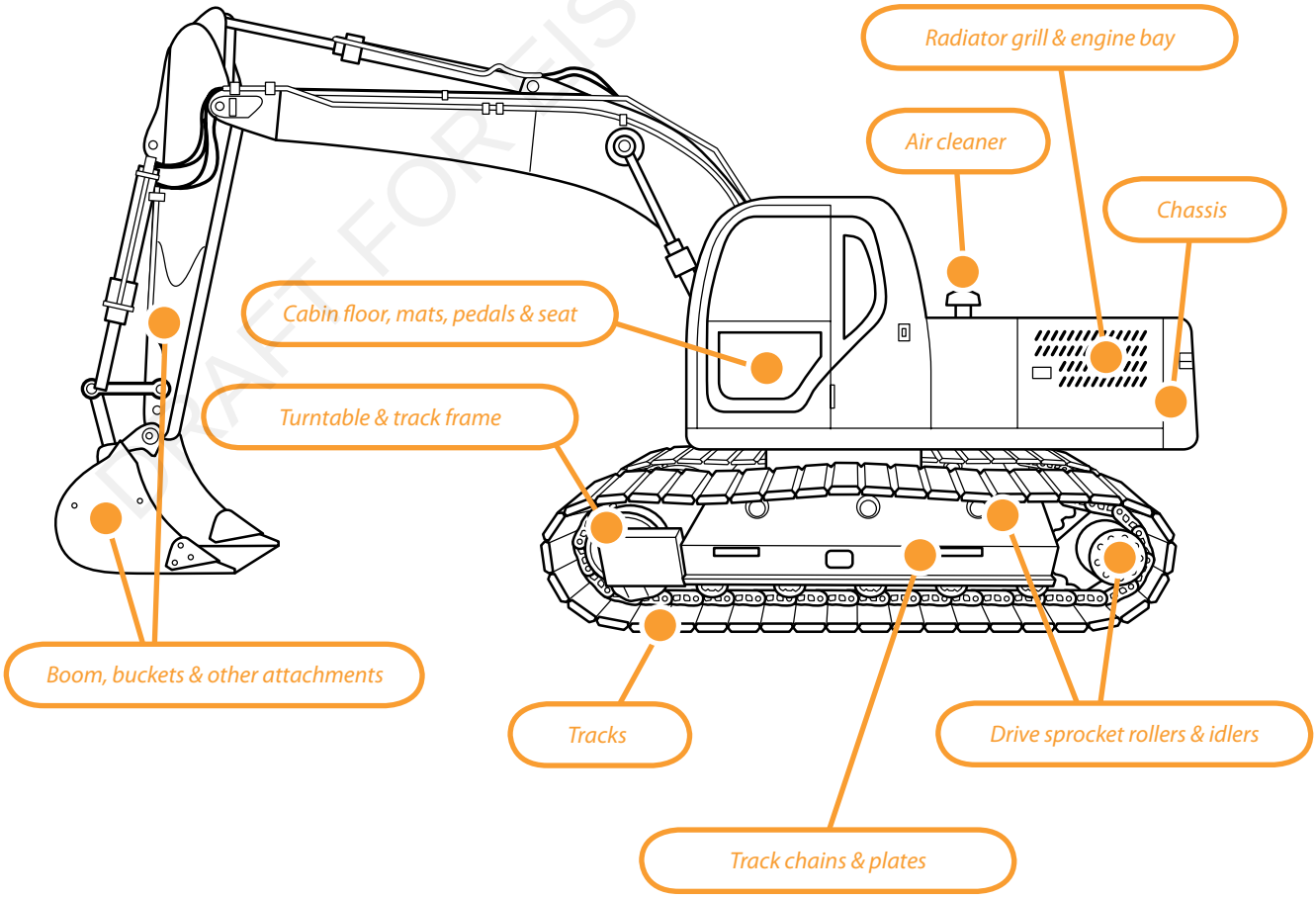
## ATTACHMENT 3 – HYGIENE PROTOCOLS AND INSPECTION SHEETS MACHINERY AND VEHICLES

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## 4WD VEHICLE WITH KEY SPOTS TO CHECK AND CLEAN

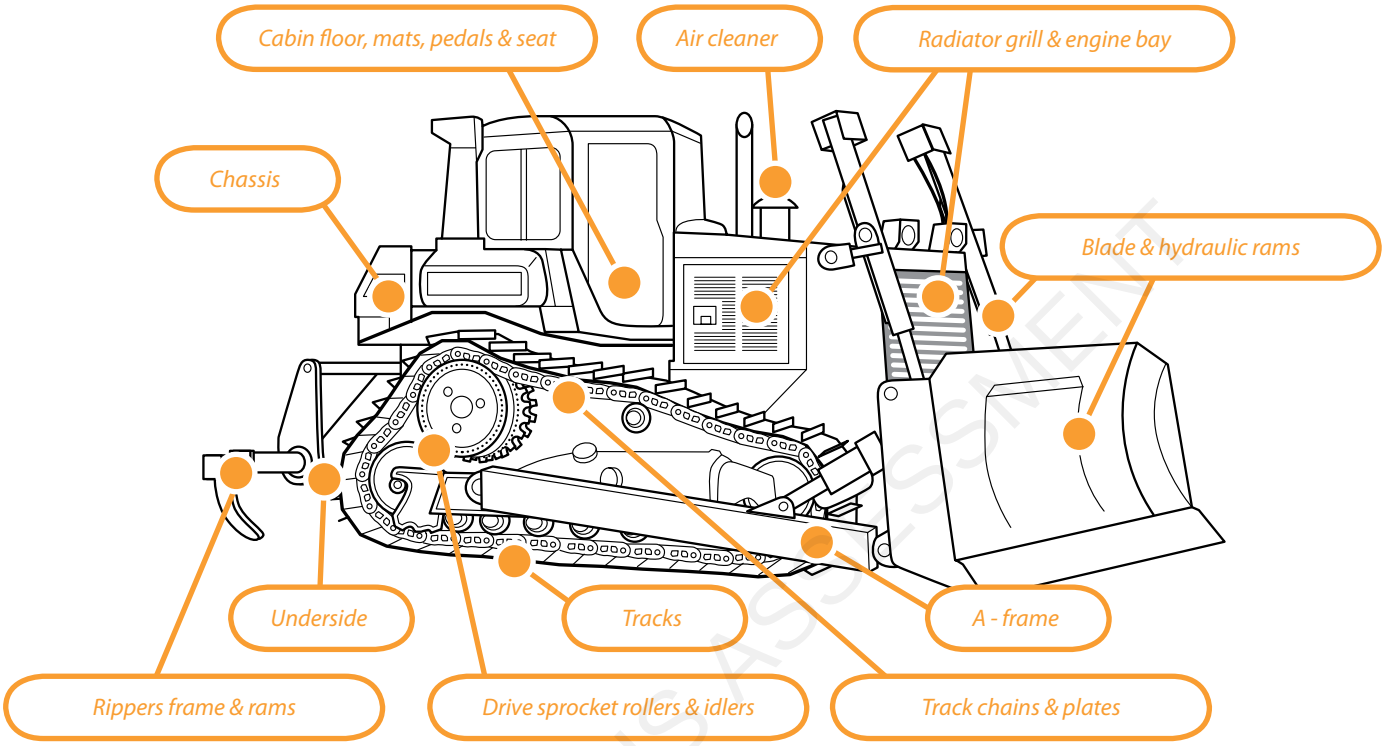



## EXCAVATOR WITH KEY SPOTS TO CHECK AND CLEAN

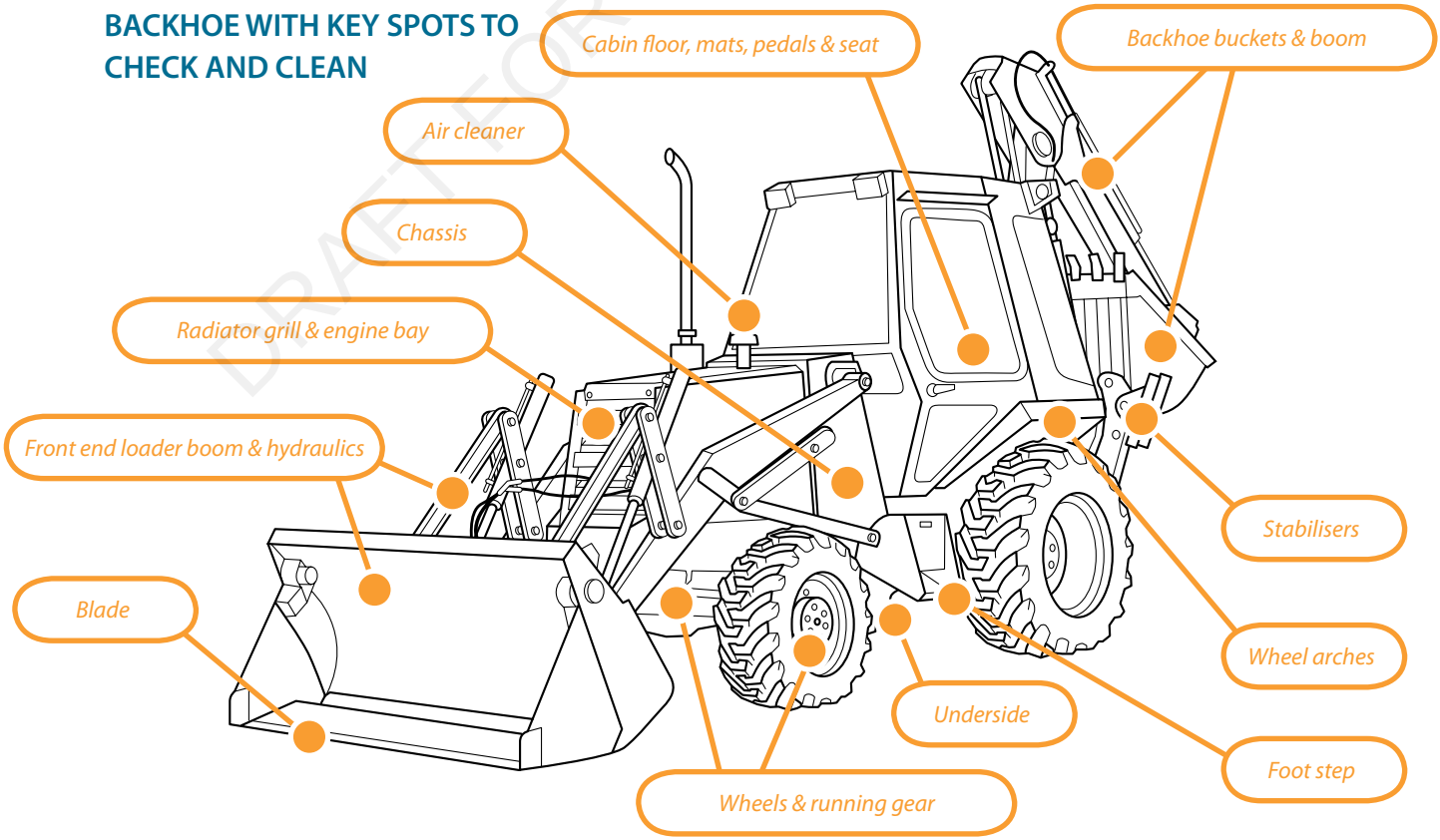



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## BULLDOZER WITH KEY SPOTS TO CHECK AND CLEAN




## BACKHOE WITH KEY SPOTS TO CHECK AND CLEAN




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| CLEANING/INSPECTION LIST FOR UTILITY/4WD | | | | |
|---|---|---|---|---|
| **Date:** | | **Site:** | | |
| **Vehicle:** | | **Registration/ID:** | | |
| **Area** | **Contamination point** | **Inspected** | **Cleaned** | **Method** |
| Engine bay | Front grill | | | |
| | Radiator and other cooling cores or fins | | | |
| | Grill or recess under wipers | | | |
| | Engine mounts | | | |
| | Top of gearbox | | | |
| | Battery recess/tray | | | |
| | Any recesses on engine or manifold | | | |
| | Air cleaner (including element) | | | |
| | | | | |
| Cabin | Footwells | | | |
| | Carpets and mats | | | |
| | Seats | | | |
| | Tool boxes | | | |
| | Air vents | | | |
| | | | | |
| Wheels and arches | Tyre treads | | | |
| | Rims and wheel caps | | | |
| | Wheel arches | | | |
| | Mud flaps and brackets | | | |
| | Brakes | | | |
| | | | | |
| Tray | Body of tray (especially any recesses) | | | |
| | Mats and toolboxes | | | |
| | Around fuel tank caps | | | |
| | | | | |
| Under carriage | Chassis rails | | | |
| | Struts and stabilisers | | | |
| | Steering components | | | |
| | Axels and differentials | | | |
| | Spare tyre and mounts | | | |
| | Guards | | | |
| | Fuel Tank | | | |
| | | | | |
| Attachments | Bull bar | | | |
| | | | | |
| Cleaning method: Mechanical (M), Compressed Air (CA), Vacuum (V), High Pressure Water (HPW), Low Pressure Water (LPW) | | | | |
| **Inspected by:** | | **Signature:** | | |
| **Cleaned by:** | | **Signature:** | | |

DRAFT FOR EIS ASSESSMENT

| CLEANING/INSPECTION LIST FOR AN EXCAVATOR | | | | |
|---|---|---|---|---|
| **Date:** | | **Site:** | | |
| **Vehicle:** | | **Registration/ID:** | | |
| **Area** | **Contamination point** | **Inspected** | **Cleaned** | **Method** |
| Engine bay | Engine bay floor | | | |
| | Fan shroud and radiator cores | | | |
| | Air filters (shake/tap filters to determine if clean) | | | |
| | Glacier plate (near radiator) | | | |
| | | | | |
| Cabin | Footwells | | | |
| | Carpets and mats | | | |
| | Seats | | | |
| | Tool boxes | | | |
| | Air vents | | | |
| | | | | |
| Excavation body | Hollow section chassis channels | | | |
| | Channels for hydraulic hoses from driven motor | | | |
| | Counterweight void spaces | | | |
| | Removable track adjuster guards and lubrication points | | | |
| | Turret pivot area | | | |
| | Arms/booms - pivot points | | | |
| | | | | |
| Bucket/Blade | Between teeth of adapters | | | |
| | Wear plates | | | |
| | | | | |
| Rear blade (Stabiliser) | Wear plates | | | |
| | Hollow section arms | | | |
| | Hollow section blade | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Cleaning method: Mechanical (M), Compressed Air (CA), Vacuum (V), High Pressure Water (HPW), Low Pressure Water (LPW) | | | | |
| **Inspected by:** | | **Signature:** | | |
| **Cleaned by:** | | **Signature:** | | |

DRAFT FOR EIS ASSESSMENT

| CLEANING/INSPECTION LIST FOR TRACK TYPE DOZERS | | | | |
|---|---|---|---|---|
| **Date:** | | **Site:** | | |
| **Vehicle:** | | **Registration/ID:** | | |
| **Area** | **Contamination point** | **Inspected** | **Cleaned** | **Method** |
| Engine | Check radiator core and engine area for residues. | | | |
| | Remove and check the air filter/cleaner (these often require destruction where they are clogged with QRM). | | | |
| | Check carefully the void space between the oil and radiator cores. | | | |
| | Battery Box - Lift/remove the battery to check for contamination (battery box may be at side/rear or under seat). | | | |
| | | | | |
| Drivers cab | Check externally under and around driver's cab. | | | |
| | Check under mats in cab. | | | |
| | Remove/lift seat; remove/lift floor pans to allow checking to top of transmission. | | | |
| | Check air conditioner filter (if fitted) – shake/tap filter to check if clean | | | |
| | Check externally under and around driver's cab. | | | |
| | Check under mats in cab. | | | |
| | | | | |
| Body | Belly plates should be removed to allow inspection and cleaning | | | |
| | Rear plates at back of dozer should be removed to allow inspection and cleaning. | | | |
| | Hydraulic cover plates should be removed to allow inspection and cleaning. | | | |
| | | | | |
| Tracks/track frame | Examine tracks carefully. | | | |
| | Ensure inspection/cover plates are removed to allow inside track area. | | | |
| | Check idler wheels (these support the tracks). | | | |
| | | | | |
| Fuel cells | Are removable therefore dirt etc can pack between the tank and the frame. | | | |
| | | | | |
| Blade | Ensure that edge of blade top/bottom is not split – this allows soil to be packed very tightly in the hollow. | | | |
| | Check cutter points/wear blades. | | | |
| | Check carefully the pivot points and adaptors at the rear of the front blade – these allow the blade to change height and angle. Sometimes soil has compacted and is difficult to dislodge. | | | |

DRAFT FOR RISK ASSESSMENT

| Area | Contamination point | Inspected | Cleaned | Method |
|---|---|---|---|---|
| | Check trunction arms | | | |
| | Check all hollow sections | | | |
| | | | | |
| Ripper support frame is usually hollow | Check carefully if any contaminants have entered this section. The tynes may need to be removed. | | | |
| | | | | |
| Tynes | Tynes need careful inspection. Contamination may often be removed by water blasting, but tynes may need to be removed in some cases. | | | |
| | | | | |
| Ripper points | A pin holds on the ripper points. Dirt can compact under the ripper points. | | | |
| | | | | |
| All areas | Check if any sections or channels are hollow and determine if there is a possible entry point for contamination. Check if plates are covering a compartment or space that may have collected dirt/trash. | | | |
| | | | | |
| | | | | |
| | | | | |
| Cleaning method: Mechanical (M), Compressed Air (CA), Vacuum (V), High Pressure Water (HPW), Low Pressure Water (LPW) | | | | |
| **Inspected by:** | | **Signature:** | | |
| **Cleaned by:** | | **Signature:** | | |

DRAFT FOR EIS ASSESSMENT

| CLEANING/INSPECTION LIST FOR WHEELED LOADERS & COMPACTORS | | | | |
|---|---|---|---|---|
| **Date:** | | **Site:** | | |
| **Vehicle:** | | **Registration/ID:** | | |
| **Area** | **Contamination point** | **Inspected** | **Cleaned** | **Method** |
| Engine and running gear | Air cleaner and air filters | | | |
| | Air conditioner unit | | | |
| | Under and around removable fuel cells | | | |
| | Brake assemblies | | | |
| | | | | |
| Canopy/cabin | Hollow channels | | | |
| | Void space between cab and body (bird's nests have been found here) | | | |
| | Footwells | | | |
| | Carpets and mats | | | |
| | Seats | | | |
| | | | | |
| Body | Feet of adaptors on compactors | | | |
| | Hydraulic points | | | |
| | Articulation points of hydraulics | | | |
| | Counterweight void spaces | | | |
| | Between dual wheels | | | |
| | | | | |
| | | | | |
| Bucket/Blades | Blade wear plates | | | |
| | Blade teeth and adaptors | | | |
| | | | | |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Cleaning method: Mechanical (M), Compressed Air (CA), Vacuum (V), High Pressure Water (HPW), Low Pressure Water (LPW) | | | | |
| **Inspected by:** | | **Signature:** | | |
| **Cleaned by:** | | **Signature:** | | |

DRAFT FOR EIS ASSESSMENT

| CLEANING/INSPECTION LIST FOR DUMP TRUCKS | | | | |
|---|---|---|---|---|
| **Date:** | | **Site:** | | |
| **Vehicle:** | | **Registration/ID:** | | |
| **Area** | **Contamination point** | **Inspected** | **Cleaned** | **Method** |
| Engine and running gear | Air cleaner | | | |
| | Air conditioner unit | | | |
| | | | | |
| Cabin | Footwells | | | |
| | Carpets and mats | | | |
| | Behind and under seats | | | |
| | Tool boxes | | | |
| | Air vents | | | |
| | | | | |
| Body | Hollow channels in tray frame | | | |
| | Between dual wheels (where applicable) | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Cleaning method: Mechanical (M), Compressed Air (CA), Vacuum (V), High Pressure Water (HPW), Low Pressure Water (LPW) | | | | |
| **Inspected by:** | | **Signature:** | | |
| **Cleaned by:** | | **Signature:** | | |

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## ATTACHMENT 4 – WEED SPRAYING PROGRAM SPREADSHEET (EXAMPLE)

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Date -

Marshall Bay Lime Sand Extraction Pit
Weed Spraying Program Work Plan

| Zones on Maps | Weeds Present | Actions required | Responsible person | Estimated start date | Estimated completion date | Tasks conducted | Date Completed | Signed |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**NOTES**

DRAFT FOR EIS ASSESSMENT

**ATTACHMENT 9. SURVEY OF THE GEOMORPHOLOGY AND SOIL CHARACTERISTICS OF THE MARKARNA GRAZING COMPANY PTY LTD PROPERTY, MARSHALL BAY, FLINDERS ISLAND**

# Survey of the Geomorphology and Soil characteristics of the Markarna Grazing Company Pty Ltd Property, Marshall Beach, Flinders Island

**18 January 2024**



**This report was compiled by Dr Adrian Slee, Earth Sciences and Cultural Heritage, Forest Practices Authority, 30 Patrick Street, Hobart 7000**

**Email: adrian.slee@fpa.tas.gov.au**

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**FPA file reference**

D24-20638

**Disclaimer for report**

The advice contained in this document has been prepared for Markarna Grazing Company Pty Ltd and Van Diemen Consulting Pty Ltd only.

Whilst the Forest Practices Authority has used its best endeavours to ensure accuracy, it does not warrant that the material is free of error. Consequently, the advice is provided on the basis that the Forest Practices Authority will not be liable for any error or omission, in contract, tort or otherwise. However, should any error or omission be notified, the Forest Practices Authority will use its best endeavours to correct the advice.

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**Glossary**

*Optically Stimulated Luminescence (OSL) dating*: A method of dating sand grains. This method measures the period of time since burial of the sand grains and therefore indicates the age of the host landform (i.e. dune ridge).

*Tasmanian Geoconservation Database (TGD):* A database that provides a source of information about geodiversity features, systems and processes of conservation significance in the State of Tasmania.

**Cover Image (Image 1)**

*View eastwards from the coastal foredune backing Marshall Beach, looking across isolated outcrops of granite towards the large west-to-east orientated longitudinal dunes forming the main Markarna Lime Sands resource*

# 1. Project scope and Aims

Van Diemen Consulting Pty Ltd engaged the Forest Practices Authority (FPA) to investigate the geomorphology and soils present on a 364.1 ha mining lease owned by the Markarna Grazing Company between Palana Road and Marshall Beach near the settlement of Lughrata on Flinders Island. The proposal by Markarna Grazing Company is to develop and extend an existing old lime sand extraction pit located within the dune fields located between Palana Road and Marshall Beach near the settlement of Lughrata. The priority area is an 800 m long west to east oriented sand dune complex covering approximately 4 ha that forms a lime sand resource immediately west of the current old extraction pit.

The aim of the project was to provide a detailed report on the dune field and other landforms including swamps and potential Tertiary limestone karst features in the vicinity of the proposed extraction pit. Soils were also be investigated in this area. A secondary focus was a general documentation of the dune field and other sites of geomorphic significance in the overall mining lease in the event of expansion of operations in the future.

**The report addresses the following issues:**

- Documentation of any karst features present and management recommendations.
- Overview of the sand dunes present at the proposed pit site and mine lease in general and dune special values management recommendations.
- Comment on sand blow risks and mediation recommendations.
- Documentation of other geomorphic landforms.
- Soil observations and management.

# 2. Previous Work

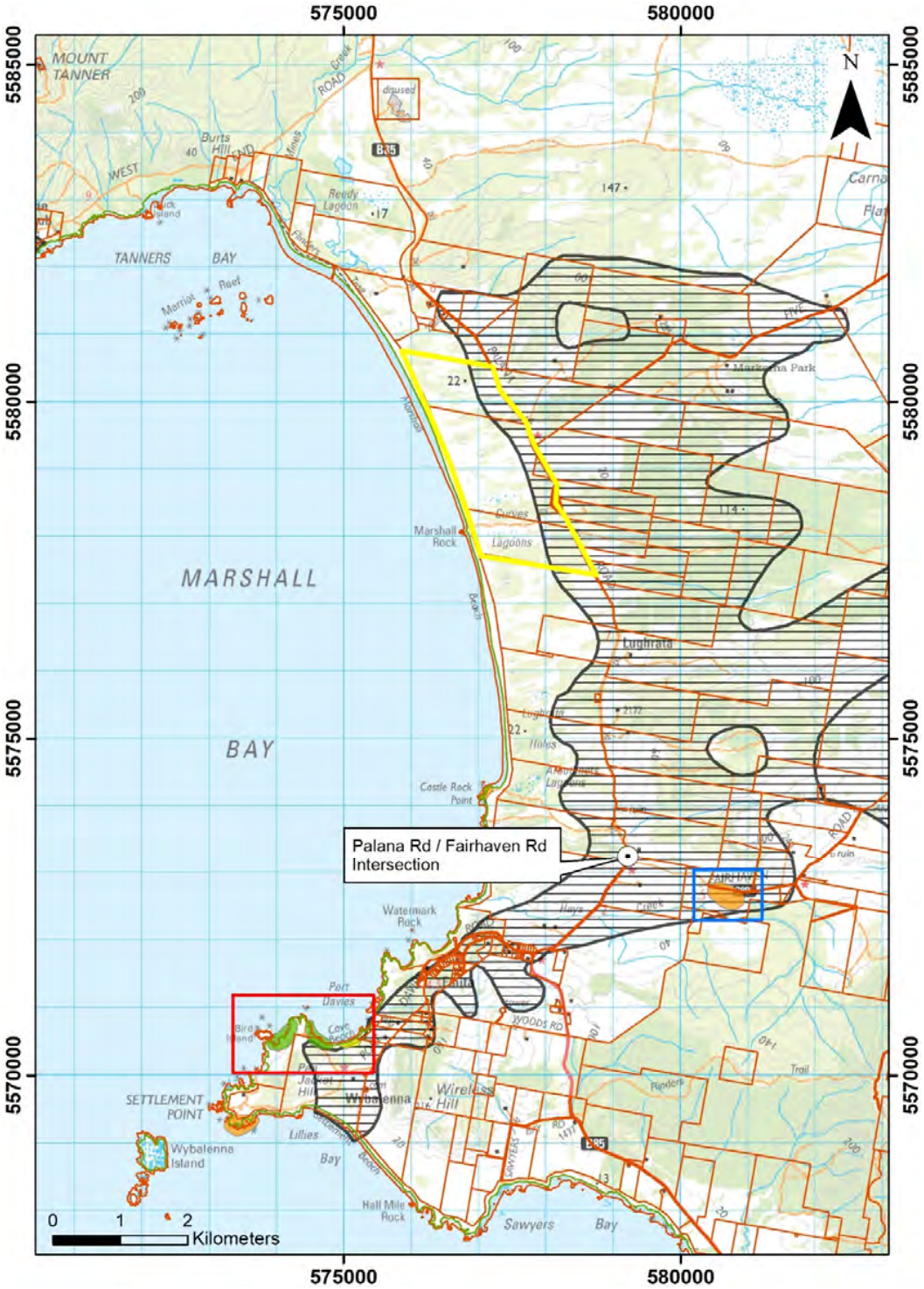
## Granite Bedrock

Devonian granite plutons are the dominant bedrock that floors Flinders Island and upon which the Tertiary Limestone and Quaternary deposits lie. White syenogranite/ monzogranite (I-type) granite outcrops in the vicinity of Five Mile Road immediately east of the study site. No granite was mapped on the 1:250,000 geological map (available on www.theList.tas.gov.au) within the study area (Mineral Resources Tasmania 2023). However aerial photographs clearly show that Marshall Rock (outcropping on Marshall Beach) is granitic.

## Karst

Tertiary dune limestone is mapped on the 1:250,000 Tasmanian geological maps. It forms the hills rising east of Palana Road immediately inland of the Markarna Lime Sands mining lease. The hills are part of an extensive belt of limestone extending from the vicinity of Five Mile Road in the north, inland to the Memana district and south along the coast to Wybalenna. The area is listed as a category B karst area (Emita-Memana BS17) (Kiernan 1995; see also map 1, below). The karst B classification indicates that karst processes are active in the area. The area has received limited attention from geoscientists and cavers. Limestone has been mapped on the hills to the east of the study site to altitudes approaching 130 m asl. The limestone is likely to be mantling granite and possibly sedimentary rock at depth and may be quite thin i.e., in the order of tens of metres. However, the topographic relief of the limestone here is more than 100 m which is more than enough for significant karst landforms and processes to develop. Kiernan and the author have observed subtle sinkholes in the vicinity of Palana Road/Fairhaven Road intersection (Map 1 and Image 2). Some of these depressions could be dune swales, but the presence of exposed limestone outcrops around others suggest sinkhole development.

A low hill north of Hays Creek has limestone cliff outcrops. The most notable karst landforms occur at Cave Beach where significant limestone exposures in a coastal setting display very rugged limestone weathering pinnacles and solutional forms (karren) associated with several notches and small caves formed at or near the contact between the limestone and the underlying granite (Image 3). The karst landforms in the vicinity of Cave Bay (red box on map 1) and the sinkholes along Fairhaven Road (Blue box on map 1) are listed as Geoconservation sites ID:2254 and ID:2298 in the Tasmanian Geoconservation Database (TGD) accessible on the Tasmanian Natural Values Atlas (NVA.tas.gov.au).




*Map 1: Marshall Bay. The striped area is the mapped extent of the Emita – Memana (BS17) karst according to Kiernan 1995; yellow square is the lease area; red and blue squares highlight TGD sites with notable karst development.*



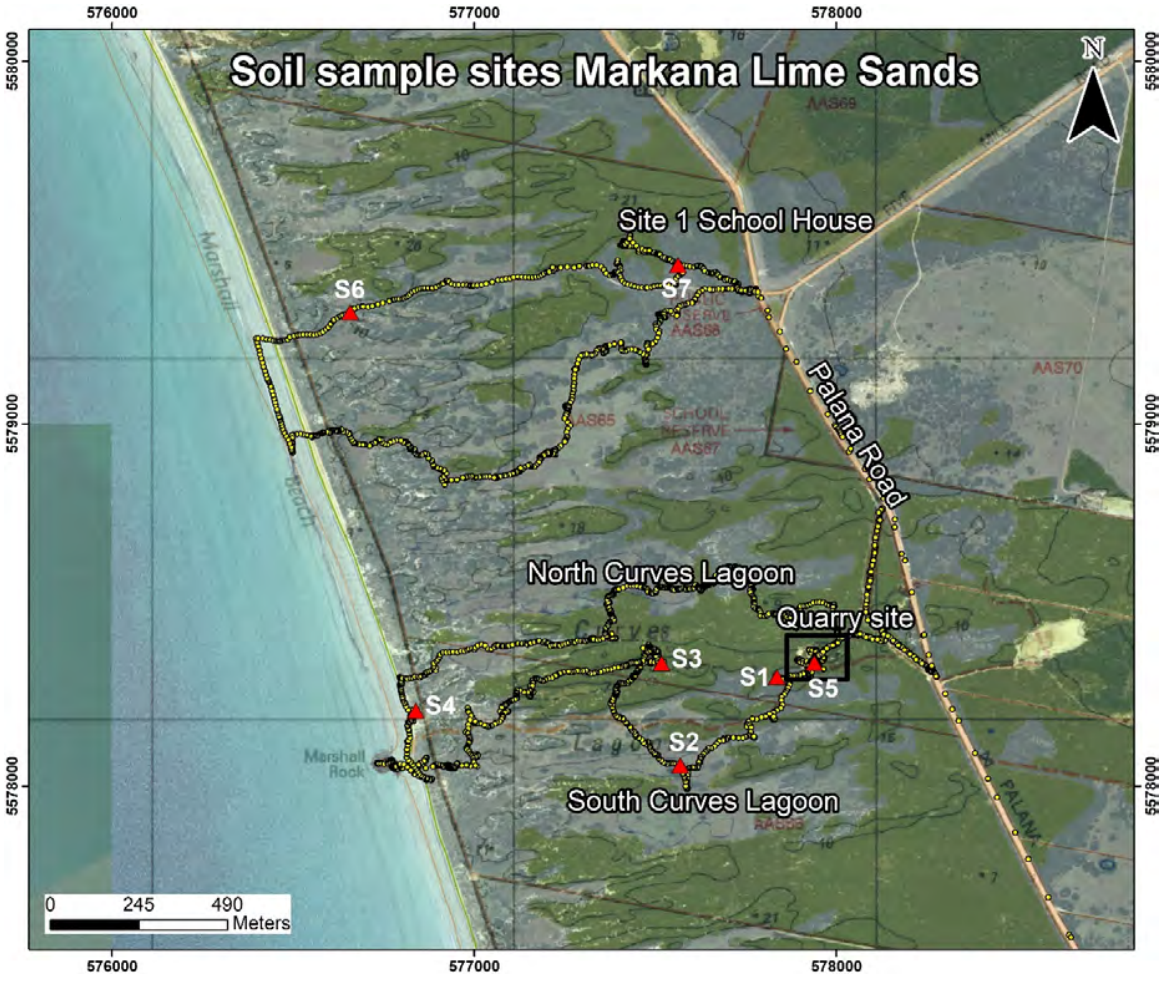
*Image 2: One of a large number of shallow basins (circled) associated with limestone outcrops (foreground and background) in the vicinity of the Palana Road/Fairhaven Road intersection (Map 1). The lack of dune cover and exposed outcrops suggest shallow soils and that these depressions are solution sinkholes associated with a subsurface karst aquifer.*



*Image 3: The Tertiary Limestone at Cave Bay features significant karst landforms including small caves, notches and solutional (karren) surface weathering forms. The area is a listed TGD site and the limestone outcrops are contiguous with the limestone bedrock in the vicinity of the mine lease.*

## 3. METHODS

Observations of the site were made over two days of fieldwork on the 7th and 8th of November 2023. Waypoints and route tracking were recorded using a Garmin Etrex 22s. The route taken during the field work and the location of the soil samples taken are shown in Map 2. Maps were drawn using ARC-Map 10.8.1. Soil samples were taken using an Eijkelkamp auger. A sample for Optically Stimulated Luminescence (OSL) dating was taken from the lower dune horizon in the old pit face. This was done by cutting back and benching out the sand dune before a sample was taken using a PVC tube hammered vertically into a dug bench approximately 5 m below the top of the dune.




*Map 2: Soil sample sites and survey route (yellow tracks) taken during fieldwork.*

# 4. OBSERVATIONS

## BEDROCK GEOLOGY OF THE SITE

### Granite

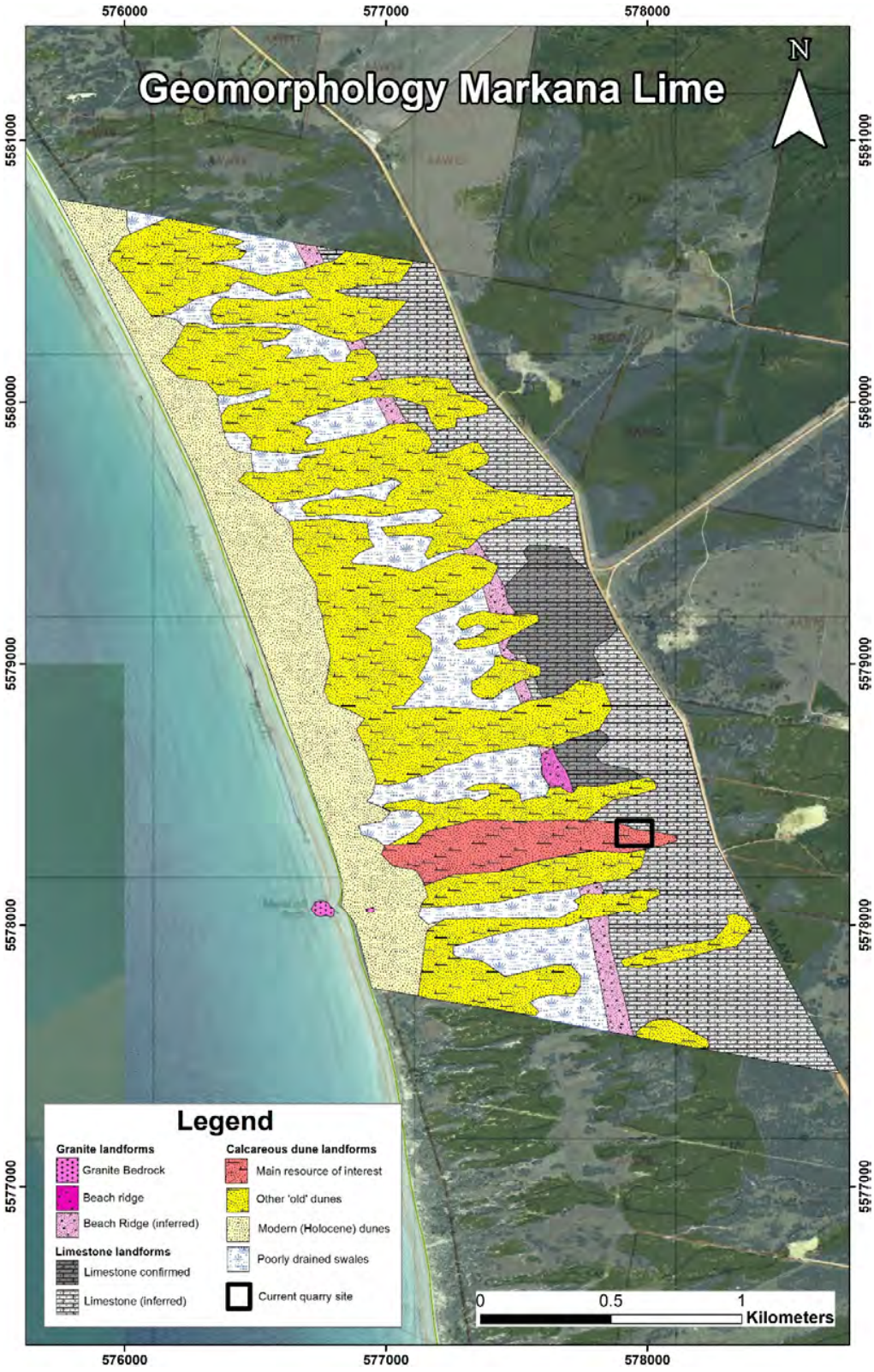
The general geomorphology of the mine lease is presented in Map 3. The Marshall Rock and other granite outcrops located within the sand dunes 150 m to the east of the pit and just within the lease (see Image 1) were visited during the survey. Both are unmapped on geological sheets and feature large, rounded outcrops of white crystalline granite. While the granites are not the focus of proposed operations on the mine lease their presence on the coast and in particularly within the foredunes indicates the likelihood that granite outcrops are present beneath the sand dunes on the property. Granite bedrock rarely forms flat surfaces but rather undulates quite substantially over short distances hence it is impracticable to define the depth of the dunes and further east Tertiary limestones above the granite contact. Exploration could help assess the depth of the lime sands. However, it would be costly over large areas, and possibly yield little additional information.

### Limestone

A continuous flat bench approximately 15 m above sea level is present in the eastern section of the study area. In places this bench is overlain by dune sands. Significant lag deposits of fossiliferous limestone in the form of boulders and cobbles are found on this bench associated with a distinctive open vegetation community in contrast to the thicker vegetation associated with the younger dune sequences (Image 4). The bench appears to be the western edge of the limestone outcrop and its western margin may have once been a shoreline open to Bass Strait. It now forms a paleo-shoreline. Areas of outcropping limestone are very limited as most of the edges of the limestone plain appear to be buried by Quaternary coastal and dune deposits. Only one small in-situ outcrop of limestone was observed at 577509mE: 5579301mS. This was associated with the blowout of a low 1 m tall sand dune.



*Image 4: Flat limestone bench in the east of the property.*




*Map 3: Geomorphology summary map.*

## KARST LANDFORMS

### WEATHERING LANDFORMS (KARREN)

Very minor but sharp solutional karren weathering forms were located at the larger limestone outcrop (Image 5) and other smaller blocks in the area but no significant solutional karst landforms were observed.



*Image 5: Small limestone outcrop*

### SINKHOLES

Large, elongated depressions are a feature of the property. Some of these are large enough to have warranted definition as enclosed basins on the 1:25,000 topographic map sheets of the area and the largest are defined as lagoons (e.g. Curves Lagoons to the immediate south of the proposed resource). These depressions are elongated. They are not flat floored but have rather undulating forms. Although a small intermittent pond appears to be present in the lowest basin of the northern Curves Lagoon, elsewhere flowing and pooling surface water appears to be very limited; surface water accumulation may be confined to times of intense rainfall. In contrast to enclosed rounded basins associated with limestone bedrock, outcrops interpreted to be probable sinkholes have been described by the author and others near the Palana Road/Fairhaven Road intersection and further south in paddocks north of Trousers Point. The depressions at the study site appear to be all related to either broad west-east oriented interdune swales or (closer to the coast) roughly square

depressions developed behind the active Marshall Beach foredune complex. Depressions of conclusive karstic origin were not identified and are considered unlikely to be present within the study area.

### SPRINGS

No obvious streams or springs were located on the property. A possible very small spring rises from beneath Marshall Beach immediately east of Marshall Rock. Here at low tide a small stream flows for approximately 20 m to the ocean, dropping 20–40 cm in altitude. The scale and location of the spring does not imply karstic drainage in the Tertiary limestone several hundred meters inland but rather small-scale subsurface drainage out of the local beach-bordering Holocene dunes. The lack of surface streams is interesting as there are no inlets or obvious streams entering the ocean for the length of Marshall Beach between the outflow of Arbothnots Lagoon to the south and a small inlet to the north at 574850mE: 5582000mN. A series of disappearing stream channels are mapped in the limestone hills southeast and northeast of the study area. The absence of defined stream channels flowing off the limestone in the area does suggest subsurface drainage is occurring in karst.

### SUMMARY OF KARST LANDFORMS

An extensive Tertiary dune limestone bench is present in the eastern section of the study area. This bench is overlain in locations by the Quaternary dunes and has open predominantly *Leptospermum laevigatum* dominated forest. The lack of streams (and channels) flowing from the higher limestone hills to the east of the property may indicate that a karst aquifer is present in the area. However, no obvious springs were noted. No sinkholes were observed on the property, and as the largest limestone outcrop observed covered only a few square meters, caves are unlikely to be present in the priority study area. However, the author did not cover the entire mining lease and LiDar coverage is not available for the area so the presence of isolated karst landforms including bedrock bluffs with karren, sinkholes or small caves cannot be entirely ruled out.

### OLD BEACH RIDGE

North Curves Lagoon is a large dune swale basin. It is surrounded to the west, south and north by Quaternary and Holocene dune ridges and to the east by the low Tertiary limestone bench. On the eastern margin of the basin at 577625mE: 5578543mN approximately 6–10 m above sea level (asl) white sandy gravels are exposed (Image 6). These are not typical fine sands associated with the beach ridges in the area but are rounded coarse quartz sands that appear to mantle the lower western slopes of the limestone bench. The quartz-rich nature of the sediments suggests two potential sources

1. That granite bedrock is shallowly buried in the vicinity of the eastern end of north Curves Lagoon and the soils at the site are primary granitic soils (known as gruss) formed from weathered granite.

2. That the coarse quartzite sands that contain some shelly carbonate fragments carbonate were deposited on the western edge of the limestone bench in a high energy coastal environment (surf beach).

The latter explanation appears to be more likely as no granite bedrock was observed at the site. It can be assumed that the coastline of Bass Strait was once a high energy environment supplied with coarse sands sourced from offshore granite outcrops such as Marshall Rock or reworked sands from upslope granite sources east of Palana Road. The presence of this beach ridge indicates that the coastline has prograded (advanced) >900 m to the west while becoming a lower energy environment. Given the altitude of the beach it appears likely that it could have formed during the penultimate interglacial high stand, approximately 130,000 years ago when sea levels were 6-8 m higher than today. The presence of granitic soils in this area defines the northern margin of the economic resource in lime-rich dune sands to the south. It is likely that the beach ridge extends beneath the overlying Quaternary carbonate-rich sand dunes, as the dunes appear to have formed over the top of the older granite sands and Tertiary limestones in the east of the property. If this is the case a contact between the carbonate sand resource and the quartz sands may be encountered during mining.



*Image 6: Beach ridge composed of quartzite gravel sands (inset) derived from granite bedrock immediately east of North Curves Lagoon.*

## SAND DUNES

Extensive sand dunes cover most of the mining lease. Except for the granitic sediments east of North Curves Lagoon described on page 8, the sand dunes are composed of fine-grained white quartz and carbonate deposits. Two significant sand dune assemblages are present. In the west are the modern foredune and back dunes behind Marshall Beach. Inland are a series of elongated west-to-east trending parallel dunes that rise up to 24 m above sea level.

These inland dunes are largely vegetated and stable in comparison to the foredunes that have fewer woody and tree species, instead being dominated by grasses, herbs, wind-pruned shrubs and sedges. The coastal foredunes climb onto the older dunes but can be broadly demarcated by their hummocky forms and presence of sand blow-outs that contrast to the more elongated uniform stabilised ridges of the older dunes.

### MAIN DUNE

The 1:25000 topographic map of the main dune (resource) shows a single large dune approximately 180 m wide and 10–25 m high. Two large internal depressions are present west of the current sand pit. The actual landscape is more complex than the contours suggest with at least 8 dune crests identified between North Curves Lagoon and South Curves Lagoon. The dune ridges have narrow rounded tops and steep side slopes, generally >30°. The multi-peaked nature of the dune ridges and the deep wide interdune swales are not well expressed on the 1:25000 topographic map.

The existing pit is located near the narrowest and easternmost part of the dune sequence. Here past pit operations have exposed a cutting through the main dune that has some scientific interest as described in the next section of this report.

### EXISTING PIT

The existing pit is located at 577936mE: 5578343mN, 350 m west of Palana Road and is accessible by an overgrown FWD track. The pit exposes a 75 m wide section through the eastern limb of the main dune. Most of the exposure is either overgrown or of limited interest. The floor of the pit appears to be in solid Tertiary limestone bedrock. Some of the floor material could have been brought in by past operations to provide a solid working base. The best exposure through the dune is on the upper southern face of the pit where an approximately 5.5 m deep section is exposed. A modern topsoil and two buried paleosols are exposed in this face while calcified tree roots (rhizoliths) and branches are present within the dune below the lower of the two paleosols. The dune profile was described and photographed (Table 1 and Image 7) and samples were taken from the main horizons.

**Table 1. Description of soil profile at the pit site.**

| Unit 1 | Depth (cm) | Description |
|---|---|---|
| **1** | **0 – 20** | Grey sandy topsoil with abundant modern root mats |
| **2** | **20 – 95** | Yellow sands with abundant animal burrows |
| **3** | **95 – 110** | Dark grey / brown horizon in sands – paleosol 1 |
| **4** | **110 – 260** | Light yellow to white sands |
| **5** | **260 – 280** | Grey / Brown horizon laterally extensive and forming a stratigraphic bench – paleosol 2. |
| **6** | **280 – 550 (approx.)** | White sands, predominantly carbonate; prominent surface carbonate cementation highlighting stratigraphic beds, calcified tree root and possible calcified small tree stump. |
| **7** | **Pit Floor** | Fossiliferous limestone (Tertiary) |




*Image 7: Annotated view looking east over the southern wall of the old pit showing dune and paleosol horizons.*

## PALEOSOLS

The term 'paleosol' refers to a buried soil horizon within a sedimentary profile. Paleosols are darker band of sediment which may or may not contain woody debris, organic matter and charcoal surrounded by lighter and less charcoal-rich sediments. Paleosols can be important indicators of past stability between depositional events. In this case organic topsoils (indicating stability) have been buried by a non-organic deposits (sand dunes). Two prominent paleosols are present in the exposure. The upper paleosol 1 (Image 8) lies between 95 cm and 115 cm depth and forms a prominent but laterally patchy dark brown organic-rich layer in the upper dune profile. The lower paleosol at 260 cm depth is a thinner and lighter compact sand unit that appears to not be as organic rich. However, this paleosol is laterally extensive and forms a prominent grey bench on the mid slope of the cutting. In the case of the dune systems the presence of paleosols indicates a substantial time of dune stability, allowing an organic topsoil to form prior to renewed dune instability resulting in topsoil burial. At the pit site at least three periods of dune stability can be inferred as indicated by the two buried paleosols and the darker modern topsoil associated with thick root mats on the crest of the dune.



*Image 8: Top 1.5 m of the pit face showing prominent brown paleosol at about 1 m depth.*

## RHIZOLITHS

A feature of the main pit exposure is the rhizoliths located in Unit 6 of the profile (Table 1; Images 9 and 10) formed by dissolution of carbonate by percolating water and its subsequent precipitation around roots.

Rhizoliths observed at the pit include narrow straw-like tree root rhizoliths up to 20 cm long and 1–5 cm across many of which still contain inner woody root material and larger cylindrical-shaped rhizoliths up to 30 cm long and 15 cm thick, which may have formed around tree branches. Small columns are present at other locations in locations suggesting calcification of the stumps of *Melaleuca* and other small trees found at the site.





*Images 9 and 10: Tree root rhizoliths exposed in the lower dune horizon in the pit face. These rhizoliths form from leached calcium carbonate which has precipitated around rough surfaces such as tree roots.*

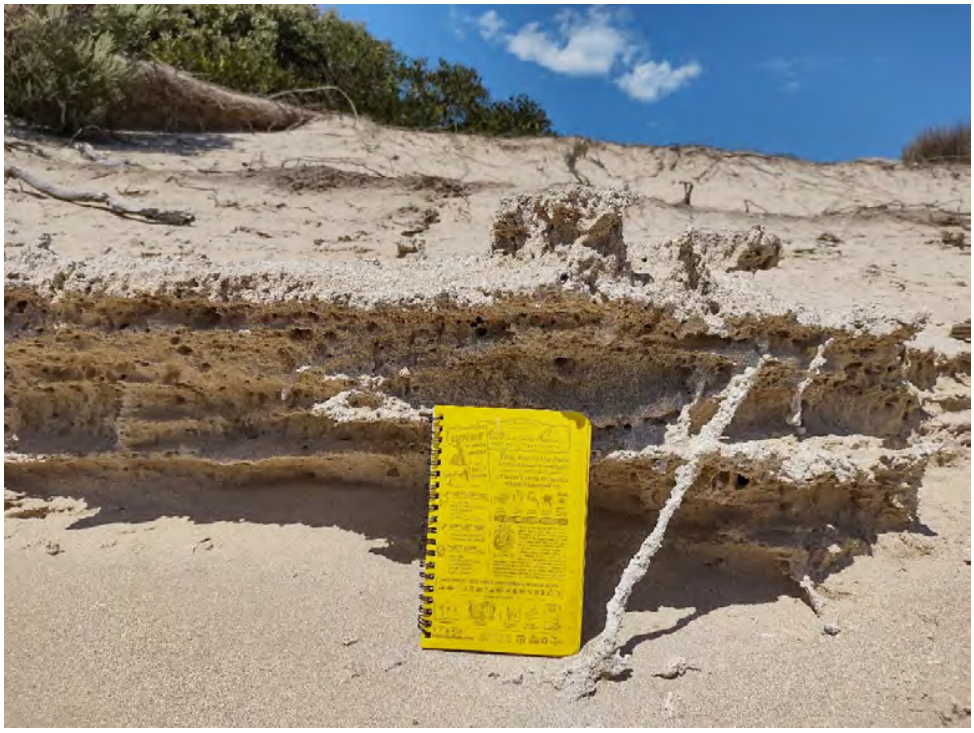


*Image 11: Small carbonate benches have formed in the lower dune horizon but unlike the rhizoliths appear to have formed since the pit last operated.*

The cut sand bank also features several distinct carbonate layers (poorly developed calcretes) that indicate slight differences in the carbonate content of the sand dune horizons (Image 11). These layers stand out as hard surfaces in the dune but on cutting back the surface exposure no stratigraphic difference was noted between these layers and those above and below (Image 12). It was concluded that these layers form by surface hardening by carbonate precipitation on the exposed surface since sediment exposure by past pit operations.



*Image 12: A cut through the weakly developed calcrete on the cut surface of the pit revealed compact fairly uniform bedded sands.*

## DATING

A sample for Optically Stimulated Luminescence (OSL) dating was taken from a freshly cut bench in the lowermost dune unit, 1.5 m below the lower paleosol (Images 13 and 14). This sample will be submitted to the OSL laboratory at the University of Wellington (New Zealand) for dating. The date will provide a maximum age for the formation of the lower paleosol and will help establish whether the dunes formed during glacial or interglacial periods.



*Image 13: Taped transect of the face from the top of the dune horizon to the sample site for OSL dating on the cut bench. Image 14: The sample was taken by hammering a sample tube into the cut bench vertically and then removing the sediment for extraction.*

## MODERN (LATE HOLOCENE DUNES)

Modern dune ridges run parallel to Marshall Beach for the length of the mining lease. They consist of an almost continuous elongated beach foredune backed by a complex of hummocky back dunes separated by roughly bowl-shaped dune swales (depressions). At the western margin of the main resource area these dunes intercept the older west – east longitudinal dunes considered above. The modern dunes are composed of fine loose sands with no evidence of significant calcite crust or rhizolith development; however the carbonate content of the dunes is high. No paleosols were observed in these dunes but thin buried soil horizons may be present. The lack of calcite cementation in the modern dunes suggests a significantly younger age for these deposits as may be expected from their near-coastal setting. Cuttings through the coastal foredune and a low back dune deposit on the main central access track were investigated. The coastal foredune (beach dune) was exposed in a blowout (Images 15 and 16) and displays a uniform profile composed of unconsolidated loose sands. The inland back dune was exposed where the access track cuts through the dune (images 17 and 18). The dune has three horizons: a slightly brown upper 55 cm: a white layer at approximately 55–70 cm and a yellowish layer at >70 cm depth. The profile development indicates a period of dune stability possibly extending back ~1000 years. The brown upper layer is an A1 horizon. The middle white layer is a leached A2 horizon. The deeper yellowish zone is a B horizon. Inappropriate track development and other activities associated with operations on the mining lease could lead to re-activation of these young dunes, which are more exposed to coastal winds than dunes further inland.



*Image 15: Steep modern Marshall Beach foredune looking south from Marshall Rock.*



*Image 16: Natural windblow exposure through the foredune at soil sample site 6 map 2.*



*Image 17: The modern semi-stabilised back dune.*



*Image 18: The dune has a similar composition to the active foredune however has been stabilised for some time as a soil profile has developed.*

## SOIL SURVEY

Soils were sampled and bagged for transport from several locations in the vicinity of the main resource deposit (Map 2). Soils were sampled at depths of 30 cm, 50 cm and where possible 1 m using either natural cuttings or the Eijkelkamp soil auger. This was to identify any unusual characteristics of the soils and to sample for laboratory assessment of soil acidity (pH). pH was measured after shaking soils and water (1:25 ratio) and allowing the mixture to stand for 2 hours A Milwaukee MW 100 pH meter was used, calibrated at the time of analysis using standard solutions at pH 4 and pH 7.

### Dune swale: Site 1

The centre of a low dune swale southwest of the pit was augered. Soil samples at 30 cm and 50 cm depth were taken from this site. No peat deposits were noted.

### South Curved Lagoons Dune swale 2: Site 2

Soils were augered at the lowest point of South Curved Lagoons on a marsupial grazed lawn that appears to hold water at times forming a small pond. The upper 30 cm and 50 cm samples contained yellow white carbonate sands while dark brown swampy organic rich lacustrine sediments were encountered below about 80 cm.

### Dune Swale 3: Site 3

The deepest part of the large dune swale that is visible on topographic maps (as an enclosed depression) was sampled at depths of 30, 50 cm and 1 m. The entire profile displayed fine white sands beneath a slightly browner topsoil and no sign of dark organic horizons or peat.

### Modern active foredune Site 4:

A grab sample of a cutting in an active foredune exposed in a blowout was sampled at approximately 2.5m depth in a uniform unconsolidated sand with no topsoil.

### Main dune exposure: Site 5

Grab samples were taken of the upper dune deposit, Paleosol 1, middle dune deposit, paleosol 2 and the lower dune deposit (Image 7).

### Modern (Holocene) back dune Site 6

Three samples were taken from a track cutting through a low dune in the Marshall Beach back dune complex.

### Limestone Bench Site 7

Two samples were taken from a thin soil developed on the Tertiary limestone bench.

## pH RESULTS

The results of the pH analysis are presented in Table 2. Results for all samples indicated alkaline soil conditions with no indications of highly acidic soil horizons or acid sulphate soils being present in the vicinity of the proposed mining operations. The samples varied in pH between 7.4 and 8.6 with most soils sampled being classified as moderately to strongly alkaline (Blakemore et al. 1987). The topsoil at the large interdune swale (Site 3) returned a

pH of 7.4 that classifies as slightly alkaline (Acid soils have a pH of below 6.5 with strongly acidic soils having pH of <5.2 (Blakemore et al. 1987)).

**Table 2. Results of pH determinations**

| Site | Description | Depth | pH |
|---|---|---|---|
| **Site 1** | Small swale in older dune Southwest of Pit Face | 30 cm | **8.1** |
| | Small swale in older dune Southwest of Pit Face | 50 cm | **8.2** |
| **Site 2** | Lowest point of South Curves Lagoon | 30 cm | **8.0** |
| | Lowest point of South Curves Lagoon | 50 cm | **8.0** |
| | Lowest point of South Curves Lagoon – Organic brown muds | 100 cm | **7.7** |
| **Site 3** | Lowest point of large elongate dune swale brown topsoil | 30 cm | **7.4** |
| | Lowest point of large elongate dune swale - gradational | 50 cm | **7.9** |
| | Lowest point of large elongate dune swale – white sands | 100 cm | **8.4** |
| **Site 4** | Holocene Foredune | ~250 cm | **8.0** |
| **Site 5** | Course quartz rich sands (rocky base) | 30 cm | **8.2** |
| | Course quartz rich sands | 45 cm | **8.3** |
| **Site 6** | Main Pit profile – Upper sand unit | 60 cm | **8.5** |
| | Main Pit profile – Paleosol 1 | 100 cm | **8.2** |
| | Main Pit profile – Middle sand unit | 120 cm | **8.3** |
| | Main Pit profile – Paleosol 2 | 270 cm | **7.8** |
| | Main Pit profile – Lower sand unit (dating sample site) | 430 cm | **8.1** |
| **Site 7** | Holocene dune – Upper topsoil | 15 cm | **8.3** |
| | Holocene dune – Gradational soil (A2) | 60 cm | **8.3** |
| | Holocene dune – Lower yellow / white sands | 95 cm | **8.6** |
| **Site 8** | Shallow limestone soil profile | 30 cm | **8.1** |
| | Shallow limestone soil profile (rocky base) | 50 cm | **8.1** |

The high pH values obtained from the soil samples indicate an alkaline environment where extensive acidic soils are unlikely to be present. The reason for this is that the entire region is buffered by the abundance of dissolved calcium carbonate within the soil profiles and sand dunes and the underlying Tertiary limestone. Low pH conditions are usually associated with deep organic soils or forested areas. While topsoil development is present within the dune fields, they are weakly developed and do not have a significant organic component capable of producing acidic soils, particularly in a carbonate dominated environment. This can be clearly seen by the gradation of pH in the site 3 dune swale samples (Table 2). Here weakly developed topsoil has a pH of 7.4 and pH rises to 7.9 at 50 cm and 8.4 in the white dune sands at >80 cm.

It is notable that although both the site 2 dark organic soil at 100 cm in South Curves Lagoon and the granite-derived soils at site 5 are in locations that should potentially have low pH soils at neither site do pH values drop below pH 7. This is due to the abundance of carbonate in the environment. The lack of deep well-developed topsoils indicate that since the dune formation wet forests or large eucalypt dominated forests may have never been present in this dry landscape. Although the Holocene dune (site 7) clearly shows a period of stability and soil development, the soil is thin and low in organic content. It is notable that at the main pit face (site 5) the two paleosols are also poorly developed and show very limited changes in pH. Previous eucalypt forest cover at these sites is unlikely.

# 5. SUMMARY AND MANAGEMENT RECOMMENDATIONS

## SCIENTIFIC VALUES

The dune field within the study site is a landscape of geoscientific interest which can be and should be managed appropriately to limit the footprint of any extraction activities. The main dune resource identified for extraction under the current development application (not the entire mining lease) is actually a series of up to 8–10 dunes formed between South and North Curves lagoons mapped on the 1:25000 map sheets of the area. Two dune ridges rising to altitudes of around 24 m asl are dominant in the centre of the resource site. The dune ridges have steep profiles and sharp crests indicative of their fairly young age. A central deep elongate depression (mapped as a sinkhole on topographic maps) is a dune swale around 15 m deep. The large dunes and their lower-relief companions (generally 2–4 m high) are oriented west-to-east across the lowland plain. On the eastern margins of the study area they climb onto a bench of Tertiary limestone. The existing pit is near the easternmost end of the two main dunes which at this location have combined into one ridge.

The current face of the old pit provides an interesting profile of dune stratigraphy and is of local scientific interest as it provides evidence of the history of formation of the dunes in this part of Flinders Island and could potentially be used to indicate paleoclimate conditions prevalent on the Island. While this is an interesting exposure, many of the other unimpacted dunes in the region are likely to host similar paleosols and rhizoliths and therefore the features of the pit face are likely to be fairly common within the landscape. The exposure is only visible because of past sand mining operations and has been photographed, sampled and described during this study. Obscuring of the exposure by erosion and tree overturn means that this exposure has a limited lifetime; formal preservation of this site is likely to be impractical.

Resumption of sand mining extending west from the current pit face will destroy and remove the studied deposits but equally it is likely that the mining activities will expose further paleosols and tree root and stump rhizoliths in the sand dune. There is also a remote potential for archaeological deposits to be found within the dune particularly owing to its carbonate-rich nature which is conducive to preserving organic material such as bones (e.g. there is a possibility that large bones associated with megafauna could be exhumed as could ancient human remains or evidence of occupation (fire hearths etc)). Therefore, I suggest that contractors keep an eye out for unusual deposits or large bones during operations. In summary I recommend the following:

Contractors should look out for:

- Thick dark continous bands within the dunes.
- Buried tree stumps or large calcareous deposits that appear to be parts of a tree.
- Stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand.

- Large accumulations of shells.
- Large bones and accumulations of smaller bones buried >1m under he surface.

In the event notable examples of these deposits are encountered the first task should be to photograph the area and move operations away from the immediate working face until a suitably qualified person (in the context of the item/items discovered) can assess any values.

## KARST MANAGEMENT (GENERAL)

While bedrock Tertiary Limestone is present in the east of the mine lease no karst landforms apart from very minor surface solution sculpture (karren) landforms have been identified during this survey. Given the extensive nature and relief of the limestone on the hills east of the mining lease subsurface water flow through karst aquifers is likely but significant karst landforms are unlikely to be present. In the absence of evidence for significant karst formulation of mitigation measures is unnecessary.

### SINKHOLES

It is difficult to differentiate shallow sinkhole depressions from dune swales and this is particularly so in the area of the mining lease. However, all the depressions noted were identified as dune swales so I do not believe they should be treated as karst.

Collapse sinkholes form steep sided depressions and are a sign of significant active karst erosion. In the event a steep sided depression forms during operations work should stop at this location and the area should be avoided during operations until expert advice is obtained. Collapse sinkholes can occur in random locations and are potentially hazardous to machinery and the environment as they may continue to expand following the initial collapse and could indicate changes in subsurface karst aquifer conditions.

### CAVES

While highly unlikely, if any caves are located within the sand dune or in the mining lease, operations should avoid the area, advice from a suitably qualified person should be obtained before operations resume.

**Karst recommendations**

- In the event a steep sided depression forms during operations that has signs of collapse these should be recorded and avoided during operations until expert advice is obtained.
- In the event a cave is located on site operations should avoid the area and seek expert advice.

## EROSION RISKS

Blowouts of the coastal dunes backing the beach are quite common within the mine lease area. However, away from the coast most of the larger dunes appear to be stable. The blowout on the southern edge of the pit face has resulted in minor sand deposition and tree burial south of the highest point of the dune (Image 19). The current location of the pit in the leeward side of the main dune reduces the ability of westerly winds to significantly erode the exposed sands in the pit through deflation, although some loss of sand by wind deflation is likely to have occurred (and may still be occurring). There is a risk that once the operations extend to more of a windward face of the dune, dominant westerly winds may deflate (erode) the dune. This could lead to loss of resource and transport of the sediment. Maintaining a high vegetation cover above the working face and active efforts to revegetate the site away from the working face are key to minimising wind erosion. While easterly winds are common on Flinders Island, they are generally less strong than the westerly winds as evidenced by the strongly deformed vegetation caused by westerlies present at exposed locations on the mining lease (Image 20). Also, easterly winds are generally linked to low pressure systems in the Tasman Sea and rainfall, the wet conditions act to stabilise sand dunes and inhibit wind deflation. Deflation of the sand towards the Marshall Beach Conservation area to west of the proposed pit appears to be unlikely.

**Recommendations to minimise wind erosion.**

- Avoid, if possible, but otherwise minimise working on faces exposed to westerly winds.
- Maintain vegetation above and to the west of any active face
- Re-establish vegetation on a progressive basis, this could include stockpiling cleared tea tree for covering exposed surface as operations progress.



*Image 19: Sand blow deposition burying tree trunks immediately south of the old working face of the sand pit.*



*Image 20: Vegetation growth strongly impacted by the dominant westerlies.*

## SOIL MANAGEMENT

Well drained soils in the area of the Markarna lime sands mining lease in the vicinity of the main proposed resource are strongly alkaline Calcarosols. Acidic soils are unlikely to be present over extensive areas and may be totally absent. While organic topsoils, buried paleosols and lake/swamp sediments are present, none of these soils contain adequate organic material to significantly reduce the pH within the dune sands. However, it should be noted that this survey was not comprehensive, and it is possible that the some swampy depressions could host thicker organic horizons having a lower pH. These horizons however will not be directly impacted by sand mining of the high-relief dune ridges.

## WETLANDS

The extent of wetlands at both North and South Curves Lagoons are significantly smaller than indicated on the topographic map and the TASVEG mapping. Significant areas of these features are undulating grassy dune fields. No wetlands (swamps) as defined by the Forest Practices Code 2020 (Forest Practices Authority 2020, page 98) were documented in the main resource area.

## 6. REFERENCES

Blakemore, L. C., Searle, P.L. and Daly, B.K. 1987. *Methods for chemical analysis of soils*. NZ Soil Bureau Scientific Report 80, NZ Soil Bureau. Department of Scientific and Industrial Research Lower Hutt, New Zealand 103 pp.

Forest Practices Authority 2020, *Forest Practices Code*, Forest Practices Authority, Hobart, Tasmania.

Kiernan, K. 1995. *An Atlas of Tasmanian Karst Volume 2*, Research Report No.10. Tasmanian Forest Research Council, Inc. p.270-271

Mineral Resources Tasmania. 2023. 1:250,000 Geology Data and Maps. Record View (thelist.tas.gov.au) accessed 30 November 2023

Natural Values Atlas, Geodiversity, Cave Beach Karren and Caves. https://www.naturalvaluesatlas.tas.gov.au/#GeositePage:2254 accessed 27 November 2023

Natural Values Atlas, Geodiversity, Emita Dolines. https://www.naturalvaluesatlas.tas.gov.au/#GeositePage:2298 accessed 27 November 2023

**ATTACHMENT 10. SITE ANALYSIS AND SITE PLANS**

Annexure: 16.2.3

# MARSHALL BAY SAND PIT

## SITE ANALYSIS AND SITE PLANS




**LOCALITY MAP**
SCALE: N.T.S.

### DRAWING LIST

| | DRAWING NO. | REVISION | DESCRIPTION |
|---|---|---|---|
| 1 | VDC/MSP/A/101 | 1.0 | COVER PAGE |
| 2 | VDC/MSP/A/102 | 0.0 | SITE LAYOUT - PAD AREA AND SITE ENTRANCE |
| 3 | VDC/MSP/A/103 | 0.0 | IMMEDIATE EXTRACTION AREA |
| 4 | VDC/MSP/A/104 | 0.0 | ON-SITE WASTEWATER SYSTEM |
| 5 | VDC/MSP/A/105 | 0.0 | PROPOSED SHED |
| 6 | VDC/MSP/A/106 | 0.0 | LIGHT VEHICLE PARKING BAY |
| 7 | VDC/MSP/A/107 | 0.0 | SWEPT PATH ANALYSIS FOR RIGID TRUCK |
| 8 | VDC/MSP/A/108 | 0.0 | SWEPT PATH ANALYSIS FOR LIGHT VEHICLE |
| 9 | VDC/MSP/A/201 | 0.0 | TITLE BOUNDARIES AND MINING LEASE |
| 10 | VDC/MSP/A/202 | 0.0 | SETBACKS FROM EXTRACTION AREA TO TITLE BOUNDARIES |
| 11 | VDC/MSP/A/203 | 0.0 | SETBACKS TO THE SHED AND PARKING BAY |
| 12 | VDC/MSP/A/204 | 0.0 | EXISTING SURROUNDING PROPERTIES AND USES |
| 13 | VDC/MSP/A/205 | 0.0 | SITE SOIL CONDITIONS AND SURROUNDING GEOLOGY |
| 14 | VDC/MSP/A/301 | 0.0 | TOPOGRAPHY AND HYDROLOGICAL FEATURS |
| 15 | VDC/MSP/A/302 | 0.0 | NATURAL HAZARDS - SULPHATE SOILS AND INUNDATION |
| 16 | VDC/MSP/A/303 | 0.0 | NATURAL HAZARDS - BUSHFIRE AND LANDSLIP |

### LEGEND

- MINING LEASE
- DEVELOPMENT AREA
- EXTRACTION AREA (APPROX. 30 YEAR SUPPLY)
- EXISTING (DISUSED) PIT
- PROPOSED MINING BLOCKS
- DIVERSION CHANNELS / DRAINS
- STORMWATER FLOW DIRECTION
- CADASTRAL PARCEL BOUNDARIES

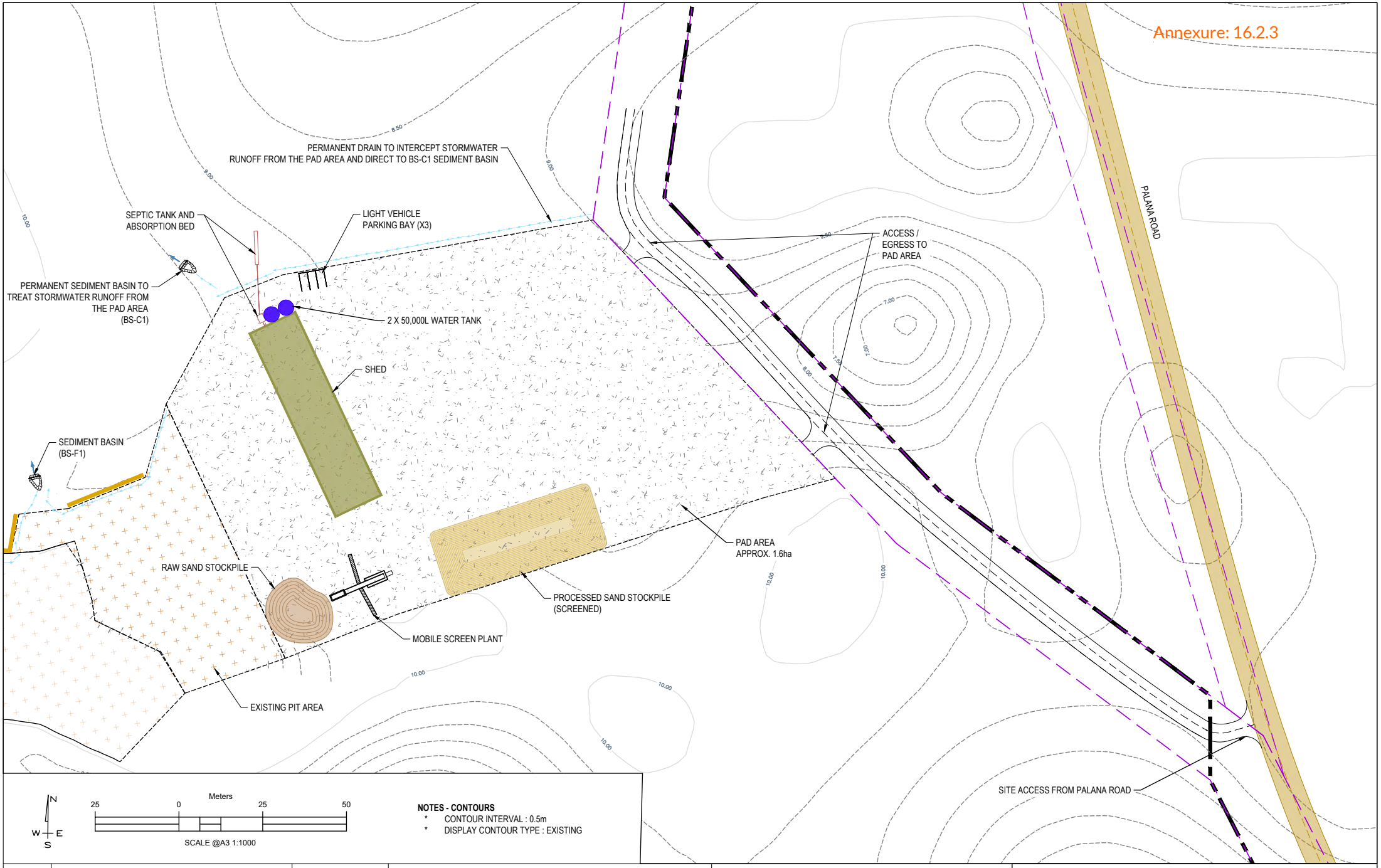
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| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

**SITE LAYOUTS AND VEHICLE SWEPT PATH ANALYSIS**

DRAWING NUMBER: VDC/MSP/A/101

Van Diemen CONSULTING

AGENDA Ordinary Council Meeting - 27 May 2026 Attachments




**NOTES - CONTOURS**

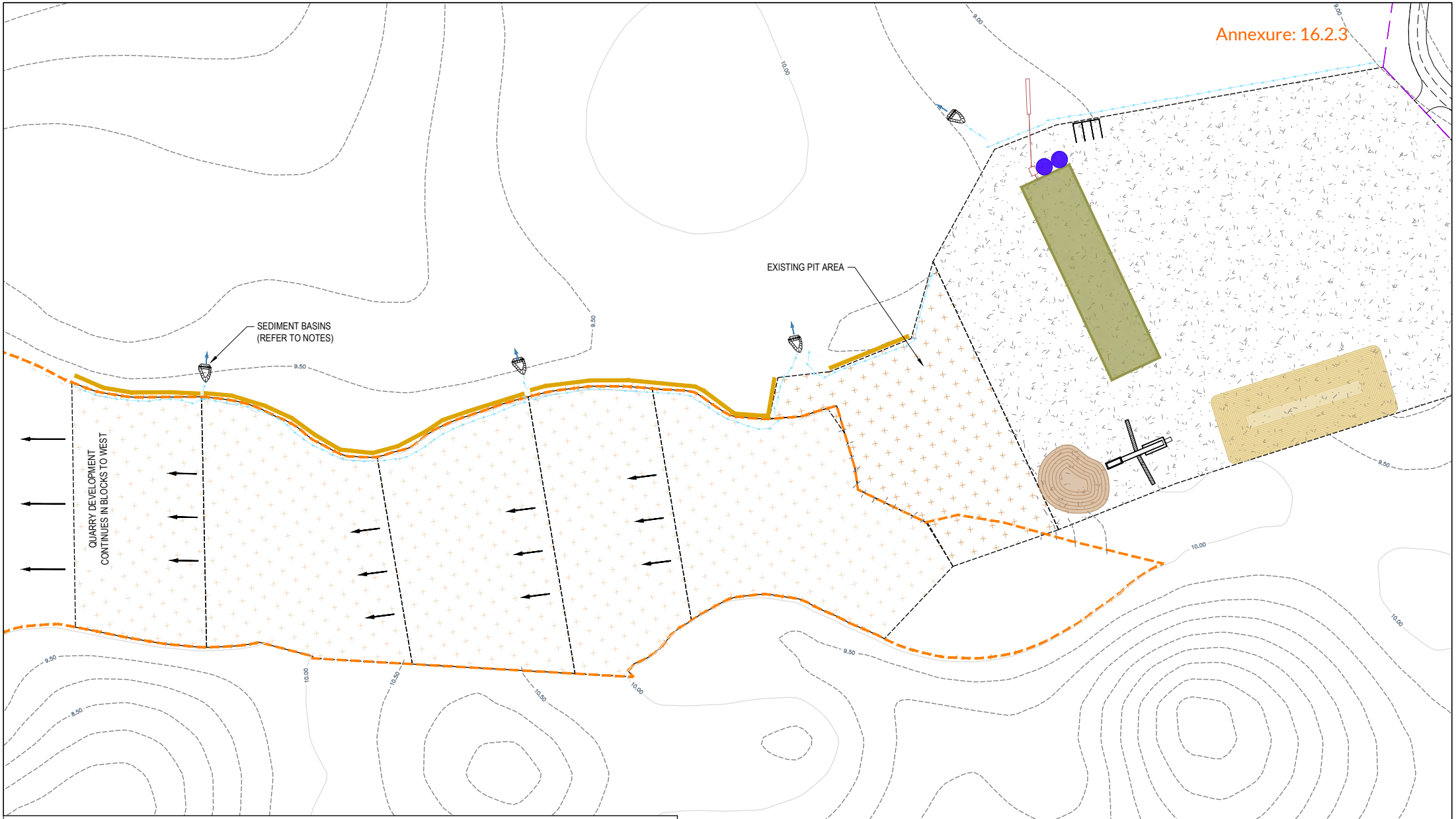
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| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

# SITE LAYOUT - PAD AREA AND SITE ENTRANCE

DRAWING NUMBER: VDC/MSP/A/102

Van Diemen CONSULTING




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SCALE @A3 1:1000

**NOTES - STORMWATER AND SEDIMENT CONTROL STRUCTURES**

* REFER TO DRAWING NUMBERS VDC/MSP/A/001 - VDC/MSP/A/004 FOR STORMWATER AND SEDIMENT CONTROL STRUCTURE DETAILS

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| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
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| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

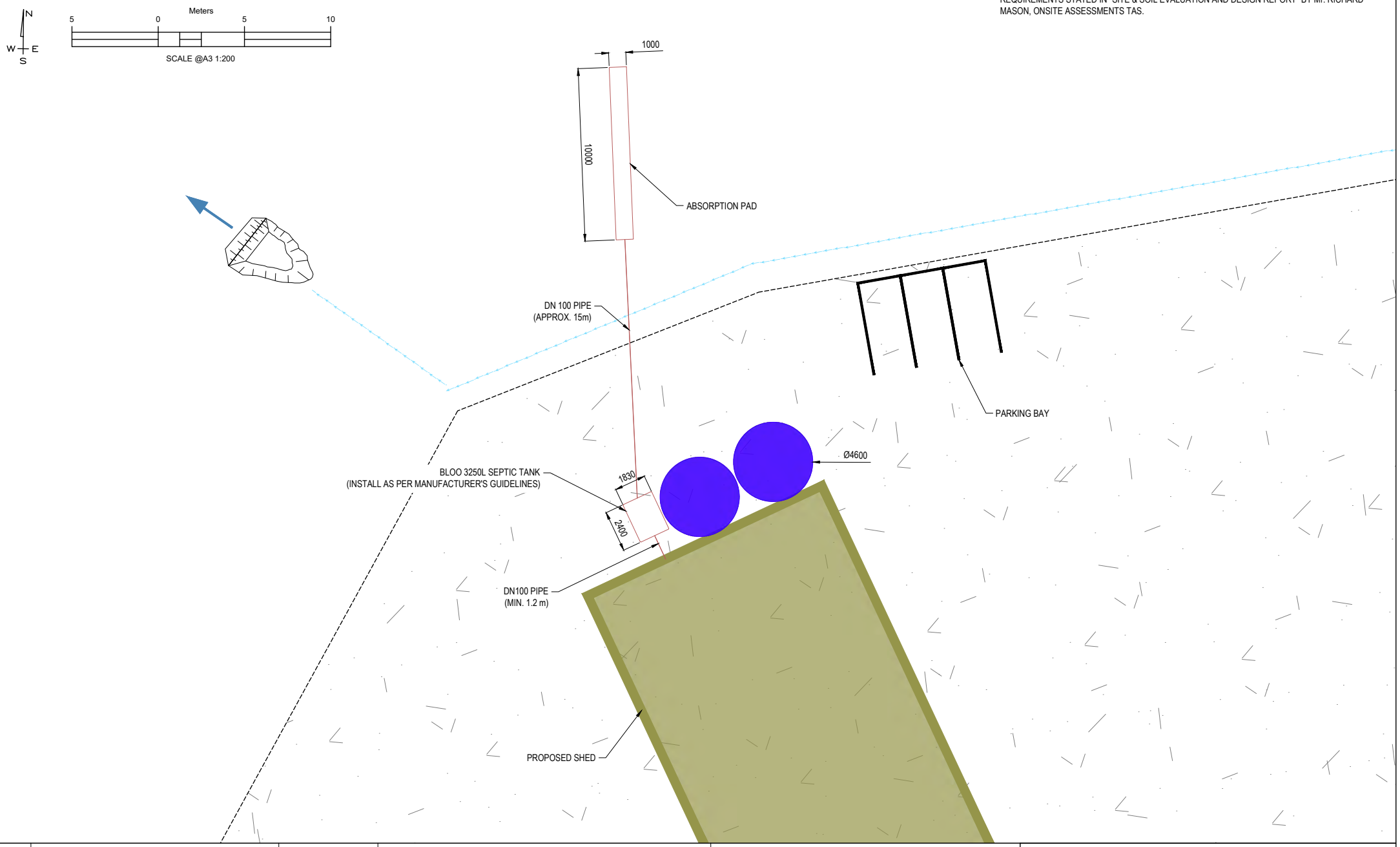
# IMMEDIATE EXTRACTION AREA

DRAWING NUMBER: VDC/MSP/A/103

Van Diemen CONSULTING

**NOTES**

* ONSITE WASTEWATER MANAGEMENT SYSTEM MUST BE CONSTRUCTED AS PER THE REQUIREMENTS STATED IN "SITE & SOIL EVALUATION AND DESIGN REPORT" BY Mr. RICHARD MASON, ONSITE ASSESSMENTS TAS.

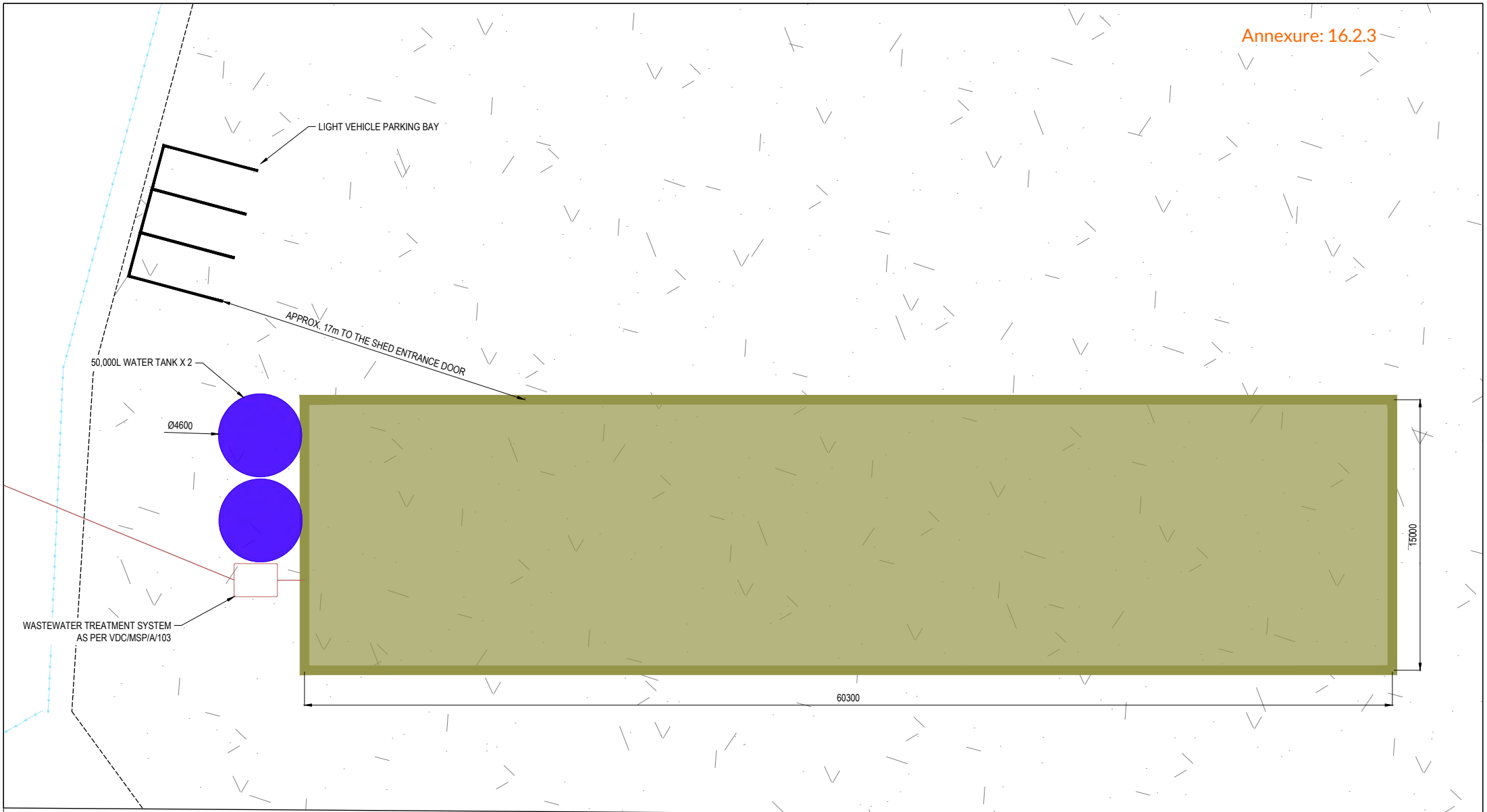



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| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

# ON-SITE WASTEWATER MANAGEMENT SYSTEM

DRAWING NUMBER: VDC/MSP/A/104

Van Diemen CONSULTING




Meters
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SCALE @A3 1:200

**NOTES**

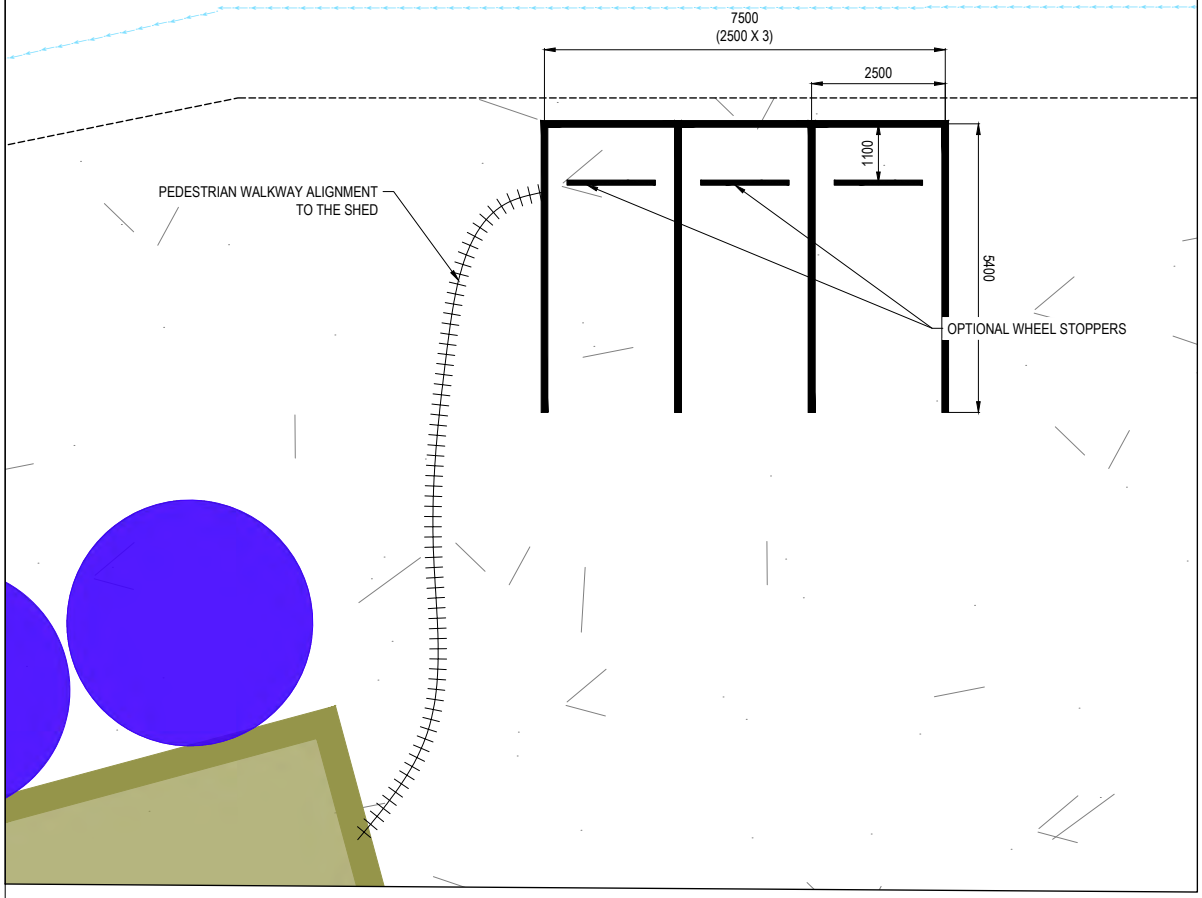
* REFER TO ATTACHMENT 2: SHED DESIGN AND INTERNAL LAYOUT OF "DEVELOPMENT APPLICATION SUPPORTING INFORMATION BY VAN DIEMEN CONSULTING" FOR THE CONCEPTUAL DESIGN OF THE SHED

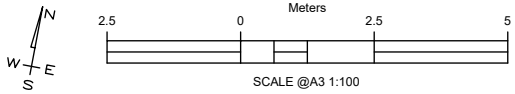
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| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**PROPOSED SHED**

DRAWING NUMBER: VDC/MSP/A/105

Van Diemen CONSULTING




SCALE @A3 1:100

**NOTES**

1. PARKING SPACES ARE DESIGNED TO SUIT B99 VEHICLES
2. DESIGN STANDARD: AS 2890.1-2004
3. PARKING FACILITY USER CLASS: CLASS 01 AS PER AS 2890.1-2004 (EMPLOYEE AND COMMUTER PARKING)
4. PARKING ANGLE: 90 DEGREES
5. REVERSE PARKING ONLY
6. WHERE WHEEL STOPS ARE INSTALLED, WHEEL STOPS SHALL BE 100mm IN HEIGHT, AND 1650 ± 50 mm IN LENGTH.
7. PARKING BAYS TO BE DELINEATED USING PHYSICAL MARKERS SUITABLE FOR GRAVEL SURFACES, SUCH AS WHEEL STOPS IN LIEU OF PAINTED LINES AS PER AS 2890.1-4 REQUIREMENTS.
8. GRAVEL HARDSTAND AREA SUBJECT TO RE-GRADING AND COMPACTION AS REQUIRED TO MAINTAIN A LEVEL AND STABLE PARKING SURFACE.

**DEFINITIONS**

1. B99 VEHICLE: DEFINITION AS PER AS 2890.1-2004 (THE DESIGN MOTOR CAR WHOSE PHYSICAL DIMENSIONS REPRESENT THE 99.8$^{TH}$ PERCENTILE CLASS OF ALL CARS AND LIGHT VANS ON THE ROAD.

**REFERENCES**

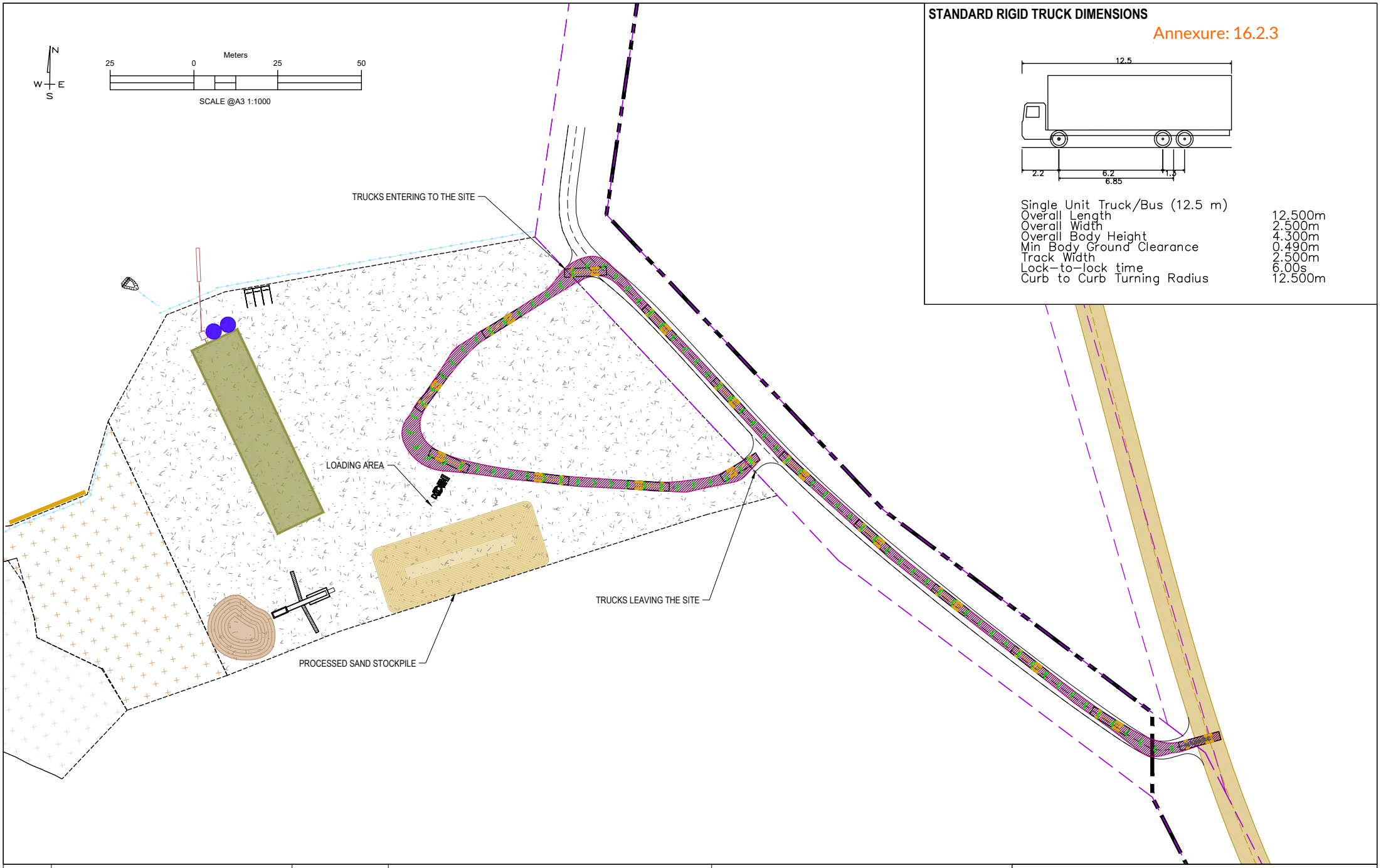
1. AUSTRALIAN STANDARD AS 2890.1-2004 PARKING FACILITIES; OFF STREET CAR PARKING.
2. AUSTROADS GUIDE TO TRAFFIC MANAGEMENT PART 11: PARKING MANAGEMENT TECHNIQUES

| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**LIGHT VEHICLE PARKING BAY**

DRAWING NUMBER: VDC/MSP/A/106

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**STANDARD RIGID TRUCK DIMENSIONS**

Annexure: 16.2.3




| Single Unit Truck/Bus (12.5 m) | |
|---|---|
| Overall Length | 12.500m |
| Overall Width | 2.500m |
| Overall Body Height | 4.300m |
| Min Body Ground Clearance | 0.490m |
| Track Width | 2.500m |
| Lock-to-lock time | 6.00s |
| Curb to Curb Turning Radius | 12.500m |

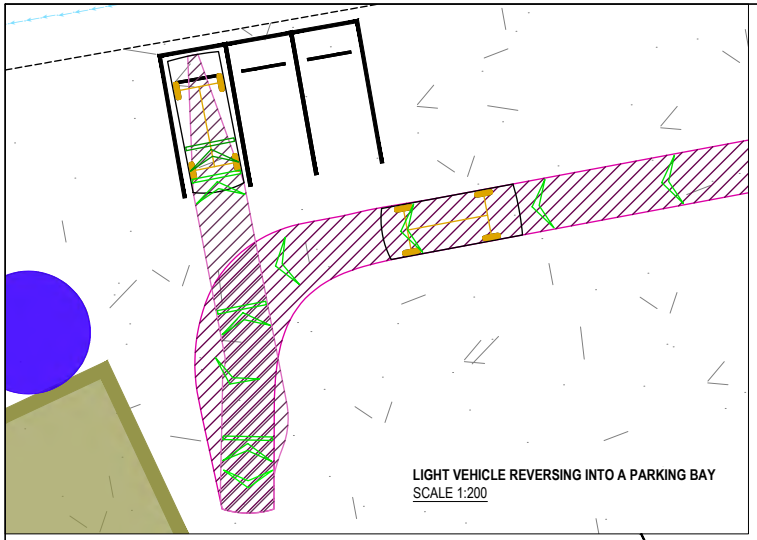
| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**SWEPT PATH ANALYSIS FOR RIGID TRUCK**

DRAWING NUMBER: VDC/MSP/A/107

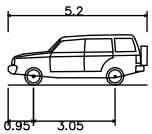
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AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments




**B99 VEHICLE DIMENSIONS**

Annexure: 16.2.3




| B99 Vehicle (Realistic min radius) (2004) | |
|---|---|
| Overall Length | 5.200m |
| Overall Width | 1.940m |
| Overall Body Height | 1.878m |
| Min Body Ground Clearance | 0.272m |
| Track Width | 1.840m |
| Lock-to-lock time | 4.00s |
| Curb to Curb Turning Radius | 6.250m |

LIGHT VEHICLE ENTERING TO THE SITE

N
W E
S

Meters
25 0 25 50

SCALE @A3 1:1000

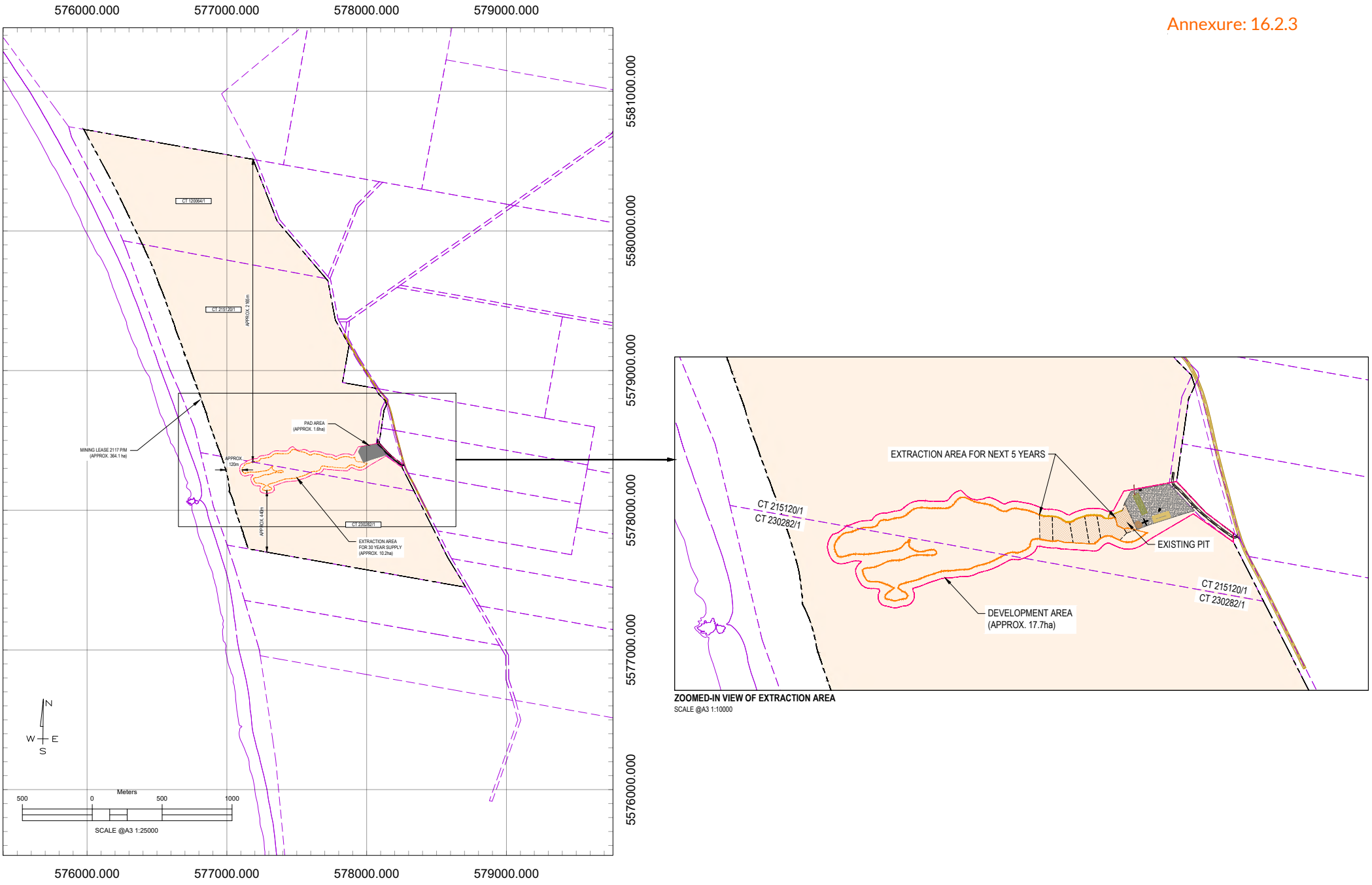
| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**SWEPT PATH ANALYSIS FOR LIGHT VEHICLE**

DRAWING NUMBER: VDC/MSP/A/108

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AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments



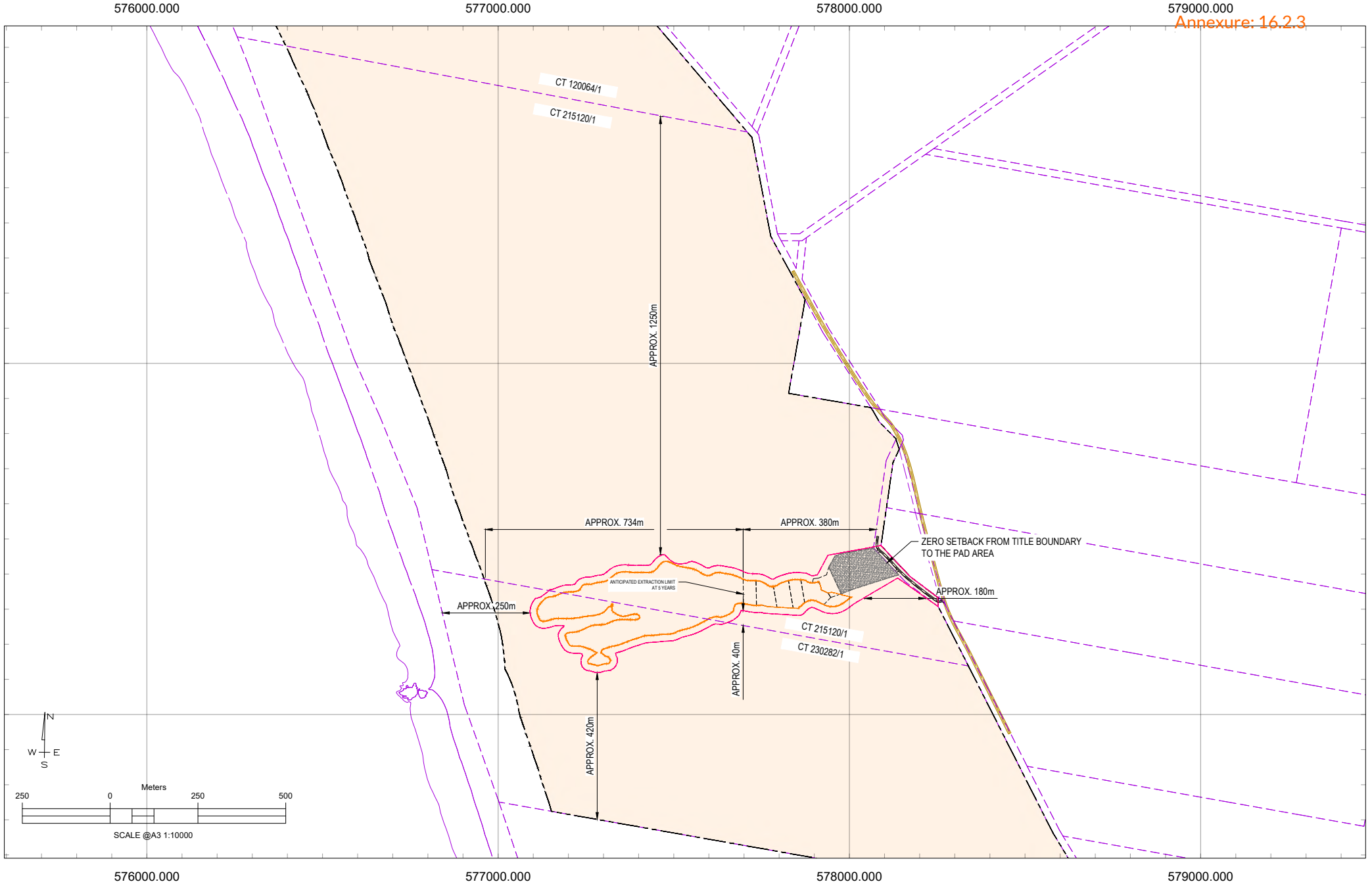

**ZOOMED-IN VIEW OF EXTRACTION AREA**
SCALE @A3 1:10000

| | | | | |
|---|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD | **TITLE BOUNDARIES AND MINING LEASE** |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 | |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD | |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED | |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. | DRAWING NUMBER: VDC/MSP/A/201 |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) | |

AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments

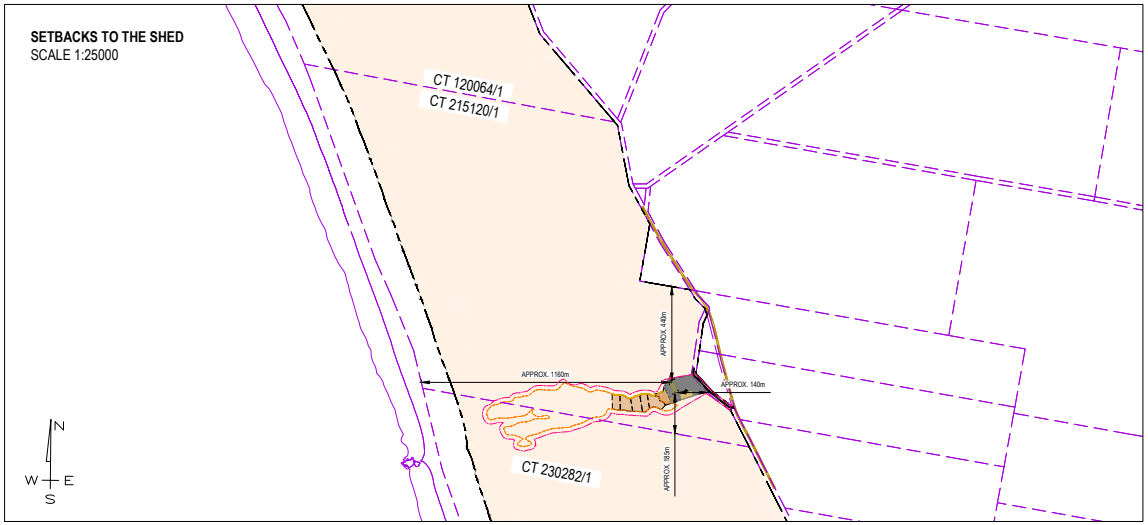


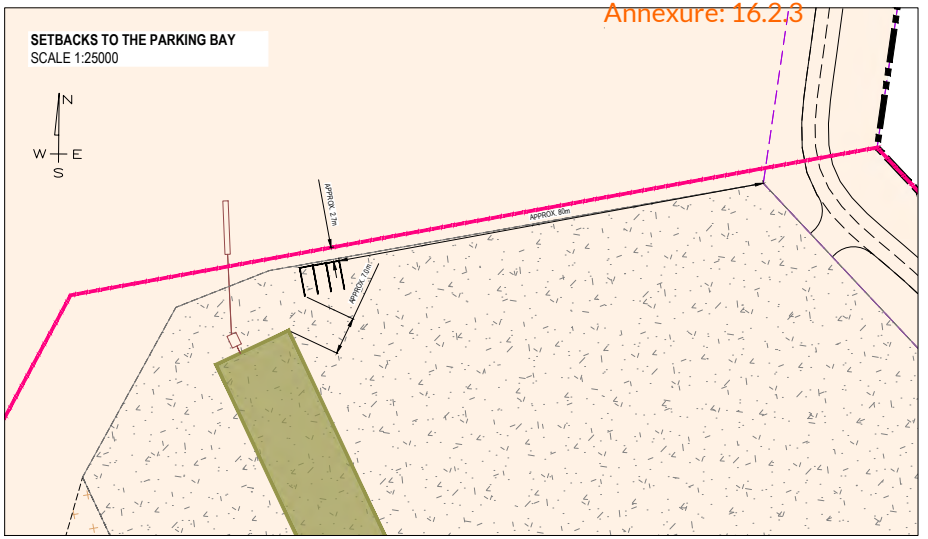
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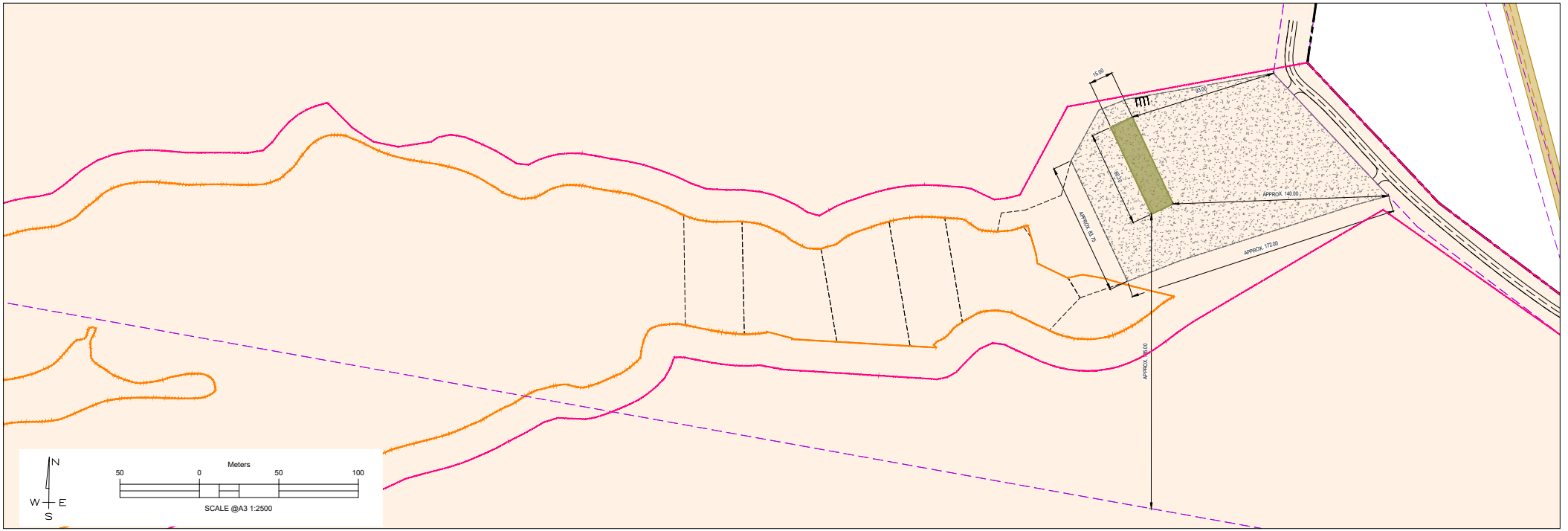



| | | | | |
|---|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD | **SETBACKS FROM DEVELOPMENT AREA TO TITLE BOUNDARIES** |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 | |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD | |
| | | | ALL DIMENSIONS AND IN METERS UNLESS OTHERWISE SPECIFIED | |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. | |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) | DRAWING NUMBER: VDC/MSP/A/202 |

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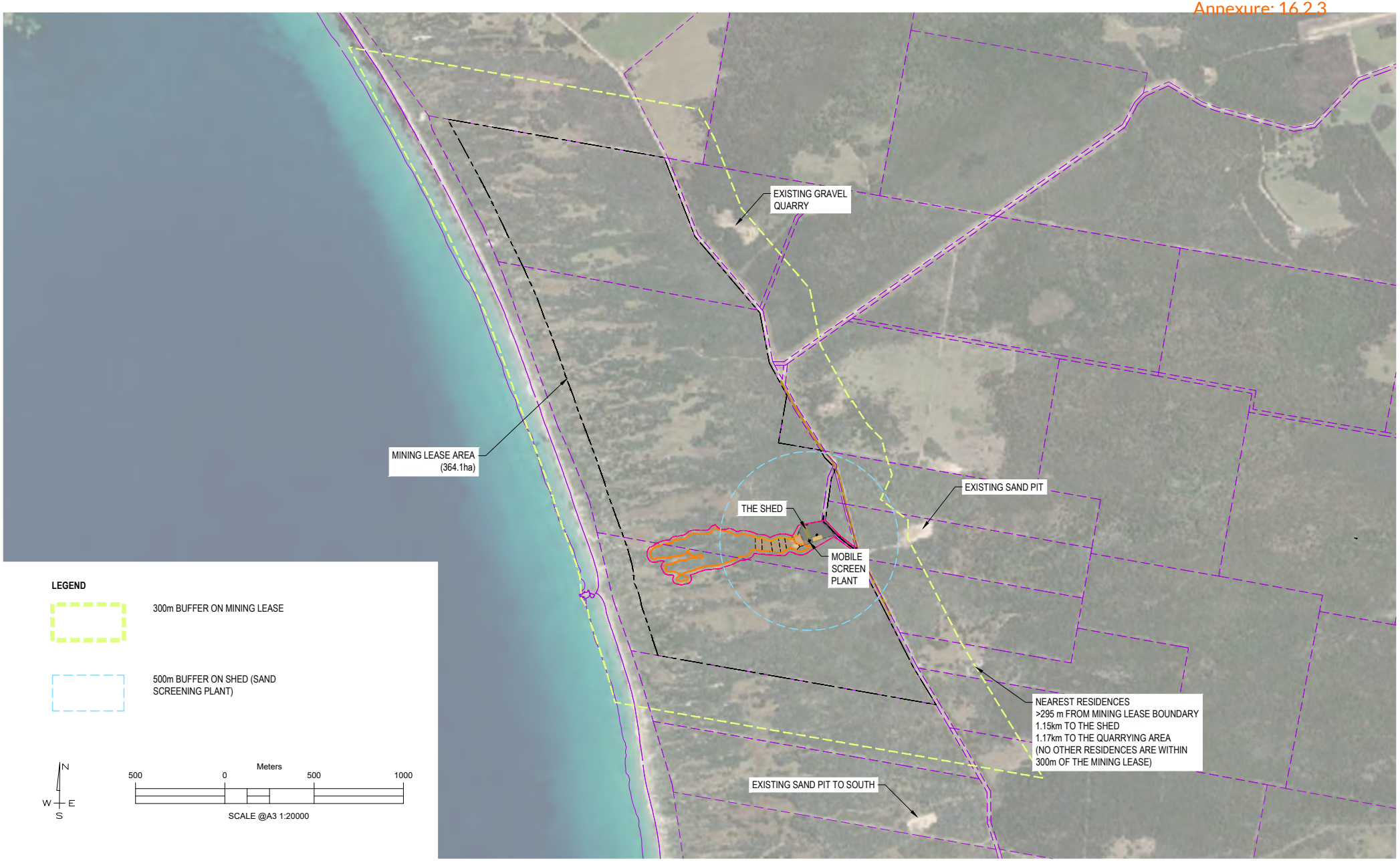




| | | | | |
|---|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD | **SETBACKS TO THE SHED AND PARKING BAY** |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 | |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD | |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED | |
| REV 0.0 | INITIAL PLAN | 13/01/2025 | DO NOT SCALE FROM THE DRAWING. | DRAWING NUMBER: VDC/MSP/A/203 |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) | |



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| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 23/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

# EXISTING SURROUNDING PROPERTIES AND USES

DRAWING NUMBER: VDC/MSP/A/204

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## SITE SOIL CONDITION

SOIL PROFILE DESCRIPTION

1. HORIZON LAYER - THIS LAYER EXTENDS FROM 0 TO 1000MM. IT CONSISTS OF YELLOW SAND (COLOR 10YR 7/6), WHICH IS LOOSE, DAMP, AND MASSIVE.
2. SUBSURFACE LAYER - THIS LAYER SPANS FROM 1100 TO 1200MM AND IS DESCRIBED AS CONSOLIDATED SAND WITH CALCAREOUS CEMENT. IT ALSO HAS A YELLOW SAND COMPOSITION (COLOR 10YR 7/6), IS DAMP, AND MASSIVE.
3. BASE LAYER - EXTENDING FROM 1200 TO 2000MM+, THIS LAYER COMPRISES LOOSE, DAMP, MASSIVE SAND WITH THE SAME COLOR AS THE OTHER HORIZONS.

GEOLOGICAL AND HYDROLOGICAL CONDITIONS

4. THE SITE IS UNDERLAIN BY QUATERNARY DEPOSITS OF WINDBLOWN SAND OF MARINE ORIGIN, FORMING COASTAL SAND DUNES. THE SANDS CONTAIN A HIGH PROPORTION OF CALCAREOUS MATERIAL (MARINE MOLLUSC SHELL DERIVED), WHICH IMPACTS SOIL STRUCTURE AND PERMEABILITY.
5. THERE IS EVIDENCE OF HARDPAN FORMATION AT A DEPTH OF 1100-1200MM, WHICH IS LESS PERMEABLE THAN THE SURROUNDING UNCONSOLIDATED SANDS.
6. THE WATER TABLE IS BELIEVED TO EXCEED 3 METERS

REFERENCE

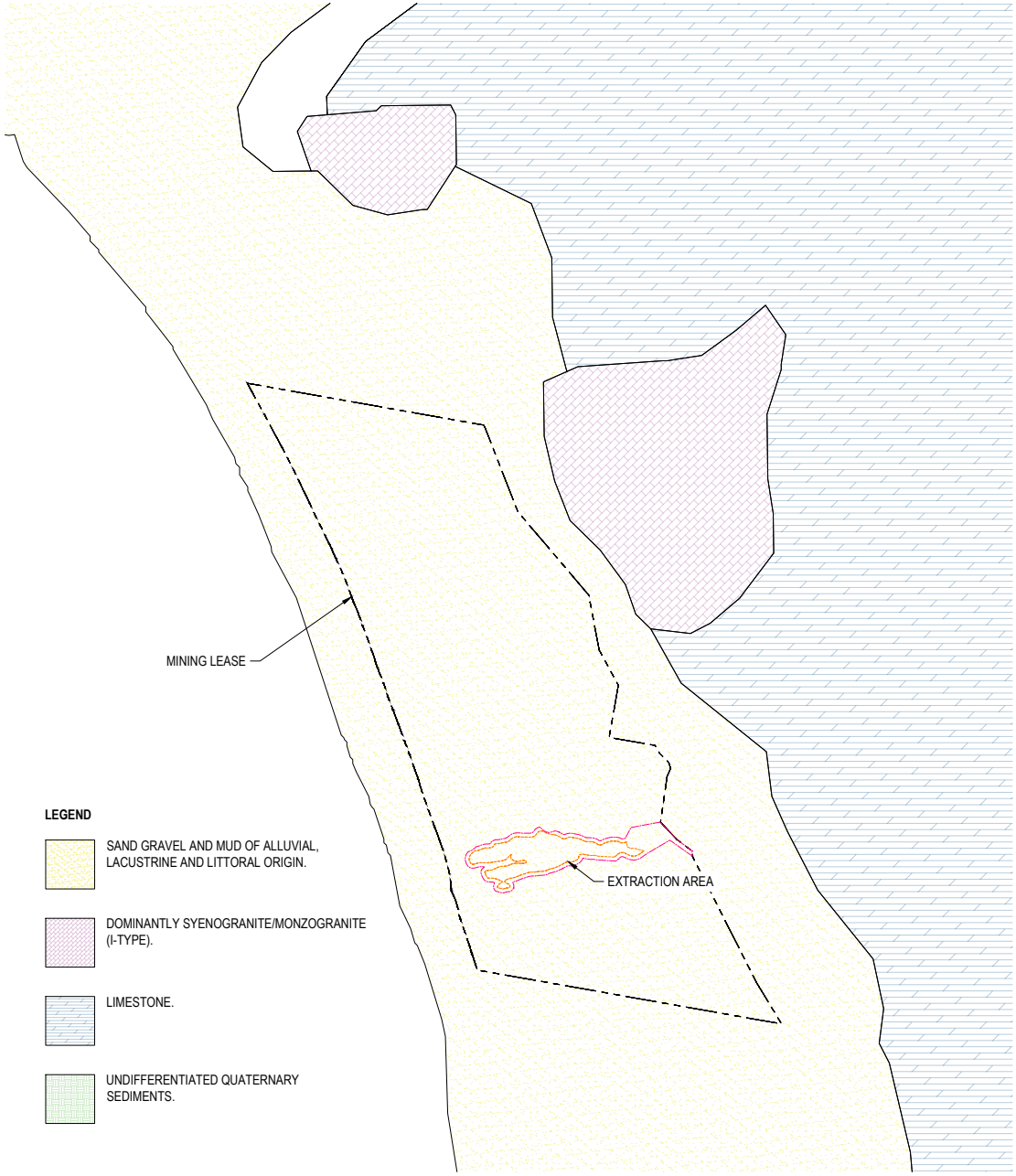
- "SITE & SOIL EVALUATION AND DESIGN REPORT" BY RICHARD MASON, ONSITE ASSESSMENTS TAS.




**FIGURE A: AN IMAGE OF SOIL PROFILE SAMPLES COLLECTED FROM THE SITE**

**LISTMAP OVERLAY - GEOLOGY UNITS 250k**
SCALE 1:25000

Annexure: 16.2.3

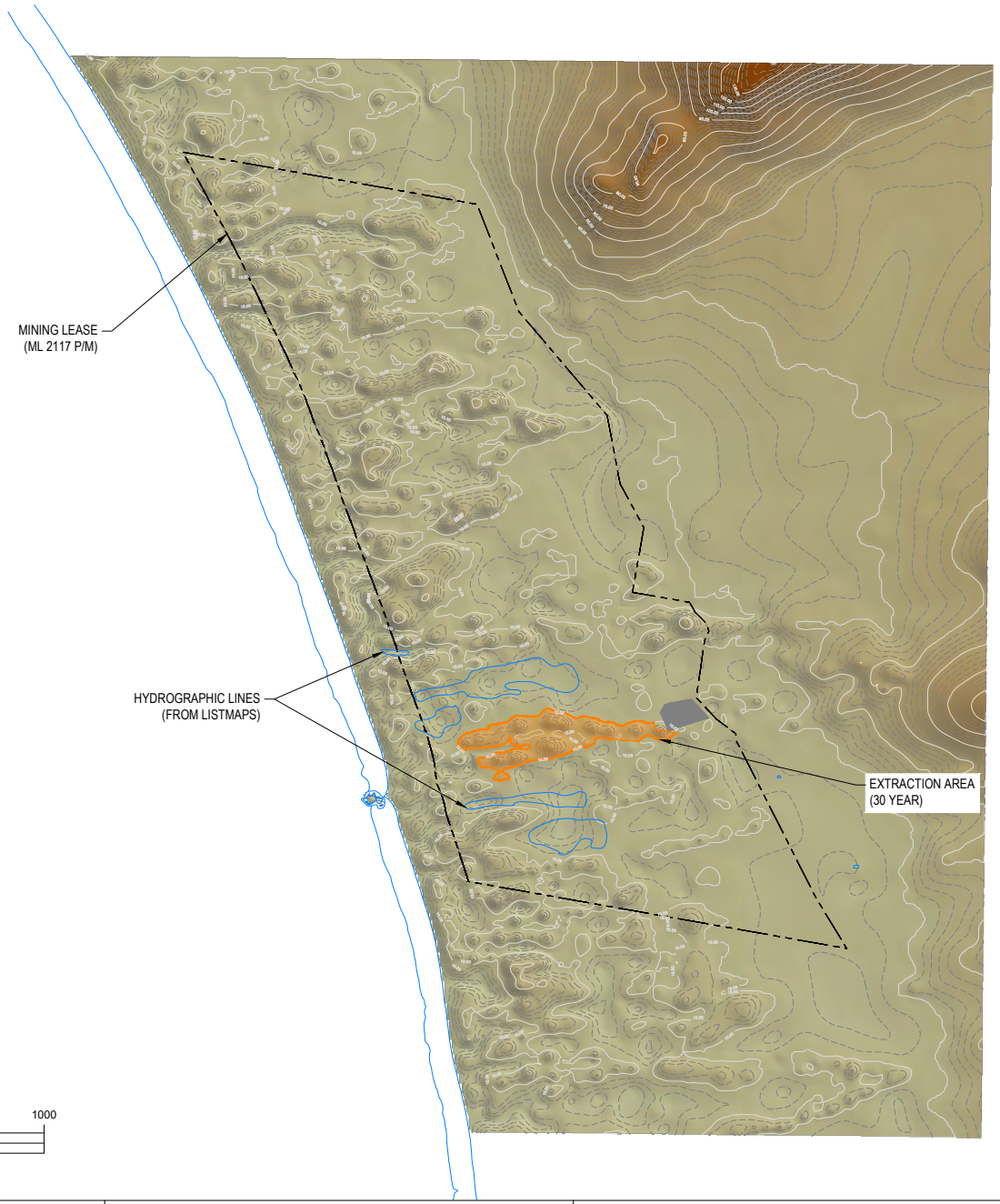



| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 23/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**SITE SOIL CONDITIONS AND SURROUNDING GEOLOGY**

DRAWING NUMBER: VDC/MSP/A/205

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**NOTES**
1. CONTOUR INTERVAL: 2m
2. VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM (AHD)
3. NO NATURAL DRAINAGE LINES ARE PRESENT IN THE SURROUNDING AREA

N
W E
S

Meters
500 0 500 1000

SCALE @A3 1:20000

| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 22/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

# TOPOGRAPHY AND HYDROLOGICAL FEATURES

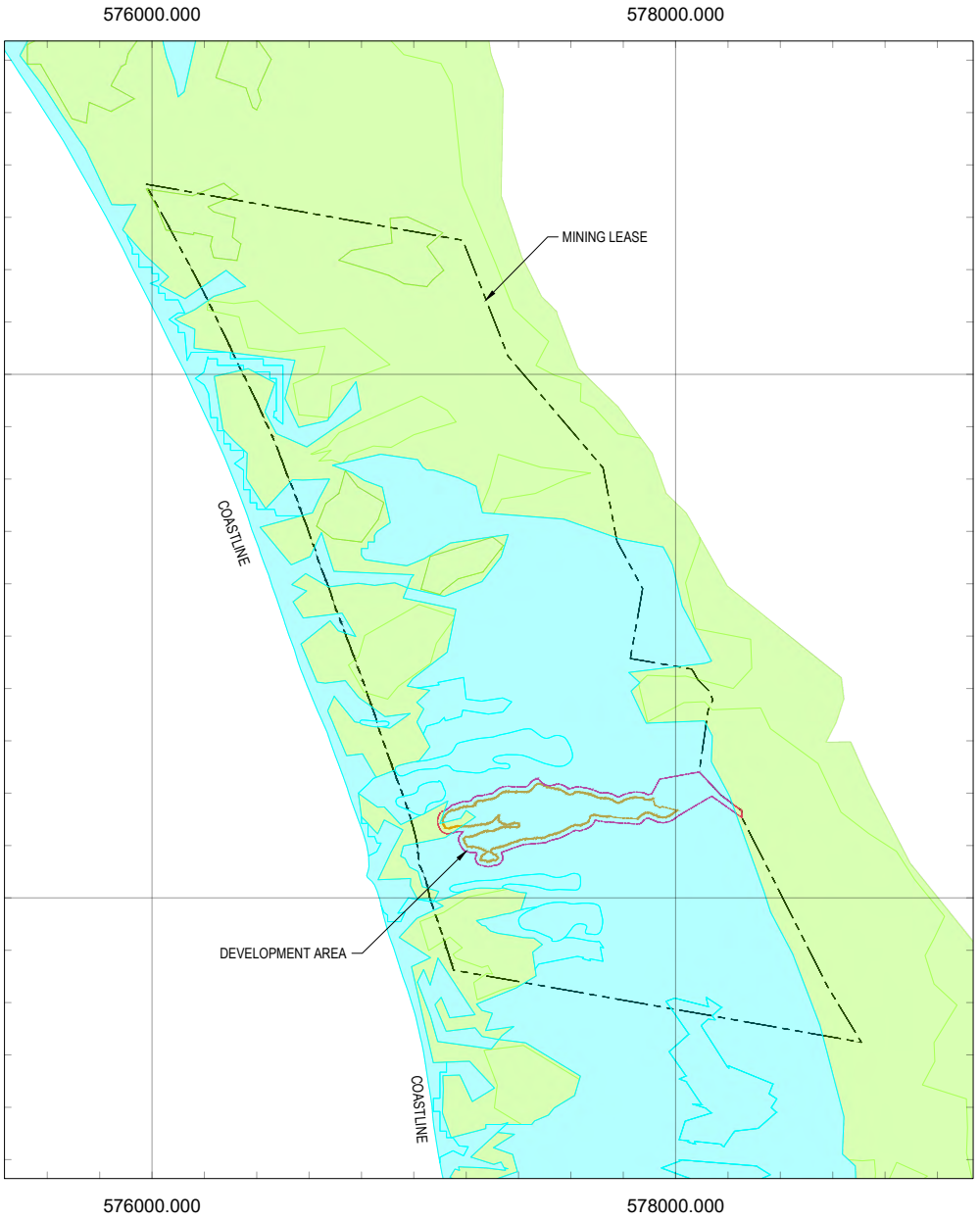
DRAWING NUMBER: VDC/MSP/A/301

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**COASTAL ACID SULPHATE SOIL OVERLAY (LISTMAP)**

LISTMAP NOTES - Extremely low probability of occurance (1-5% of mapping unit). with occurences in small areas. Sandplains and dunes 2-10m AHD, ASS generally below 1m from the surface.

LISTMAP NOTES - Low probability of occurance (6-70% chance of occurrence in mapping unit). Sandplains and dunes >10m AHD, ASS generally below 1m from the surface.

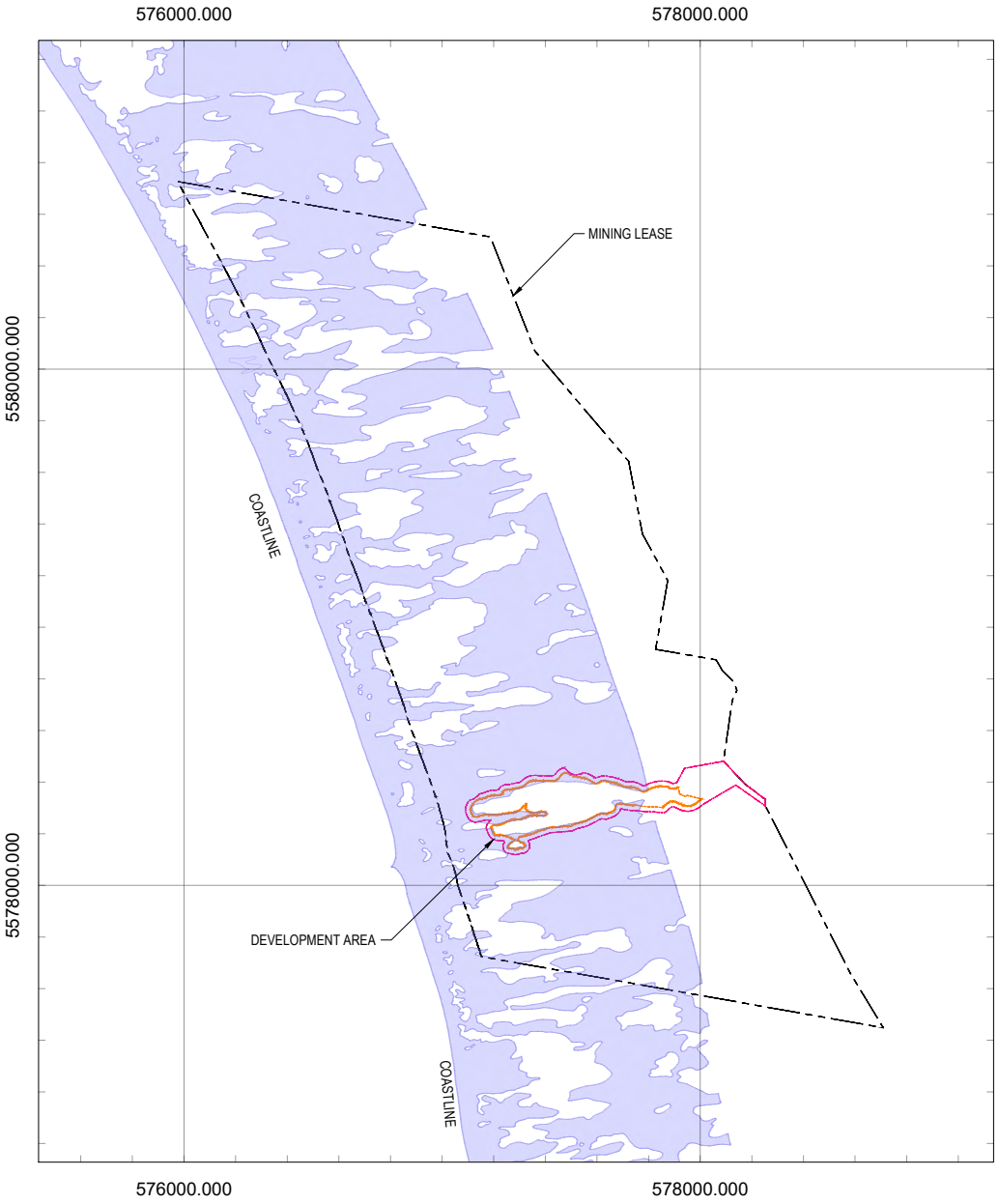



**COASTAL INUNDATION HAZARD OVERLAY (LISTMAP)**

INUNDATION INVESTIGATION AREA

LISTMAP NOTES

This area is outside the LiDAR-mapped area and as it is below the mapped 10 m contour may be partly vulnerable to sea level rise but data used for this analysis were not sufficient to further determine potential inundated areas.




| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS AND IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 22/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, B.Sc(Eng.)Hons*) |

**NATURAL HAZARDS - COASTAL ACID SULPHATE SOILS AND COASTAL INUNDATION HAZARD**

DRAWING NUMBER: VDC/MSP/A/302

Van Diemen CONSULTING

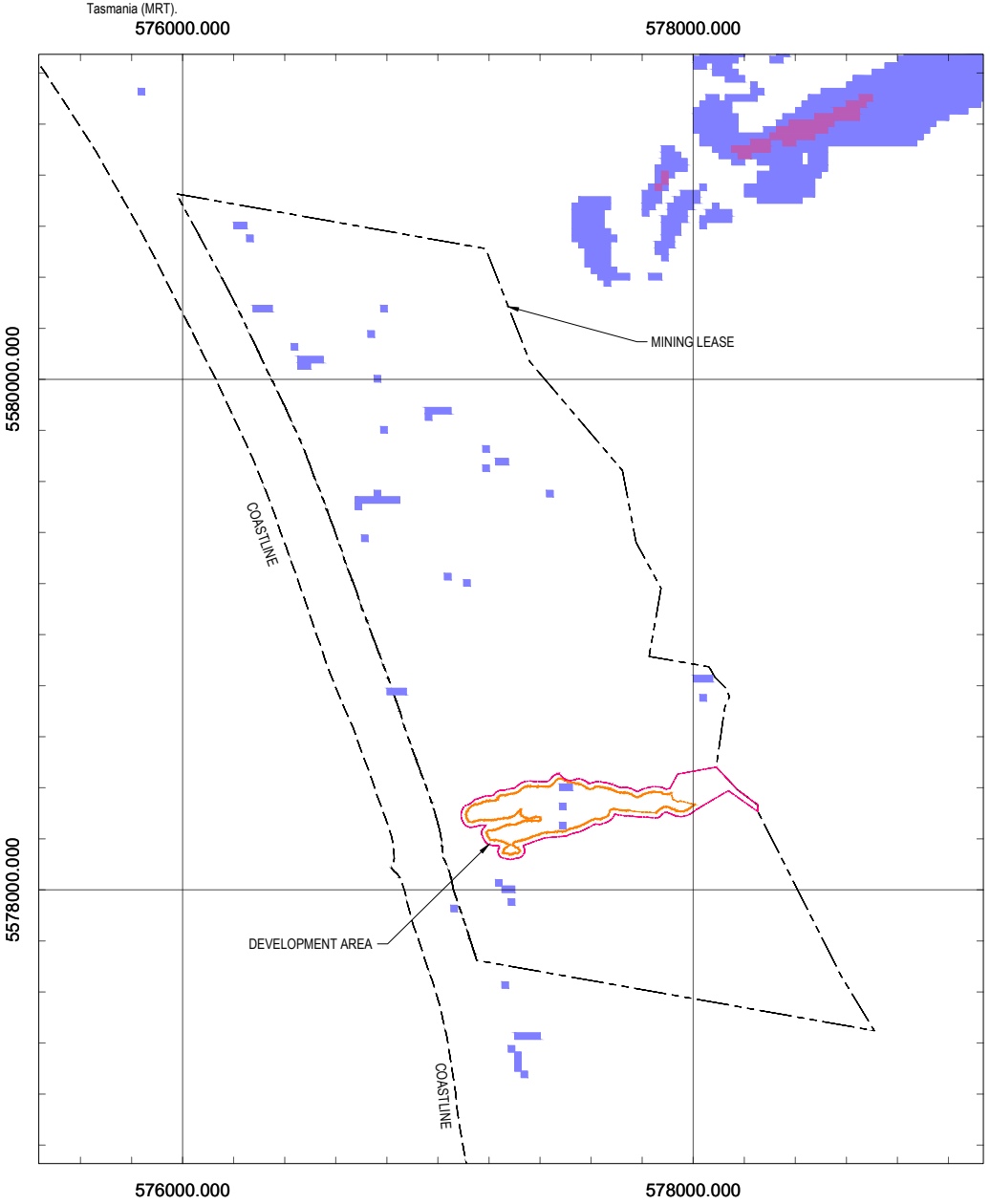
Annexure: 16.2.3

**LANDSLIP HAZARD BAND (LISTMAP)**

LOW

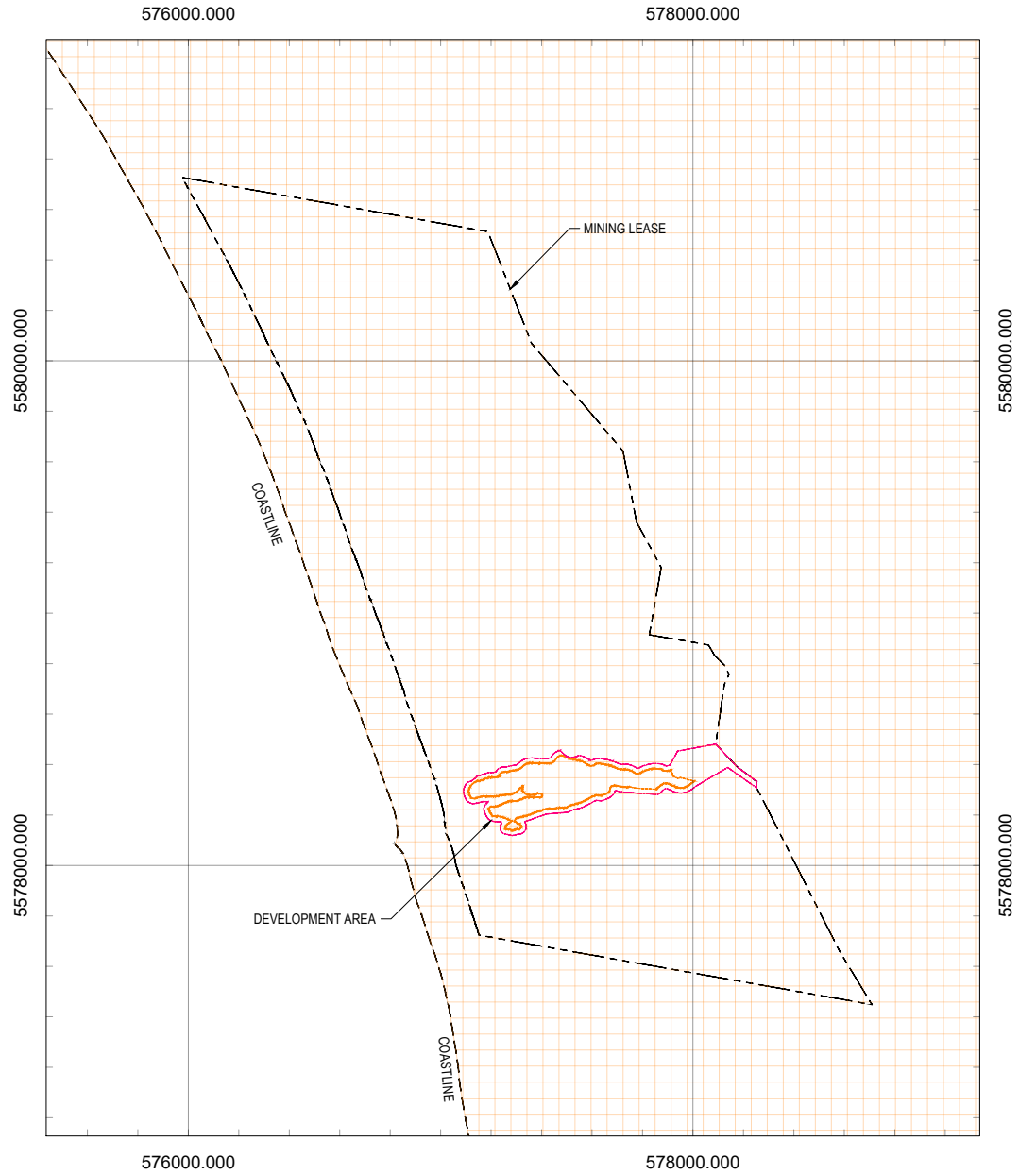
LISTMAP NOTES - This area has no known active landslides, however it has been identified as being susceptible to landslide by Mineral Resources Tasmania (MRT).

MEDIUM




**BUSHFIRE PRONE AREAS (LISTMAP)**

BUSHFIRE PRONE AREA




| | | | |
|---|---|---|---|
| | | | CLIENT: MARKARNA GRAZING COMPANY PTY LTD |
| | | | ADDRESS/LOCATION: 368 FIVE MILE JIM ROAD, MEMANA TAS 7255 |
| | | | HORIZONTAL/VERTICAL DATUM: MGA ZONE 55 GDA94 / AHD |
| | | | ALL DIMENSIONS AND IN METERS UNLESS OTHERWISE SPECIFIED |
| REV 0.0 | INITIAL PLAN | 22/01/2025 | DO NOT SCALE FROM THE DRAWING. |
| REVISION HISTORY | | | PREPARED BY: SANDUN INESHKA (*MIEAust, BSc(Eng.)Hons*) |

**NATURAL HAZARDS - BUSHFIRE HAZARD AND LANDSLIP HAZARD**

DRAWING NUMBER: VDC/MSP/A/303

AGENDA - Ordinary Council Meeting - 27 May 2026 Attachments



Van Diemen CONSULTING

**ATTACHMENT 11. MARKARNA GRAZING COMPANY PTY LTD, PALANA ROAD SAND PIT, MEMANA - EAR**

# Environmental Assessment Report

## Markarna Grazing Company Pty Ltd

## Lime Sand Extraction Pit
## 368 Five Mile Jim Road, Memana
## Flinders Island

**August 2025**

EPA TASMANIA
ENVIRONMENT PROTECTION AUTHORITY

# Environmental Assessment Report

| | |
|---|---|
| Proponent | Markarna Grazing Company Pty Ltd |
| Proposal | Lime Sand Extraction Pit |
| Location | 368 Five Mile Jim Road, Memana, Flinders Island |
| Class of Assessment | This EMPCA Section 25A process does not require classing the assessment |
| PCE no. | 11576 |
| Permit Application No. | DA 2023 / 00038 (Flinders Council)<br>Combined development and planning scheme amendment (rezoning) application<br>Section 40T Application under LUPAA<br>Section 25A Assessment under EMPCA |
| myDAS Folder No. | 23/5219 |
| myDAS Document No. | D25-109017 |

# Assessment Process Milestones

| Date | Milestone |
|---|---|
| 19 June 2023 | Permit Application submitted to Council |
| 25 July 2023 | Referral received by the Board |
| 9 August 2023 | Request for additional information issued |
| 24 June 2025 | Additional information accepted |
| 8 July 2025 | Date draft conditions issued to proponent |
| 19 August 2025 | Statutory period for assessment ends |

# Glossary/Acronyms

| Term | Detail |
|---|---|
| Activity Area | Refer to Figure 3 of the EAR |
| Additional information | Provided in the form of an Environmental Impact Statement |
| AHD | Australian Height Datum |
| Board | Board of the Environment Protection Authority |
| EAR | Environmental Assessment Report (this report) |
| EIA | Environmental Impact Assessment |
| EIS | Environmental Impact Statement |
| EMPCA | *Environmental Management and Pollution Control Act 1994* |
| EMPCS | Environmental Management and Pollution Control System |
| EPBCA | *Environment Protection and Biodiversity Conservation Act 1999* (Cth) |
| Extractive Area | Refer to Figure 3 of the EAR |
| IECA | *International Erosion Control Association's Best Practice Erosion and Sediment Control 2018 documents* |
| LUPAA | *Land Use Planning and Approvals Act 1993* |
| NCA | *Nature Conservation Act 2002* |
| NRE | Department of Natural Resources and Environment Tasmania |
| Pad Area | Refer to Figure 5 of the EAR |
| QCP | Quarry Code of Practice (EPA 2017) |
| RMPS | Resource Management and Planning System of Tasmania |
| SD | Sustainable Development |
| TSPA | *Threatened Species Protection Act 1995* |

# Report Summary

This report provides an environmental assessment of a proposed lime sand extractive pit, including materials handling (screening) by Markarna Grazing Company Pty Ltd.

The proposal involves extraction of lime sand from a west-to-east parallel dune system adjacent to Marshall Bay at Memana on Flinders Island. Up to 10,000 cubic metres per year is proposed to be extracted by bulldozer and/or excavator. Up to 10,000 cubic metres per year of raw sand may be screened to remove organic matter and to mix in soil ameliorants where necessary, as most of the sand will be applied to agricultural land on Flinders Island to help improve land capability for cropping and grazing.

The permit application for this proposal is combined with a planning scheme amendment (rezoning) application under Section 40T of LUPAA and hence was referred to the EPA Board (the Board) under section 25A of EMPCA for assessment.

The Board assessment process for a combined permit application / rezoning application differs to the more common EMPCA section 25 assessment in several ways:

- Upon referral of the proposal from Council, the Board requested additional information on the activity and its potential impacts and associated mitigation measures. This mirrors the process normally used by the Board in issuing Environmental Effects Report / Environmental Impact Statement Guidelines to assist a Proponent in developing a satisfactory case for assessment, except that assessment classing was not required.
- The additional information was provided by the Proponent in an Environmental Impact Statement (EIS). This replicates the process a proponent typically undertakes in developing a case for assessment under section 25.
- Once the Board accepted the additional information, the assessment must be completed within 10 weeks and Flinders Council notified of the decision. This aligns with the usual process for a section 25 assessment, noting that the environmental permit conditions are *recommended* rather than *required* as would usually be the case under section 25(8).
- After completion of the Board's assessment Council decides whether to initiate the proposed rezoning. If Council decides to initiate and certify the rezoning it will then need to determine the permit application, including any conditions and restrictions recommended by the Board, and place the permit and rezoning documents on public exhibition for 28 days. This differs from a section 25 assessment where public exhibition is undertaken prior to the Board's consideration of this report.
- If representations are received, Council and EPA may be required to prepare a report for the Commission on the merits of any relevant representations. The Commission is then provided with those reports, the representations, any amendments recommended and the permit. The Commission may choose to hold public hearings before making its decision to approve, modify or reject the rezoning and permit application.

This report has been prepared based on information provided in the permit application and additional information provided in the EIS. The area defined as the Development Area at page 8 and Figure A-4 of the EIS has been adopted as the Activity Area within this EAR, with the inclusion of the drains, sediment basins and septic system absorption pad excluded by the EIS definition (refer Figure 3 of this EAR).

Relevant government agencies were consulted, and their comments considered as part of the assessment.

**Appendix 1** contains a table of the proponent's proposed management measures.

**Appendix 2** contains the environmental permit conditions for the proposal.

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# 1. Approval Process

A combined permit and rezoning application under the *Land Use Planning and Approvals Act 1993* (LUPAA) for the proposal was submitted to Flinders Council on 19 June 2023.

This proposal is defined as a 'level 2 activity' under clauses 5(b) and 6(a)(ii), Schedule 2 of the *Environmental Management and Pollution Control Act 1994* (EMPCA), being a sand extractive pit with materials handling (screening).

Section 25A(1A) of the EMPCA required Council to refer the application to the Board of the Environment Protection Authority (the Board) for assessment under the Act. The application was received by the Board on 25 July 2023.

The Board required the applicant to provide additional information for the purposes of the assessment on 9 August 2023. This was provided in the form of an Environmental Impact Statement (EIS). Several drafts of the EIS were submitted to the EPA for review against the request for additional information prior to finalisation and acceptance on behalf of the Board on 24 June 2025.

The EIS was referred to relevant government agencies for comment.

## 2. SD Objectives and EIA Principles

The proposal must be considered by the Board in the context of the objectives of the Resource Management and Planning System of Tasmania (RMPS), and the Environmental Management and Pollution Control System (EMPCS). Both sets of objectives are specified in Schedule 1 of EMPCA.

The functions of the Board are to administer and enforce the provisions of EMPCA, and to use its best endeavours to further the RMPS and EMPCS objectives. The Board must assess the proposal in accordance with the Environmental Impact Assessment Principles defined in Section 74 of EMPCA, except for subsections (6) requiring public consultation and (7) regarding public disclosure of all information relating to the environmental impact of a proposal (as per section 25A(4) of EMPCA).


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# 3. The Proposal

The main characteristics of the proposal are summarised below. A detailed description of the proposal is provided in Part B of the EIS.

## Summary of the proposal's main characteristics

### Activity

The proposal involves extraction of lime sand from a west-to-east parallel dune system adjacent to Marshall Bay at Memana on Flinders Island. Up to 10,000 cubic metres per year of lime sand is to be extracted by bulldozer and/or excavator. Up to 10,000 cubic metres per year of raw lime sand may be screened to remove organic matter and to mix in soil ameliorants where necessary, as most of the sand will be applied to agricultural land on Flinders Island to help improve land capability for cropping and grazing.

### Location and planning context

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|---|---|
| **Location** | 'Markana Park' 368 Five Mile Jim Road, Memana, as shown in Figure 1. |
| **Land zoning** | Currently zoned as Landscape Conservation. The rezoning application seeks to change the zone to Rural. |
| **Land tenure** | Private freehold with a small section of reserved road (Crown land). A crown licence is currently held by the Proponent for access to the site via the reserved road. |
| **Mining lease** | ML 2117P/M granted on 20 July 2023. |
| **Lease area** | 365 ha |
| **Bond** | $50,000 based on an unrehabilitated area of 5 ha. |

### Activity site

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|---|---|
| **Land Use** | Most of the mining lease area is currently native vegetation used for limited livestock grazing. In the past the mining lease has been used for more intense livestock grazing. There is also a small extractive pit, at the proposed location of this extractive pit, that has historically been used for small-scale sand extraction. |
| **Topography** | The Activity Area is comprised of a west-to-east parallel dune system which becomes two distinct steep sided dune ridges, with deep, wide swales between the ridges. Marshall Beach and Bay are located west of the Activity Area. From the Activity Area elevation is gained to the east forming low hills to around 150 m AHD. |
| **Geology** | Sand, gravel and mud of lacustrine and littoral origin. Sands to be extracted are of littoral origin and are highly calcareous. Underlying geology is a mosaic of lacustrine / littoral gravels and sands cemented / compacted in situ. Base geology is fossiliferous (marine shells) Tertiary limestone. |
| **Soils** | A soil layer is largely absent or is represented by a slightly discoloured upper layer in the sandy soil profile. There have been two prominent paleosols identified in the profile exposed at the historic extraction pit face. |
| **Hydrology** | No identified surface waterways within the Activity Area. Possible areas where lagoons may form north and south of the Activity Area (North and South Curves Lagoons). Potential for karst in the area to influence subsurface hydrology. |
| **Natural Values** | Six flora species listed under the *Threatened Species Protection Act 1995* (TSPA) were identified within the Activity Area, including:<br>• Coast wirilda (*Acacia uncifolia*);<br>• Mossy woodruff (*Asperula minima*);<br>• Spiny bushpea (*Eutaxia microphylla*);<br>• Curved riceflower (*Pimelea curviflora* var. *gracilis*); |


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| | |
|---|---|
| | • Coast twinleaf (*Roepera billardierei*); and<br>• Pale fanflower (*Scaevola albida*).<br>Habitat for several threatened fauna species is present within or adjacent to the Activity Area, including:<br>• Wedge-tailed eagle (*Aquila audax subsp. fleayi*);<br>• White-bellied sea-eagle (*Haliaeetus leucogaster*);<br>• New Holland mouse (*Pseudomys novaehollandiae*); and<br>• Tussock skink (*Pseudemoia pagenstecheri*).<br>Two Declared Weed species (horehound (*Marrubium vulgare*) and slender thistle (*Carduus pycnocephalus*)) listed under the *Biosecurity Act 2019* were observed within the Activity Area. |

## Location region

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| **Climate** | Rainfall is approximately 735 mm per year. Wind direction is predominantly from the west with lighter winds from the east-north-east being sub-dominant. |
| **Surrounding land zoning, tenure and uses** | Zoning to the north is environmental management and to the east and south is a mix of environmental management, landscape conservation, rural and agriculture.<br>Land surrounding the Activity Area is private freehold and is mostly vegetated immediately east of the proposed extractive pit, with extensive agricultural lands further inland to the east.<br>To the north is a private nature reserve, the Mount Tanner Nature Recreation Area, and the Wingaroo Nature Reserve. Nearby to the east and south are three other mining leases. There is also a private conservation covenant just to the east on an area of private freehold land (refer to Figure 4 of this EAR).<br>To the south is the Mulligans Hill Conservation Area, Emita Nature Recreation Area, Settlement Point Conservation Area and two other public reserves. Immediately to the west and south-west is the Marshall Beach Conservation Area.<br>The mining lease is almost adjacent to the Marshall Beach Conservation Area with a small (approx. 130 m) strip of coastal dunes between the Conservation Area and mining lease boundary. The proposed Activity Area is an additional 100 m further east of the mining lease boundary. |

## Proposed infrastructure

| | |
|---|---|
| **Major equipment** | The EIS proposes the use of the following equipment:<br>• vibratory screen (Powerscreen 2 & 3 deck);<br>• wheel Loader (966H);<br>• grader (140G);<br>• excavator (329D);<br>• dozer (D9N);<br>• off-road haul truck;<br>• transport trucks (medium combination truck & trailer, single trucks);<br>• 15,000 L capacity water cart truck; and<br>• light vehicles for worker transport. |
| **Other infrastructure** | The EIS states that other infrastructure will be required, including:<br>• a shed (15 m x 60.3 m x 7.77 m) with internal crib room and amenities;<br>• two 50,000 L water tanks;<br>• access roads for accessing the site and extraction areas;<br>• drains and sediment ponds for surface water management; and |


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| | |
|---|---|
| | • a septic wastewater system (septic tank discharging to an in-ground absorption bed) for grey and black water. |

## Inputs

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|---|---|
| **Water** | Water will be required for the water cart. |
| **Energy** | The EIS notes that there is access to powerlines and poles along the eastern boundary. However a power connection is not intended at this stage. |
| **Other raw materials** | Soil ameliorants (such as boron) may be blended with screened sand, based on the needs of each individual property where the material will be applied. |

## Wastes and emissions

| | |
|---|---|
| **Liquid** | Stormwater runoff from extraction areas, pad / stockpile areas and the shed roof.<br>Grey water from crib room and amenities and black water from septic tank discharged through in-ground absorption beds. |
| **Atmospheric** | Dust from internal and external traffic, open extraction areas and blow-off from stockpiles. |
| **Solid** | General refuse including food scraps, wrappers and other wastes from the office and crib areas.<br>Other wastes generated by the activity may include:<br>• empty drums (oils (motor, hydraulic and brake);<br>• machinery filters (not in the controlled waste category);<br>• disposable PPE (e.g. ear plugs);<br>• plastics;<br>• rags; and<br>• batteries. |
| **Controlled wastes** | According to the EIS the activity may generate the following controlled wastes:<br>• waste oil / water, hydrocarbon / water mixtures or emulsions (e.g. hydraulic or engine oils);<br>• sewage sludge, residue or nightsoil from the on-site wastewater management system;<br>• containers contaminated with residues of substances (used for collection or storage of waste oil / water, hydrocarbon / water mixtures or emulsions);<br>• soils contaminated with a controlled waste (e.g. oil or fuel leak);<br>• fire debris and fire wash water (in the event of a fire); and<br>• used tyres. |
| **Noise** | From screening equipment, mobile machinery (wheel loader, excavator, dozer, grader, water truck) and vehicles (light vehicles and haul trucks) moving within, on and off site. |
| **Greenhouse gases** | Operation of hydrocarbon-based plant, trucks and light vehicles will all produce greenhouse gas emissions. |

## Construction and operations

| | |
|---|---|
| **Proposal timetable** | The EIS notes that once approval is granted, construction of the pad, shed and stormwater infrastructure would need to occur prior to extraction occurring. Figure B-2 of the EIS provides a breakdown of the proposed extraction stages year by year, out to 5-years. |
| **Operating hours (ongoing)** | 0700 to 1900 hours Monday to Friday.<br>No activity will occur on Saturdays or Sundays. |

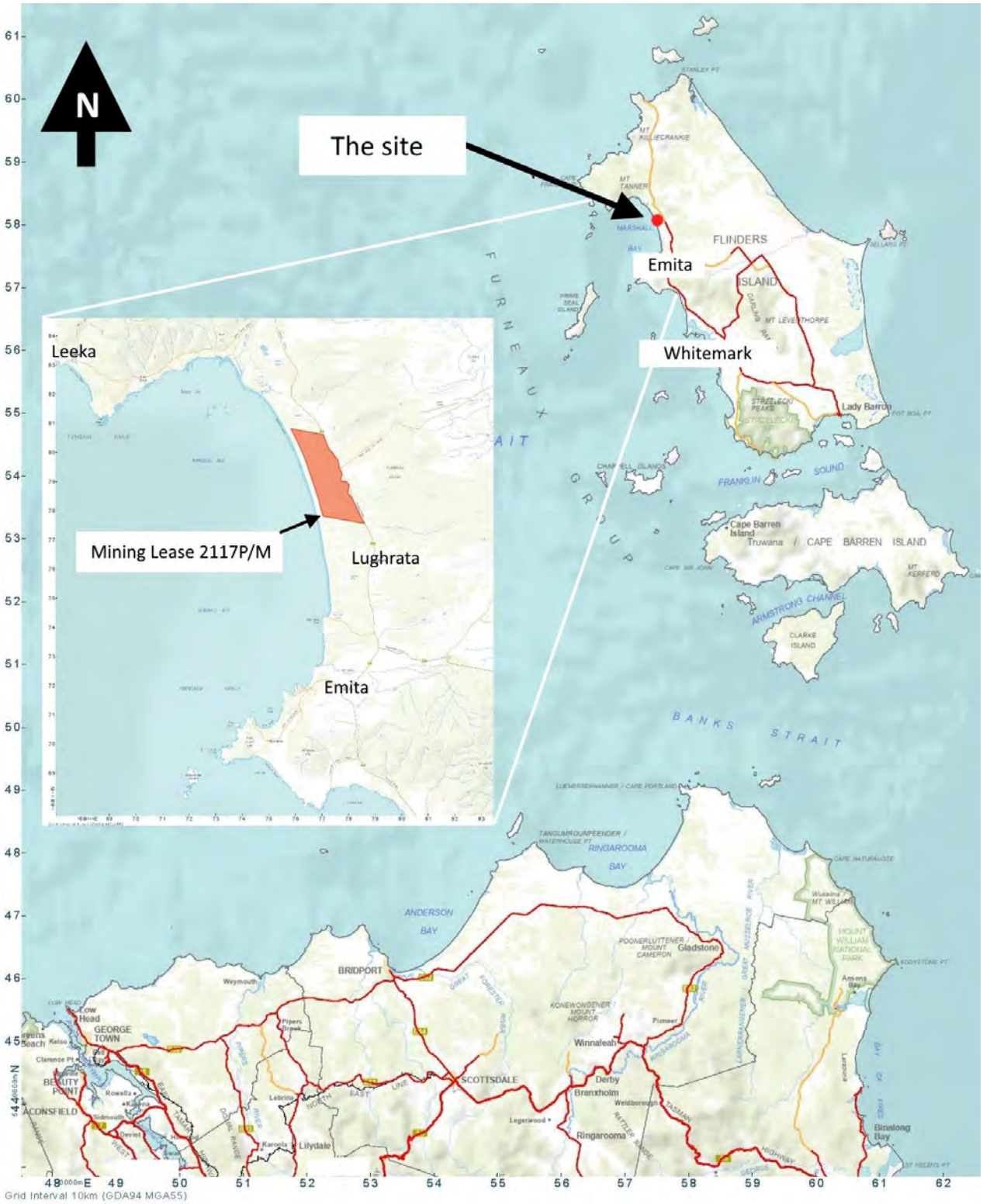



**Figure 1: Mining lease 2117P/M location (topographic basemap from the LIST © State of Tasmania).**

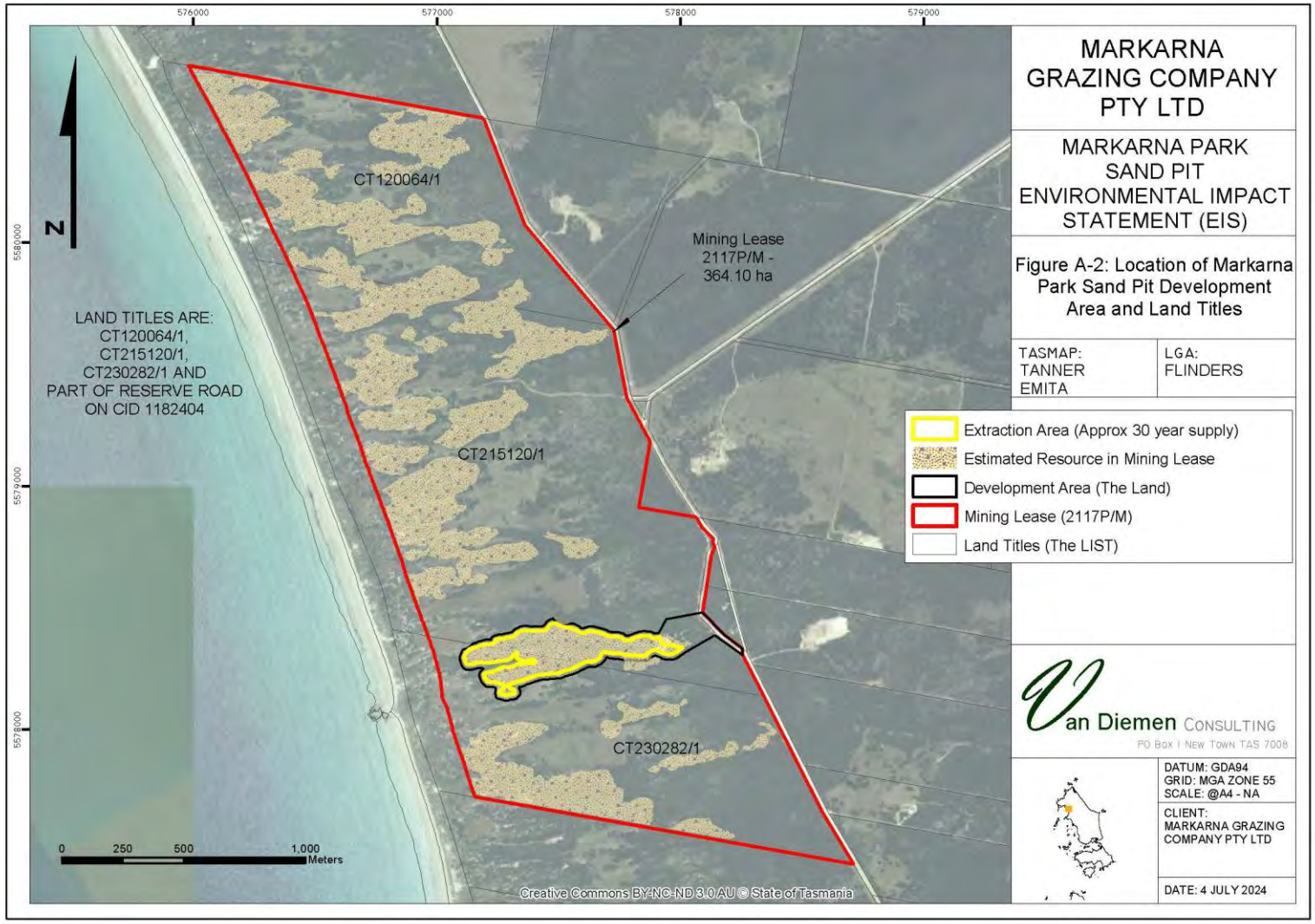



**Figure 2: Mining Lease 2117P/M, development & extraction areas (Figure A-2 of the EIS).**

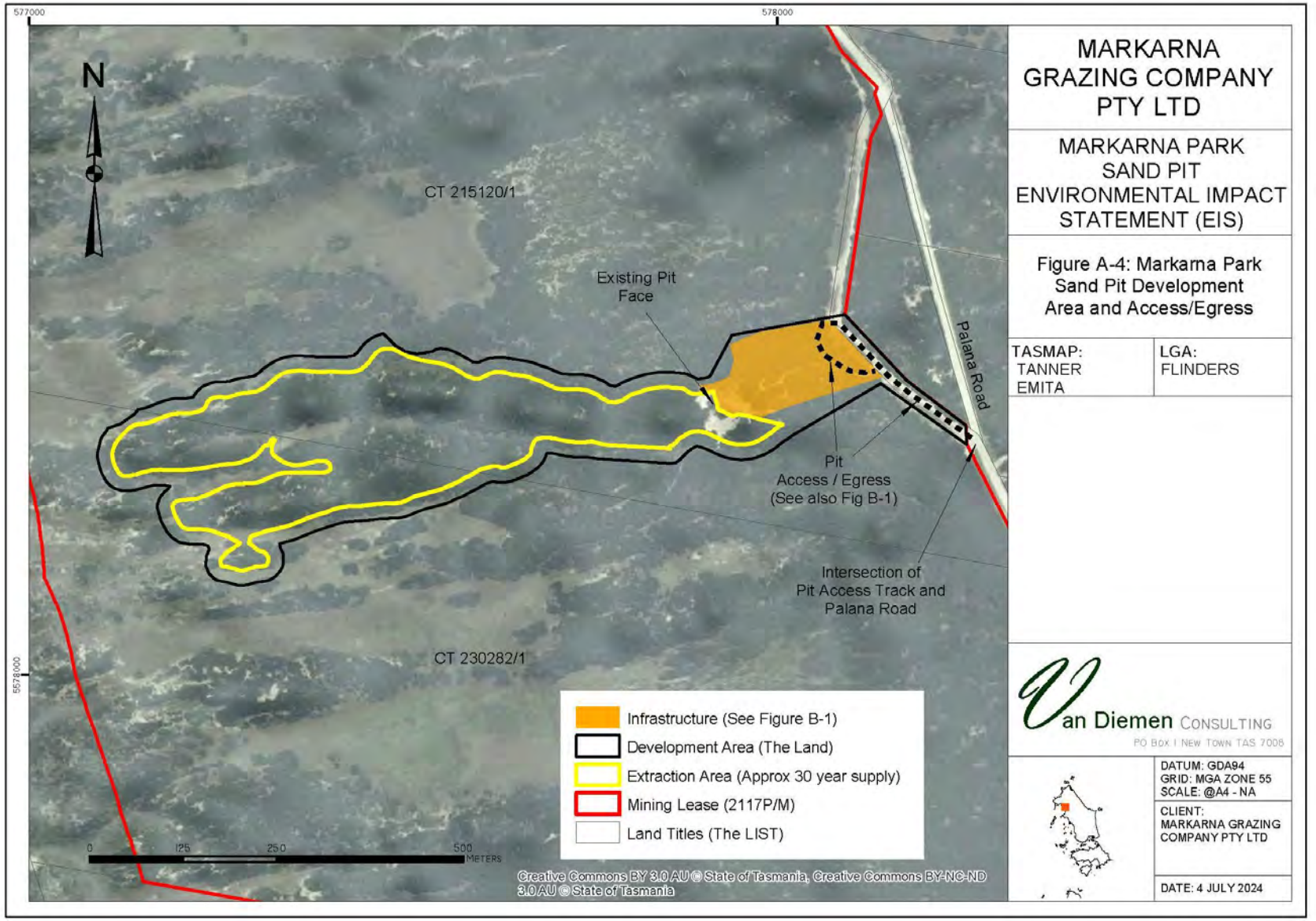



**Figure 3: Site overview and access (Figure A-4 of the EIS). The area shown as the Development Area is the Activity Area in this EAR.**




**Figure 4: Land tenure map, including conservation covenant.**

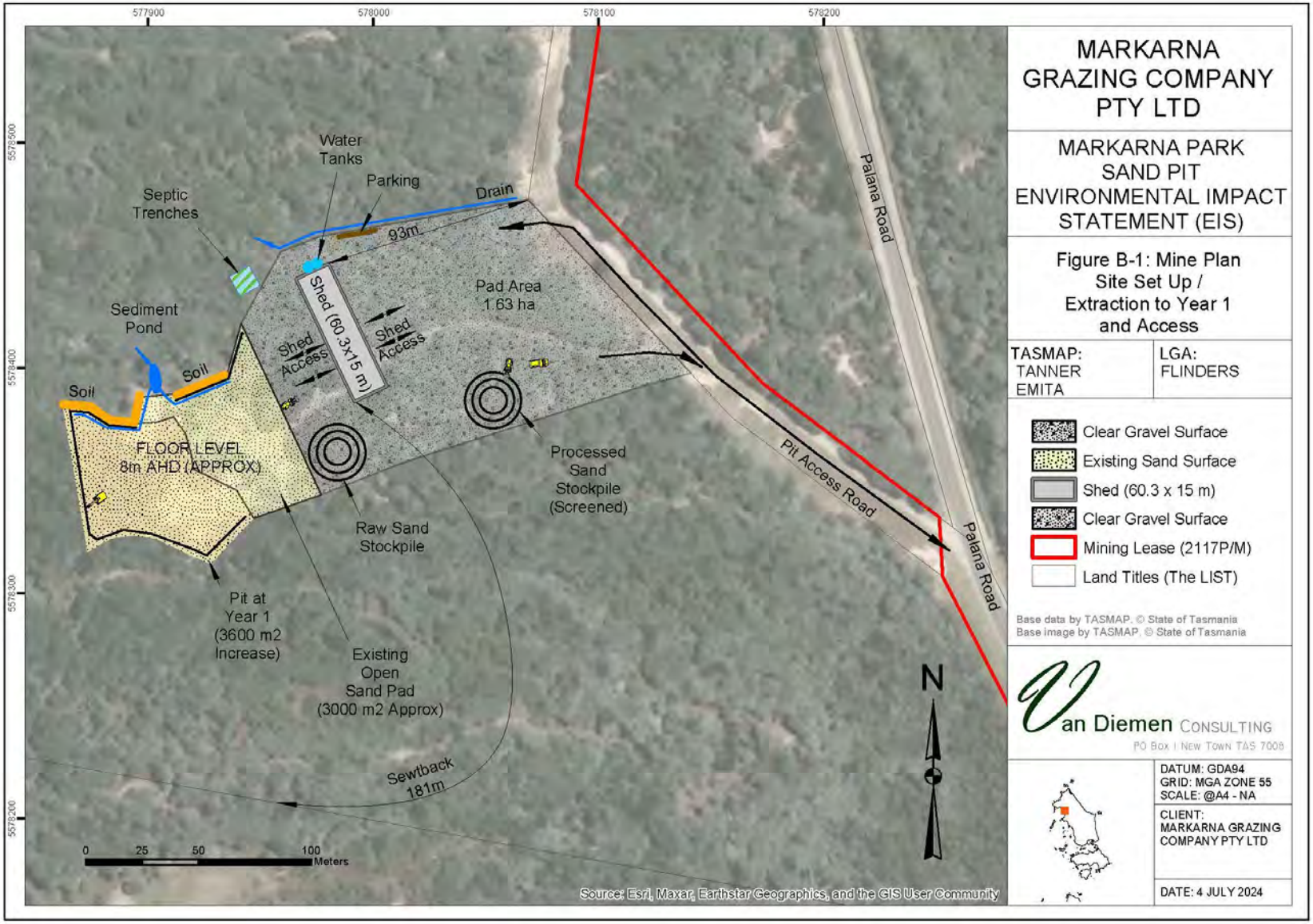



**Figure 5: Mine Plan – Set Up and Extraction Year 1 (Figure B-1 of the EIS).**

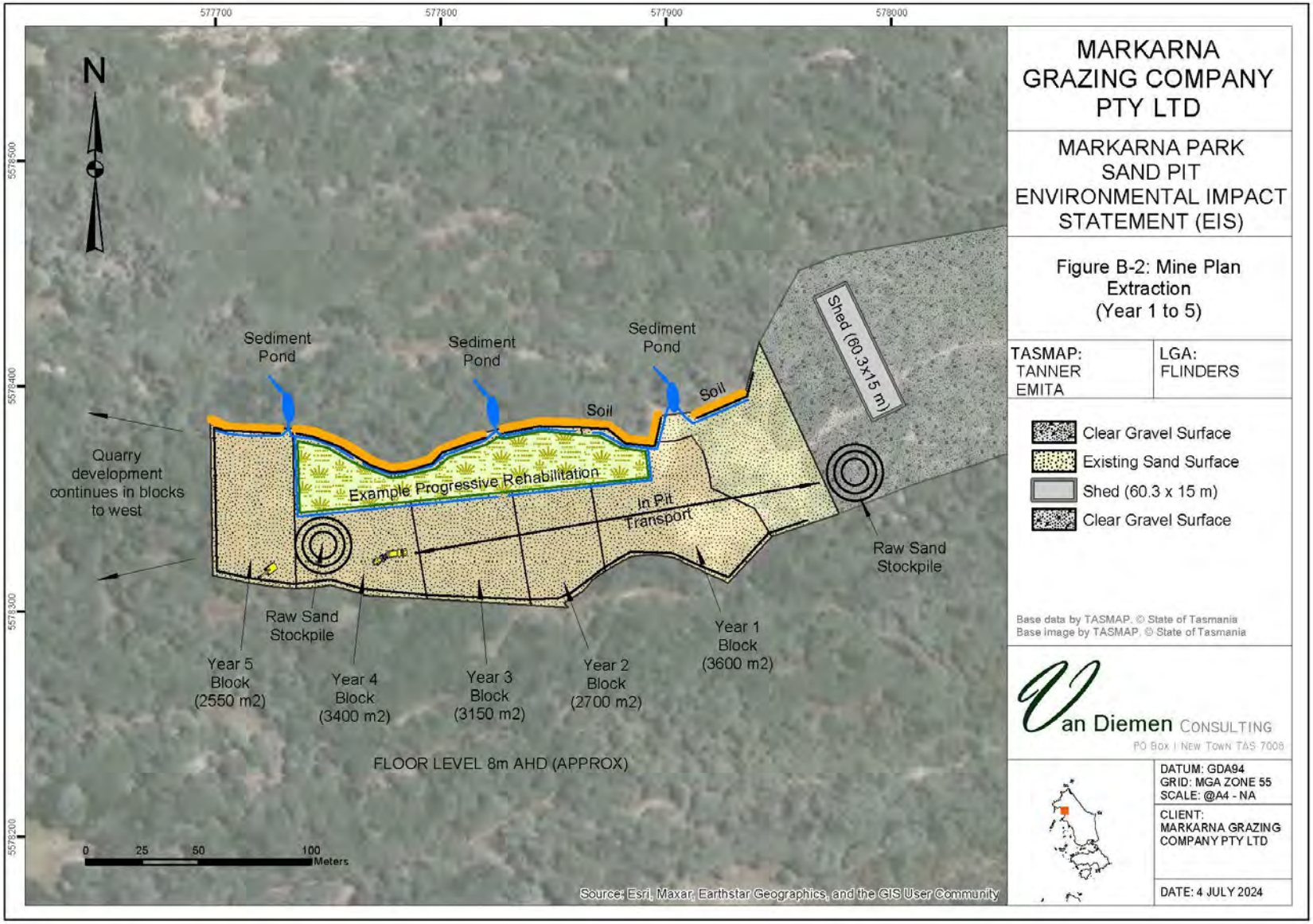



**Figure 6: Mine Plan – Extraction Year 1 to 5 (Figure B-2 of the EIS).**

# 4. Project Rationale and Alternatives

The EIS states that soil acidification is a naturally occurring process influenced by numerous factors and is compounded by most of Tasmania's soils being naturally acidic.

The EIS notes that acidification of agricultural land is a significant land degradation issue that can negatively affect productivity and sustainability of agricultural activities through:

- Decreasing the availability of nutrients to plants;
- Increasing the toxicity of aluminium and manganese;
- Decreasing soil biological functions;
- Reducing the ability of legumes to fix nitrogen; and
- Making the soil more vulnerable to soil structure decline and erosion.

The EIS notes that lime sands which are rich in calcium carbonate can reduce soil acidity by neutralising the acid reaction, thus raising pH.

According to the EIS 'liming' is the most cost-effective way to manage low soil pH, to help prevent loss of production and profitability in farming systems and reverse acidification. Liming involves applying lime to the soil surface several months before sowing pasture or crops..

According to the EIS commonly used liming materials include:

- Agricultural lime - crushed and sieved natural limestone which is mainly calcium carbonate. Safe, cheap and effective.
- Lime sand - mined from natural deposits that are mainly calcium carbonate. Safe and cheap but can be coarser and react slower with soil than agricultural lime.
- Dolomite - a mixture of calcium and magnesium carbonates. Particularly valuable where soils are low in magnesium.
- By-product lime - by-product from the production of soda ash, which contains mostly calcium carbonate, but with some calcium oxide and hydroxide.

The EIS identifies agriculture as a critical employment and income generation activity on Flinders Island, therefore its longevity is important to the social and economic well-being of the island.

The EIS states that the Marshall Bay land parcels owned by the Markarna Grazing Company ('Markana Park') were purchased to provide ongoing lime sands for use on the broader Markana Park land parcels and to sell to other agricultural enterprises as well as for use in making concrete for construction projects on the island. The EIS notes that the existing, but now disused pit, was once used by many islanders to access lime sand due to its ease of access and quality sand with a high effective neutralising value.

According to the EIS, off-island supplies of lime / sand are costly due to high freight charges. This undermines the economic viability of agriculture on the island in the medium to long-term due to inadequate levels of lime being applied which affects long term soil health and productivity of agricultural land on the island.

The EIS states that no alternative locations were considered as the lime sands are spatially limited on Flinders Island, are of very high quality, extensive in their geographic extent at Marshall Bay and can be extracted in a way and at a rate that is sensitive to the Marshall Bay environment.


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# 5. Public and Agency Consultation

The process for a section 40T LUPAA combined permit and rezoning application does not provide for public consultation to be undertaken prior to the Council determining the permit application. Public consultation occurs when the permit application has been determined by the Council and forwarded, along with the rezoning application, to the Tasmanian Planning Commission.

The EIS was referred to several government agencies with potential interest in the proposal, including:

- Conservation Assessment Section, Natural Resources and Environment Tasmania
- Parks and Wildlife Service, Natural Resources and Environment Tasmania
- Aboriginal Heritage Tasmania, Natural Resources and Environment Tasmania
- Heritage Tasmania, Natural Resources and Environment Tasmania
- Mineral Resources Tasmania, Department of State Growth
- Public Health Services, Department of Health
- Flinders Council

The following also provided specialist advice on the EIS:

- Regulatory Officer, Environment Protection Authority
- Air Section, Environment Protection Authority
- Water Section, Environment Protection Authority
- Noise Section, Environment Protection Authority

# 6. General Permit Conditions

The following general conditions are recommended for the activity:

**G1** Activity Area

**G2** Access to and awareness of conditions and associated documents

**G3** Incident response

**G4** Proposed change to activity

**G5** Change of responsibility

**G6** Change of ownership

**G7** Complaints register

**G8** Quarry Code of Practice

**G9** Amendment of required plans and reports

# 7. Evaluation of Environmental Issues

The following environmental issues are considered relevant to the proposal and are evaluated in this section:

1. Air quality
2. Surface and ground water quality
3. Noise emissions
4. Natural values
5. Weed and disease management
6. Waste management, dangerous goods and environmentally hazardous materials
7. Decommissioning and rehabilitation

## 7.1 Issue 1: Air quality

### 7.1.1 Potential impacts

The primary air emission of concern from the proposed activity is dust. Quartz based materials, which may be present in or under the calcareous sands, have the potential to impact human health through producing respirable crystalline silica.

Various activities with potential to produce dust will be undertaken, including vegetation clearing and burning, excavation of topsoil and sand, screening / adding ameliorants, loading and carting of product. Stockpiles, disturbed ground and use of internal roads by vehicles and machinery can also generate dust. If not managed appropriately, these activities have the potential to cause environmental nuisance beyond the boundary of the Activity Area. It is noted that the screening plant is mobile and may be operated both inside and outside the proposed shed depending on operational requirements.

According to the EIS there are also other potential sources of air emissions in the general area including from agricultural activities, other sand pits and conservation management activities (e.g. ecological burns).

Directly to the north, south and west of the Activity Area is land owned by the Proponent (approx. 2 km to the northern boundary and 400 m to the southern boundary). Surrounding land tenure is shown in Figure 4 above.

Immediately west of the property is the Marshall Bay Conservation Area which is comprised of a narrow strip of land covering Marshal Beach.

There is one sensitive receptor located approximately 1.15 km south-east of the Activity Area (see Figure 7). No other sensitive receptors are located within a 2 km radius of the Activity Area.

The land east of the property is mostly vegetated private land. There is a conservation covenant located on private property approximately 1.3 km east of the Activity Area (refer Figure 4 of this EAR). There are two other mining leases immediately east and just south of the Activity Area.

The prevailing wind direction is from the west with subdominant lighter winds from the east-north-east. The report notes that while easterly winds are common, they are usually lighter and often associated with rainfall thus reducing the risk of dust being blown from the Activity Area.

In reference to potential for dust emissions Attachment 9 of the EIS indicates that the younger modern dunes which run parallel to Marshall Beach along the western boundary of the mining lease are more susceptible to disturbance and blow outs, which may result in fugitive dust emissions, however, the proposed activity relates to extraction from the older west-to-east parallel dunes which are relatively stable and vegetated (see Map 3 of the EIS).

The EIS notes that removal of vegetation on these west-to-east dunes increase the risk of blow outs occurring, which may result in dust emissions, and recommended that where possible the working face should be directed to the east, away from the stronger prevailing westerly winds. The EIS also recommended that as far as practical vegetation should be retained above the working face of the pit and that worked out areas should be progressively rehabilitated.

### 7.1.2 Management measures proposed in EIS

The EIS states the following measures will be implemented to minimise the risk of wind erosion occurring:

- Avoid where possible, but otherwise minimise, working on faces exposed to westerly winds;
- Maintain vegetation above and to the west of any active extraction face; and
- Re-establish vegetation on a progressive basis.

The EIS also states that dust emissions will be managed to the extent necessary to prevent environmental nuisance by implementing industry standard environmental practices for dust suppression, including:

- Retention of vegetation along the access road corridor where possible;

- Retention of vegetation (when possible) around the pit working area to reduce the likelihood of strong winds liberating fine particles into the air;
- Utilisation of slash / mulch obtained from cleared areas to stabilise the soil surface and to limit wind action on dust generation at the soil / sand surface;
- Covering of trucks with tarpaulins and / or load dampening;
- Minimising the geographic extent of areas of exposed soil; and
- Road dampening and implementing a speed limit of 40 km/hr on the access road.

The EIS notes that soil ameliorants that will be added to some of the sand prior to delivery will be added by screening within the shed only, due to their cost and fine particle size.

In addition, the EIS states that screening of material on high wind days (i.e. winds >60 km/hr) outside of the shed will be avoided.

According to the EIS machinery operated as part of the activity will be modern, well maintained and fuel efficient to ensure that emissions are low per operating hour. It also notes that greenhouse gas emission profiles will be considered when procuring new machinery and that low emission machinery will be preferentially selected where possible and cost effective.

### 7.1.3 Agency comment

No agency comments were received in relation to air quality.

### 7.1.4 Evaluation

The potential for quartz-based sands to produce respirable crystalline silica particles was considered along with the potential for impacts on members of the public. Comments from the Proponent noted that the underlying quartz sand is not the target material for this proposal and will not be intentionally disturbed. The Proponent also noted that untreated beach sand particles would usually be considered too coarse to be inhaled.

Advice was sought from the Department of Health's Public Health Services regarding this issue. They noted that as no crushing or blasting was proposed, the proposed management measures were considered adequate and that permit conditions should seek to ensure dust emissions are contained within the site.

Based on information contained in the EIS, impacts from dust emissions on local air quality are likely be minor given the 1.15 km distance to the nearest sensitive receptor, and can be readily managed through the proposed management measures which are standard for smaller scale extractive activities. The proposed management measures are considered appropriate for the site.

While there are no nearby sensitive receptors, it is best practice to retain air emissions within the boundary of the Activity Area and therefore it is appropriate to impose conditions **A1** and **A2**.

Condition **A1** requires that any vehicles carrying loads of material that have the potential to blow, or spill must be equipped with effective control measures to prevent the escape of material. The control measure(s) must be implemented prior to leaving the Activity Area.

Condition **A2** requires that dust emissions from within the Activity Area must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of the Activity Area.

### 7.1.5 Conditions

The proponent will be required to comply with the following conditions:

**A1** Containment of loads

**A2** Control of dust emissions

## 7.2 Issue 2: Surface and ground water quality

### 7.2.1 Potential impacts

The proposal involves activities such as clearing of vegetation, excavation, screening, carting of material, stockpile creation, weed management, and refuelling / maintenance of equipment and machinery, all of which have the potential to be sources of pollutants (e.g. sediments, fuel / oil, and other chemicals) that may impact surface and ground water quality if not managed appropriately.

In addition, the EIS proposes a maximum disturbed area at any given time of up to 5 ha that may be comprised of access roads, stormwater infrastructure, stockpiles, the pad area, partly rehabilitated extraction areas and the active pit area. This means there is potential for sediments to be entrained in stormwater during storm events.

A survey of the geomorphology and soil characteristics of the mining lease was undertaken, and the subsequent report is contained in Attachment 9 of the EIS (the Geomorphology Report). According to the report, extensive sand dunes cover most of the mining lease and are composed of fine-grained white quartz and carbonate deposits, with two significant sand dune assemblages present. In the western part of the mining lease are the modern foredunes and back dunes directly behind Marshall Beach. Inland of this are a series of elongated west-to-east trending parallel dunes that rise to approximately 24 m above sea level.

The report describes the inland dunes, some of which will be extracted under this proposal (see Map 3 of the Geomorphology Report), as being largely vegetated and stable in comparison to the foredunes. The report notes that the dune system being targeted for extraction is not well expressed on topographic maps and that it is comprised of a series of at least eight dune ridges with steep sides and wide, deep interdune swales, rather than the single dune system shown on most topographic maps.

#### Surface water

The EIS states that the top layer of lime sand being targeted by this proposal has high permeability, which influences infiltration rates and subsequently stormwater runoff patterns.

The EIS  notes that there are no defined water courses within the Activity Area and no formal drainage exists into the nearby wetlands (North and South Curves Lagoons). It also notes that the onsite survey determined the wetlands areas were significantly smaller than mapping suggests (see Issue 4 below for further details).

#### Groundwater

The EIS states that given the extensive nature of limestone on the hills east of the mining lease, subsurface water flow through karst aquifers is likely, but that significant karst landforms are unlikely to be present within the Activity Area, as detailed in the Geomorphology Report.

The EIS notes that groundwater depth is likely to be in the range of the nearest bore located approximately 3 km northwest of the Activity Area in comparable sediments. This bore recorded a standing water level of 4.7 m below ground level.

The EIS notes that during soil sampling for the wastewater management system absorption bed site, a hardpan was identified at around 1.2 m below ground level. This hardpan was described as considerably less permeable than the overlying unconsolidated lime sands, but it was noted that the hardpan was likely to be present at varying depths across the Activity Area. The material underlying the hardpan was described as loose and damp yellow sand associated with the water table.

The EIS states that this hardpan layer will not be targeted, only the overlying unconsolidated lime sands. The EIS makes a commitment that a sand layer of approximately 1 m in depth will be retained over the base geology (i.e., the hardpan / limestone) to facilitate re-establishment of vegetation once worked out areas are to be rehabilitated. The EIS also notes that no pit / depression will be created from extraction of material.

#### Onsite wastewater management system

The EIS states that an onsite wastewater management system is proposed to treat and dispose of wastewater from the ablution / kitchen facilities located within the proposed shed. The system will be

comprised of a septic tank which discharges to an in-ground absorption bed with a design capacity for five people per day. The Site & Soil Evaluation and Design Report, contained in Attachment 5 to the EIS, details the evaluation of the location and recommended design of the proposed wastewater management system, which if not installed and managed appropriately has the potential to impact water quality.

### 7.2.2 Management measures proposed in EIS

According to the EIS stormwater runoff from the Activity Area will be captured and treated by sediment ponds to remove sediments to the extent necessary to prevent environmental nuisance.

Perimeter drains will be installed to direct clean stormwater away from disturbed areas of the activity. One of the perimeter drains will be installed along the northern extent of the pad area (see Figure 5) to intersect any stormwater draining off the semi-permeable pad area and direct it to the permanent Type-C (refer to IECA, 2018) sediment basin, as shown in Plate 2 of the EIS. The basin outflow will be directed to overland flow dispersed through vegetation to minimise the risk of concentrated flows and erosion.

A series of Type-F sediment basins will be installed as extraction progresses. Figure 6 shows indicative locations of basins for years 1 to 5 of extraction. These basins are designed to collect and treat any stormwater runoff generated within the active extraction areas and any partly rehabilitated areas. Once extraction and rehabilitation of an area has been completed, the corresponding sediment basin will be redundant and a new sediment basin will be constructed for the next area of extraction. The basin outflows will also be directed to overland flow dispersed through vegetation.

Stormwater falling onto the shed roof will be captured in water tanks (likely 2 x 50,000 litres) and any overflow from those tanks will be directed to the permanent sediment basin for the pad area.

Due to the high infiltration of water through the sand, it is anticipated that the total demand for these basins to treat stormwater will be relatively low. Should there be an accumulation of treated stormwater in the basins or in the tanks, it may be repurposed for operational activities, such as for dampening roads or sand to be screened / blended.

The EIS also includes commitments to minimise the extent of exposed areas and to utilise slash obtained from vegetation clearing, or other products such as jute mesh, to stabilise soil surfaces.

The EIS notes several of the management measures applied to the use and storage of hazardous substances (e.g. bunding, spill kits, pre-start checks of machinery etc.) are also important in preventing spills and leaks that could impact karst or groundwater.

According to the EIS regular visual monitoring (monthly) will be undertaken to ensure the effectiveness of the installed stormwater management and sediment control structures. Repair and remedial works (including sediment basin cleaning) will be performed to maintain appropriate sediment settling zones and to ensure that stormwater is entering and leaving the basins as planned. The effect of sediment basin discharge on vegetation and the soil surface will be monitored and remedial actions taken if the soil surface becomes scoured, or vegetation becomes covered by discharged sediment.

### 7.2.3 Agency comment

No agency comments were received in relation to surface and ground water quality.

### 7.2.4 Evaluation

The proposed installation and maintenance of perimeter cut off drains to prevent clean stormwater from entering the extractive areas / pad is considered appropriate. To reflect these commitments, standard condition **SW1** requires construction of perimeter cut off drains / bunds and any other stormwater management infrastructure required (such as sediment ponds) to ensure stormwater is managed appropriately.

In addition, condition **SW2** sets out the required minimum standards for the design and maintenance of any sediment basins constructed for managing stormwater.

**SW3** is a standard condition requiring all reasonable measures to be implemented to ensure solids entrained in stormwater are retained within the Activity Area, and that any polluted stormwater discharged

from the Activity Area is first collected and treated to the extent necessary to prevent environmental harm or nuisance. It also requires that any discharge does not degrade the visual quality of any receiving waters.

While the EIS suggests that intersection of groundwater is unlikely, no detailed study of groundwater has been undertaken, and it is considered appropriate to include condition **GW1** to ensure that an appropriate buffer is maintained should shallow groundwater be encountered.

Condition **GW1** requires that in the event groundwater is intersected, or standing water is observed within the extraction area, machinery must be prevented from entering the area and extracted material must be used to raise the base level of the extractive activity to prevent the occurrence of groundwater intersection within the Activity Area.

The design, installation and operation of the proposed wastewater management system is a matter that will be assessed by the planning authority under the planning scheme and will also require a plumbing permit. The wastewater discharge will be broadly similar to domestic wastewater and will not include industrial or trade wastes. It is anticipated that if the wastewater management system is designed, installed and maintained as detailed and meets the planning authority's requirements that the risk of causing environmental nuisance or harm is low.

The EIS lists the relevant acceptable standards of the QCP applied to the quarry in relation to water quality, sediment control and drainage. These measures are considered appropriate and condition **G8** requires the activity to be undertaken in compliance with the acceptable standards provisions of the QCP.

Based on the information provided, the commitments made in the EIS, and the conditions imposed as detailed above, it is considered the potential environmental risks can be adequately managed to ensure that environmental harm or nuisance is not caused by proposed extractive pit.

### 7.2.5 Conditions

The proponent will be required to comply with the following conditions:

**SW1** Perimeter drains or bunds

**SW2** Design and maintenance of settling ponds

**SW3** Stormwater

**GW1** Groundwater

**G8** Quarry Code of Practice

## 7.3 Issue 3: Noise emissions

### 7.3.1 Potential impacts

The following operations will occur as part of the activity and may generate noise emissions with the potential to travel beyond the boundary of the Activity Area and cause environmental nuisance:

- Construction activities associated with installation of the shed, tracks, sediment basins, drains and the septic system;
- Removal of vegetation;
- Excavation associated with extraction;
- Screening of sand (both in the shed and external to the shed);
- Loading of material into trucks;
- Carting of material within and from the Activity Area; and
- Movement of vehicles and other ancillary equipment associated with the activity.

Table 9 of the EIS provides a list of equipment and machinery to be used, and the assumed sound power levels associated with each item. The EIS notes that the actual equipment used may vary over time as equipment is replaced. In addition, Figures B-1 and B-2 of the EIS show indicative locations where plant and equipment will be used.

According to the EIS noise producing equipment and machinery that will be used includes a bulldozer, grader, excavator, frontend loader, water truck, cartage trucks, light vehicles, and mobile screen.

The EIS states the nearest sensitive receptor is located 1.15 km south-east of the shed within the Activity Area and approximately 295 m east of the mining lease boundary (see Figure 7). All other sensitive receptors are more than 2 km from the proposed Activity Area.

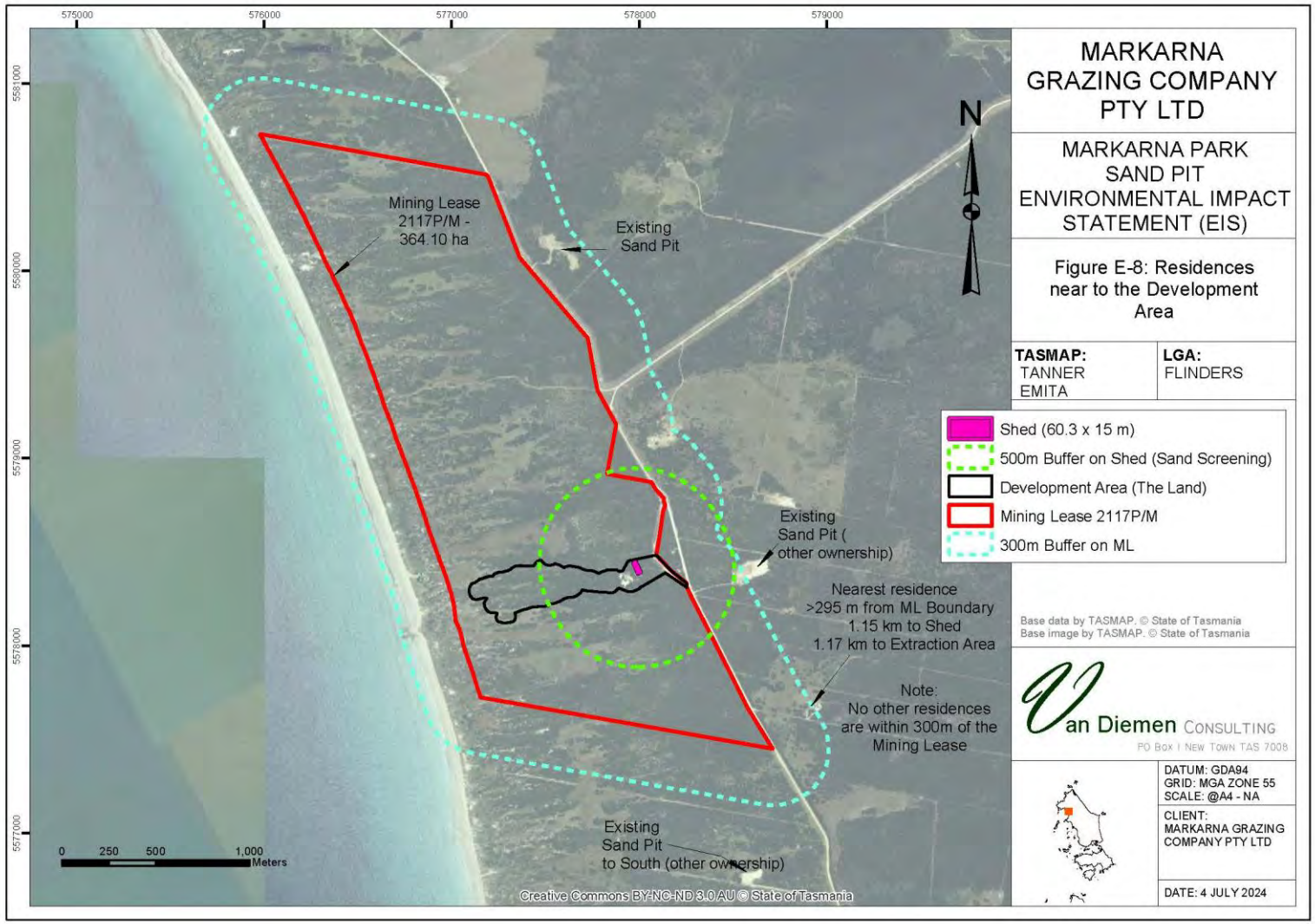



**Figure 7: Nearest noise sensitive receptors (Figure E-8 of the EIS).**

The EIS notes that the activity will operate intermittently with a likely peak transport period of March to May which may vary depending on seasonal factors and individual agricultural needs. This is the typical period when lime sand is required for spreading on agricultural lands. The proposed hours of operation are 0700 to 1900 hours Monday to Friday.

There is likely to be some level of activity on the site throughout most of the year, for example excavation and stockpiling prior to the main lime sand spreading period (likely December to March) and on an as needs basis for other uses, such as for offsite concrete production for construction projects.

### 7.3.2 Management measures proposed in EIS

According to the EIS the pit is located in an area with no nearby noise sensitive receptors and the potential for impacting the closest receptors is considered to be very low, including from noise generated during carting of material onto the external road network.

Nevertheless, the EIS states that late model machines with proprietary exhaust silencers will be used and machines will be maintained in good condition to reduce the potential for noise emissions.

The EIS also states that operations will only occur Monday to Friday between 0700 and 1900 hours.

### 7.3.3 Agency comment

No agency comments were received in relation to noise emissions.

### 7.3.4 Evaluation

The nearest noise sensitive receptor is located over 1 km from the Activity Area. Furthermore, the activity is for the extraction of lime sand which will not require ripping rock or any other method of liberation (e.g., blasting) that typically produces a higher level of noise emissions. Although screening is proposed to remove organic matter, removal of rocks via screening is not required and therefore significant noise is not expected to be generated during this process.

No extractive activities, apart from carting of material offsite, are permitted outside of the Activity Area as defined in Attachment 1 of the permit conditions. Given the separation distances and proposed operating hours, noise emissions from the activity are unlikely to impact on noise sensitive receptors. To ensure that operational hours are adhered to, condition **N1** is included, which restricts the operational hours to those proposed in the EIS and specifically prohibits activities occurring on Saturdays, Sundays or public holidays that are observed statewide, except Easter Tuesday.

### 7.3.5 Conditions

The proponent will be required to comply with the following condition:

**N1** Operating hours

## 7.4 Issue 4: Natural values

### 7.4.1 Potential impacts

Activities associated with operation of an extractive pit have the potential to disturb, injure or kill threatened fauna or flora species and vegetation communities if not managed appropriately. Activities, if not managed appropriately, also have the potential to adversely impact geomorphological features and processes, including coastal dune systems and any karst present.

#### Flora

The EIS states that there are two native vegetation communities present within the Activity Area (see Figure 8) and that neither of these communities are listed under the *Nature Conservation Act 2002* (NCA) or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).

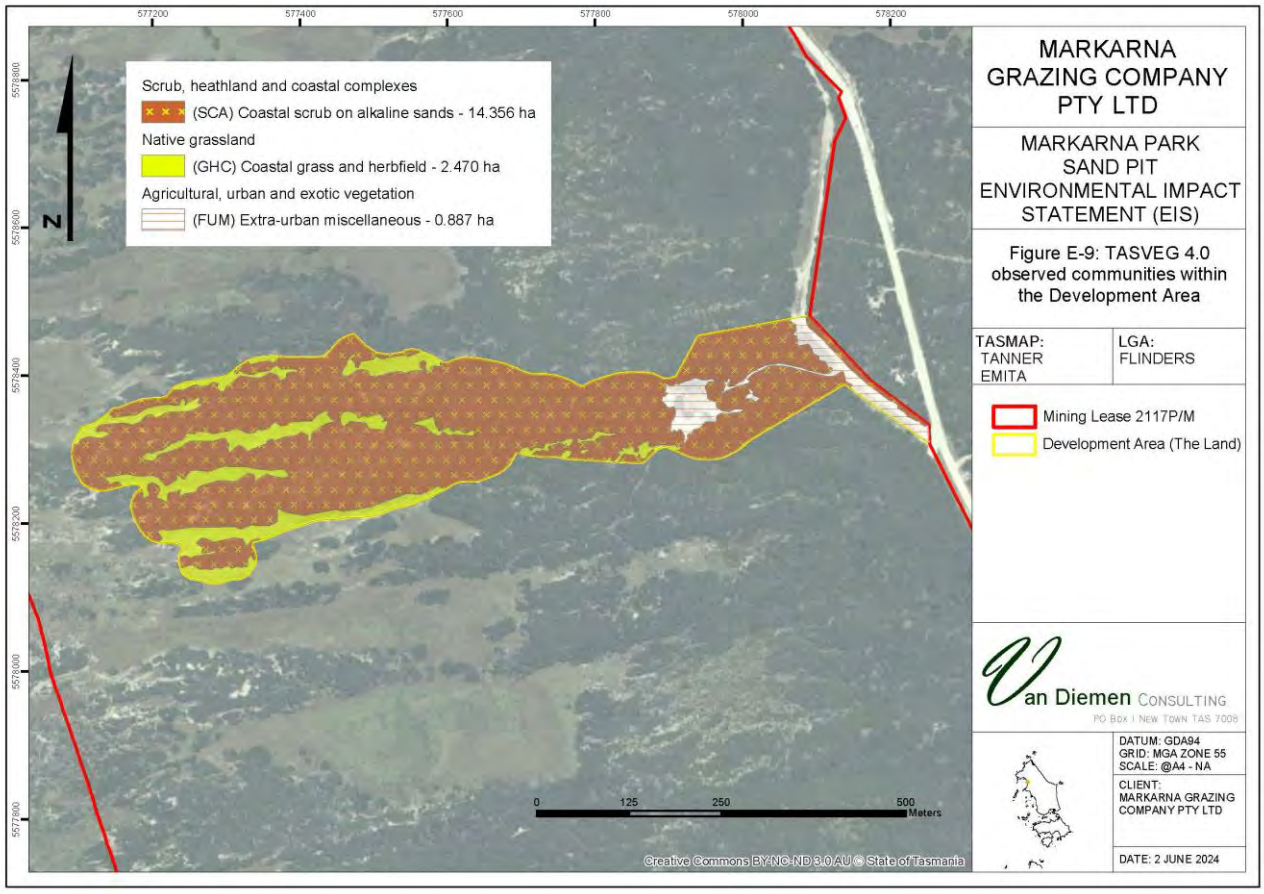



**Figure 8: Observed vegetation communities within the Activity Area (Figure E-9 of the EIS).**

A natural values assessment was undertaken within and adjacent to the Activity Area (Attachment 4 of the EIS). The NVA Report identified six plant species within the Activity Area (Figure 9) that are listed under the *Threatened Species Protection Act 1995* (TSPA). The report states that all six species will be impacted by the proposal and details the expected number of individual plants that will require removal. The maps in the report indicate that the majority of these species are located in and around the proposed infrastructure area and access road corridor (see Figure 9 below).

The NVA Report considers the potential for the coastal grass and herb field community to represent the EPBCA listed lowland native grasslands of Tasmania ecological community but determined that it does not satisfy the relevant criteria for that community.

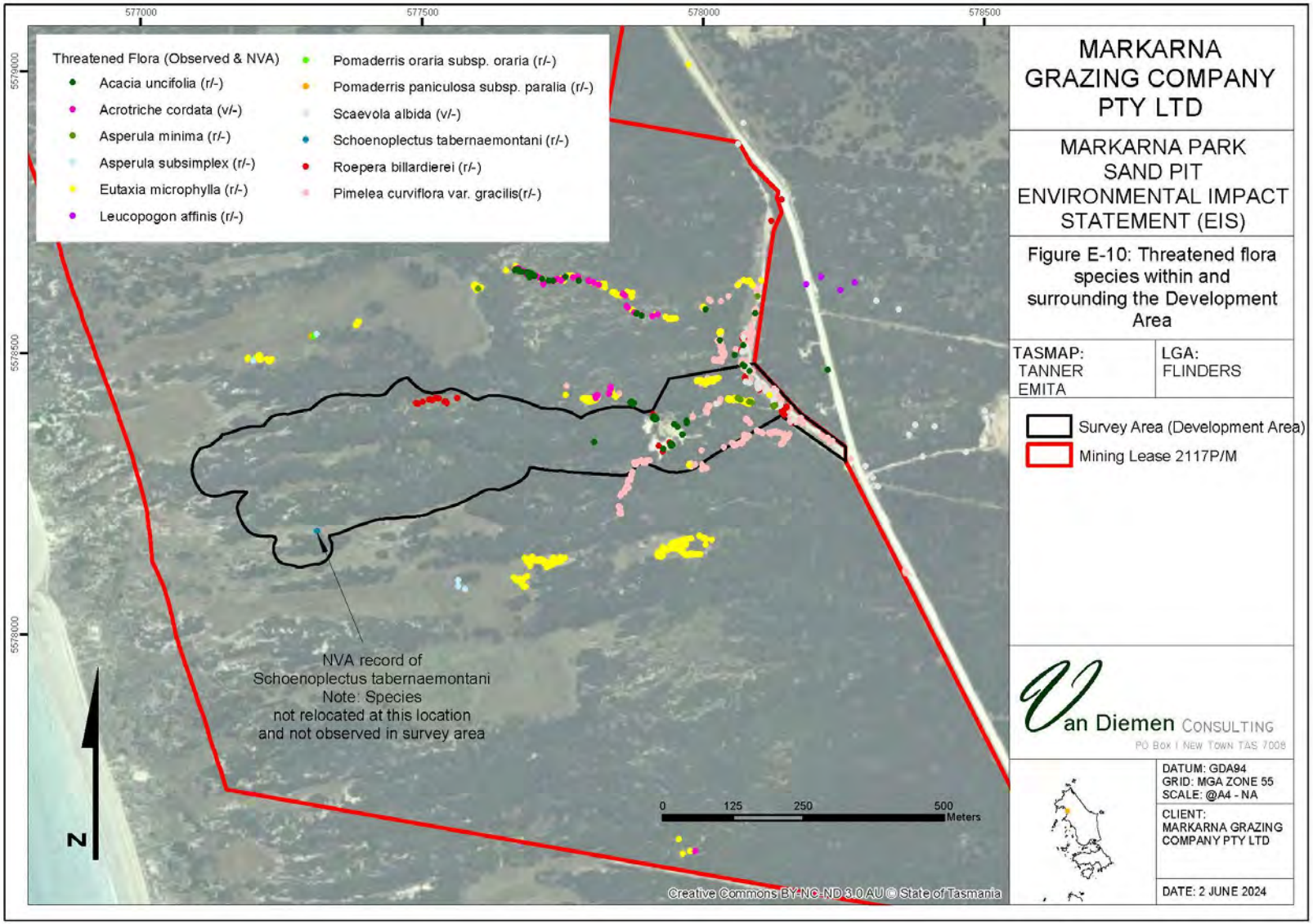



**Figure 9: Threatened flora species within and surrounding the Activity Area (Figure E-10 of the EIS).**

## Fauna

The NVA Report notes that there are threatened fauna species records within 5,000 m of the Activity Area based on Natural Values Atlas (NVA) and Protected Matter Search Tool (PMST) data (refer to Tables 8 & 9 of the NVA Report).

### *Eagles*

According to the NVA Report no threatened fauna species were observed onsite during the survey, however, there is potential foraging habitat for the wedge-tailed eagle (*Aquila audax subsp. fleayi*) and white-bellied sea eagle (*Haliaeetus leucogaster*) within the Activity Area. It is noted there is no potential nesting habitat for either species onsite or within 2.5 km of the Activity Area.

### *Mammals*

The NVA Report states there is potential habitat for the New Holland mouse (*Pseudomys novaehollandiae*) adjacent to the western edge of the mining lease, which is outside of the Activity Area. It also notes the Activity Area itself does not support suitable habitat for the species and it is not within the known core range of the species.

Devils and quolls are not located on the island and therefore impacts from nighttime vehicle movements were not considered as there is no potential to impact on these species.

### *Reptiles / amphibians*

The NVA Report states that while grassland (e.g., coastal grassland and herb field) is potential habitat for the tussock skink (*Pseudemoia pagenstecheri*), the lack of significant areas of *Poa labillardierei* tussocks means that suitable habitat is largely absent for the species within the Activity Area. It is noted that there are areas which support suitable habitat within the mining lease but outside of the Activity Area.

### *Beach associated avifauna*

The NVA Report specifically considered beach associated avifauna given the proximity of the proposal to the Marshall Beach Conservation Area, identifying six species listed under the TSPA and EPBCA with potential ranges on or near the Activity Area.

The NVA Report notes that of the species identified, the Australian fairy tern (*Sternula nereis nereis*), eastern hooded plover (*Thinornis cucullatus cucullatus*) and little tern (*Sternula albifrons*) have been observed at or near Marshall Beach, based on available data.

The NVA Report states the Activity Area does not include beach, foredune, back dune or modern dune habitat and that the activity is unlikely to have a direct or indirect impact on beach dwelling avifauna.

## Geomorphology and soils

A survey of the geomorphology and soil characteristics of the mining lease was undertaken (Attachment 9 of the EIS (the Geomorphology Report)).Map 3 of the report summarises the geomorphology of the mining lease.

### *Karst*

The Geomorphology Report notes that while bedrock Tertiary limestone is present in the east of the mining lease, no karst landforms, apart from very minor surface solution sculpture (karren) landforms, have been identified. It also notes that given the extensive nature and relief of the limestone on the hills east of the mining lease, subsurface water flow through karst aquifers is likely, however, significant karst landforms are unlikely to be present based on observations made.

The report states that while sinkholes are difficult to differentiate from dune swales, all the depressions observed within the Activity Area were determined to be dune swales and therefore should not be treated as karst features.

### *Sand dunes*

According to the Geomorphology Report, extensive sand dunes cover most of the mining lease and are composed of fine-grained white quartz and carbonate deposits, with two significant sand dune assemblages


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present. In the western part of the mining lease are the modern foredunes and back dunes directly behind Marshall Beach. Inland of this are a series of elongated west-to-east trending parallel dunes that rise to approximately 24 m above sea level.

The report describes the inland dunes, some of which will be extracted under this proposal, as being largely vegetated and stable in comparison to the foredunes. In reference to the dune system being targeted by this proposal, the report notes that it is not well expressed on topographic maps and that it is comprised of a series of at least eight dune ridges with steep sides and wide, deep interdune swales, rather than the single dune system shown on topographic maps.

The report states that blowouts of the coastal dunes backing Marshall Beach were observed to be quite common within the mining lease, but away from the coast most of the larger dunes appear to be stable. It goes on to note that the current pit face being on the leeward side of the dune system limits the potential for the prevailing westerly winds to significantly erode sands and that there is a risk that if / when extraction extends to more of a windward face wind erosion could increase significantly.

The report notes that the dune field within the mining lease is a landscape of geoscientific interest which can and should be managed appropriately to limit the footprint of any extractive activities.

***Acid soils***

The report provides details of the soil characteristics and results of limited soil sampling that was undertaken to identify any unusual soil characteristics, focusing on soil acidity.

The report notes that soils within the Activity Area are generally well drained strongly alkaline calcarosols (i.e., lime sand) and that while organic topsoils, buried paleosols and lake / swamp sediments are present within the mining lease none of these contain adequate organic material to significantly reduce pH within the dune sands. The report concluded that acidic soils are unlikely to be present over extensive areas or may be totally absent, as supported by the sample results.

The report notes that the survey was not comprehensive and that it is possible some swampy depressions may host thicker organic horizon having a lower pH. However, these areas will not be directly impacted by the proposal, which targets only the elevated lime sand dune system detailed in the EIS.

***Wetlands***

The report notes that the extent of wetlands at North and South Curves Lagoons is significantly smaller than indicated on the topographic map and the TASVEG mapping, with significant areas of these features being undulating grassy dune fields. The report states that no wetlands (swamps), as defined by the *Forest Practices Code 2020* were identified within the Activity Area.

### 7.4.2 Management measures proposed in EIS

The EIS states that the Proponent will include as part of its induction and operational management system, a process for staff, management and contractors working at the pit to mark clearing and working areas to identify permitted operational areas and exclusion zones.

The EIS states that in the event notable examples of significant geomorphological features are encountered (i.e., any of the features listed below) the area will be photographed and operations moved away from the feature until a suitably qualified person (in the context of the item / items discovered) can assess any geomorphological / cultural values.

Contractors will be instructed to look out for:

- thick dark continuous bands within the dunes.
- buried tree stumps or large calcareous deposits (not rhizoliths of modern age such as those created by tree roots from recently deceased vegetation) that appear to be parts of a tree.
- stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand.
- large accumulations of shells.

- large bones and accumulations of smaller bones buried >1 m under the surface.

According to the EIS in the event a steep sided depression forms during operations that has signs of collapse, or a cave is located, they will be recorded, and operations will avoid the area until expert advice is sought.

The EIS states that in order to reduce the risk of wind erosion causing blow outs the following measures will be implemented where practical:

- avoid, if possible, but otherwise minimise working on faces exposed to westerly winds.
- maintain vegetation above and to the west of any active face where possible.
- re-establish vegetation on a progressive basis which could include stockpiling of cleared vegetation for covering exposed surfaces as the operation progresses.

### 7.4.3 Agency comment

The Department of Natural Resources and Environment (NRE Tas) advised that the mitigation measures outlined in Section C-4-3 of the EIS were generally supported.

NRE Tas also noted that:

- several species listed under the TSPA will require removal and advised that a Permit to Take will be required for any threatened flora to be taken as part of the development.
- some potential habitat for the listed tussock skink was observed during the survey but was outside the Activity Area.
- the survey did not identify any suitable habitat within the Activity Area for threatened shorebird species and that the survey concluded that "*there will be no activities that would generate noise, dust, or other form of emissions (e.g. light) that may or would disturb nesting and foraging beach dwelling bird species*" on Marshall Beach.
- if it is likely the development will require lighting to be operational during nighttime hours, the principles outlined in the Department of Climate Change, Energy, the Environment and Water's *National Light Pollution Guidelines for Wildlife 2023* should be incorporated into the lighting design, in particular Appendix A - Best Practice Lighting Design, to reduce the potential impacts of artificial light on shorebirds.
- the survey did not identify any threatened vegetation communities and confirmed that there were no wetlands within the Activity Area.
- as mentioned in the EIS there is a potential for the dunes to erode once vegetation is removed and that the proposed mitigation measures are supported for reducing the risk of wind erosion.
- the Geomorphology Report did not identify any significant karst features, and that only very minor surface solution sculpture (karren) landforms were identified.
- the Geomorphology Report did not identify any significant areas likely to produce acid sulfate soils.

### 7.4.4 Evaluation

The area surrounding the Activity Area supports a diverse range of natural values, including threatened flora species, habitat for threatened fauna species and geomorphological landforms / processes.

The Natural Values Survey did not identify any threatened native vegetation communities present within the Activity Area, nor did it identify any nesting / denning habitat for threatened fauna species. It did however identify several threatened flora species that will be impacted within the Activity Area.

The advice from NRE Tasmania regarding the need to obtain a Permit to Take under the TSPA for all threatened flora species that will be taken was provided to the Proponent.

While it was identified the mining lease exists within a karst landscape, only minor surface features were identified during the survey. It is not anticipated that any significant karst features will be encountered

within the Activity Area, such as caves and sinkholes, however, the EIS includes management measures to ensure that appropriate steps are put in place if a significant karst feature is identified.

The Geomorphology Report also discusses the risk of blow outs when disturbing the sand dune system, noting that the west-to-east parallel dunes are most at risk when exposed to the prevailing westerly winds. The EIS proposes several management measures to reduce the exposure of the working face to the westerly winds and to minimise the amount of ground exposed, both of which could result in dune erosion and loss of resource.

As detailed above, the EIS proposes a suite of management measures in relation to the natural values identified; these are considered relevant and adequate to manage the potential risks to natural values. It is noted that a Permit to Take may be required under the TSPA. No specific natural value conditions are considered necessary.

### 7.4.5 Conditions

While no conditions directly relating to natural values are considered necessary, other conditions imposed, such as those related to water and air quality as well as rehabilitation are considered relevant and assist indirectly in preventing environmental harm or nuisance related to natural values.


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## 7.5 Issue 5: Weed and disease management

### 7.5.1 Potential impacts

Movement of vehicles, plant, and equipment on and offsite associated with the activity has the potential to introduce or spread weeds and diseases to, from or around the site if not managed appropriately. Product stockpiles can also be contaminated with weeds or diseases which may then be transported to other areas if not managed appropriately.

According to the EIS two weed species, horehound (*Marrubium vulgare*) and slender thistle (*Carduus tenuiflorus*)), listed as declared weeds under the *Biosecurity Act 2019,* have been observed within the Activity Area along the access track off Palana Road (see Figure 2 of the draft Weed and Disease Management Plan, Attachment 8 of the EIS).

The EIS includes a draft Weed and Disease Management Plan at Attachment 8 which notes that the Activity Area supports other introduced species, considered to be agricultural weeds, and that these weeds are generally widespread in the areas where lime sands will be utilised (i.e., agricultural lands).

The EIS states that no plants with symptoms of phytophthora (*Phytophthora cinnamomi*) were observed within the Activity Area. It also notes that there is a lack of susceptible species within the Activity Area and therefore phytophthora is unlikely to be present or active.

### 7.5.2 Management measures proposed in EIS

The EIS notes the development of the Weed and Disease Management Plan was guided by the *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania* (Department of Primary Industries, Parks, Water and Environment, 2015).

The Plan provides two key aspects to the management of weeds and diseases, including:

- an annual assessment of weed occurrences and locations to guide the implementation of the annual weed spraying program aimed at controlling or possibly eradicating weeds within or adjacent to the Activity Area.
- a clean vehicle policy will be implemented to ensure heavy machinery will be brought to the activity in a clean condition, free of weed propagules, clods of dirt and vegetative matter.

### 7.5.3 Agency comment

No agency comments were received in relation to weed and disease management.

### 7.5.4 Evaluation

It is acknowledged that two declared weed species are already present on the access road off Palana Road, and that ongoing management of these weeds is critical to ensure they do not spread any further due to the activity.

The commitment to implement a clean vehicle policy is supported. Condition **OP1** requires that, prior to entering the Activity Area, machinery must be washed in accordance with the Weed and Disease Guidelines.

The implementation of the draft Weed and Disease Management Plan is also supported. Condition **OP2** requires that the activity must be undertaken in accordance with the Weed and Disease Management Plan, as provided in Attachment 8 of the EIS, dated 10 November 2024 and prepared by Van Diemen Consulting Pty Ltd. It is acknowledged that a minor update will be required to add in any relevant permit conditions. The condition also allows for the plan to be updated and approved by the Director should the need arise; this will ensure the plan remains relevant and effective in achieving its objectives.

The commitments made in the EIS and draft Weed Management Plan are considered appropriate and inclusion of the above conditions will ensure they are implemented to minimise the risk of introducing or spreading weeds and diseases to and from the site.

### 7.5.5 Conditions

The proponent will be required to comply with the following conditions:

**OP1** Machinery washdown

**OP2** Weed and Disease Management Plan

## 7.6 Issue 6: Waste management, dangerous goods and environmentally hazardous substances

### 7.6.1 Potential impacts

Solid wastes generated by the activity that are not collected, stored and disposed of appropriately have the potential to cause environmental nuisance or harm through attracting vermin, native and feral animals, causing odour, increasing fire risk and litter blowing offsite. Inappropriate storage, handling and disposal of environmentally hazardous substances including fuels, oils and herbicides, has the potential to contaminate soil, surface and ground waters.

The EIS identifies two main solid waste streams from the activity which are typical 'domestic' wastes (i.e. food scraps / wrappers and other wastes from the office and crib rooms); and semi-industrial wastes, such as, small empty drums (e.g., from motor oils, hydraulic and brake fluids, herbicides), plastics (wrapping on parts, replacement belts), rags (may be contaminated with hydrocarbon-based products), tyres and batteries.

The EIS also identifies that some solid wastes likely to be generated by the activity are likely to be classed as controlled wastes. The potential controlled wastes include contaminated soils from hydrocarbon-based product spills during refuelling or maintenance works, tyres if replacement is required, and the empty chemicals containers. Table 13 (section C.5.2) of the EIS lists the potential sources of controlled wastes for the activity and their proposed disposal method.

In addition, the EIS states that there will likely be an excess of cleared vegetative matter that will not be able to be used for rehabilitation / land stabilisation purposes. The Proponent has indicated that if needed, they will burn excess vegetative matter. It was noted that there are limited options for disposal of green waste at the three waste disposal sites on the island and that transport off the island is impractical. The Proponent has noted that there are potentially other options, such as seeking agreements with other landowners in need of vegetative matter for rehabilitation (e.g., other quarries), but that this is not a reliable option.

According to the EIS the use of hazardous substances is required at the activity. Fuel, oils and lubricants will be used to operate and maintain functional machinery and herbicides will be used for the control of weeds on site. Fuel will be brought onsite as required in portable pods / tanks mounted on the back of a utility vehicle. The other chemicals such as lubricants, oils and herbicides will be stored onsite within the shed.

### 7.6.2 Management measures proposed in EIS

According to the EIS waste management measures will be in accordance with the best practice hierarchy of waste management (i.e., avoidance, recycling / reclamation, re-use, treatment to reduce potentially adverse impacts, disposal).

The EIS also states that solid wastes will be managed in accordance with the following:

- general domestic wastes (e.g., lunch wrappers) generated at the site will be collected in waste bins provided in the amenities / crib room. The bins will be emptied at least once per fortnight and the material disposed of at a permitted refuse disposal site. Waste bins that receive food scraps will be fitted with preventative access measures to discourage wildlife from seeking out food scraps.
- Waste bins will be located at the activity for the semi-industrial wastes and will be labelled with the types of waste each bin is to receive. The waste will be sorted based on the classification of the type of waste, with controlled waste separated from all other waste streams and disposed of at least fortnightly at the Council operated Whitemark Waste Facility.
- Where possible repair and maintenance works will be undertaken off-site and wastes generated by those activities will be managed by the service provider (e.g. workshop, tyre replacement facility, repair shop).

The EIS states that no more than 10 cubic meters of vegetative material generated by clearing works will be stored in any one stockpile, with stockpiles separated by at least 20 m of open bare ground ready for


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burning when conditions are suitable and following the fire permit period conditions that prevail at the time.

The EIS states that contamination of the environment by the release of fuels, lubricants and/or hazardous substances will be prevented as far as reasonable to do so by the application of effective, industry standard avoidance and mitigation management measures, including:

- All fuels, lubricants and/or hazardous materials are stored in accordance with the relevant requirements of *AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids*.
- Refuelling activities will only occur when machinery is within a bunded / hardstand area on the site.
- Hazardous materials storage areas will be managed in accordance with EPA Tasmania's *Bunding and Spill Management Guidelines*, December 2015.
- Chemicals used for weed control will be stored, handled, used, and disposed of in accordance with the manufacturer's directions and relevant regulations.
- Spill prevention and clean-up equipment (i.e., spill kits) will be readily available and accessible in the vicinity of all plant and machinery, including mobile and fixed fuel storages.
- Spill prevention and clean-up procedures will be in accordance with the following principles:
    - minimise the volume of hazardous substances kept onsite.
    - develop contingency plans to address spills and leaks.
    - install trays, thick plastic mats or similar beneath stationary machinery to protect the soil from oil or fuel spills and leaks.
    - install spill trays immediately if there is any potential for, or evidence of, leakage.
    - ensure that appropriate clean-up equipment is readily accessible.
    - maintain a supply of oil-absorbent material.
    - contain and treat spills and leaks.
    - notify relevant authorities of significant spills or leaks.
    - ensure that drainage from areas where spills may occur like a refuelling area is diverted through a sump or interceptor trap to remove any potential hydrocarbon contamination.

### 7.6.3 Agency comment

No agency comments were received in relation to waste management, dangerous goods and environmentally hazardous substances.

### 7.6.4 Evaluation

While burning of cleared vegetation is not a preferred method of disposal, the difficulty of dealing with vegetative waste as outlined in the EIS and additional information is noted. The preference to seek other reuse or disposal options in the first instance, in line with the waste management hierarchy principles outlined in **OI1**, is supported.

The Proponent will be required to comply (**G8**) with the Acceptable Standards provisions of the Quarry Code of Practice, including for waste disposal and storage of chemicals. No specific waste management conditions are considered necessary.

Condition **H1** requires appropriate spill kits to be kept, and maintained in functional condition, in appropriate locations within the Activity Area. Conditions **H2** and **H3** require hazardous materials to be contained and managed appropriately to prevent contamination of soil, groundwater, and waterways.

Standard information items **LO2** and **OI1** are included to ensure the proponent is aware of legislation relating to storage and handling of dangerous goods and substances, and best practice in relation to waste management.

Based on the information provided in the EIS, the management measures proposed and the inclusion of the above-mentioned conditions, it is considered that the potential risks from waste, dangerous goods and environmentally hazardous substances can be appropriately managed to limit the potential for environmental harm or nuisance to occur.

### 7.6.5 Conditions

The proponent will be required to comply with the following conditions:

**H1** Spill kits

**H2** Storage and handling of hazardous materials

**H3** Handling of hazardous materials – mobile

Other information included in the permit:

**LO2** Storage and handling of dangerous goods, explosives, and dangerous substances

**O11** Waste management hierarchy

## 7.7 Issue 7: Decommissioning and rehabilitation

### 7.7.1 Potential impacts

Temporary or permanent cessation of extractive operations have the potential to cause ongoing impacts to the environment if rehabilitation is not managed appropriately. Rehabilitation is necessary to ensure the long-term stability of the site, prevent erosion and sedimentation, reduce uncontrolled dust emissions, provide native flora and fauna habitat, and to minimise the potential for establishment of weeds.

According to the EIS the aim of rehabilitation will be to return the landscape to a stable landform that supports native vegetation (scrub and grassland) comparable to that currently found within the Activity Area.

### 7.7.2 Management measures proposed in EIS

The EIS states that the primary aims of rehabilitation work will be to:

- achieve long term stabilisation of worked out areas to minimise the risk of ongoing erosion by wind and water;
- revegetate worked out areas with native species that will eventually grow to form native vegetation communities; and
- ensure that worked out areas are safe for future land use(s).

The EIS also states that upon permanent closure of the activity a Decommissioning and Rehabilitation Plan (DRP) will be developed and submitted to the EPA for approval.

According to the EIS the DRP will include discussion and describe procedures to:

- facilitate the orderly and safe removal of machinery, infrastructure, and other equipment;
- establish sufficient and appropriate native vegetation cover to minimise the risk of ongoing dust generation and soil erosion; and
- establish a monitoring regime to assess the success or otherwise of the rehabilitation to sign-off parameters.

The Proponent aims to minimise the area of land disturbed, with a maximum disturbed area at any given time of 5 ha proposed in the EIS. Progressive rehabilitation of areas that are no longer being extracted or used for another purpose (e.g., sand or vegetation stockpile areas etc.) will commence around year 2 or 3 of extraction with the following actions being implemented to help achieve the primary aims of rehabilitation:

- surfaces will be levelled, and if available, sediment collected from sediment basins will be applied to the prepared surfaces.
- application of native tree / shrub / grass seed or the application of slash (generated by clearing works on the site) that contain fruits with seed (e.g., *Melaleuca, Leptospermum, Allocasuarina* – species which readily recruit from seed).
- monitoring for weed infestations, germination success / growth of seed distributed species and landform stability.
- remedial works may include but not necessarily be limited to weed control works, additional native species seed spreading, landform stabilisation works and erosion control measures and/or repair works.

The EIS also notes that temporary vegetative cover (native scrub and/or grass species such as *Allocasuarina* & *Poa*) may be established on disturbed areas (e.g., soil stockpiles) to prevent weed infestations and erosion by wind or water.

### 7.7.3 Agency comment

No agency comments were received in relation to decommissioning and rehabilitation.

### 7.7.4 Evaluation

Given the inherent mobility of sand-based landscapes the appropriate ongoing management of the activity and long-term rehabilitation and stabilisation of the Activity Area is critical to ensuring environmental nuisance or harm does not occur.

The management measures proposed in the EIS and development of a DRP for approval by the Director is appropriate. To ensure these measures are implemented, a suite of standard conditions is recommended.

Condition **DC1** requires surface soils to be removed prior to opening new areas of the extractive pit and stockpiled separate to other overburden for future use in rehabilitation of the extractive pit. Furthermore, the stockpiles must be protected from erosion and other disturbance.

Condition **DC2** requires that worked out or disused areas of Activity Area must be rehabilitated concurrently with other extractive activities occurring within the Activity Area in accordance with the QCP and sets the maximum area of disturbed land that is allowed at any one time at 5 ha.

Conditions **DC3** and **DC4** set out the requirements for when either temporary suspension or permanent cessation of quarrying activities are proposed respectively. Permanent cessation also triggers condition **DC5** which requires the submission of a Decommissioning and Rehabilitation Plan for the Director's approval. Condition **DC6** sets out the broad steps that must be undertaken upon permanent cessation of the activity, including the implementation of an approved DRP. Furthermore, condition **DC7** prohibits the activity from recommencing once the Director has confirmed in writing that decommissioning and rehabilitation have been satisfactorily completed.

Based on the commitments made in the EIS and the above conditions being imposed, it is considered that the risks associated with improper decommissioning and rehabilitation can be adequately managed to ensure environmental harm or nuisance is unlikely to occur upon temporary or permanent cessation of the activity.

### 7.7.5 Conditions

The proponent will be required to comply with the following conditions:

**DC1** Stockpiling of surface soil

**DC2** Progressive rehabilitation

**DC3** Temporary suspension of activity

**DC4** Notification of cessation

**DC5** DRP requirements

**DC6** Rehabilitation following cessation

**DC7** Activity to cease following decommissioning and rehabilitation

# 8. Report Conclusions

This assessment has been based on the information provided by the proponent, Markarna Grazing Company Pty Ltd, in the permit application and additional information (the EIS).

This report incorporates specialist advice provided by EPA scientific and regulatory staff, the Department of Natural Resources and Environment Tasmania, and other government agencies.

It is concluded that:

1. the RMPS and EMPCS objectives have been duly and properly pursued in the assessment of the proposal; and
2. the assessment of the proposal has been undertaken in accordance with the Environmental Impact Assessment Principles, except for those excluded under Section 25A(4); and
3. the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the RMPS and EMPCS objectives would be compromised, provided that the Permit Conditions - Environmental No. 11576 appended to this report are imposed and duly complied with.

# Report Approval

**Environmental Assessment Report and conclusions, including environmental conditions, adopted:**



Andrew Paul

**CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY**

Meeting date: 05 August, 2025

# 9. References

Slee, A. (2023) *Survey of the Geomorphology and Soil characteristics of the Markarna Grazing Company Pty Ltd Property, Marshall Beach, Flinders Island*, (dated November 2023), Forest Practices Authority, Hobart, Tasmania (the Geomprphology Report).

Van Diemen Consulting Pty Ltd (2024) *Lime Sand Extraction Pit, Palana Road – Memana, Flinders Island – Natural Values Report – Markarna Grazing Company Pty Ltd* (dated 20 October 2024); New Town, Tasmania (the NVA Report).

Van Diemen Consulting Pty Ltd (2025) *Environmental Impact Assessment – Lime Sand Extraction Pit – Markarna Grazing Company Pty Ltd – Palana Road, Memana, Flinders Island* (dated 31 May 2025); New Town, Tasmania (the EIS).

# 10. Appendices

Appendix 1 Table of proponent management measures

Appendix 2 Permit conditions - Environmental No: 11576

# Appendix 1: Table of proponent management measures

**Table 1: Proponent management measures (Table 15 of the EIS)**

| No. | Action | Timing |
|---|---|---|
| 1 | Measures to suppress dust include the following extractive industry standard environmental practices:<br>• Retention of vegetation along the access road corridor where possible;<br>• Retention of vegetation (when possible) around the Pit working area to reduce the likelihood of strong winds liberating fine particles into the air;<br>• Utilisation of slash / mulch obtained from cleared areas to stabilise the soil surface and to limit wind action on dust generation at the soil surface;<br>• Covering of trucks with tarpaulins and / or load dampening; and<br>• Minimising the geographic extent of areas of exposed soil. | Ongoing |
| 2 | Measures to minimise the risk of wind erosion include the following:<br>• Avoid, if possible, but otherwise minimise, working on faces exposed to westerly winds;<br>• Maintain vegetation above and to the west of any active face; and<br>• Re-establish vegetation on a progressive basis, this could include stockpiling cleared tea tree and other scrub species for covering exposed surface as operations progress. | Ongoing |
| 3 | Measures to minimise the risk of water caused erosion include the following:<br>• Minimising the geographic extent of exposed soil.<br>• Establishment of sediment basins, diversion drains, and other drainage systems at the activity.<br>• Utilisation of slash obtained from cleared areas or other product (jute mesh) to stabilise the soil surface, and to limit the spread of sediment. | Ongoing |
| 4 | Regular visual monitoring (monthly) is to be undertaken to ensure the effectiveness of the installed stormwater management and sediment control structures. Repairs and remedial works (including basin cleaning) are to be performed to maintain sediment settling zones to those required and ensure that stormwater is entering and leaving the basin as planned. | Ongoing |
| 5 | Groundwater environmental management controls will be -<br>• Readily available spill kits on site;<br>• Storage of products in suitably sized bunded containers;<br>• Training personnel to use spill kits and establish emergency procedures in the event of a spill; and<br>• Daily pre-start checks on machinery to minimise the risk of spills; ensure machinery and equipment is functional, hoses are correctly fitted and secure, and caps on fluid tanks are tightened. | Ongoing |
| 6 | Equipment will be well maintained and late model machines with proprietary exhaust silencers fitted to ensure noise emissions are as low as possible.<br>Pit operations will occur during normal daytime hours of 0700 – 1900 hrs Monday to Friday. | Ongoing |

| No. | Action | Timing |
|---|---|---|
| 7 | A draft Weed and Disease Management Plan is submitted with the EIS (Attachment 8). | Ongoing |
| 8 | In the event notable examples of significant geomorphological features are encountered (i.e. any of the features listed below) the first task should be to photograph the area and move operations away from the feature until a suitably qualified person (in the context of the item(s) discovered) can assess any geomorphological and / or cultural values. Contractors should look out for:<br>• Thick dark continuous bands within the dunes;<br>• Buried tree stumps or large calcareous deposits (not rhizoliths of modern age such as those created by tree roots from recently deceased vegetation) that appear to be parts of a tree;<br>• Stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand;<br>• Large accumulations of shells; and<br>• Large bones and accumulations of smaller bones buried >1 m under the surface. | Ongoing |
| 9 | In the event a steep sided depression forms during operations that has signs of collapse these should be recorded and avoided during operations until expert advice is obtained. In the event a cave is located on site, operations should avoid the area and seek expert advice. | Ongoing |
| 10 | General refuse waste generated by workers (e.g., lunch wrappers) at the Pit will be collected in waste bins provided on-site – at the amenities / crib room. The bins will be emptied at least once per fortnight and the material disposed of at a permitted refuse disposal site. Waste bins that receive food scraps will be fitted with preventative access measures to discourage native animals and feral cats. | Ongoing |
| 11 | Waste generated by maintenance works, repairs and / or schedule servicing of equipment and machinery off the Pit location will be managed by the service provider at the location where they have been engaged by the Proponent to complete the required works. | Ongoing |
| 12 | Waste will be sorted based on the classification of the type of waste, with Controlled Waste separated from all other waste streams and disposed of at the Council operated Whitemark Waste Facility. | Ongoing |
| 13 | All fuels, lubricants and / or hazardous materials are stored in accordance with the relevant requirements of *AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids*. Refuelling activities will only occur when machinery is within a bunded / hardstand area. | Ongoing |
| 14 | Spill prevention and clean-up equipment is to be readily available and accessible in the vicinity of all plant and machinery, including mobile and fixed fuel storages. | Ongoing |

# Appendix 2: Permit conditions – Environmental No: 11576

# PERMIT PART B
# PERMIT CONDITIONS - ENVIRONMENTAL No. 11576

Issued under the *Environmental Management and Pollution Control Act 1994*

Activity: **The operation of a sand extractive pit with materials handling (screening) (ACTIVITY TYPE: Crushing, grinding, milling or separating into different sizes (rocks, ores or minerals))**
**SAND EXTRACTION PIT, 368 FIVE MILE JIM ROAD**
**MEMANA TAS 7255**

The above activity has been assessed as a level 2 activity under the *Environmental Management and Pollution Control Act 1994*.

Acting under Section 25A(3) of the EMPCA, the Board of the Environment Protection Authority has recommended that this Permit Part B be included in any Permit granted under the *Land Use Planning and Approvals Act 1993* with respect to the above activity.

Municipality: **FLINDERS**
Permit Application Reference: **DA 2023 / 00038**
EPA file reference: **23/5219**

Date conditions approved: 05 August 2025

Signed:

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

## DEFINITIONS

Unless the contrary appears, words and expressions used in this Permit Part B have the meaning given to them in **Schedule 1** of this Permit and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Permit Part B, the EMPCA prevails to the extent of the inconsistency.

## ENVIRONMENTAL CONDITIONS

The person responsible for the activity must comply with the conditions contained in **Schedule 2** of this Permit Part B.

## INFORMATION

Attention is drawn to **Schedule 3**, which contains important additional information.

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## Schedule 1: Definitions

In this Permit Part B:-

**10,000 cubic metres** is considered equivalent to 15,000 tonnes.

**Aboriginal Relic** has the meaning described in section 2(3) of the *Aboriginal Heritage Act 1975*.

**Activity** means any environmentally relevant activity (as defined in section 3 of EMPCA) to which this document relates and includes more than one such activity.

**Activity Area** means the area to be used for the Activity when these conditions take effect, as depicted in Attachment 1.

**Authorized Officer** means an authorized officer under section 20 of EMPCA.

**Best Practice Erosion and Sediment Control** means the document with this title by the International Erosion Control Association, dated November 2008, and any amendment to or substitution of this document.

**Director** means the Director, Environment Protection Authority holding office under section 18 of EMPCA and includes a delegate or person authorised in writing by the Director to exercise a power or function on the Director's behalf.

**DRP** means Decommissioning and Rehabilitation Plan.

**EMPCA** means the *Environmental Management and Pollution Control Act 1994*.

**Environmental Harm** and **Material Environmental Harm** and **Serious Environmental Harm** each have the meanings ascribed to them in section 5 of EMPCA.

**Environmental Nuisance** has the meanings ascribed to it in section 3 of EMPCA.

**Environmentally Hazardous Material** means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.

**EPA Board** means the Board of the Environment Protection Authority established under section 13 of EMPCA and includes a delegate or person authorised in writing by the EPA Board to exercise a power or function on the EPA Board's behalf.

**Maximum Disturbed Area** means the area disturbed to facilitate the activity and includes but is not limited to; vegetation disturbance, soil disturbance, access roads, hardstand, working area, vehicle parking and infrastructure (i.e. buildings, site office, sheds etc).

**Person Responsible** is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person and includes a body corporate.

**Planning Authority** means the Council(s) for the municipal area(s) in which the Activity Area is situated.

**Pollutant** has the meaning ascribed to it in section 3 of EMPCA.

**Quarry Code of Practice** means the document of this title published by the Environment Protection Authority in May 2017, and includes any subsequent versions of this document.

**Stormwater** means water runoff as a consequence of a rainfall event, whether surface flow, piped flow, or flow within conduits, including any contaminants collected by the water during its passage.

**Weed** means a plant species that has, or is likely to have, an adverse impact on the environment because of the introduction, spread or increase in population size of the species in an area; and includes a declared weed as defined in the *Biosecurity Act 2019* and subordinate regulations.

**Weed And Disease Guidelines** means the document titled *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania*, by the Department of Primary Industries, Parks, Water and Environment, dated March 2015, and any amendment to or substitution of this document.

**Weed and Disease Management Plan** means the Weed and Disease Management Plan as provided in Attachment 8 of the EIS, dated 10 November 2024 and prepared by Van Diemen Consulting Pty Ltd, or any subsequent variation or substitution of the plan.

## Schedule 2: Conditions

### Maximum Quantities

**Q1 Regulatory limits**

**1** The activity must not exceed the following limits :

**1.1** 10,000 cubic metres per year of rocks, ores or minerals processed.

**1.2** 10,000 cubic metres per year of sand extracted.

### General

**G1 Activity Area**

The activity must be confined to the Activity Area.

**G2 Access to and awareness of conditions and associated documents**

A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work within the Activity Area, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

**G3 Incident response**

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

**G4 Proposed change to activity**

**1** The person responsible must notify the Director in writing prior to implementing any change to the activity authorised by this document that may cause or increase the emission of a pollutant or which may result in environmental harm or environmental nuisance (even temporarily). A change includes, but is not limited to, any of the following:

**1.1** an increase in the discharge of a pollutant, or the location of its discharge.

**1.2** the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity.

**1.3** any clearance of native vegetation or earthworks.

**1.4** a change in the quantity or characteristics of materials used in carrying out the activity.

**2** The notification must be in an approved form and include the following:

**2.1** details of the proposed change;

**2.2** an assessment of the environmental impacts that may result from the change;

**2.3** any relevant approvals held by the person responsible; and

**2.4** any advice from the relevant planning authority to the effect that approval is not required.

**3** The person responsible must provide additional information as requested by an Authorized Officer.

4 The proposed change must not be implemented until the Director has confirmed in writing that they are satisfied that no other approval or variation of this document is required.

5 For the avoidance of doubt, a notification of a proposed change under this provision is not required if the proposed change is part of a referral to the EPA Board for assessment under sections 24, 25, 27 or 27AA of EMPCA.

**G5 Change of responsibility**

If the person responsible for the activity intends to cease to be responsible for the activity, that person must notify the Director in writing of the full particulars of any person who will become the person responsible for the activity, before such cessation.

**G6 Change of ownership**

If the owner of the Activity Area changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of the Activity Area, the person responsible must notify the Director in writing of the change or intended change of ownership.

**G7 Complaints register**

1 A public complaints register must be maintained. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:

**1.1** the date and time at which the complaint was received;

**1.2** contact details for the complainant (where provided);

**1.3** the subject matter of the complaint;

**1.4** any investigations undertaken with regard to the complaint; and

**1.5** the manner in which the complaint was resolved, including any mitigation measures implemented.

2 Complaint records must be retained for a period of at least 3 years.

**G8 Quarry Code of Practice**

Unless otherwise required by these conditions or required in writing by the Director, the activity (or activities) undertaken within the Activity Area must comply with the Acceptable Standards provisions of the *Quarry Code of Practice.*

**G9 Amendment of required plans and reports**

1 The plans and reports required by these conditions must be amended to address any matter required by the Director, as advised by notice in writing.

2 Amended plans and reports must be resubmitted within the timeframe that the Director specifies.

**<u>Atmospheric</u>**

**A1 Containment of loads**

Vehicles carrying loads of material which may blow or spill must be equipped with an effective control measure(s) to prevent escape of the materials. The control measure(s) must be implemented prior to leaving the Activity Area.

**A2 Control of dust emissions from crushing and screening plant**

**1** Dust produced by the operation of all crushing and/or screening plant must be controlled by the use of one or more of the following methods to the extent necessary to prevent environmental nuisance:

**1.1** the installation of fixed water sprays at all crushers and/or screening plant and at all necessary points where processed material changes direction due to belt transfer;

**1.2** the installation of dust extraction equipment at all crushers and/or screening plant and at all necessary points where processed material changes direction due to belt transfer;

**1.3** the enclosure of the crushing and/or screening plant and the treatment of atmospheric emissions by dust extraction equipment; or

**1.4** any other method that has been approved in writing by the Director.

**A3 Control of dust emissions**

Dust emissions from within the Activity Area must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of the Activity Area.

**Decommissioning And Rehabilitation**

**DC1 Stockpiling of surface soil**

Prior to commencement of extractive activities on any portion of the Activity Area, surface soils must be removed in that portion of the Activity Area to be disturbed by the conduct of the activity and stockpiled for later use in rehabilitation of the Activity Area. Topsoil must be kept separate from other overburden and protected from erosion or other disturbance.

**DC2 Progressive rehabilitation**

Worked out or disused sections of the Activity Area must be rehabilitated concurrently with extractive activities on other sections of the Activity Area. Progressive rehabilitation must be carried out in accordance with the relevant provisions of the *Quarry Code of Practice*, unless otherwise approved in writing by the Director. The maximum disturbed area of land which may remain, at any time, without rehabilitation is five hectares.

**DC3 Temporary suspension of activity**

**1** Within 30 days of becoming aware of any event or decision which is likely to give rise to the temporary suspension of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to suspend or has suspended.

**2** During temporary suspension of the activity the Activity Area must be managed and monitored by the person responsible for the activity to ensure that emissions from the Activity Area do not cause serious environmental harm, material environmental harm or environmental nuisance.

**3** If required by the Director, a Care and Maintenance Plan for the activity must be submitted to the Director for approval, by a date specified in writing by the Director. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition.

**3.1** The plan must be prepared in accordance with any guidelines provided by the Director.

**3.2** Once approved the person responsible must act in accordance with the approved Care and Maintenance Plan.

**3.3** The person responsible may apply to the Director to vary or substitute the Care and Maintenance Plan. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

**4** Unless otherwise approved in writing by the Director, if the activity on the Activity Area has substantially ceased for 2 years, decommissioning of the activity and rehabilitation of the Activity Area must be carried out in accordance with the requirements of these conditions as if the activity has permanently ceased.

**DC4 Notification of cessation**

Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

**DC5 DRP requirements**

**1** Unless otherwise approved in writing by the Director, a Decommissioning and Rehabilitation Plan (DRP) for the activity must be submitted for approval to the Director within 30 days of the Director being notified of the planned cessation of the activity. The DRP must be prepared in accordance with any guidelines provided by the Director. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition.

**2** The person responsible may apply to the Director to vary or substitute the DRP. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

**DC6 Rehabilitation following cessation**

**1** Following permanent cessation of the activity, and unless otherwise approved in writing by the Director, the Activity Area must be rehabilitated including:

**1.1** stabilisation of any land surfaces that may be subject to erosion;

**1.2** removal or mitigation of all environmental hazards or land contamination, that might pose an ongoing risk of causing environmental harm; and

**1.3** decommissioning of any equipment that has not been removed.

**2** Where a Decommissioning and Rehabilitation Plan (DRP) has been approved by the Director, decommissioning and rehabilitation must be carried out in accordance with that plan.

**3** The person responsible may apply to the Director to vary or substitute the DRP. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

**DC7 Activity to cease following decommissioning and rehabilitation**

**1** Following written notification by the Director confirming the completion of decommissioning of the Activity and rehabilitation of the Activity Area in accordance with these conditions:

**1.1** the Activity must not recommence; and

**1.2** the Person Responsible is not required to undertake monitoring, reporting and/or notification condition requirements relating to the activity, unless otherwise specified in writing by the Director.

## Groundwater

### GW1 Groundwater

**1** Should there be evidence that groundwater has been intersected, or standing water is observed, within the Activity Area, the following measures must be taken:

**1.1** machinery is not permitted to operate in standing water; and

**1.2** the base level of the extractive activity must be raised by the addition of extracted material to prevent the occurrence of groundwater intersection within the Activity Area.

## Hazardous Substances

### H1 Spill kits

Spill kits appropriate for the types and volumes of materials handled within the Activity Area must be kept in appropriate locations and maintained in a functional condition to assist with the containment of spilt environmentally hazardous materials.

### H2 Storage and handling of hazardous materials

**1** Unless otherwise approved in writing by the Director, environmentally hazardous materials held within the Activity Area must be:

**1.1** stored within maintained and functional impervious bunded areas, spill trays or other containment systems; and

**1.2** managed to prevent unauthorised discharge, emission or deposition of pollutants:

**1.2.1** to soils within the boundary of the Activity Area in a manner that is likely to cause serious or material environmental harm;

**1.2.2** to groundwater;

**1.2.3** to waterways; or

**1.2.4** beyond the boundary of the Activity Area.

### H3 Handling of hazardous materials - mobile

**1** Where mobile containment of environmentally hazardous materials is utilised for the fuelling or servicing of mobile or fixed plant within the Activity Area, all reasonable measures must be implemented to prevent unauthorised discharge, emission or deposition of pollutants:

**1.1** to soils within the boundary of the Activity Area in a manner that is likely to cause serious or material environmental harm;

**1.2** to groundwater;

**1.3** to waterways; or

**1.4** beyond the boundary of the Activity Area.

**2** Reasonable measures may include spill kits, spill trays/bunds or absorbent pads, and automatic cut-offs on any pumping equipment.

## Noise Control

### N1 Operating hours

**1** Unless otherwise approved in writing by the Director, activities associated with the extraction of rock, gravel, sand, clay or minerals, and loading of product, and screening must not be undertaken outside the hours of 0700 hours to 1900 hours on weekdays.

**2** Notwithstanding the above paragraph, activities must not be carried out on Saturdays, Sundays or on public holidays that are observed Statewide (Easter Tuesday excepted).

## Operations

**OP1 Machinery washdown**

Prior to entering the Activity Area, machinery must be washed in accordance with the Weed and Disease Guidelines, or any subsequent revisions of that document.

**OP2 Weed and Disease Management Plan**

1 Unless otherwise specified in these conditions, the activity must be undertaken in accordance with the approved Weed and Disease Management Plan.

2 The person responsible may apply to the Director to vary or substitute the Weed and Disease Management Plan. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

## Stormwater Management

**SW1 Design and maintenance of settling ponds**

1 Sediment settling ponds must be designed and maintained in accordance with the following requirements:

**1.1** ponds must be designed to successfully mitigate reasonably foreseeable sediment loss which would result from a 1 in 20 year storm event;

**1.2** discharge from ponds must occur via a stable spillway that is not subject to erosion;

**1.3** all pond walls must be stable and treated with topsoil and vegetated or otherwise treated in such a manner as to prevent erosion; and

**1.4** sediment settling ponds must be periodically cleaned out to ensure that the pond design capacity is maintained. Sediment removed during this cleaning must be securely deposited such that sediment will not be transported off the Activity Area by surface run-off.

**SW2 Perimeter drains or bunds**

1 Perimeter cut-off drains, or bunds, must be constructed at strategic locations within the Activity Area to prevent surface run-off from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains, or bunds, remains within the Activity Area. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with *Best Practice Erosion and Sediment Control* or similar.

2 Drains, or bunds, must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 20 year rainfall event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

**SW3 Stormwater**

1 Polluted stormwater that will be discharged from the Activity Area must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.

2 Notwithstanding the above, all stormwater that is discharged from the Activity Area must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside the Activity Area.

**3** All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained within the Activity Area. Such measures may include appropriately sized and maintained sediment settling ponds or detention basins.

## Schedule 3: Information

### Legal Obligations

**LO1 EMPCA**

The activity must be conducted in accordance with both the conditions in this document and the obligations of the *Environmental Management and Pollution Control Act 1994* (EMPCA) and subordinate regulations. The conditions of this document do not replicate legislated obligations; therefore, you should ensure you are aware of your obligations under EMPCA and subordinate regulations.

**LO2 Storage and handling of dangerous goods, explosives and dangerous substances**

**1** The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:

**1.1** *Work Health and Safety Act 2012* and subordinate regulations;

**1.2** *Explosives Act 2012* and subordinate regulations; and

**1.3** *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations.

**LO3 Aboriginal relics requirements**

**1** Aboriginal relics, objects, sites, places and human remains regardless of whether they are located on public or private land, are protected under the *Aboriginal Heritage Act 1975*.

**2** Unanticipated discoveries of Aboriginal heritage must be reported to Aboriginal Heritage Tasmania on **1300 487 045** as soon as possible.

**LO4 MRDA**

Operations must be undertaken in accordance with a mining plan approved by the Director of Mines and a Mining Lease issued under the *Mineral Resources Development Act 1995* (MRDA).

### Other Information

**OI1 Waste management hierarchy**

**1** Wastes should be managed in accordance with the following hierarchy of waste management:

**1.1** waste should be minimised, that is, the generation of waste must be reduced to the maximum extent that is reasonable and practicable, having regard to best practice environmental management;

**1.2** waste should be re-used or recycled to the maximum extent that is practicable; and

**1.3** waste that cannot be re-used or recycled must be disposed of at a waste depot site or treatment facility that has been approved in writing by the relevant planning authority or the Director to receive such waste.

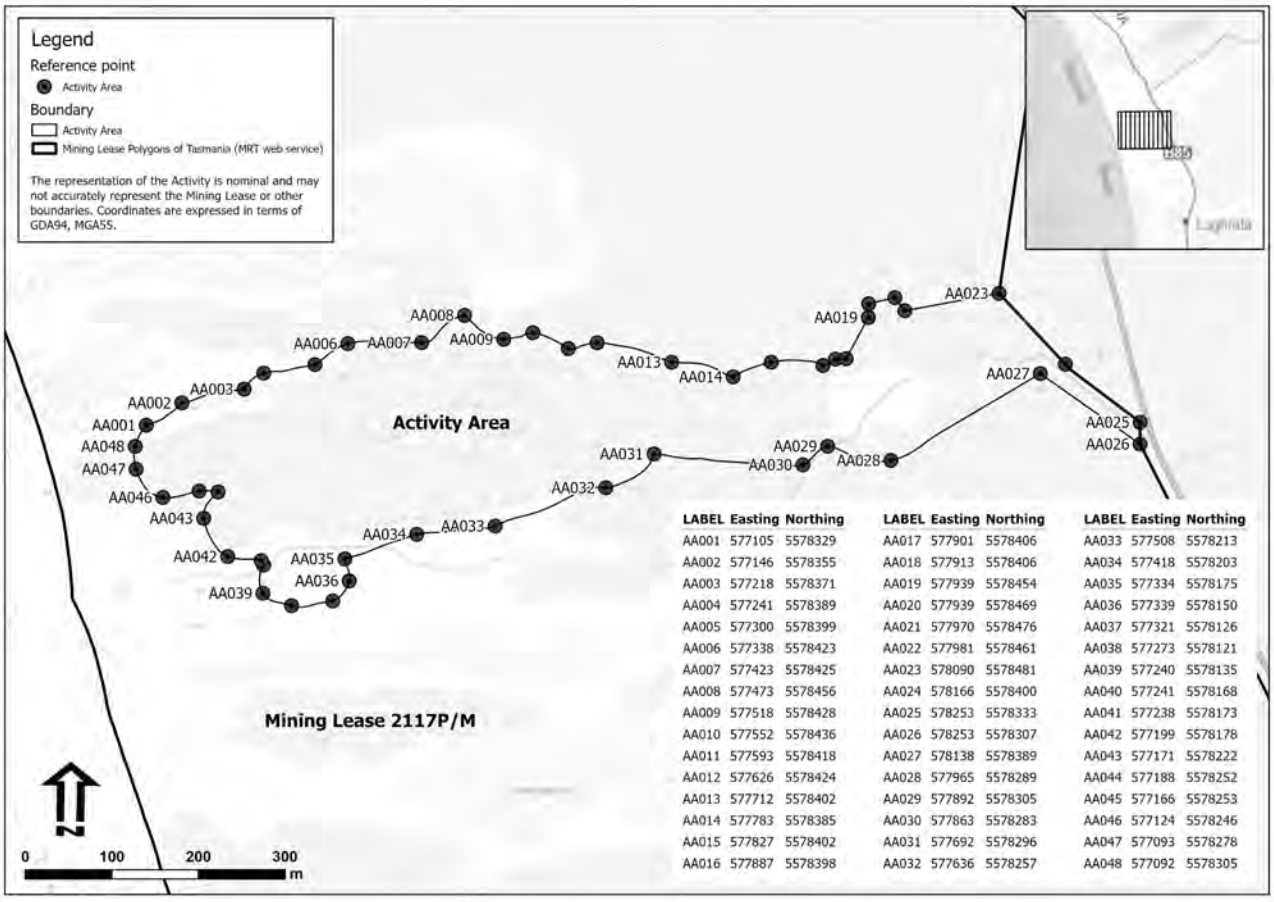
**OI2 Notification of incidents under section 32 of EMPCA**

Where a person is required by section 32 of EMPCA to notify the Director of the release of a pollutant, the Director can be notified by telephoning **1800 005 171** (a 24-hour emergency telephone number).

**OI3 Release of Relevant Information**

Under the provisions of section 23AA of EMPCA relevant information relating to monitoring of environmental impacts required under these conditions may be subject to publishing or public release by the Director.

# Attachment 1: Activity Area




| LABEL | Easting | Northing |
|---|---|---|
| AA001 | 577105 | 5578329 |
| AA002 | 577146 | 5578355 |
| AA003 | 577218 | 5578371 |
| AA004 | 577241 | 5578389 |
| AA005 | 577300 | 5578399 |
| AA006 | 577338 | 5578423 |
| AA007 | 577423 | 5578425 |
| AA008 | 577473 | 5578456 |
| AA009 | 577518 | 5578428 |
| AA010 | 577552 | 5578436 |
| AA011 | 577593 | 5578418 |
| AA012 | 577626 | 5578424 |
| AA013 | 577712 | 5578402 |
| AA014 | 577783 | 5578385 |
| AA015 | 577827 | 5578402 |
| AA016 | 577887 | 5578398 |

| LABEL | Easting | Northing |
|---|---|---|
| AA017 | 577901 | 5578406 |
| AA018 | 577913 | 5578406 |
| AA019 | 577939 | 5578454 |
| AA020 | 577939 | 5578469 |
| AA021 | 577970 | 5578476 |
| AA022 | 577981 | 5578461 |
| AA023 | 578090 | 5578481 |
| AA024 | 578166 | 5578400 |
| AA025 | 578253 | 5578333 |
| AA026 | 578253 | 5578307 |
| AA027 | 578138 | 5578389 |
| AA028 | 577965 | 5578289 |
| AA029 | 577892 | 5578305 |
| AA030 | 577863 | 5578283 |
| AA031 | 577692 | 5578296 |
| AA032 | 577636 | 5578257 |

| LABEL | Easting | Northing |
|---|---|---|
| AA033 | 577508 | 5578213 |
| AA034 | 577418 | 5578203 |
| AA035 | 577334 | 5578175 |
| AA036 | 577339 | 5578150 |
| AA037 | 577321 | 5578126 |
| AA038 | 577273 | 5578121 |
| AA039 | 577240 | 5578135 |
| AA040 | 577241 | 5578168 |
| AA041 | 577238 | 5578173 |
| AA042 | 577199 | 5578178 |
| AA043 | 577171 | 5578222 |
| AA044 | 577188 | 5578252 |
| AA045 | 577166 | 5578253 |
| AA046 | 577124 | 5578246 |
| AA047 | 577093 | 5578278 |
| AA048 | 577092 | 5578305 |

EPA TASMANIA
ENVIRONMENT PROTECTION AUTHORITY

# Environmental Assessment Report

## Markarna Grazing Company Pty Ltd

## Lime Sand Extraction Pit
## 368 Five Mile Jim Road, Memana
## Flinders Island

**August 2025**

EPA TASMANIA
ENVIRONMENT PROTECTION AUTHORITY

# Environmental Assessment Report

| | |
|---|---|
| Proponent | Markarna Grazing Company Pty Ltd |
| Proposal | Lime Sand Extraction Pit |
| Location | 368 Five Mile Jim Road, Memana, Flinders Island |
| Class of Assessment | This EMPCA Section 25A process does not require classing the assessment |
| PCE no. | 11576 |
| Permit Application No. | DA 2023 / 00038 (Flinders Council)<br>Combined development and planning scheme amendment (rezoning) application<br>Section 40T Application under LUPAA<br>Section 25A Assessment under EMPCA |
| myDAS Folder No. | 23/5219 |
| myDAS Document No. | D25-109017 |

## Assessment Process Milestones

| Date | Milestone |
|---|---|
| 19 June 2023 | Permit Application submitted to Council |
| 25 July 2023 | Referral received by the Board |
| 9 August 2023 | Request for additional information issued |
| 24 June 2025 | Additional information accepted |
| 8 July 2025 | Date draft conditions issued to proponent |
| 19 August 2025 | Statutory period for assessment ends |

# Glossary/Acronyms

| Term | Detail |
|---|---|
| Activity Area | Refer to Figure 3 of the EAR |
| Additional information | Provided in the form of an Environmental Impact Statement |
| AHD | Australian Height Datum |
| Board | Board of the Environment Protection Authority |
| EAR | Environmental Assessment Report (this report) |
| EIA | Environmental Impact Assessment |
| EIS | Environmental Impact Statement |
| EMPCA | *Environmental Management and Pollution Control Act 1994* |
| EMPCS | Environmental Management and Pollution Control System |
| EPBCA | *Environment Protection and Biodiversity Conservation Act 1999* (Cth) |
| Extractive Area | Refer to Figure 3 of the EAR |
| IECA | *International Erosion Control Association's Best Practice Erosion and Sediment Control 2018 documents* |
| LUPAA | *Land Use Planning and Approvals Act 1993* |
| NCA | *Nature Conservation Act 2002* |
| NRE | Department of Natural Resources and Environment Tasmania |
| Pad Area | Refer to Figure 5 of the EAR |
| QCP | Quarry Code of Practice (EPA 2017) |
| RMPS | Resource Management and Planning System of Tasmania |
| SD | Sustainable Development |
| TSPA | *Threatened Species Protection Act 1995* |

# Report Summary

This report provides an environmental assessment of a proposed lime sand extractive pit, including materials handling (screening) by Markarna Grazing Company Pty Ltd.

The proposal involves extraction of lime sand from a west-to-east parallel dune system adjacent to Marshall Bay at Memana on Flinders Island. Up to 10,000 cubic metres per year is proposed to be extracted by bulldozer and/or excavator. Up to 10,000 cubic metres per year of raw sand may be screened to remove organic matter and to mix in soil ameliorants where necessary, as most of the sand will be applied to agricultural land on Flinders Island to help improve land capability for cropping and grazing.

The permit application for this proposal is combined with a planning scheme amendment (rezoning) application under Section 40T of LUPAA and hence was referred to the EPA Board (the Board) under section 25A of EMPCA for assessment.

The Board assessment process for a combined permit application / rezoning application differs to the more common EMPCA section 25 assessment in several ways:

- Upon referral of the proposal from Council, the Board requested additional information on the activity and its potential impacts and associated mitigation measures. This mirrors the process normally used by the Board in issuing Environmental Effects Report / Environmental Impact Statement Guidelines to assist a Proponent in developing a satisfactory case for assessment, except that assessment classing was not required.
- The additional information was provided by the Proponent in an Environmental Impact Statement (EIS). This replicates the process a proponent typically undertakes in developing a case for assessment under section 25.
- Once the Board accepted the additional information, the assessment must be completed within 10 weeks and Flinders Council notified of the decision. This aligns with the usual process for a section 25 assessment, noting that the environmental permit conditions are *recommended* rather than *required* as would usually be the case under section 25(8).
- After completion of the Board's assessment Council decides whether to initiate the proposed rezoning. If Council decides to initiate and certify the rezoning it will then need to determine the permit application, including any conditions and restrictions recommended by the Board, and place the permit and rezoning documents on public exhibition for 28 days. This differs from a section 25 assessment where public exhibition is undertaken prior to the Board's consideration of this report.
- If representations are received, Council and EPA may be required to prepare a report for the Commission on the merits of any relevant representations. The Commission is then provided with those reports, the representations, any amendments recommended and the permit. The Commission may choose to hold public hearings before making its decision to approve, modify or reject the rezoning and permit application.

This report has been prepared based on information provided in the permit application and additional information provided in the EIS. The area defined as the Development Area at page 8 and Figure A-4 of the EIS has been adopted as the Activity Area within this EAR, with the inclusion of the drains, sediment basins and septic system absorption pad excluded by the EIS definition (refer Figure 3 of this EAR).

Relevant government agencies were consulted, and their comments considered as part of the assessment.

**Appendix 1** contains a table of the proponent's proposed management measures.

**Appendix 2** contains the environmental permit conditions for the proposal.

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# 1. Approval Process

A combined permit and rezoning application under the *Land Use Planning and Approvals Act 1993* (LUPAA) for the proposal was submitted to Flinders Council on 19 June 2023.

This proposal is defined as a 'level 2 activity' under clauses 5(b) and 6(a)(ii), Schedule 2 of the *Environmental Management and Pollution Control Act 1994* (EMPCA), being a sand extractive pit with materials handling (screening).

Section 25A(1A) of the EMPCA required Council to refer the application to the Board of the Environment Protection Authority (the Board) for assessment under the Act. The application was received by the Board on 25 July 2023.

The Board required the applicant to provide additional information for the purposes of the assessment on 9 August 2023. This was provided in the form of an Environmental Impact Statement (EIS). Several drafts of the EIS were submitted to the EPA for review against the request for additional information prior to finalisation and acceptance on behalf of the Board on 24 June 2025.

The EIS was referred to relevant government agencies for comment.

## 2. SD Objectives and EIA Principles

The proposal must be considered by the Board in the context of the objectives of the Resource Management and Planning System of Tasmania (RMPS), and the Environmental Management and Pollution Control System (EMPCS). Both sets of objectives are specified in Schedule 1 of EMPCA.

The functions of the Board are to administer and enforce the provisions of EMPCA, and to use its best endeavours to further the RMPS and EMPCS objectives. The Board must assess the proposal in accordance with the Environmental Impact Assessment Principles defined in Section 74 of EMPCA, except for subsections (6) requiring public consultation and (7) regarding public disclosure of all information relating to the environmental impact of a proposal (as per section 25A(4) of EMPCA).

# 3. The Proposal

The main characteristics of the proposal are summarised below. A detailed description of the proposal is provided in Part B of the EIS.

## Summary of the proposal's main characteristics

### Activity

The proposal involves extraction of lime sand from a west-to-east parallel dune system adjacent to Marshall Bay at Memana on Flinders Island. Up to 10,000 cubic metres per year of lime sand is to be extracted by bulldozer and/or excavator. Up to 10,000 cubic metres per year of raw lime sand may be screened to remove organic matter and to mix in soil ameliorants where necessary, as most of the sand will be applied to agricultural land on Flinders Island to help improve land capability for cropping and grazing.

### Location and planning context

| | |
|---|---|
| **Location** | 'Markana Park' 368 Five Mile Jim Road, Memana, as shown in Figure 1. |
| **Land zoning** | Currently zoned as Landscape Conservation. The rezoning application seeks to change the zone to Rural. |
| **Land tenure** | Private freehold with a small section of reserved road (Crown land). A crown licence is currently held by the Proponent for access to the site via the reserved road. |
| **Mining lease** | ML 2117P/M granted on 20 July 2023. |
| **Lease area** | 365 ha |
| **Bond** | $50,000 based on an unrehabilitated area of 5 ha. |

### Activity site

| | |
|---|---|
| **Land Use** | Most of the mining lease area is currently native vegetation used for limited livestock grazing. In the past the mining lease has been used for more intense livestock grazing. There is also a small extractive pit, at the proposed location of this extractive pit, that has historically been used for small-scale sand extraction. |
| **Topography** | The Activity Area is comprised of a west-to-east parallel dune system which becomes two distinct steep sided dune ridges, with deep, wide swales between the ridges. Marshall Beach and Bay are located west of the Activity Area. From the Activity Area elevation is gained to the east forming low hills to around 150 m AHD. |
| **Geology** | Sand, gravel and mud of lacustrine and littoral origin. Sands to be extracted are of littoral origin and are highly calcareous. Underlying geology is a mosaic of lacustrine / littoral gravels and sands cemented / compacted in situ. Base geology is fossiliferous (marine shells) Tertiary limestone. |
| **Soils** | A soil layer is largely absent or is represented by a slightly discoloured upper layer in the sandy soil profile. There have been two prominent paleosols identified in the profile exposed at the historic extraction pit face. |
| **Hydrology** | No identified surface waterways within the Activity Area. Possible areas where lagoons may form north and south of the Activity Area (North and South Curves Lagoons). Potential for karst in the area to influence subsurface hydrology. |
| **Natural Values** | Six flora species listed under the *Threatened Species Protection Act 1995* (TSPA) were identified within the Activity Area, including:<br>• Coast wirilda (*Acacia uncifolia*);<br>• Mossy woodruff (*Asperula minima*);<br>• Spiny bushpea (*Eutaxia microphylla*);<br>• Curved riceflower (*Pimelea curviflora* var. *gracilis*); |


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| | |
|---|---|
| | • Coast twinleaf (*Roepera billardierei*); and<br>• Pale fanflower (*Scaevola albida*).<br>Habitat for several threatened fauna species is present within or adjacent to the Activity Area, including:<br>• Wedge-tailed eagle (*Aquila audax subsp. fleayi*);<br>• White-bellied sea-eagle (*Haliaeetus leucogaster*);<br>• New Holland mouse (*Pseudomys novaehollandiae*); and<br>• Tussock skink (*Pseudemoia pagenstecheri*).<br>Two Declared Weed species (horehound (*Marrubium vulgare*) and slender thistle (*Carduus pycnocephalus*)) listed under the *Biosecurity Act 2019* were observed within the Activity Area. |

## Location region

| | |
|---|---|
| **Climate** | Rainfall is approximately 735 mm per year. Wind direction is predominantly from the west with lighter winds from the east-north-east being sub-dominant. |
| **Surrounding land zoning, tenure and uses** | Zoning to the north is environmental management and to the east and south is a mix of environmental management, landscape conservation, rural and agriculture.<br>Land surrounding the Activity Area is private freehold and is mostly vegetated immediately east of the proposed extractive pit, with extensive agricultural lands further inland to the east.<br>To the north is a private nature reserve, the Mount Tanner Nature Recreation Area, and the Wingaroo Nature Reserve. Nearby to the east and south are three other mining leases. There is also a private conservation covenant just to the east on an area of private freehold land (refer to Figure 4 of this EAR).<br>To the south is the Mulligans Hill Conservation Area, Emita Nature Recreation Area, Settlement Point Conservation Area and two other public reserves. Immediately to the west and south-west is the Marshall Beach Conservation Area.<br>The mining lease is almost adjacent to the Marshall Beach Conservation Area with a small (approx. 130 m) strip of coastal dunes between the Conservation Area and mining lease boundary. The proposed Activity Area is an additional 100 m further east of the mining lease boundary. |

## Proposed infrastructure

| | |
|---|---|
| **Major equipment** | The EIS proposes the use of the following equipment:<br>• vibratory screen (Powerscreen 2 & 3 deck);<br>• wheel Loader (966H);<br>• grader (140G);<br>• excavator (329D);<br>• dozer (D9N);<br>• off-road haul truck;<br>• transport trucks (medium combination truck & trailer, single trucks);<br>• 15,000 L capacity water cart truck; and<br>• light vehicles for worker transport. |
| **Other infrastructure** | The EIS states that other infrastructure will be required, including:<br>• a shed (15 m x 60.3 m x 7.77 m) with internal crib room and amenities;<br>• two 50,000 L water tanks;<br>• access roads for accessing the site and extraction areas;<br>• drains and sediment ponds for surface water management; and |

| | |
|---|---|
| | • a septic wastewater system (septic tank discharging to an in-ground absorption bed) for grey and black water. |

## Inputs

| | |
|---|---|
| **Water** | Water will be required for the water cart. |
| **Energy** | The EIS notes that there is access to powerlines and poles along the eastern boundary. However a power connection is not intended at this stage. |
| **Other raw materials** | Soil ameliorants (such as boron) may be blended with screened sand, based on the needs of each individual property where the material will be applied. |

## Wastes and emissions

| | |
|---|---|
| **Liquid** | Stormwater runoff from extraction areas, pad / stockpile areas and the shed roof.<br>Grey water from crib room and amenities and black water from septic tank discharged through in-ground absorption beds. |
| **Atmospheric** | Dust from internal and external traffic, open extraction areas and blow-off from stockpiles. |
| **Solid** | General refuse including food scraps, wrappers and other wastes from the office and crib areas.<br>Other wastes generated by the activity may include:<br>• empty drums (oils (motor, hydraulic and brake);<br>• machinery filters (not in the controlled waste category);<br>• disposable PPE (e.g. ear plugs);<br>• plastics;<br>• rags; and<br>• batteries. |
| **Controlled wastes** | According to the EIS the activity may generate the following controlled wastes:<br>• waste oil / water, hydrocarbon / water mixtures or emulsions (e.g. hydraulic or engine oils);<br>• sewage sludge, residue or nightsoil from the on-site wastewater management system;<br>• containers contaminated with residues of substances (used for collection or storage of waste oil / water, hydrocarbon / water mixtures or emulsions);<br>• soils contaminated with a controlled waste (e.g. oil or fuel leak);<br>• fire debris and fire wash water (in the event of a fire); and<br>• used tyres. |
| **Noise** | From screening equipment, mobile machinery (wheel loader, excavator, dozer, grader, water truck) and vehicles (light vehicles and haul trucks) moving within, on and off site. |
| **Greenhouse gases** | Operation of hydrocarbon-based plant, trucks and light vehicles will all produce greenhouse gas emissions. |

## Construction and operations

| | |
|---|---|
| **Proposal timetable** | The EIS notes that once approval is granted, construction of the pad, shed and stormwater infrastructure would need to occur prior to extraction occurring. Figure B-2 of the EIS provides a breakdown of the proposed extraction stages year by year, out to 5-years. |
| **Operating hours (ongoing)** | 0700 to 1900 hours Monday to Friday.<br>No activity will occur on Saturdays or Sundays. |

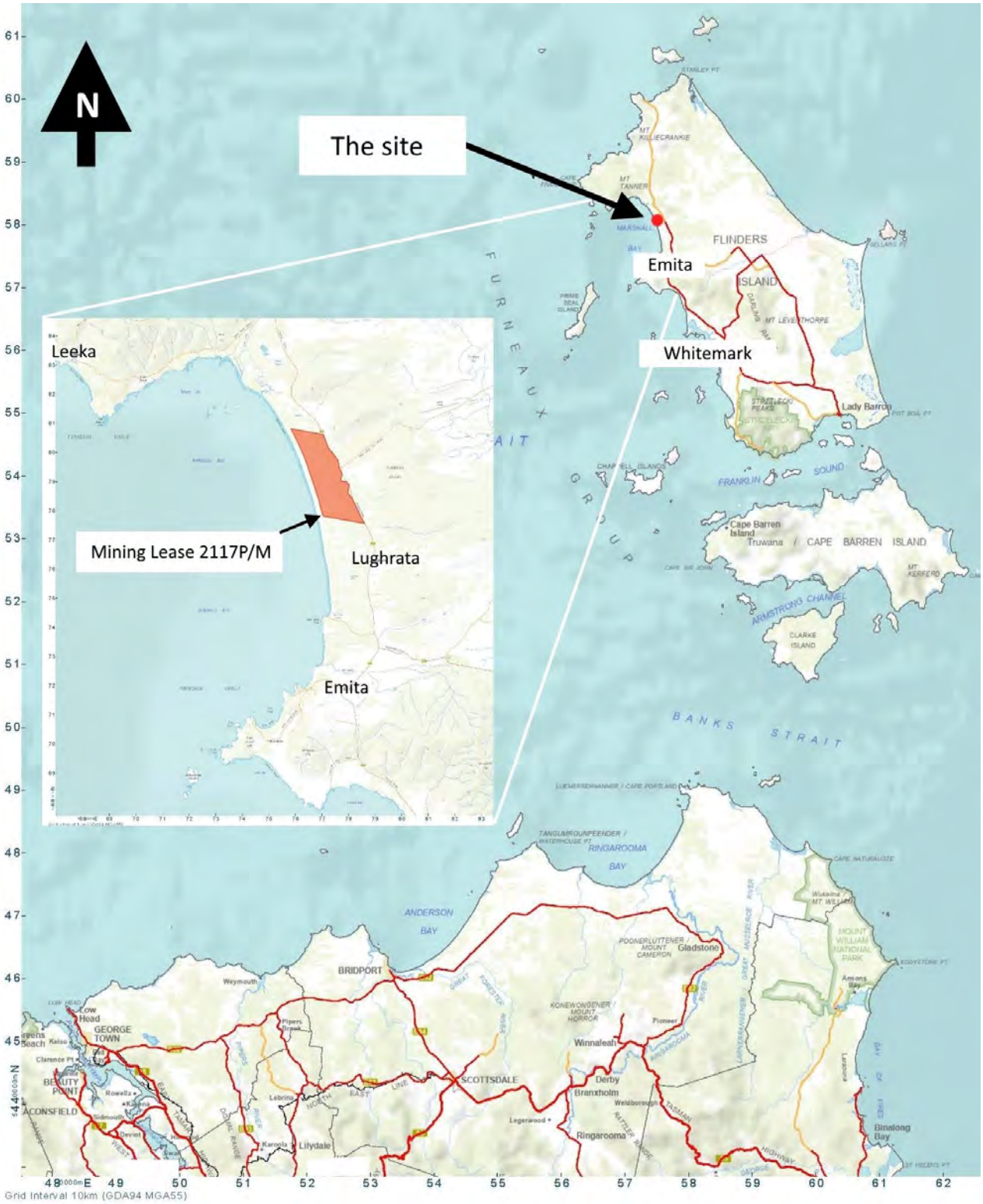



**Figure 1: Mining lease 2117P/M location (topographic basemap from the LIST © State of Tasmania).**

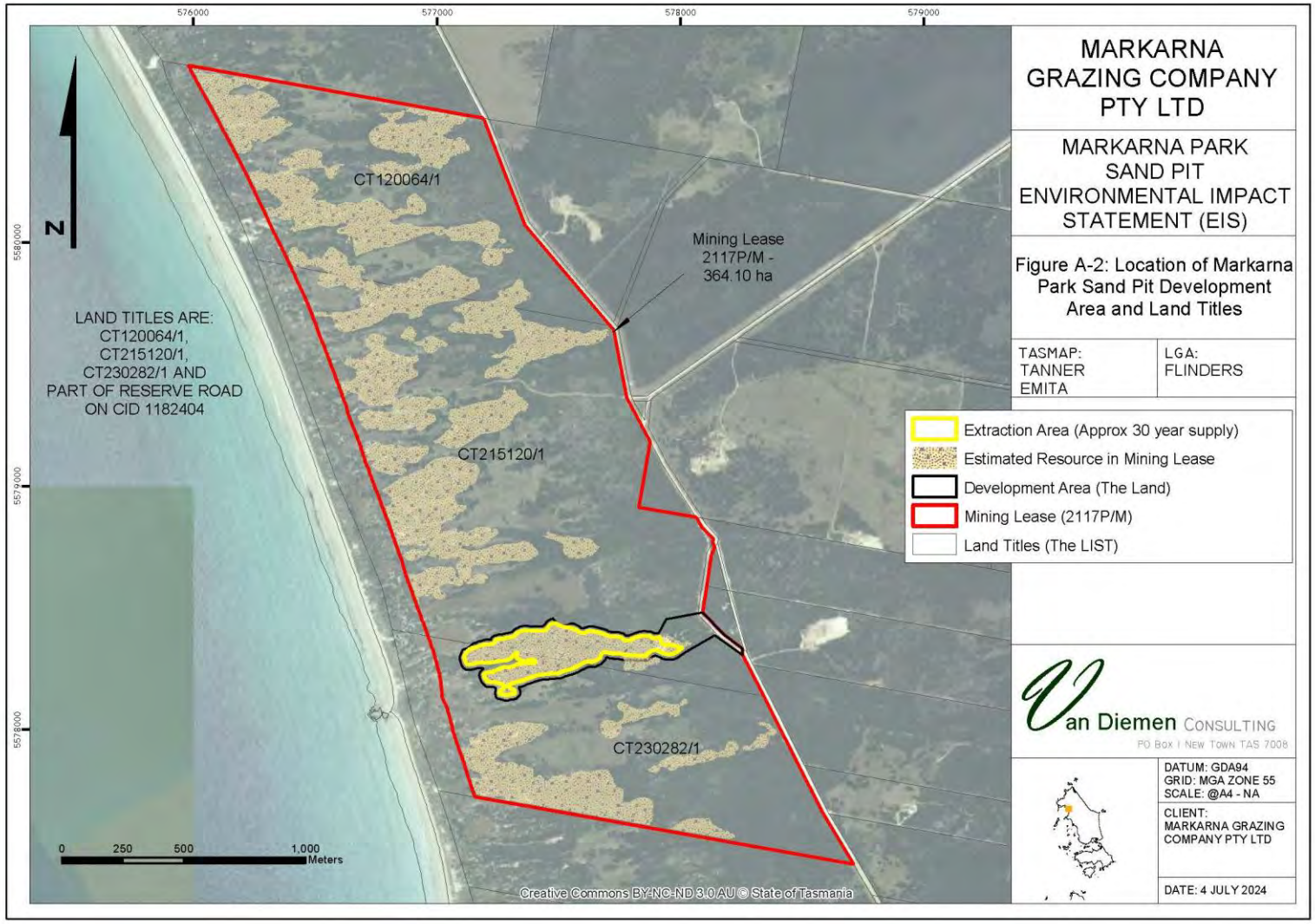



**Figure 2: Mining Lease 2117P/M, development & extraction areas (Figure A-2 of the EIS).**

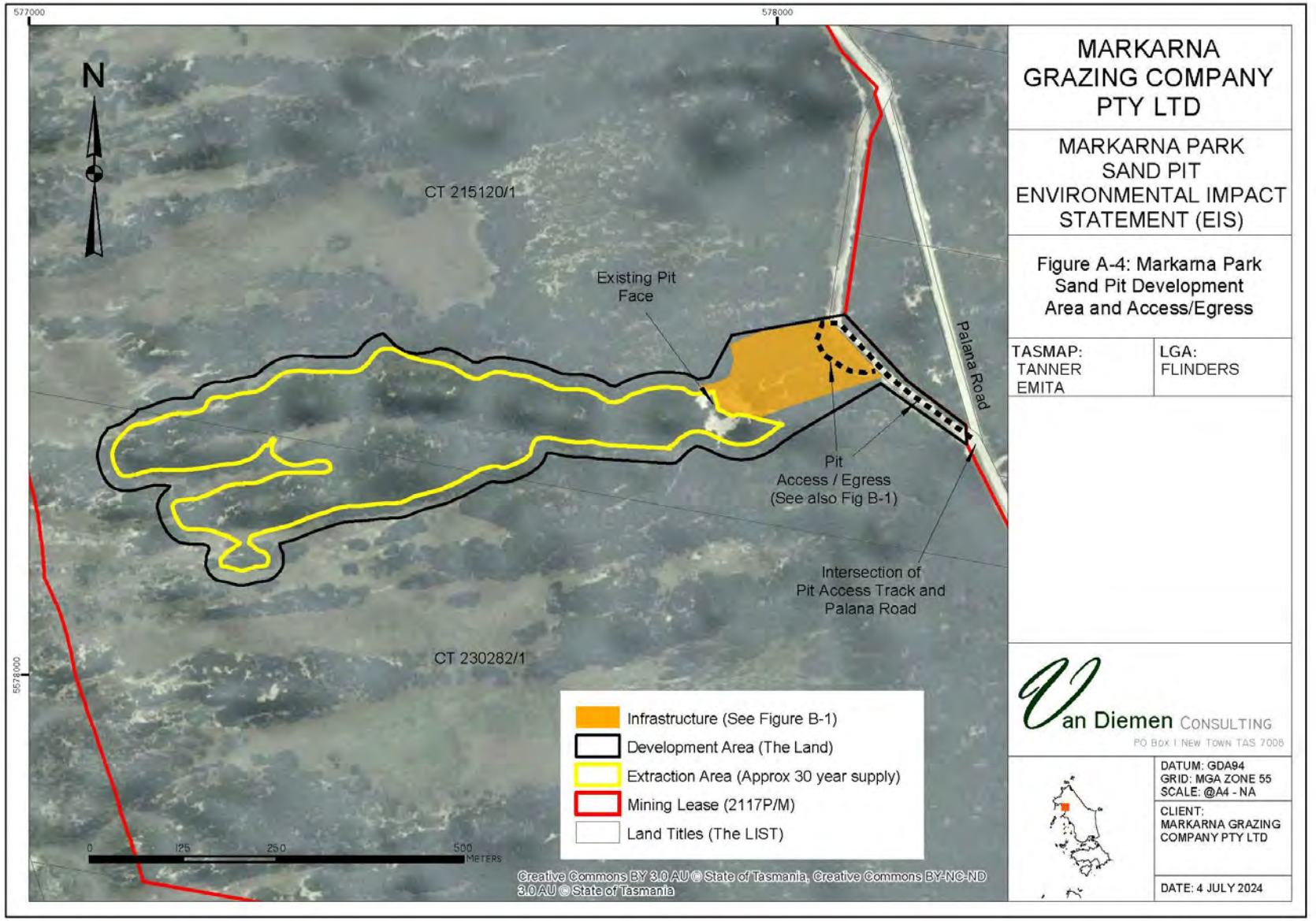



**Figure 3: Site overview and access (Figure A-4 of the EIS). The area shown as the Development Area is the Activity Area in this EAR.**




**Figure 4: Land tenure map, including conservation covenant.**

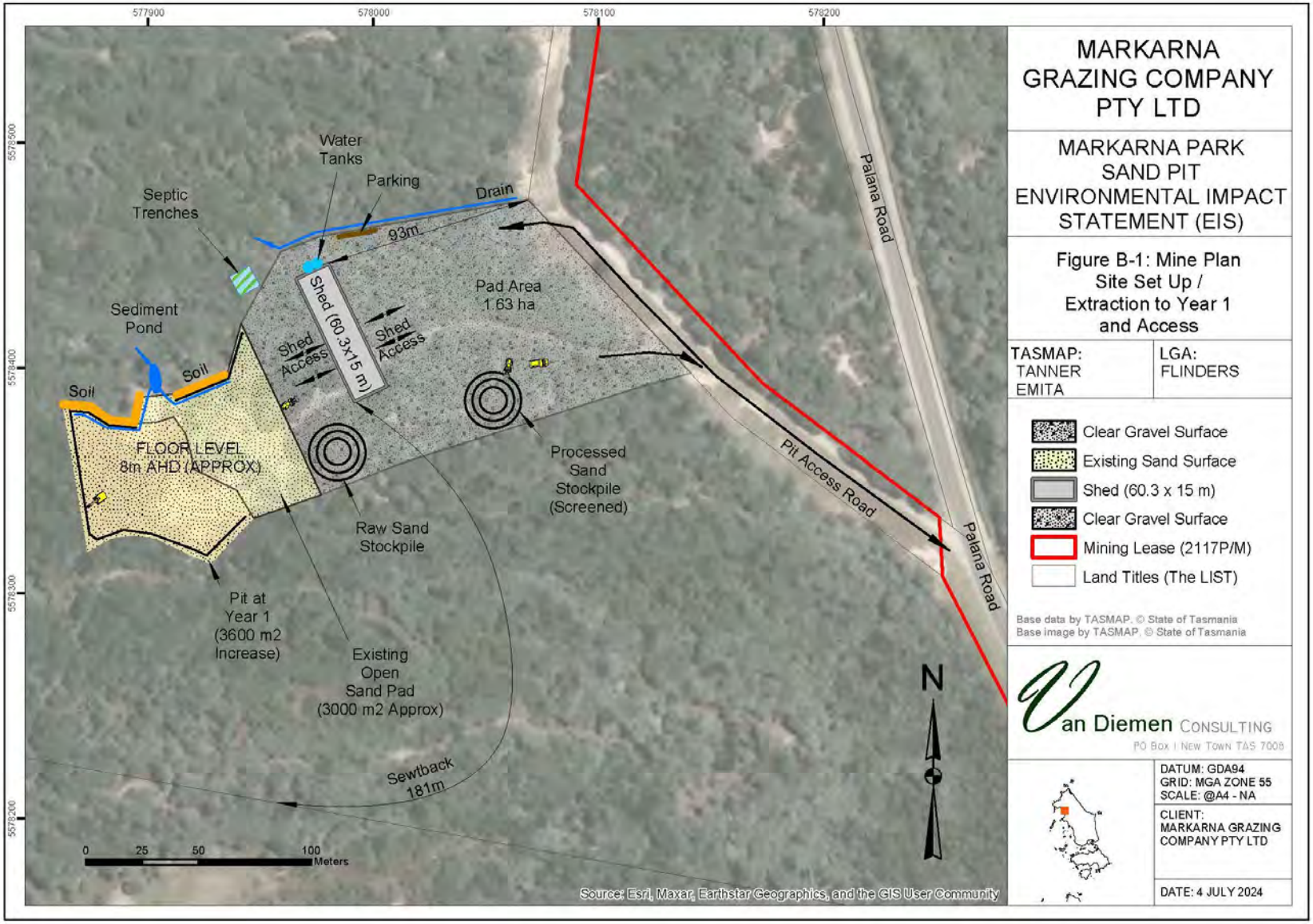



**Figure 5: Mine Plan – Set Up and Extraction Year 1 (Figure B-1 of the EIS).**

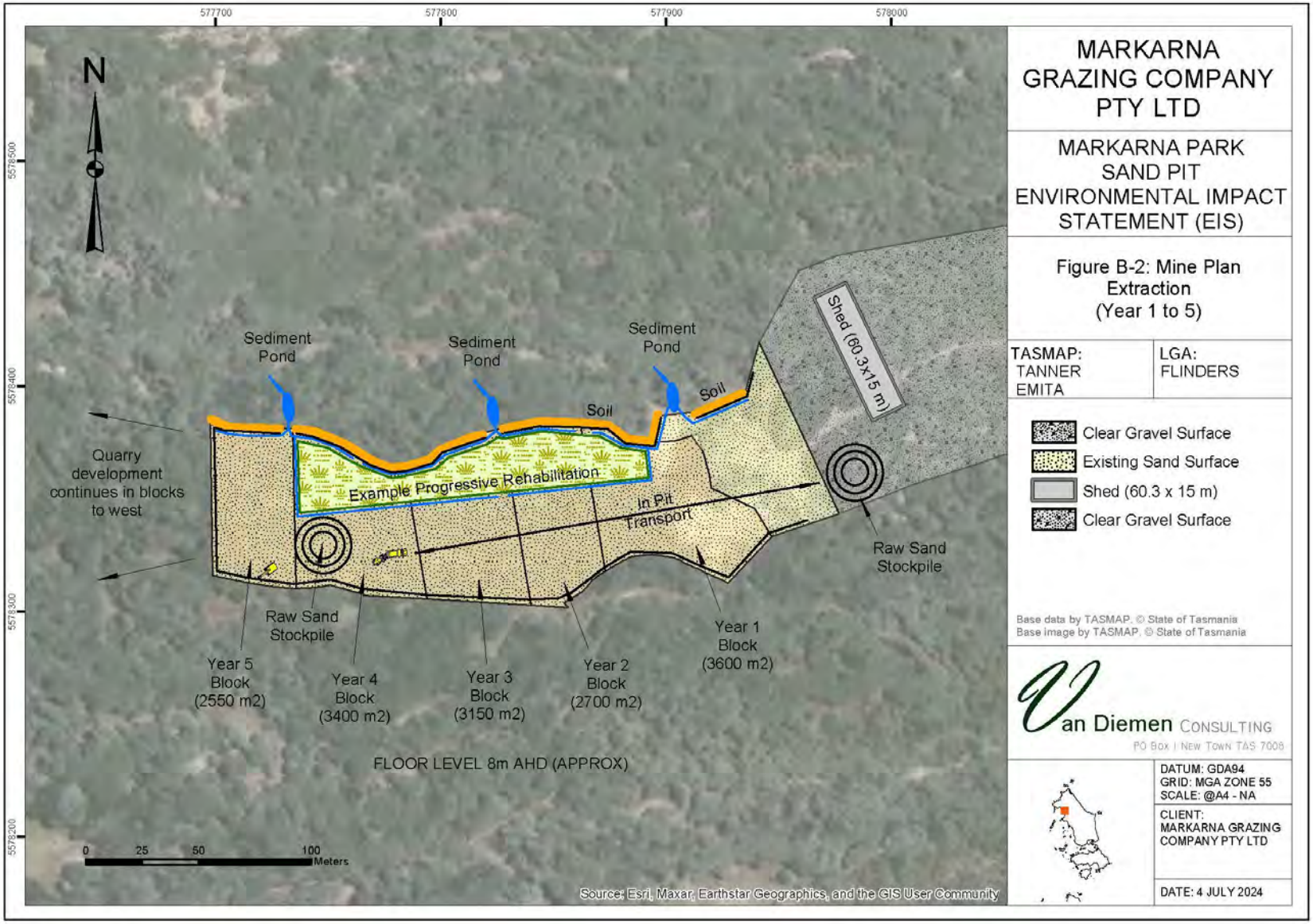



**Figure 6: Mine Plan – Extraction Year 1 to 5 (Figure B-2 of the EIS).**

# 4. Project Rationale and Alternatives

The EIS states that soil acidification is a naturally occurring process influenced by numerous factors and is compounded by most of Tasmania's soils being naturally acidic.

The EIS notes that acidification of agricultural land is a significant land degradation issue that can negatively affect productivity and sustainability of agricultural activities through:

- Decreasing the availability of nutrients to plants;
- Increasing the toxicity of aluminium and manganese;
- Decreasing soil biological functions;
- Reducing the ability of legumes to fix nitrogen; and
- Making the soil more vulnerable to soil structure decline and erosion.

The EIS notes that lime sands which are rich in calcium carbonate can reduce soil acidity by neutralising the acid reaction, thus raising pH.

According to the EIS 'liming' is the most cost-effective way to manage low soil pH, to help prevent loss of production and profitability in farming systems and reverse acidification. Liming involves applying lime to the soil surface several months before sowing pasture or crops..

According to the EIS commonly used liming materials include:

- Agricultural lime - crushed and sieved natural limestone which is mainly calcium carbonate. Safe, cheap and effective.
- Lime sand - mined from natural deposits that are mainly calcium carbonate. Safe and cheap but can be coarser and react slower with soil than agricultural lime.
- Dolomite - a mixture of calcium and magnesium carbonates. Particularly valuable where soils are low in magnesium.
- By-product lime - by-product from the production of soda ash, which contains mostly calcium carbonate, but with some calcium oxide and hydroxide.

The EIS identifies agriculture as a critical employment and income generation activity on Flinders Island, therefore its longevity is important to the social and economic well-being of the island.

The EIS states that the Marshall Bay land parcels owned by the Markarna Grazing Company ('Markana Park') were purchased to provide ongoing lime sands for use on the broader Markana Park land parcels and to sell to other agricultural enterprises as well as for use in making concrete for construction projects on the island. The EIS notes that the existing, but now disused pit, was once used by many islanders to access lime sand due to its ease of access and quality sand with a high effective neutralising value.

According to the EIS, off-island supplies of lime / sand are costly due to high freight charges. This undermines the economic viability of agriculture on the island in the medium to long-term due to inadequate levels of lime being applied which affects long term soil health and productivity of agricultural land on the island.

The EIS states that no alternative locations were considered as the lime sands are spatially limited on Flinders Island, are of very high quality, extensive in their geographic extent at Marshall Bay and can be extracted in a way and at a rate that is sensitive to the Marshall Bay environment.

# 5. Public and Agency Consultation

The process for a section 40T LUPAA combined permit and rezoning application does not provide for public consultation to be undertaken prior to the Council determining the permit application. Public consultation occurs when the permit application has been determined by the Council and forwarded, along with the rezoning application, to the Tasmanian Planning Commission.

The EIS was referred to several government agencies with potential interest in the proposal, including:

- Conservation Assessment Section, Natural Resources and Environment Tasmania
- Parks and Wildlife Service, Natural Resources and Environment Tasmania
- Aboriginal Heritage Tasmania, Natural Resources and Environment Tasmania
- Heritage Tasmania, Natural Resources and Environment Tasmania
- Mineral Resources Tasmania, Department of State Growth
- Public Health Services, Department of Health
- Flinders Council

The following also provided specialist advice on the EIS:

- Regulatory Officer, Environment Protection Authority
- Air Section, Environment Protection Authority
- Water Section, Environment Protection Authority
- Noise Section, Environment Protection Authority

# 6. General Permit Conditions

The following general conditions are recommended for the activity:

**G1** Activity Area

**G2** Access to and awareness of conditions and associated documents

**G3** Incident response

**G4** Proposed change to activity

**G5** Change of responsibility

**G6** Change of ownership

**G7** Complaints register

**G8** Quarry Code of Practice

**G9** Amendment of required plans and reports

# 7. Evaluation of Environmental Issues

The following environmental issues are considered relevant to the proposal and are evaluated in this section:

1. Air quality
2. Surface and ground water quality
3. Noise emissions
4. Natural values
5. Weed and disease management
6. Waste management, dangerous goods and environmentally hazardous materials
7. Decommissioning and rehabilitation

## 7.1 Issue 1: Air quality

### 7.1.1 Potential impacts

The primary air emission of concern from the proposed activity is dust. Quartz based materials, which may be present in or under the calcareous sands, have the potential to impact human health through producing respirable crystalline silica.

Various activities with potential to produce dust will be undertaken, including vegetation clearing and burning, excavation of topsoil and sand, screening / adding ameliorants, loading and carting of product. Stockpiles, disturbed ground and use of internal roads by vehicles and machinery can also generate dust. If not managed appropriately, these activities have the potential to cause environmental nuisance beyond the boundary of the Activity Area. It is noted that the screening plant is mobile and may be operated both inside and outside the proposed shed depending on operational requirements.

According to the EIS there are also other potential sources of air emissions in the general area including from agricultural activities, other sand pits and conservation management activities (e.g. ecological burns).

Directly to the north, south and west of the Activity Area is land owned by the Proponent (approx. 2 km to the northern boundary and 400 m to the southern boundary). Surrounding land tenure is shown in Figure 4 above.

Immediately west of the property is the Marshall Bay Conservation Area which is comprised of a narrow strip of land covering Marshal Beach.

There is one sensitive receptor located approximately 1.15 km south-east of the Activity Area (see Figure 7). No other sensitive receptors are located within a 2 km radius of the Activity Area.

The land east of the property is mostly vegetated private land. There is a conservation covenant located on private property approximately 1.3 km east of the Activity Area (refer Figure 4 of this EAR). There are two other mining leases immediately east and just south of the Activity Area.

The prevailing wind direction is from the west with subdominant lighter winds from the east-north-east. The report notes that while easterly winds are common, they are usually lighter and often associated with rainfall thus reducing the risk of dust being blown from the Activity Area.

In reference to potential for dust emissions Attachment 9 of the EIS indicates that the younger modern dunes which run parallel to Marshall Beach along the western boundary of the mining lease are more susceptible to disturbance and blow outs, which may result in fugitive dust emissions, however, the proposed activity relates to extraction from the older west-to-east parallel dunes which are relatively stable and vegetated (see Map 3 of the EIS).

The EIS notes that removal of vegetation on these west-to-east dunes increase the risk of blow outs occurring, which may result in dust emissions, and recommended that where possible the working face should be directed to the east, away from the stronger prevailing westerly winds. The EIS also recommended that as far as practical vegetation should be retained above the working face of the pit and that worked out areas should be progressively rehabilitated.

### 7.1.2 Management measures proposed in EIS

The EIS states the following measures will be implemented to minimise the risk of wind erosion occurring:

- Avoid where possible, but otherwise minimise, working on faces exposed to westerly winds;
- Maintain vegetation above and to the west of any active extraction face; and
- Re-establish vegetation on a progressive basis.

The EIS also states that dust emissions will be managed to the extent necessary to prevent environmental nuisance by implementing industry standard environmental practices for dust suppression, including:

- Retention of vegetation along the access road corridor where possible;

- Retention of vegetation (when possible) around the pit working area to reduce the likelihood of strong winds liberating fine particles into the air;
- Utilisation of slash / mulch obtained from cleared areas to stabilise the soil surface and to limit wind action on dust generation at the soil / sand surface;
- Covering of trucks with tarpaulins and / or load dampening;
- Minimising the geographic extent of areas of exposed soil; and
- Road dampening and implementing a speed limit of 40 km/hr on the access road.

The EIS notes that soil ameliorants that will be added to some of the sand prior to delivery will be added by screening within the shed only, due to their cost and fine particle size.

In addition, the EIS states that screening of material on high wind days (i.e. winds >60 km/hr) outside of the shed will be avoided.

According to the EIS machinery operated as part of the activity will be modern, well maintained and fuel efficient to ensure that emissions are low per operating hour. It also notes that greenhouse gas emission profiles will be considered when procuring new machinery and that low emission machinery will be preferentially selected where possible and cost effective.

### 7.1.3 Agency comment

No agency comments were received in relation to air quality.

### 7.1.4 Evaluation

The potential for quartz-based sands to produce respirable crystalline silica particles was considered along with the potential for impacts on members of the public. Comments from the Proponent noted that the underlying quartz sand is not the target material for this proposal and will not be intentionally disturbed. The Proponent also noted that untreated beach sand particles would usually be considered too coarse to be inhaled.

Advice was sought from the Department of Health's Public Health Services regarding this issue. They noted that as no crushing or blasting was proposed, the proposed management measures were considered adequate and that permit conditions should seek to ensure dust emissions are contained within the site.

Based on information contained in the EIS, impacts from dust emissions on local air quality are likely be minor given the 1.15 km distance to the nearest sensitive receptor, and can be readily managed through the proposed management measures which are standard for smaller scale extractive activities. The proposed management measures are considered appropriate for the site.

While there are no nearby sensitive receptors, it is best practice to retain air emissions within the boundary of the Activity Area and therefore it is appropriate to impose conditions **A1** and **A2**.

Condition **A1** requires that any vehicles carrying loads of material that have the potential to blow, or spill must be equipped with effective control measures to prevent the escape of material. The control measure(s) must be implemented prior to leaving the Activity Area.

Condition **A2** requires that dust emissions from within the Activity Area must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of the Activity Area.

### 7.1.5 Conditions

The proponent will be required to comply with the following conditions:

**A1** Containment of loads

**A2** Control of dust emissions


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## 7.2 Issue 2: Surface and ground water quality

### 7.2.1 Potential impacts

The proposal involves activities such as clearing of vegetation, excavation, screening, carting of material, stockpile creation, weed management, and refuelling / maintenance of equipment and machinery, all of which have the potential to be sources of pollutants (e.g. sediments, fuel / oil, and other chemicals) that may impact surface and ground water quality if not managed appropriately.

In addition, the EIS proposes a maximum disturbed area at any given time of up to 5 ha that may be comprised of access roads, stormwater infrastructure, stockpiles, the pad area, partly rehabilitated extraction areas and the active pit area. This means there is potential for sediments to be entrained in stormwater during storm events.

A survey of the geomorphology and soil characteristics of the mining lease was undertaken, and the subsequent report is contained in Attachment 9 of the EIS (the Geomorphology Report). According to the report, extensive sand dunes cover most of the mining lease and are composed of fine-grained white quartz and carbonate deposits, with two significant sand dune assemblages present. In the western part of the mining lease are the modern foredunes and back dunes directly behind Marshall Beach. Inland of this are a series of elongated west-to-east trending parallel dunes that rise to approximately 24 m above sea level.

The report describes the inland dunes, some of which will be extracted under this proposal (see Map 3 of the Geomorphology Report), as being largely vegetated and stable in comparison to the foredunes. The report notes that the dune system being targeted for extraction is not well expressed on topographic maps and that it is comprised of a series of at least eight dune ridges with steep sides and wide, deep interdune swales, rather than the single dune system shown on most topographic maps.

#### Surface water

The EIS states that the top layer of lime sand being targeted by this proposal has high permeability, which influences infiltration rates and subsequently stormwater runoff patterns.

The EIS  notes that there are no defined water courses within the Activity Area and no formal drainage exists into the nearby wetlands (North and South Curves Lagoons). It also notes that the onsite survey determined the wetlands areas were significantly smaller than mapping suggests (see Issue 4 below for further details).

#### Groundwater

The EIS states that given the extensive nature of limestone on the hills east of the mining lease, subsurface water flow through karst aquifers is likely, but that significant karst landforms are unlikely to be present within the Activity Area, as detailed in the Geomorphology Report.

The EIS notes that groundwater depth is likely to be in the range of the nearest bore located approximately 3 km northwest of the Activity Area in comparable sediments. This bore recorded a standing water level of 4.7 m below ground level.

The EIS notes that during soil sampling for the wastewater management system absorption bed site, a hardpan was identified at around 1.2 m below ground level. This hardpan was described as considerably less permeable than the overlying unconsolidated lime sands, but it was noted that the hardpan was likely to be present at varying depths across the Activity Area. The material underlying the hardpan was described as loose and damp yellow sand associated with the water table.

The EIS states that this hardpan layer will not be targeted, only the overlying unconsolidated lime sands. The EIS makes a commitment that a sand layer of approximately 1 m in depth will be retained over the base geology (i.e., the hardpan / limestone) to facilitate re-establishment of vegetation once worked out areas are to be rehabilitated. The EIS also notes that no pit / depression will be created from extraction of material.

#### Onsite wastewater management system

The EIS states that an onsite wastewater management system is proposed to treat and dispose of wastewater from the ablution / kitchen facilities located within the proposed shed. The system will be

comprised of a septic tank which discharges to an in-ground absorption bed with a design capacity for five people per day. The Site & Soil Evaluation and Design Report, contained in Attachment 5 to the EIS, details the evaluation of the location and recommended design of the proposed wastewater management system, which if not installed and managed appropriately has the potential to impact water quality.

### 7.2.2 Management measures proposed in EIS

According to the EIS stormwater runoff from the Activity Area will be captured and treated by sediment ponds to remove sediments to the extent necessary to prevent environmental nuisance.

Perimeter drains will be installed to direct clean stormwater away from disturbed areas of the activity. One of the perimeter drains will be installed along the northern extent of the pad area (see Figure 5) to intersect any stormwater draining off the semi-permeable pad area and direct it to the permanent Type-C (refer to IECA, 2018) sediment basin, as shown in Plate 2 of the EIS. The basin outflow will be directed to overland flow dispersed through vegetation to minimise the risk of concentrated flows and erosion.

A series of Type-F sediment basins will be installed as extraction progresses. Figure 6 shows indicative locations of basins for years 1 to 5 of extraction. These basins are designed to collect and treat any stormwater runoff generated within the active extraction areas and any partly rehabilitated areas. Once extraction and rehabilitation of an area has been completed, the corresponding sediment basin will be redundant and a new sediment basin will be constructed for the next area of extraction. The basin outflows will also be directed to overland flow dispersed through vegetation.

Stormwater falling onto the shed roof will be captured in water tanks (likely 2 x 50,000 litres) and any overflow from those tanks will be directed to the permanent sediment basin for the pad area.

Due to the high infiltration of water through the sand, it is anticipated that the total demand for these basins to treat stormwater will be relatively low. Should there be an accumulation of treated stormwater in the basins or in the tanks, it may be repurposed for operational activities, such as for dampening roads or sand to be screened / blended.

The EIS also includes commitments to minimise the extent of exposed areas and to utilise slash obtained from vegetation clearing, or other products such as jute mesh, to stabilise soil surfaces.

The EIS notes several of the management measures applied to the use and storage of hazardous substances (e.g. bunding, spill kits, pre-start checks of machinery etc.) are also important in preventing spills and leaks that could impact karst or groundwater.

According to the EIS regular visual monitoring (monthly) will be undertaken to ensure the effectiveness of the installed stormwater management and sediment control structures. Repair and remedial works (including sediment basin cleaning) will be performed to maintain appropriate sediment settling zones and to ensure that stormwater is entering and leaving the basins as planned. The effect of sediment basin discharge on vegetation and the soil surface will be monitored and remedial actions taken if the soil surface becomes scoured, or vegetation becomes covered by discharged sediment.

### 7.2.3 Agency comment

No agency comments were received in relation to surface and ground water quality.

### 7.2.4 Evaluation

The proposed installation and maintenance of perimeter cut off drains to prevent clean stormwater from entering the extractive areas / pad is considered appropriate. To reflect these commitments, standard condition **SW1** requires construction of perimeter cut off drains / bunds and any other stormwater management infrastructure required (such as sediment ponds) to ensure stormwater is managed appropriately.

In addition, condition **SW2** sets out the required minimum standards for the design and maintenance of any sediment basins constructed for managing stormwater.

**SW3** is a standard condition requiring all reasonable measures to be implemented to ensure solids entrained in stormwater are retained within the Activity Area, and that any polluted stormwater discharged

from the Activity Area is first collected and treated to the extent necessary to prevent environmental harm or nuisance. It also requires that any discharge does not degrade the visual quality of any receiving waters.

While the EIS suggests that intersection of groundwater is unlikely, no detailed study of groundwater has been undertaken, and it is considered appropriate to include condition **GW1** to ensure that an appropriate buffer is maintained should shallow groundwater be encountered.

Condition **GW1** requires that in the event groundwater is intersected, or standing water is observed within the extraction area, machinery must be prevented from entering the area and extracted material must be used to raise the base level of the extractive activity to prevent the occurrence of groundwater intersection within the Activity Area.

The design, installation and operation of the proposed wastewater management system is a matter that will be assessed by the planning authority under the planning scheme and will also require a plumbing permit. The wastewater discharge will be broadly similar to domestic wastewater and will not include industrial or trade wastes. It is anticipated that if the wastewater management system is designed, installed and maintained as detailed and meets the planning authority's requirements that the risk of causing environmental nuisance or harm is low.

The EIS lists the relevant acceptable standards of the QCP applied to the quarry in relation to water quality, sediment control and drainage. These measures are considered appropriate and condition **G8** requires the activity to be undertaken in compliance with the acceptable standards provisions of the QCP.

Based on the information provided, the commitments made in the EIS, and the conditions imposed as detailed above, it is considered the potential environmental risks can be adequately managed to ensure that environmental harm or nuisance is not caused by proposed extractive pit.

### 7.2.5 Conditions

The proponent will be required to comply with the following conditions:

**SW1** Perimeter drains or bunds

**SW2** Design and maintenance of settling ponds

**SW3** Stormwater

**GW1** Groundwater

**G8** Quarry Code of Practice

## 7.3 Issue 3: Noise emissions

### 7.3.1 Potential impacts

The following operations will occur as part of the activity and may generate noise emissions with the potential to travel beyond the boundary of the Activity Area and cause environmental nuisance:

- Construction activities associated with installation of the shed, tracks, sediment basins, drains and the septic system;
- Removal of vegetation;
- Excavation associated with extraction;
- Screening of sand (both in the shed and external to the shed);
- Loading of material into trucks;
- Carting of material within and from the Activity Area; and
- Movement of vehicles and other ancillary equipment associated with the activity.

Table 9 of the EIS provides a list of equipment and machinery to be used, and the assumed sound power levels associated with each item. The EIS notes that the actual equipment used may vary over time as equipment is replaced. In addition, Figures B-1 and B-2 of the EIS show indicative locations where plant and equipment will be used.

According to the EIS noise producing equipment and machinery that will be used includes a bulldozer, grader, excavator, frontend loader, water truck, cartage trucks, light vehicles, and mobile screen.

The EIS states the nearest sensitive receptor is located 1.15 km south-east of the shed within the Activity Area and approximately 295 m east of the mining lease boundary (see Figure 7). All other sensitive receptors are more than 2 km from the proposed Activity Area.

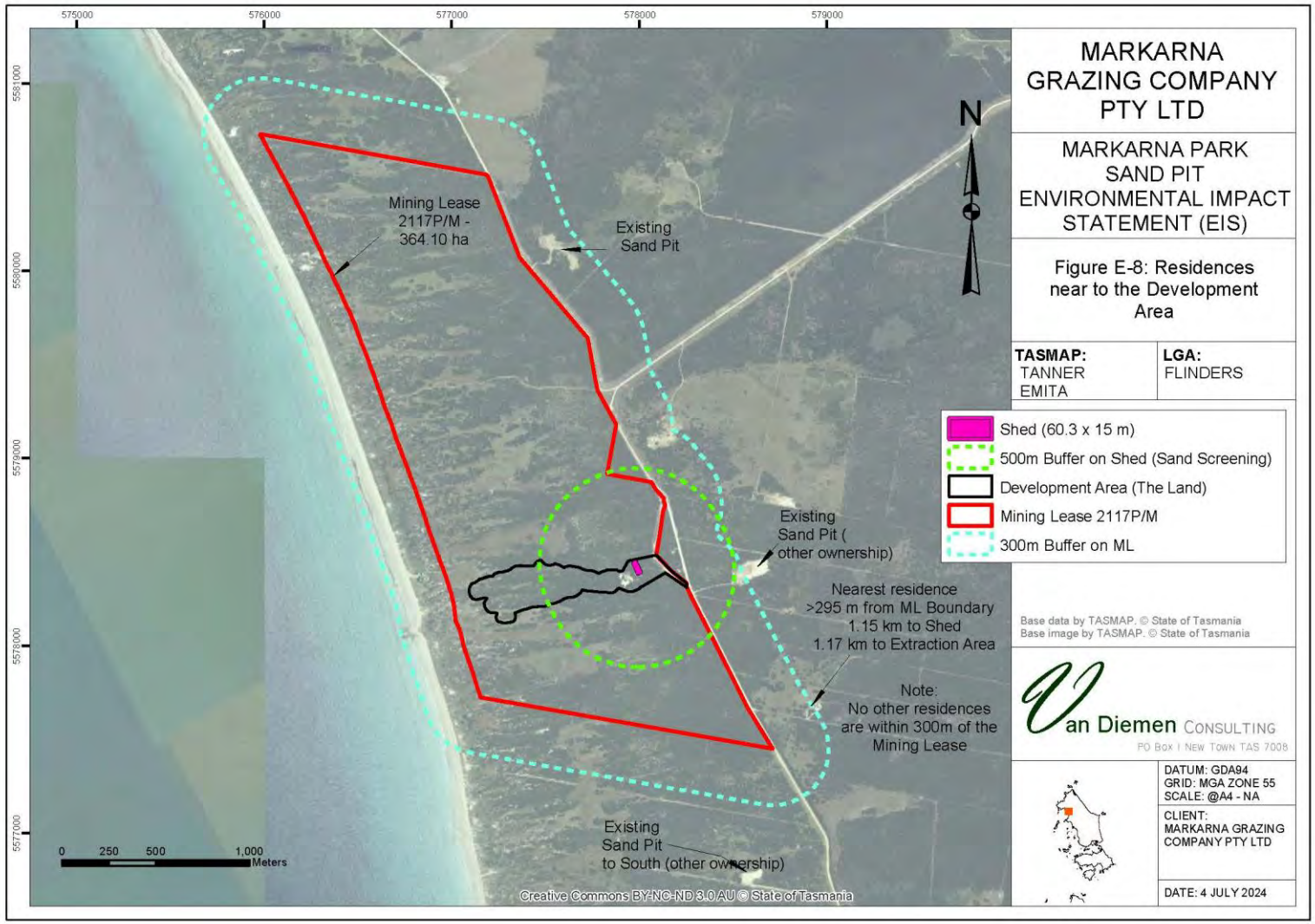



**Figure 7: Nearest noise sensitive receptors (Figure E-8 of the EIS).**

The EIS notes that the activity will operate intermittently with a likely peak transport period of March to May which may vary depending on seasonal factors and individual agricultural needs. This is the typical period when lime sand is required for spreading on agricultural lands. The proposed hours of operation are 0700 to 1900 hours Monday to Friday.

There is likely to be some level of activity on the site throughout most of the year, for example excavation and stockpiling prior to the main lime sand spreading period (likely December to March) and on an as needs basis for other uses, such as for offsite concrete production for construction projects.

### 7.3.2 Management measures proposed in EIS

According to the EIS the pit is located in an area with no nearby noise sensitive receptors and the potential for impacting the closest receptors is considered to be very low, including from noise generated during carting of material onto the external road network.

Nevertheless, the EIS states that late model machines with proprietary exhaust silencers will be used and machines will be maintained in good condition to reduce the potential for noise emissions.

The EIS also states that operations will only occur Monday to Friday between 0700 and 1900 hours.

### 7.3.3 Agency comment

No agency comments were received in relation to noise emissions.

### 7.3.4 Evaluation

The nearest noise sensitive receptor is located over 1 km from the Activity Area. Furthermore, the activity is for the extraction of lime sand which will not require ripping rock or any other method of liberation (e.g., blasting) that typically produces a higher level of noise emissions. Although screening is proposed to remove organic matter, removal of rocks via screening is not required and therefore significant noise is not expected to be generated during this process.

No extractive activities, apart from carting of material offsite, are permitted outside of the Activity Area as defined in Attachment 1 of the permit conditions. Given the separation distances and proposed operating hours, noise emissions from the activity are unlikely to impact on noise sensitive receptors. To ensure that operational hours are adhered to, condition **N1** is included, which restricts the operational hours to those proposed in the EIS and specifically prohibits activities occurring on Saturdays, Sundays or public holidays that are observed statewide, except Easter Tuesday.

### 7.3.5 Conditions

The proponent will be required to comply with the following condition:

**N1** Operating hours

## 7.4 Issue 4: Natural values

### 7.4.1 Potential impacts

Activities associated with operation of an extractive pit have the potential to disturb, injure or kill threatened fauna or flora species and vegetation communities if not managed appropriately. Activities, if not managed appropriately, also have the potential to adversely impact geomorphological features and processes, including coastal dune systems and any karst present.

#### Flora

The EIS states that there are two native vegetation communities present within the Activity Area (see Figure 8) and that neither of these communities are listed under the *Nature Conservation Act 2002* (NCA) or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).

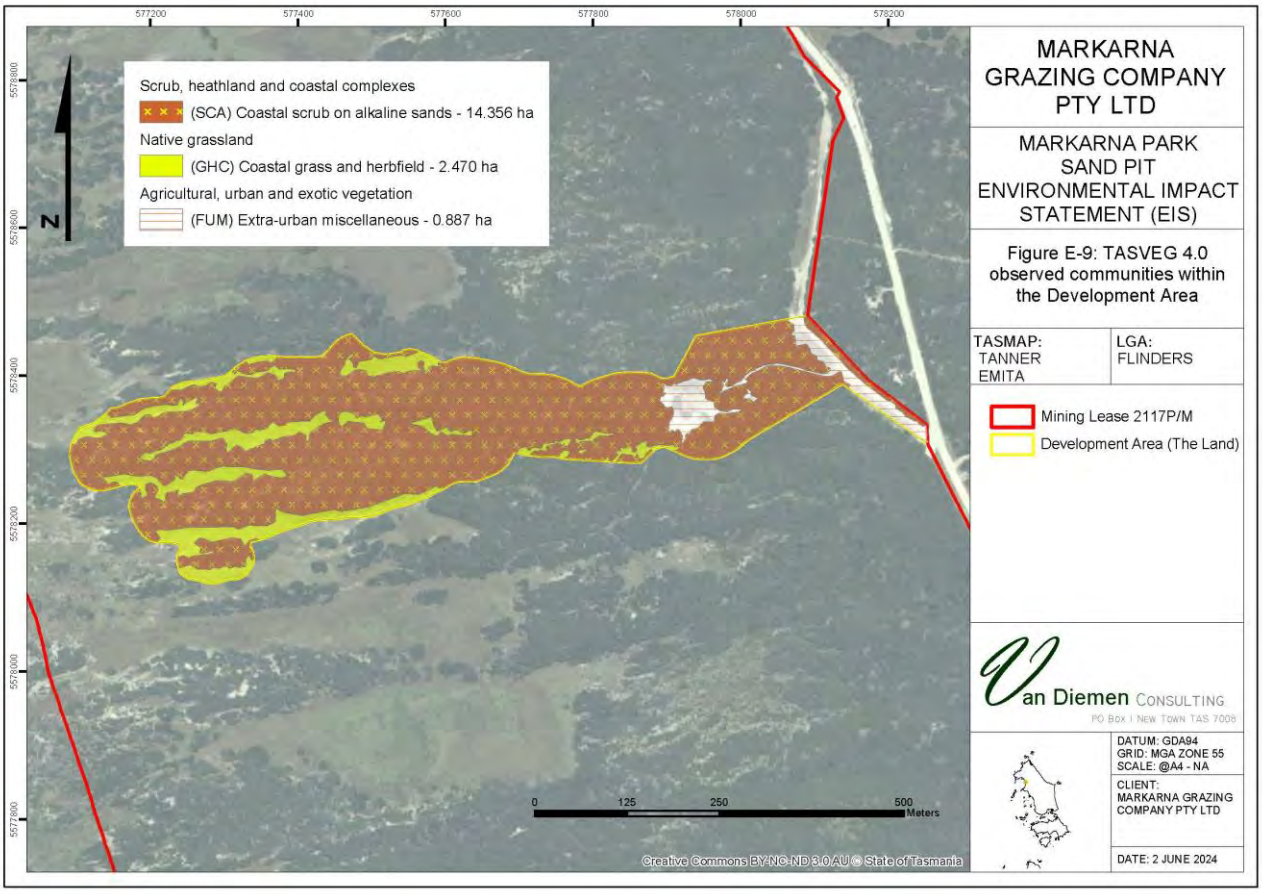



**Figure 8: Observed vegetation communities within the Activity Area (Figure E-9 of the EIS).**

A natural values assessment was undertaken within and adjacent to the Activity Area (Attachment 4 of the EIS). The NVA Report identified six plant species within the Activity Area (Figure 9) that are listed under the *Threatened Species Protection Act 1995* (TSPA). The report states that all six species will be impacted by the proposal and details the expected number of individual plants that will require removal. The maps in the report indicate that the majority of these species are located in and around the proposed infrastructure area and access road corridor (see Figure 9 below).

The NVA Report considers the potential for the coastal grass and herb field community to represent the EPBCA listed lowland native grasslands of Tasmania ecological community but determined that it does not satisfy the relevant criteria for that community.

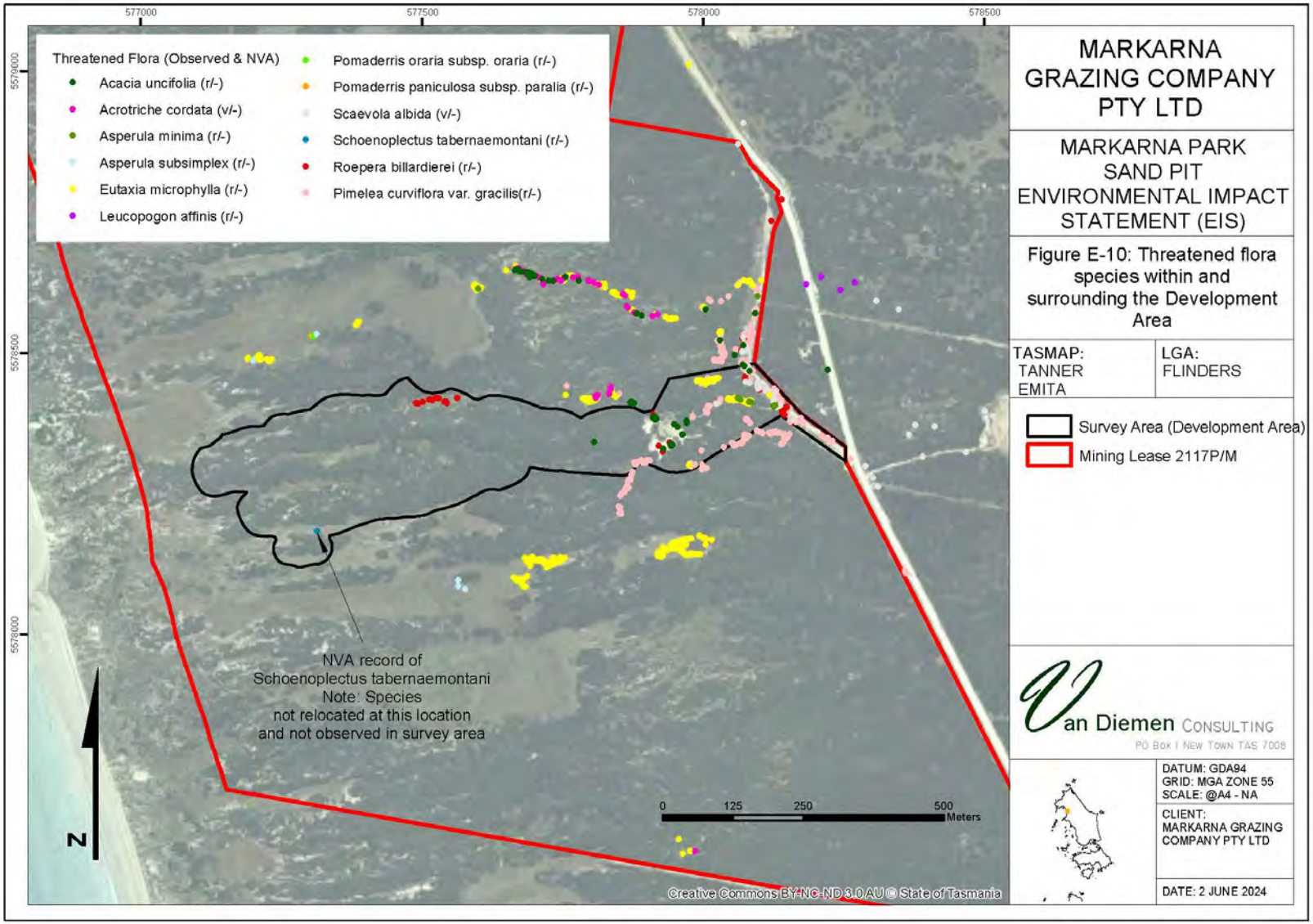



**Figure 9: Threatened flora species within and surrounding the Activity Area (Figure E-10 of the EIS).**

## Fauna

The NVA Report notes that there are threatened fauna species records within 5,000 m of the Activity Area based on Natural Values Atlas (NVA) and Protected Matter Search Tool (PMST) data (refer to Tables 8 & 9 of the NVA Report).

### *Eagles*

According to the NVA Report no threatened fauna species were observed onsite during the survey, however, there is potential foraging habitat for the wedge-tailed eagle (*Aquila audax subsp. fleayi*) and white-bellied sea eagle (*Haliaeetus leucogaster*) within the Activity Area. It is noted there is no potential nesting habitat for either species onsite or within 2.5 km of the Activity Area.

### *Mammals*

The NVA Report states there is potential habitat for the New Holland mouse (*Pseudomys novaehollandiae*) adjacent to the western edge of the mining lease, which is outside of the Activity Area. It also notes the Activity Area itself does not support suitable habitat for the species and it is not within the known core range of the species.

Devils and quolls are not located on the island and therefore impacts from nighttime vehicle movements were not considered as there is no potential to impact on these species.

### *Reptiles / amphibians*

The NVA Report states that while grassland (e.g., coastal grassland and herb field) is potential habitat for the tussock skink (*Pseudemoia pagenstecheri*), the lack of significant areas of *Poa labillardierei* tussocks means that suitable habitat is largely absent for the species within the Activity Area. It is noted that there are areas which support suitable habitat within the mining lease but outside of the Activity Area.

### *Beach associated avifauna*

The NVA Report specifically considered beach associated avifauna given the proximity of the proposal to the Marshall Beach Conservation Area, identifying six species listed under the TSPA and EPBCA with potential ranges on or near the Activity Area.

The NVA Report notes that of the species identified, the Australian fairy tern (*Sternula nereis nereis*), eastern hooded plover (*Thinornis cucullatus cucullatus*) and little tern (*Sternula albifrons*) have been observed at or near Marshall Beach, based on available data.

The NVA Report states the Activity Area does not include beach, foredune, back dune or modern dune habitat and that the activity is unlikely to have a direct or indirect impact on beach dwelling avifauna.

## Geomorphology and soils

A survey of the geomorphology and soil characteristics of the mining lease was undertaken (Attachment 9 of the EIS (the Geomorphology Report)).Map 3 of the report summarises the geomorphology of the mining lease.

### *Karst*

The Geomorphology Report notes that while bedrock Tertiary limestone is present in the east of the mining lease, no karst landforms, apart from very minor surface solution sculpture (karren) landforms, have been identified. It also notes that given the extensive nature and relief of the limestone on the hills east of the mining lease, subsurface water flow through karst aquifers is likely, however, significant karst landforms are unlikely to be present based on observations made.

The report states that while sinkholes are difficult to differentiate from dune swales, all the depressions observed within the Activity Area were determined to be dune swales and therefore should not be treated as karst features.

### *Sand dunes*

According to the Geomorphology Report, extensive sand dunes cover most of the mining lease and are composed of fine-grained white quartz and carbonate deposits, with two significant sand dune assemblages

present. In the western part of the mining lease are the modern foredunes and back dunes directly behind Marshall Beach. Inland of this are a series of elongated west-to-east trending parallel dunes that rise to approximately 24 m above sea level.

The report describes the inland dunes, some of which will be extracted under this proposal, as being largely vegetated and stable in comparison to the foredunes. In reference to the dune system being targeted by this proposal, the report notes that it is not well expressed on topographic maps and that it is comprised of a series of at least eight dune ridges with steep sides and wide, deep interdune swales, rather than the single dune system shown on topographic maps.

The report states that blowouts of the coastal dunes backing Marshall Beach were observed to be quite common within the mining lease, but away from the coast most of the larger dunes appear to be stable. It goes on to note that the current pit face being on the leeward side of the dune system limits the potential for the prevailing westerly winds to significantly erode sands and that there is a risk that if / when extraction extends to more of a windward face wind erosion could increase significantly.

The report notes that the dune field within the mining lease is a landscape of geoscientific interest which can and should be managed appropriately to limit the footprint of any extractive activities.

***Acid soils***

The report provides details of the soil characteristics and results of limited soil sampling that was undertaken to identify any unusual soil characteristics, focusing on soil acidity.

The report notes that soils within the Activity Area are generally well drained strongly alkaline calcarosols (i.e., lime sand) and that while organic topsoils, buried paleosols and lake / swamp sediments are present within the mining lease none of these contain adequate organic material to significantly reduce pH within the dune sands. The report concluded that acidic soils are unlikely to be present over extensive areas or may be totally absent, as supported by the sample results.

The report notes that the survey was not comprehensive and that it is possible some swampy depressions may host thicker organic horizon having a lower pH. However, these areas will not be directly impacted by the proposal, which targets only the elevated lime sand dune system detailed in the EIS.

***Wetlands***

The report notes that the extent of wetlands at North and South Curves Lagoons is significantly smaller than indicated on the topographic map and the TASVEG mapping, with significant areas of these features being undulating grassy dune fields. The report states that no wetlands (swamps), as defined by the *Forest Practices Code 2020* were identified within the Activity Area.

### 7.4.2 Management measures proposed in EIS

The EIS states that the Proponent will include as part of its induction and operational management system, a process for staff, management and contractors working at the pit to mark clearing and working areas to identify permitted operational areas and exclusion zones.

The EIS states that in the event notable examples of significant geomorphological features are encountered (i.e., any of the features listed below) the area will be photographed and operations moved away from the feature until a suitably qualified person (in the context of the item / items discovered) can assess any geomorphological / cultural values.

Contractors will be instructed to look out for:

- thick dark continuous bands within the dunes.
- buried tree stumps or large calcareous deposits (not rhizoliths of modern age such as those created by tree roots from recently deceased vegetation) that appear to be parts of a tree.
- stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand.
- large accumulations of shells.


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- large bones and accumulations of smaller bones buried >1 m under the surface.

According to the EIS in the event a steep sided depression forms during operations that has signs of collapse, or a cave is located, they will be recorded, and operations will avoid the area until expert advice is sought.

The EIS states that in order to reduce the risk of wind erosion causing blow outs the following measures will be implemented where practical:

- avoid, if possible, but otherwise minimise working on faces exposed to westerly winds.
- maintain vegetation above and to the west of any active face where possible.
- re-establish vegetation on a progressive basis which could include stockpiling of cleared vegetation for covering exposed surfaces as the operation progresses.

### 7.4.3 Agency comment

The Department of Natural Resources and Environment (NRE Tas) advised that the mitigation measures outlined in Section C-4-3 of the EIS were generally supported.

NRE Tas also noted that:

- several species listed under the TSPA will require removal and advised that a Permit to Take will be required for any threatened flora to be taken as part of the development.
- some potential habitat for the listed tussock skink was observed during the survey but was outside the Activity Area.
- the survey did not identify any suitable habitat within the Activity Area for threatened shorebird species and that the survey concluded that "*there will be no activities that would generate noise, dust, or other form of emissions (e.g. light) that may or would disturb nesting and foraging beach dwelling bird species*" on Marshall Beach.
- if it is likely the development will require lighting to be operational during nighttime hours, the principles outlined in the Department of Climate Change, Energy, the Environment and Water's *National Light Pollution Guidelines for Wildlife 2023* should be incorporated into the lighting design, in particular Appendix A - Best Practice Lighting Design, to reduce the potential impacts of artificial light on shorebirds.
- the survey did not identify any threatened vegetation communities and confirmed that there were no wetlands within the Activity Area.
- as mentioned in the EIS there is a potential for the dunes to erode once vegetation is removed and that the proposed mitigation measures are supported for reducing the risk of wind erosion.
- the Geomorphology Report did not identify any significant karst features, and that only very minor surface solution sculpture (karren) landforms were identified.
- the Geomorphology Report did not identify any significant areas likely to produce acid sulfate soils.

### 7.4.4 Evaluation

The area surrounding the Activity Area supports a diverse range of natural values, including threatened flora species, habitat for threatened fauna species and geomorphological landforms / processes.

The Natural Values Survey did not identify any threatened native vegetation communities present within the Activity Area, nor did it identify any nesting / denning habitat for threatened fauna species. It did however identify several threatened flora species that will be impacted within the Activity Area.

The advice from NRE Tasmania regarding the need to obtain a Permit to Take under the TSPA for all threatened flora species that will be taken was provided to the Proponent.

While it was identified the mining lease exists within a karst landscape, only minor surface features were identified during the survey. It is not anticipated that any significant karst features will be encountered

within the Activity Area, such as caves and sinkholes, however, the EIS includes management measures to ensure that appropriate steps are put in place if a significant karst feature is identified.

The Geomorphology Report also discusses the risk of blow outs when disturbing the sand dune system, noting that the west-to-east parallel dunes are most at risk when exposed to the prevailing westerly winds. The EIS proposes several management measures to reduce the exposure of the working face to the westerly winds and to minimise the amount of ground exposed, both of which could result in dune erosion and loss of resource.

As detailed above, the EIS proposes a suite of management measures in relation to the natural values identified; these are considered relevant and adequate to manage the potential risks to natural values. It is noted that a Permit to Take may be required under the TSPA. No specific natural value conditions are considered necessary.

### 7.4.5 Conditions

While no conditions directly relating to natural values are considered necessary, other conditions imposed, such as those related to water and air quality as well as rehabilitation are considered relevant and assist indirectly in preventing environmental harm or nuisance related to natural values.

## 7.5 Issue 5: Weed and disease management

### 7.5.1 Potential impacts

Movement of vehicles, plant, and equipment on and offsite associated with the activity has the potential to introduce or spread weeds and diseases to, from or around the site if not managed appropriately. Product stockpiles can also be contaminated with weeds or diseases which may then be transported to other areas if not managed appropriately.

According to the EIS two weed species, horehound (*Marrubium vulgare*) and slender thistle (*Carduus tenuiflorus*)), listed as declared weeds under the *Biosecurity Act 2019,* have been observed within the Activity Area along the access track off Palana Road (see Figure 2 of the draft Weed and Disease Management Plan, Attachment 8 of the EIS).

The EIS includes a draft Weed and Disease Management Plan at Attachment 8 which notes that the Activity Area supports other introduced species, considered to be agricultural weeds, and that these weeds are generally widespread in the areas where lime sands will be utilised (i.e., agricultural lands).

The EIS states that no plants with symptoms of phytophthora (*Phytophthora cinnamomi*) were observed within the Activity Area. It also notes that there is a lack of susceptible species within the Activity Area and therefore phytophthora is unlikely to be present or active.

### 7.5.2 Management measures proposed in EIS

The EIS notes the development of the Weed and Disease Management Plan was guided by the *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania* (Department of Primary Industries, Parks, Water and Environment, 2015).

The Plan provides two key aspects to the management of weeds and diseases, including:

- an annual assessment of weed occurrences and locations to guide the implementation of the annual weed spraying program aimed at controlling or possibly eradicating weeds within or adjacent to the Activity Area.
- a clean vehicle policy will be implemented to ensure heavy machinery will be brought to the activity in a clean condition, free of weed propagules, clods of dirt and vegetative matter.

### 7.5.3 Agency comment

No agency comments were received in relation to weed and disease management.

### 7.5.4 Evaluation

It is acknowledged that two declared weed species are already present on the access road off Palana Road, and that ongoing management of these weeds is critical to ensure they do not spread any further due to the activity.

The commitment to implement a clean vehicle policy is supported. Condition **OP1** requires that, prior to entering the Activity Area, machinery must be washed in accordance with the Weed and Disease Guidelines.

The implementation of the draft Weed and Disease Management Plan is also supported. Condition **OP2** requires that the activity must be undertaken in accordance with the Weed and Disease Management Plan, as provided in Attachment 8 of the EIS, dated 10 November 2024 and prepared by Van Diemen Consulting Pty Ltd. It is acknowledged that a minor update will be required to add in any relevant permit conditions. The condition also allows for the plan to be updated and approved by the Director should the need arise; this will ensure the plan remains relevant and effective in achieving its objectives.

The commitments made in the EIS and draft Weed Management Plan are considered appropriate and inclusion of the above conditions will ensure they are implemented to minimise the risk of introducing or spreading weeds and diseases to and from the site.

### 7.5.5 Conditions

The proponent will be required to comply with the following conditions:

**OP1** Machinery washdown

**OP2** Weed and Disease Management Plan

## 7.6 Issue 6: Waste management, dangerous goods and environmentally hazardous substances

### 7.6.1 Potential impacts

Solid wastes generated by the activity that are not collected, stored and disposed of appropriately have the potential to cause environmental nuisance or harm through attracting vermin, native and feral animals, causing odour, increasing fire risk and litter blowing offsite. Inappropriate storage, handling and disposal of environmentally hazardous substances including fuels, oils and herbicides, has the potential to contaminate soil, surface and ground waters.

The EIS identifies two main solid waste streams from the activity which are typical 'domestic' wastes (i.e. food scraps / wrappers and other wastes from the office and crib rooms); and semi-industrial wastes, such as, small empty drums (e.g., from motor oils, hydraulic and brake fluids, herbicides), plastics (wrapping on parts, replacement belts), rags (may be contaminated with hydrocarbon-based products), tyres and batteries.

The EIS also identifies that some solid wastes likely to be generated by the activity are likely to be classed as controlled wastes. The potential controlled wastes include contaminated soils from hydrocarbon-based product spills during refuelling or maintenance works, tyres if replacement is required, and the empty chemicals containers. Table 13 (section C.5.2) of the EIS lists the potential sources of controlled wastes for the activity and their proposed disposal method.

In addition, the EIS states that there will likely be an excess of cleared vegetative matter that will not be able to be used for rehabilitation / land stabilisation purposes. The Proponent has indicated that if needed, they will burn excess vegetative matter. It was noted that there are limited options for disposal of green waste at the three waste disposal sites on the island and that transport off the island is impractical. The Proponent has noted that there are potentially other options, such as seeking agreements with other landowners in need of vegetative matter for rehabilitation (e.g., other quarries), but that this is not a reliable option.

According to the EIS the use of hazardous substances is required at the activity. Fuel, oils and lubricants will be used to operate and maintain functional machinery and herbicides will be used for the control of weeds on site. Fuel will be brought onsite as required in portable pods / tanks mounted on the back of a utility vehicle. The other chemicals such as lubricants, oils and herbicides will be stored onsite within the shed.

### 7.6.2 Management measures proposed in EIS

According to the EIS waste management measures will be in accordance with the best practice hierarchy of waste management (i.e., avoidance, recycling / reclamation, re-use, treatment to reduce potentially adverse impacts, disposal).

The EIS also states that solid wastes will be managed in accordance with the following:

- general domestic wastes (e.g., lunch wrappers) generated at the site will be collected in waste bins provided in the amenities / crib room. The bins will be emptied at least once per fortnight and the material disposed of at a permitted refuse disposal site. Waste bins that receive food scraps will be fitted with preventative access measures to discourage wildlife from seeking out food scraps.
- Waste bins will be located at the activity for the semi-industrial wastes and will be labelled with the types of waste each bin is to receive. The waste will be sorted based on the classification of the type of waste, with controlled waste separated from all other waste streams and disposed of at least fortnightly at the Council operated Whitemark Waste Facility.
- Where possible repair and maintenance works will be undertaken off-site and wastes generated by those activities will be managed by the service provider (e.g. workshop, tyre replacement facility, repair shop).

The EIS states that no more than 10 cubic meters of vegetative material generated by clearing works will be stored in any one stockpile, with stockpiles separated by at least 20 m of open bare ground ready for

burning when conditions are suitable and following the fire permit period conditions that prevail at the time.

The EIS states that contamination of the environment by the release of fuels, lubricants and/or hazardous substances will be prevented as far as reasonable to do so by the application of effective, industry standard avoidance and mitigation management measures, including:

- All fuels, lubricants and/or hazardous materials are stored in accordance with the relevant requirements of *AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids*.
- Refuelling activities will only occur when machinery is within a bunded / hardstand area on the site.
- Hazardous materials storage areas will be managed in accordance with EPA Tasmania's *Bunding and Spill Management Guidelines*, December 2015.
- Chemicals used for weed control will be stored, handled, used, and disposed of in accordance with the manufacturer's directions and relevant regulations.
- Spill prevention and clean-up equipment (i.e., spill kits) will be readily available and accessible in the vicinity of all plant and machinery, including mobile and fixed fuel storages.
- Spill prevention and clean-up procedures will be in accordance with the following principles:
    - minimise the volume of hazardous substances kept onsite.
    - develop contingency plans to address spills and leaks.
    - install trays, thick plastic mats or similar beneath stationary machinery to protect the soil from oil or fuel spills and leaks.
    - install spill trays immediately if there is any potential for, or evidence of, leakage.
    - ensure that appropriate clean-up equipment is readily accessible.
    - maintain a supply of oil-absorbent material.
    - contain and treat spills and leaks.
    - notify relevant authorities of significant spills or leaks.
    - ensure that drainage from areas where spills may occur like a refuelling area is diverted through a sump or interceptor trap to remove any potential hydrocarbon contamination.

### 7.6.3 Agency comment

No agency comments were received in relation to waste management, dangerous goods and environmentally hazardous substances.

### 7.6.4 Evaluation

While burning of cleared vegetation is not a preferred method of disposal, the difficulty of dealing with vegetative waste as outlined in the EIS and additional information is noted. The preference to seek other reuse or disposal options in the first instance, in line with the waste management hierarchy principles outlined in **O11**, is supported.

The Proponent will be required to comply (**G8**) with the Acceptable Standards provisions of the Quarry Code of Practice, including for waste disposal and storage of chemicals. No specific waste management conditions are considered necessary.

Condition **H1** requires appropriate spill kits to be kept, and maintained in functional condition, in appropriate locations within the Activity Area. Conditions **H2** and **H3** require hazardous materials to be contained and managed appropriately to prevent contamination of soil, groundwater, and waterways.

Standard information items **LO2** and **O11** are included to ensure the proponent is aware of legislation relating to storage and handling of dangerous goods and substances, and best practice in relation to waste management.

Based on the information provided in the EIS, the management measures proposed and the inclusion of the above-mentioned conditions, it is considered that the potential risks from waste, dangerous goods and environmentally hazardous substances can be appropriately managed to limit the potential for environmental harm or nuisance to occur.

### 7.6.5 Conditions

The proponent will be required to comply with the following conditions:

**H1** Spill kits

**H2** Storage and handling of hazardous materials

**H3** Handling of hazardous materials – mobile

Other information included in the permit:

**LO2** Storage and handling of dangerous goods, explosives, and dangerous substances

**OI1** Waste management hierarchy

## 7.7 Issue 7: Decommissioning and rehabilitation

### 7.7.1 Potential impacts

Temporary or permanent cessation of extractive operations have the potential to cause ongoing impacts to the environment if rehabilitation is not managed appropriately. Rehabilitation is necessary to ensure the long-term stability of the site, prevent erosion and sedimentation, reduce uncontrolled dust emissions, provide native flora and fauna habitat, and to minimise the potential for establishment of weeds.

According to the EIS the aim of rehabilitation will be to return the landscape to a stable landform that supports native vegetation (scrub and grassland) comparable to that currently found within the Activity Area.

### 7.7.2 Management measures proposed in EIS

The EIS states that the primary aims of rehabilitation work will be to:

- achieve long term stabilisation of worked out areas to minimise the risk of ongoing erosion by wind and water;
- revegetate worked out areas with native species that will eventually grow to form native vegetation communities; and
- ensure that worked out areas are safe for future land use(s).

The EIS also states that upon permanent closure of the activity a Decommissioning and Rehabilitation Plan (DRP) will be developed and submitted to the EPA for approval.

According to the EIS the DRP will include discussion and describe procedures to:

- facilitate the orderly and safe removal of machinery, infrastructure, and other equipment;
- establish sufficient and appropriate native vegetation cover to minimise the risk of ongoing dust generation and soil erosion; and
- establish a monitoring regime to assess the success or otherwise of the rehabilitation to sign-off parameters.

The Proponent aims to minimise the area of land disturbed, with a maximum disturbed area at any given time of 5 ha proposed in the EIS. Progressive rehabilitation of areas that are no longer being extracted or used for another purpose (e.g., sand or vegetation stockpile areas etc.) will commence around year 2 or 3 of extraction with the following actions being implemented to help achieve the primary aims of rehabilitation:

- surfaces will be levelled, and if available, sediment collected from sediment basins will be applied to the prepared surfaces.
- application of native tree / shrub / grass seed or the application of slash (generated by clearing works on the site) that contain fruits with seed (e.g., *Melaleuca, Leptospermum, Allocasuarina* – species which readily recruit from seed).
- monitoring for weed infestations, germination success / growth of seed distributed species and landform stability.
- remedial works may include but not necessarily be limited to weed control works, additional native species seed spreading, landform stabilisation works and erosion control measures and/or repair works.

The EIS also notes that temporary vegetative cover (native scrub and/or grass species such as *Allocasuarina* & *Poa*) may be established on disturbed areas (e.g., soil stockpiles) to prevent weed infestations and erosion by wind or water.

### 7.7.3 Agency comment

No agency comments were received in relation to decommissioning and rehabilitation.

### 7.7.4 Evaluation

Given the inherent mobility of sand-based landscapes the appropriate ongoing management of the activity and long-term rehabilitation and stabilisation of the Activity Area is critical to ensuring environmental nuisance or harm does not occur.

The management measures proposed in the EIS and development of a DRP for approval by the Director is appropriate. To ensure these measures are implemented, a suite of standard conditions is recommended.

Condition **DC1** requires surface soils to be removed prior to opening new areas of the extractive pit and stockpiled separate to other overburden for future use in rehabilitation of the extractive pit. Furthermore, the stockpiles must be protected from erosion and other disturbance.

Condition **DC2** requires that worked out or disused areas of Activity Area must be rehabilitated concurrently with other extractive activities occurring within the Activity Area in accordance with the QCP and sets the maximum area of disturbed land that is allowed at any one time at 5 ha.

Conditions **DC3** and **DC4** set out the requirements for when either temporary suspension or permanent cessation of quarrying activities are proposed respectively. Permanent cessation also triggers condition **DC5** which requires the submission of a Decommissioning and Rehabilitation Plan for the Director's approval. Condition **DC6** sets out the broad steps that must be undertaken upon permanent cessation of the activity, including the implementation of an approved DRP. Furthermore, condition **DC7** prohibits the activity from recommencing once the Director has confirmed in writing that decommissioning and rehabilitation have been satisfactorily completed.

Based on the commitments made in the EIS and the above conditions being imposed, it is considered that the risks associated with improper decommissioning and rehabilitation can be adequately managed to ensure environmental harm or nuisance is unlikely to occur upon temporary or permanent cessation of the activity.

### 7.7.5 Conditions

The proponent will be required to comply with the following conditions:

**DC1** Stockpiling of surface soil

**DC2** Progressive rehabilitation

**DC3** Temporary suspension of activity

**DC4** Notification of cessation

**DC5** DRP requirements

**DC6** Rehabilitation following cessation

**DC7** Activity to cease following decommissioning and rehabilitation

# 8. Report Conclusions

This assessment has been based on the information provided by the proponent, Markarna Grazing Company Pty Ltd, in the permit application and additional information (the EIS).

This report incorporates specialist advice provided by EPA scientific and regulatory staff, the Department of Natural Resources and Environment Tasmania, and other government agencies.

It is concluded that:

1. the RMPS and EMPCS objectives have been duly and properly pursued in the assessment of the proposal; and
2. the assessment of the proposal has been undertaken in accordance with the Environmental Impact Assessment Principles, except for those excluded under Section 25A(4); and
3. the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the RMPS and EMPCS objectives would be compromised, provided that the Permit Conditions - Environmental No. 11576 appended to this report are imposed and duly complied with.

# Report Approval

**Environmental Assessment Report and conclusions, including environmental conditions, adopted:**



Andrew Paul

**CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY**

Meeting date: 05 August, 2025

# 9. References

Slee, A. (2023) *Survey of the Geomorphology and Soil characteristics of the Markarna Grazing Company Pty Ltd Property, Marshall Beach, Flinders Island*, (dated November 2023), Forest Practices Authority, Hobart, Tasmania (the Geomprphology Report).

Van Diemen Consulting Pty Ltd (2024) *Lime Sand Extraction Pit, Palana Road – Memana, Flinders Island – Natural Values Report – Markarna Grazing Company Pty Ltd* (dated 20 October 2024); New Town, Tasmania (the NVA Report).

Van Diemen Consulting Pty Ltd (2025) *Environmental Impact Assessment – Lime Sand Extraction Pit – Markarna Grazing Company Pty Ltd – Palana Road, Memana, Flinders Island* (dated 31 May 2025); New Town, Tasmania (the EIS).

# 10. Appendices

Appendix 1 Table of proponent management measures

Appendix 2 Permit conditions - Environmental No: 11576

# Appendix 1: Table of proponent management measures

**Table 1: Proponent management measures (Table 15 of the EIS)**

| No. | Action | Timing |
|---|---|---|
| 1 | Measures to suppress dust include the following extractive industry standard environmental practices:<br>• Retention of vegetation along the access road corridor where possible;<br>• Retention of vegetation (when possible) around the Pit working area to reduce the likelihood of strong winds liberating fine particles into the air;<br>• Utilisation of slash / mulch obtained from cleared areas to stabilise the soil surface and to limit wind action on dust generation at the soil surface;<br>• Covering of trucks with tarpaulins and / or load dampening; and<br>• Minimising the geographic extent of areas of exposed soil. | Ongoing |
| 2 | Measures to minimise the risk of wind erosion include the following:<br>• Avoid, if possible, but otherwise minimise, working on faces exposed to westerly winds;<br>• Maintain vegetation above and to the west of any active face; and<br>• Re-establish vegetation on a progressive basis, this could include stockpiling cleared tea tree and other scrub species for covering exposed surface as operations progress. | Ongoing |
| 3 | Measures to minimise the risk of water caused erosion include the following:<br>• Minimising the geographic extent of exposed soil.<br>• Establishment of sediment basins, diversion drains, and other drainage systems at the activity.<br>• Utilisation of slash obtained from cleared areas or other product (jute mesh) to stabilise the soil surface, and to limit the spread of sediment. | Ongoing |
| 4 | Regular visual monitoring (monthly) is to be undertaken to ensure the effectiveness of the installed stormwater management and sediment control structures. Repairs and remedial works (including basin cleaning) are to be performed to maintain sediment settling zones to those required and ensure that stormwater is entering and leaving the basin as planned. | Ongoing |
| 5 | Groundwater environmental management controls will be -<br>• Readily available spill kits on site;<br>• Storage of products in suitably sized bunded containers;<br>• Training personnel to use spill kits and establish emergency procedures in the event of a spill; and<br>• Daily pre-start checks on machinery to minimise the risk of spills; ensure machinery and equipment is functional, hoses are correctly fitted and secure, and caps on fluid tanks are tightened. | Ongoing |
| 6 | Equipment will be well maintained and late model machines with proprietary exhaust silencers fitted to ensure noise emissions are as low as possible.<br>Pit operations will occur during normal daytime hours of 0700 – 1900 hrs Monday to Friday. | Ongoing |

| No. | Action | Timing |
|---|---|---|
| 7 | A draft Weed and Disease Management Plan is submitted with the EIS (Attachment 8). | Ongoing |
| 8 | In the event notable examples of significant geomorphological features are encountered (i.e. any of the features listed below) the first task should be to photograph the area and move operations away from the feature until a suitably qualified person (in the context of the item(s) discovered) can assess any geomorphological and / or cultural values. Contractors should look out for:<br>• Thick dark continuous bands within the dunes;<br>• Buried tree stumps or large calcareous deposits (not rhizoliths of modern age such as those created by tree roots from recently deceased vegetation) that appear to be parts of a tree;<br>• Stone deposits within the dunes particularly granite boulders out of place or deposits associated with evidence of fire in the form of charcoal or reddened ash layers or hardened sand;<br>• Large accumulations of shells; and<br>• Large bones and accumulations of smaller bones buried >1 m under the surface. | Ongoing |
| 9 | In the event a steep sided depression forms during operations that has signs of collapse these should be recorded and avoided during operations until expert advice is obtained. In the event a cave is located on site, operations should avoid the area and seek expert advice. | Ongoing |
| 10 | General refuse waste generated by workers (e.g., lunch wrappers) at the Pit will be collected in waste bins provided on-site – at the amenities / crib room. The bins will be emptied at least once per fortnight and the material disposed of at a permitted refuse disposal site. Waste bins that receive food scraps will be fitted with preventative access measures to discourage native animals and feral cats. | Ongoing |
| 11 | Waste generated by maintenance works, repairs and / or schedule servicing of equipment and machinery off the Pit location will be managed by the service provider at the location where they have been engaged by the Proponent to complete the required works. | Ongoing |
| 12 | Waste will be sorted based on the classification of the type of waste, with Controlled Waste separated from all other waste streams and disposed of at the Council operated Whitemark Waste Facility. | Ongoing |
| 13 | All fuels, lubricants and / or hazardous materials are stored in accordance with the relevant requirements of *AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids*. Refuelling activities will only occur when machinery is within a bunded / hardstand area. | Ongoing |
| 14 | Spill prevention and clean-up equipment is to be readily available and accessible in the vicinity of all plant and machinery, including mobile and fixed fuel storages. | Ongoing |

# Appendix 2: Permit conditions – Environmental No: 11576

# PERMIT PART B
# PERMIT CONDITIONS - ENVIRONMENTAL No. 11576

Issued under the *Environmental Management and Pollution Control Act 1994*

Activity: **The operation of a sand extractive pit with materials handling (screening) (ACTIVITY TYPE: Crushing, grinding, milling or separating into different sizes (rocks, ores or minerals))**
**SAND EXTRACTION PIT, 368 FIVE MILE JIM ROAD**
**MEMANA TAS 7255**

The above activity has been assessed as a level 2 activity under the *Environmental Management and Pollution Control Act 1994*.

Acting under Section 25A(3) of the EMPCA, the Board of the Environment Protection Authority has recommended that this Permit Part B be included in any Permit granted under the *Land Use Planning and Approvals Act 1993* with respect to the above activity.

Municipality: **FLINDERS**
Permit Application Reference: **DA 2023 / 00038**
EPA file reference: **23/5219**

Date conditions approved: 05 August 2025

Signed:

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

## DEFINITIONS

Unless the contrary appears, words and expressions used in this Permit Part B have the meaning given to them in **Schedule 1** of this Permit and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Permit Part B, the EMPCA prevails to the extent of the inconsistency.

## ENVIRONMENTAL CONDITIONS

The person responsible for the activity must comply with the conditions contained in **Schedule 2** of this Permit Part B.

## INFORMATION

Attention is drawn to **Schedule 3**, which contains important additional information.

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## Schedule 1: Definitions

In this Permit Part B:-

**10,000 cubic metres** is considered equivalent to 15,000 tonnes.

**Aboriginal Relic** has the meaning described in section 2(3) of the *Aboriginal Heritage Act 1975*.

**Activity** means any environmentally relevant activity (as defined in section 3 of EMPCA) to which this document relates and includes more than one such activity.

**Activity Area** means the area to be used for the Activity when these conditions take effect, as depicted in Attachment 1.

**Authorized Officer** means an authorized officer under section 20 of EMPCA.

**Best Practice Erosion and Sediment Control** means the document with this title by the International Erosion Control Association, dated November 2008, and any amendment to or substitution of this document.

**Director** means the Director, Environment Protection Authority holding office under section 18 of EMPCA and includes a delegate or person authorised in writing by the Director to exercise a power or function on the Director's behalf.

**DRP** means Decommissioning and Rehabilitation Plan.

**EMPCA** means the *Environmental Management and Pollution Control Act 1994*.

**Environmental Harm** and **Material Environmental Harm** and **Serious Environmental Harm** each have the meanings ascribed to them in section 5 of EMPCA.

**Environmental Nuisance** has the meanings ascribed to it in section 3 of EMPCA.

**Environmentally Hazardous Material** means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.

**EPA Board** means the Board of the Environment Protection Authority established under section 13 of EMPCA and includes a delegate or person authorised in writing by the EPA Board to exercise a power or function on the EPA Board's behalf.

**Maximum Disturbed Area** means the area disturbed to facilitate the activity and includes but is not limited to; vegetation disturbance, soil disturbance, access roads, hardstand, working area, vehicle parking and infrastructure (i.e. buildings, site office, sheds etc).

**Person Responsible** is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person and includes a body corporate.

**Planning Authority** means the Council(s) for the municipal area(s) in which the Activity Area is situated.

**Pollutant** has the meaning ascribed to it in section 3 of EMPCA.

**Quarry Code of Practice** means the document of this title published by the Environment Protection Authority in May 2017, and includes any subsequent versions of this document.

**Stormwater** means water runoff as a consequence of a rainfall event, whether surface flow, piped flow, or flow within conduits, including any contaminants collected by the water during its passage.

**Weed** means a plant species that has, or is likely to have, an adverse impact on the environment because of the introduction, spread or increase in population size of the species in an area; and includes a declared weed as defined in the *Biosecurity Act 2019* and subordinate regulations.

**Weed And Disease Guidelines** means the document titled *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania*, by the Department of Primary Industries, Parks, Water and Environment, dated March 2015, and any amendment to or substitution of this document.

**Weed and Disease Management Plan** means the Weed and Disease Management Plan as provided in Attachment 8 of the EIS, dated 10 November 2024 and prepared by Van Diemen Consulting Pty Ltd, or any subsequent variation or substitution of the plan.

## Schedule 2: Conditions

### Maximum Quantities

**Q1 Regulatory limits**

**1** The activity must not exceed the following limits :

**1.1** 10,000 cubic metres per year of rocks, ores or minerals processed.

**1.2** 10,000 cubic metres per year of sand extracted.

### General

**G1 Activity Area**

The activity must be confined to the Activity Area.

**G2 Access to and awareness of conditions and associated documents**

A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work within the Activity Area, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

**G3 Incident response**

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

**G4 Proposed change to activity**

**1** The person responsible must notify the Director in writing prior to implementing any change to the activity authorised by this document that may cause or increase the emission of a pollutant or which may result in environmental harm or environmental nuisance (even temporarily). A change includes, but is not limited to, any of the following:

**1.1** an increase in the discharge of a pollutant, or the location of its discharge.

**1.2** the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity.

**1.3** any clearance of native vegetation or earthworks.

**1.4** a change in the quantity or characteristics of materials used in carrying out the activity.

**2** The notification must be in an approved form and include the following:

**2.1** details of the proposed change;

**2.2** an assessment of the environmental impacts that may result from the change;

**2.3** any relevant approvals held by the person responsible; and

**2.4** any advice from the relevant planning authority to the effect that approval is not required.

**3** The person responsible must provide additional information as requested by an Authorized Officer.

4 The proposed change must not be implemented until the Director has confirmed in writing that they are satisfied that no other approval or variation of this document is required.

5 For the avoidance of doubt, a notification of a proposed change under this provision is not required if the proposed change is part of a referral to the EPA Board for assessment under sections 24, 25, 27 or 27AA of EMPCA.

**G5 Change of responsibility**

If the person responsible for the activity intends to cease to be responsible for the activity, that person must notify the Director in writing of the full particulars of any person who will become the person responsible for the activity, before such cessation.

**G6 Change of ownership**

If the owner of the Activity Area changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of the Activity Area, the person responsible must notify the Director in writing of the change or intended change of ownership.

**G7 Complaints register**

1 A public complaints register must be maintained. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:

**1.1** the date and time at which the complaint was received;

**1.2** contact details for the complainant (where provided);

**1.3** the subject matter of the complaint;

**1.4** any investigations undertaken with regard to the complaint; and

**1.5** the manner in which the complaint was resolved, including any mitigation measures implemented.

2 Complaint records must be retained for a period of at least 3 years.

**G8 Quarry Code of Practice**

Unless otherwise required by these conditions or required in writing by the Director, the activity (or activities) undertaken within the Activity Area must comply with the Acceptable Standards provisions of the *Quarry Code of Practice.*

**G9 Amendment of required plans and reports**

1 The plans and reports required by these conditions must be amended to address any matter required by the Director, as advised by notice in writing.

2 Amended plans and reports must be resubmitted within the timeframe that the Director specifies.

**<u>Atmospheric</u>**

**A1 Containment of loads**

Vehicles carrying loads of material which may blow or spill must be equipped with an effective control measure(s) to prevent escape of the materials. The control measure(s) must be implemented prior to leaving the Activity Area.

**A2 Control of dust emissions from crushing and screening plant**

**1** Dust produced by the operation of all crushing and/or screening plant must be controlled by the use of one or more of the following methods to the extent necessary to prevent environmental nuisance:

**1.1** the installation of fixed water sprays at all crushers and/or screening plant and at all necessary points where processed material changes direction due to belt transfer;

**1.2** the installation of dust extraction equipment at all crushers and/or screening plant and at all necessary points where processed material changes direction due to belt transfer;

**1.3** the enclosure of the crushing and/or screening plant and the treatment of atmospheric emissions by dust extraction equipment; or

**1.4** any other method that has been approved in writing by the Director.

**A3 Control of dust emissions**

Dust emissions from within the Activity Area must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of the Activity Area.

**Decommissioning And Rehabilitation**

**DC1 Stockpiling of surface soil**

Prior to commencement of extractive activities on any portion of the Activity Area, surface soils must be removed in that portion of the Activity Area to be disturbed by the conduct of the activity and stockpiled for later use in rehabilitation of the Activity Area. Topsoil must be kept separate from other overburden and protected from erosion or other disturbance.

**DC2 Progressive rehabilitation**

Worked out or disused sections of the Activity Area must be rehabilitated concurrently with extractive activities on other sections of the Activity Area. Progressive rehabilitation must be carried out in accordance with the relevant provisions of the *Quarry Code of Practice*, unless otherwise approved in writing by the Director. The maximum disturbed area of land which may remain, at any time, without rehabilitation is five hectares.

**DC3 Temporary suspension of activity**

**1** Within 30 days of becoming aware of any event or decision which is likely to give rise to the temporary suspension of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to suspend or has suspended.

**2** During temporary suspension of the activity the Activity Area must be managed and monitored by the person responsible for the activity to ensure that emissions from the Activity Area do not cause serious environmental harm, material environmental harm or environmental nuisance.

**3** If required by the Director, a Care and Maintenance Plan for the activity must be submitted to the Director for approval, by a date specified in writing by the Director. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition.

**3.1** The plan must be prepared in accordance with any guidelines provided by the Director.

**3.2** Once approved the person responsible must act in accordance with the approved Care and Maintenance Plan.

**3.3** The person responsible may apply to the Director to vary or substitute the Care and Maintenance Plan. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

**4** Unless otherwise approved in writing by the Director, if the activity on the Activity Area has substantially ceased for 2 years, decommissioning of the activity and rehabilitation of the Activity Area must be carried out in accordance with the requirements of these conditions as if the activity has permanently ceased.

**DC4 Notification of cessation**

Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

**DC5 DRP requirements**

**1** Unless otherwise approved in writing by the Director, a Decommissioning and Rehabilitation Plan (DRP) for the activity must be submitted for approval to the Director within 30 days of the Director being notified of the planned cessation of the activity. The DRP must be prepared in accordance with any guidelines provided by the Director. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition.

**2** The person responsible may apply to the Director to vary or substitute the DRP. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

**DC6 Rehabilitation following cessation**

**1** Following permanent cessation of the activity, and unless otherwise approved in writing by the Director, the Activity Area must be rehabilitated including:

**1.1** stabilisation of any land surfaces that may be subject to erosion;

**1.2** removal or mitigation of all environmental hazards or land contamination, that might pose an ongoing risk of causing environmental harm; and

**1.3** decommissioning of any equipment that has not been removed.

**2** Where a Decommissioning and Rehabilitation Plan (DRP) has been approved by the Director, decommissioning and rehabilitation must be carried out in accordance with that plan.

**3** The person responsible may apply to the Director to vary or substitute the DRP. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

**DC7 Activity to cease following decommissioning and rehabilitation**

**1** Following written notification by the Director confirming the completion of decommissioning of the Activity and rehabilitation of the Activity Area in accordance with these conditions:

**1.1** the Activity must not recommence; and

**1.2** the Person Responsible is not required to undertake monitoring, reporting and/or notification condition requirements relating to the activity, unless otherwise specified in writing by the Director.

## Groundwater

### GW1 Groundwater

**1** Should there be evidence that groundwater has been intersected, or standing water is observed, within the Activity Area, the following measures must be taken:

**1.1** machinery is not permitted to operate in standing water; and

**1.2** the base level of the extractive activity must be raised by the addition of extracted material to prevent the occurrence of groundwater intersection within the Activity Area.

## Hazardous Substances

### H1 Spill kits

Spill kits appropriate for the types and volumes of materials handled within the Activity Area must be kept in appropriate locations and maintained in a functional condition to assist with the containment of spilt environmentally hazardous materials.

### H2 Storage and handling of hazardous materials

**1** Unless otherwise approved in writing by the Director, environmentally hazardous materials held within the Activity Area must be:

**1.1** stored within maintained and functional impervious bunded areas, spill trays or other containment systems; and

**1.2** managed to prevent unauthorised discharge, emission or deposition of pollutants:

**1.2.1** to soils within the boundary of the Activity Area in a manner that is likely to cause serious or material environmental harm;

**1.2.2** to groundwater;

**1.2.3** to waterways; or

**1.2.4** beyond the boundary of the Activity Area.

### H3 Handling of hazardous materials - mobile

**1** Where mobile containment of environmentally hazardous materials is utilised for the fuelling or servicing of mobile or fixed plant within the Activity Area, all reasonable measures must be implemented to prevent unauthorised discharge, emission or deposition of pollutants:

**1.1** to soils within the boundary of the Activity Area in a manner that is likely to cause serious or material environmental harm;

**1.2** to groundwater;

**1.3** to waterways; or

**1.4** beyond the boundary of the Activity Area.

**2** Reasonable measures may include spill kits, spill trays/bunds or absorbent pads, and automatic cut-offs on any pumping equipment.

## Noise Control

### N1 Operating hours

**1** Unless otherwise approved in writing by the Director, activities associated with the extraction of rock, gravel, sand, clay or minerals, and loading of product, and screening must not be undertaken outside the hours of 0700 hours to 1900 hours on weekdays.

**2** Notwithstanding the above paragraph, activities must not be carried out on Saturdays, Sundays or on public holidays that are observed Statewide (Easter Tuesday excepted).

## Operations

**OP1 Machinery washdown**

Prior to entering the Activity Area, machinery must be washed in accordance with the Weed and Disease Guidelines, or any subsequent revisions of that document.

**OP2 Weed and Disease Management Plan**

**1** Unless otherwise specified in these conditions, the activity must be undertaken in accordance with the approved Weed and Disease Management Plan.

**2** The person responsible may apply to the Director to vary or substitute the Weed and Disease Management Plan. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

## Stormwater Management

**SW1 Design and maintenance of settling ponds**

**1** Sediment settling ponds must be designed and maintained in accordance with the following requirements:

**1.1** ponds must be designed to successfully mitigate reasonably foreseeable sediment loss which would result from a 1 in 20 year storm event;

**1.2** discharge from ponds must occur via a stable spillway that is not subject to erosion;

**1.3** all pond walls must be stable and treated with topsoil and vegetated or otherwise treated in such a manner as to prevent erosion; and

**1.4** sediment settling ponds must be periodically cleaned out to ensure that the pond design capacity is maintained. Sediment removed during this cleaning must be securely deposited such that sediment will not be transported off the Activity Area by surface run-off.

**SW2 Perimeter drains or bunds**

**1** Perimeter cut-off drains, or bunds, must be constructed at strategic locations within the Activity Area to prevent surface run-off from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains, or bunds, remains within the Activity Area. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with *Best Practice Erosion and Sediment Control* or similar.

**2** Drains, or bunds, must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 20 year rainfall event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

**SW3 Stormwater**

**1** Polluted stormwater that will be discharged from the Activity Area must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.

**2** Notwithstanding the above, all stormwater that is discharged from the Activity Area must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside the Activity Area.

**3** All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained within the Activity Area. Such measures may include appropriately sized and maintained sediment settling ponds or detention basins.

## Schedule 3: Information

### Legal Obligations

**LO1 EMPCA**

The activity must be conducted in accordance with both the conditions in this document and the obligations of the *Environmental Management and Pollution Control Act 1994* (EMPCA) and subordinate regulations. The conditions of this document do not replicate legislated obligations; therefore, you should ensure you are aware of your obligations under EMPCA and subordinate regulations.

**LO2 Storage and handling of dangerous goods, explosives and dangerous substances**

**1** The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:

**1.1** *Work Health and Safety Act 2012* and subordinate regulations;

**1.2** *Explosives Act 2012* and subordinate regulations; and

**1.3** *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations.

**LO3 Aboriginal relics requirements**

**1** Aboriginal relics, objects, sites, places and human remains regardless of whether they are located on public or private land, are protected under the *Aboriginal Heritage Act 1975*.

**2** Unanticipated discoveries of Aboriginal heritage must be reported to Aboriginal Heritage Tasmania on **1300 487 045** as soon as possible.

**LO4 MRDA**

Operations must be undertaken in accordance with a mining plan approved by the Director of Mines and a Mining Lease issued under the *Mineral Resources Development Act 1995* (MRDA).

### Other Information

**OI1 Waste management hierarchy**

**1** Wastes should be managed in accordance with the following hierarchy of waste management:

**1.1** waste should be minimised, that is, the generation of waste must be reduced to the maximum extent that is reasonable and practicable, having regard to best practice environmental management;

**1.2** waste should be re-used or recycled to the maximum extent that is practicable; and

**1.3** waste that cannot be re-used or recycled must be disposed of at a waste depot site or treatment facility that has been approved in writing by the relevant planning authority or the Director to receive such waste.

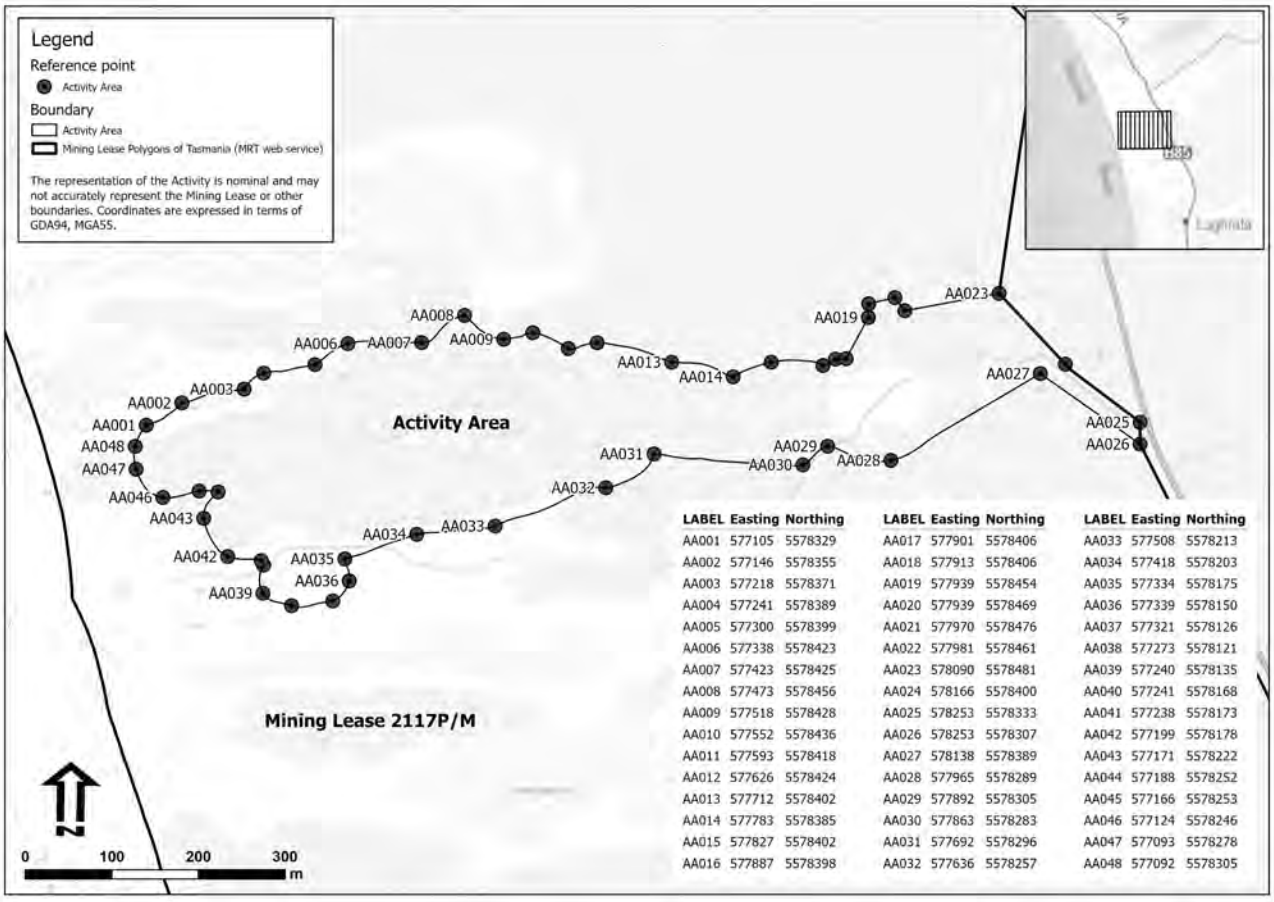
**OI2 Notification of incidents under section 32 of EMPCA**

Where a person is required by section 32 of EMPCA to notify the Director of the release of a pollutant, the Director can be notified by telephoning **1800 005 171** (a 24-hour emergency telephone number).

**OI3 Release of Relevant Information**

Under the provisions of section 23AA of EMPCA relevant information relating to monitoring of environmental impacts required under these conditions may be subject to publishing or public release by the Director.

# Attachment 1: Activity Area




| LABEL | Easting | Northing |
|---|---|---|
| AA001 | 577105 | 5578329 |
| AA002 | 577146 | 5578355 |
| AA003 | 577218 | 5578371 |
| AA004 | 577241 | 5578389 |
| AA005 | 577300 | 5578399 |
| AA006 | 577338 | 5578423 |
| AA007 | 577423 | 5578425 |
| AA008 | 577473 | 5578456 |
| AA009 | 577518 | 5578428 |
| AA010 | 577552 | 5578436 |
| AA011 | 577593 | 5578418 |
| AA012 | 577626 | 5578424 |
| AA013 | 577712 | 5578402 |
| AA014 | 577783 | 5578385 |
| AA015 | 577827 | 5578402 |
| AA016 | 577887 | 5578398 |

| LABEL | Easting | Northing |
|---|---|---|
| AA017 | 577901 | 5578406 |
| AA018 | 577913 | 5578406 |
| AA019 | 577939 | 5578454 |
| AA020 | 577939 | 5578469 |
| AA021 | 577970 | 5578476 |
| AA022 | 577981 | 5578461 |
| AA023 | 578090 | 5578481 |
| AA024 | 578166 | 5578400 |
| AA025 | 578253 | 5578333 |
| AA026 | 578253 | 5578307 |
| AA027 | 578138 | 5578389 |
| AA028 | 577965 | 5578289 |
| AA029 | 577892 | 5578305 |
| AA030 | 577863 | 5578283 |
| AA031 | 577692 | 5578296 |
| AA032 | 577636 | 5578257 |

| LABEL | Easting | Northing |
|---|---|---|
| AA033 | 577508 | 5578213 |
| AA034 | 577418 | 5578203 |
| AA035 | 577334 | 5578175 |
| AA036 | 577339 | 5578150 |
| AA037 | 577321 | 5578126 |
| AA038 | 577273 | 5578121 |
| AA039 | 577240 | 5578135 |
| AA040 | 577241 | 5578168 |
| AA041 | 577238 | 5578173 |
| AA042 | 577199 | 5578178 |
| AA043 | 577171 | 5578222 |
| AA044 | 577188 | 5578252 |
| AA045 | 577166 | 5578253 |
| AA046 | 577124 | 5578246 |
| AA047 | 577093 | 5578278 |
| AA048 | 577092 | 5578305 |

EPA TASMANIA
ENVIRONMENT PROTECTION AUTHORITY

# PERMIT PART B
# PERMIT CONDITIONS - ENVIRONMENTAL No. 11576

Issued under the *Environmental Management and Pollution Control Act 1994*

Activity: **The operation of a sand extractive pit with materials handling (screening) (ACTIVITY TYPE: Crushing, grinding, milling or separating into different sizes (rocks, ores or minerals))**
**SAND EXTRACTION PIT, 368 FIVE MILE JIM ROAD**
**MEMANA TAS 7255**

The above activity has been assessed as a level 2 activity under the *Environmental Management and Pollution Control Act 1994*.

Acting under Section 25A(3) of the EMPCA, the Board of the Environment Protection Authority has recommended that this Permit Part B be included in any Permit granted under the *Land Use Planning and Approvals Act 1993* with respect to the above activity.

Municipality: **FLINDERS**
Permit Application Reference: **DA 2023 / 00038**
EPA file reference: **23/5219**

Date conditions approved: 05 August 2025

Signed:

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

## DEFINITIONS

Unless the contrary appears, words and expressions used in this Permit Part B have the meaning given to them in **Schedule 1** of this Permit and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Permit Part B, the EMPCA prevails to the extent of the inconsistency.

## ENVIRONMENTAL CONDITIONS

The person responsible for the activity must comply with the conditions contained in **Schedule 2** of this Permit Part B.

## INFORMATION

Attention is drawn to **Schedule 3**, which contains important additional information.

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## Schedule 1: Definitions

In this Permit Part B:-

**10,000 cubic metres** is considered equivalent to 15,000 tonnes.

**Aboriginal Relic** has the meaning described in section 2(3) of the *Aboriginal Heritage Act 1975*.

**Activity** means any environmentally relevant activity (as defined in section 3 of EMPCA) to which this document relates and includes more than one such activity.

**Activity Area** means the area to be used for the Activity when these conditions take effect, as depicted in Attachment 1.

**Authorized Officer** means an authorized officer under section 20 of EMPCA.

**Best Practice Erosion and Sediment Control** means the document with this title by the International Erosion Control Association, dated November 2008, and any amendment to or substitution of this document.

**Director** means the Director, Environment Protection Authority holding office under section 18 of EMPCA and includes a delegate or person authorised in writing by the Director to exercise a power or function on the Director's behalf.

**DRP** means Decommissioning and Rehabilitation Plan.

**EMPCA** means the *Environmental Management and Pollution Control Act 1994*.

**Environmental Harm** and **Material Environmental Harm** and **Serious Environmental Harm** each have the meanings ascribed to them in section 5 of EMPCA.

**Environmental Nuisance** has the meanings ascribed to it in section 3 of EMPCA.

**Environmentally Hazardous Material** means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.

**EPA Board** means the Board of the Environment Protection Authority established under section 13 of EMPCA and includes a delegate or person authorised in writing by the EPA Board to exercise a power or function on the EPA Board's behalf.

**Maximum Disturbed Area** means the area disturbed to facilitate the activity and includes but is not limited to; vegetation disturbance, soil disturbance, access roads, hardstand, working area, vehicle parking and infrastructure (i.e. buildings, site office, sheds etc).

**Person Responsible** is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person and includes a body corporate.

**Planning Authority** means the Council(s) for the municipal area(s) in which the Activity Area is situated.

**Pollutant** has the meaning ascribed to it in section 3 of EMPCA.

**Quarry Code of Practice** means the document of this title published by the Environment Protection Authority in May 2017, and includes any subsequent versions of this document.

**Stormwater** means water runoff as a consequence of a rainfall event, whether surface flow, piped flow, or flow within conduits, including any contaminants collected by the water during its passage.

**Weed** means a plant species that has, or is likely to have, an adverse impact on the environment because of the introduction, spread or increase in population size of the species in an area; and includes a declared weed as defined in the *Biosecurity Act 2019* and subordinate regulations.

**Weed And Disease Guidelines** means the document titled *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania*, by the Department of Primary Industries, Parks, Water and Environment, dated March 2015, and any amendment to or substitution of this document.

**Weed and Disease Management Plan** means the Weed and Disease Management Plan as provided in Attachment 8 of the EIS, dated 10 November 2024 and prepared by Van Diemen Consulting Pty Ltd, or any subsequent variation or substitution of the plan.

## Schedule 2: Conditions

### Maximum Quantities

**Q1 Regulatory limits**

**1** The activity must not exceed the following limits :

**1.1** 10,000 cubic metres per year of rocks, ores or minerals processed.

**1.2** 10,000 cubic metres per year of sand extracted.

### General

**G1 Activity Area**

The activity must be confined to the Activity Area.

**G2 Access to and awareness of conditions and associated documents**

A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work within the Activity Area, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

**G3 Incident response**

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

**G4 Proposed change to activity**

**1** The person responsible must notify the Director in writing prior to implementing any change to the activity authorised by this document that may cause or increase the emission of a pollutant or which may result in environmental harm or environmental nuisance (even temporarily). A change includes, but is not limited to, any of the following:

**1.1** an increase in the discharge of a pollutant, or the location of its discharge.

**1.2** the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity.

**1.3** any clearance of native vegetation or earthworks.

**1.4** a change in the quantity or characteristics of materials used in carrying out the activity.

**2** The notification must be in an approved form and include the following:

**2.1** details of the proposed change;

**2.2** an assessment of the environmental impacts that may result from the change;

**2.3** any relevant approvals held by the person responsible; and

**2.4** any advice from the relevant planning authority to the effect that approval is not required.

**3** The person responsible must provide additional information as requested by an Authorized Officer.

4 The proposed change must not be implemented until the Director has confirmed in writing that they are satisfied that no other approval or variation of this document is required.

5 For the avoidance of doubt, a notification of a proposed change under this provision is not required if the proposed change is part of a referral to the EPA Board for assessment under sections 24, 25, 27 or 27AA of EMPCA.

**G5 Change of responsibility**

If the person responsible for the activity intends to cease to be responsible for the activity, that person must notify the Director in writing of the full particulars of any person who will become the person responsible for the activity, before such cessation.

**G6 Change of ownership**

If the owner of the Activity Area changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of the Activity Area, the person responsible must notify the Director in writing of the change or intended change of ownership.

**G7 Complaints register**

1 A public complaints register must be maintained. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:

**1.1** the date and time at which the complaint was received;

**1.2** contact details for the complainant (where provided);

**1.3** the subject matter of the complaint;

**1.4** any investigations undertaken with regard to the complaint; and

**1.5** the manner in which the complaint was resolved, including any mitigation measures implemented.

2 Complaint records must be retained for a period of at least 3 years.

**G8 Quarry Code of Practice**

Unless otherwise required by these conditions or required in writing by the Director, the activity (or activities) undertaken within the Activity Area must comply with the Acceptable Standards provisions of the *Quarry Code of Practice.*

**G9 Amendment of required plans and reports**

1 The plans and reports required by these conditions must be amended to address any matter required by the Director, as advised by notice in writing.

2 Amended plans and reports must be resubmitted within the timeframe that the Director specifies.

**<u>Atmospheric</u>**

**A1 Containment of loads**

Vehicles carrying loads of material which may blow or spill must be equipped with an effective control measure(s) to prevent escape of the materials. The control measure(s) must be implemented prior to leaving the Activity Area.

**A2 Control of dust emissions from crushing and screening plant**

**1** Dust produced by the operation of all crushing and/or screening plant must be controlled by the use of one or more of the following methods to the extent necessary to prevent environmental nuisance:

**1.1** the installation of fixed water sprays at all crushers and/or screening plant and at all necessary points where processed material changes direction due to belt transfer;

**1.2** the installation of dust extraction equipment at all crushers and/or screening plant and at all necessary points where processed material changes direction due to belt transfer;

**1.3** the enclosure of the crushing and/or screening plant and the treatment of atmospheric emissions by dust extraction equipment; or

**1.4** any other method that has been approved in writing by the Director.

**A3 Control of dust emissions**

Dust emissions from within the Activity Area must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of the Activity Area.

**<u>Decommissioning And Rehabilitation</u>**

**DC1 Stockpiling of surface soil**

Prior to commencement of extractive activities on any portion of the Activity Area, surface soils must be removed in that portion of the Activity Area to be disturbed by the conduct of the activity and stockpiled for later use in rehabilitation of the Activity Area. Topsoil must be kept separate from other overburden and protected from erosion or other disturbance.

**DC2 Progressive rehabilitation**

Worked out or disused sections of the Activity Area must be rehabilitated concurrently with extractive activities on other sections of the Activity Area. Progressive rehabilitation must be carried out in accordance with the relevant provisions of the *Quarry Code of Practice*, unless otherwise approved in writing by the Director. The maximum disturbed area of land which may remain, at any time, without rehabilitation is five hectares.

**DC3 Temporary suspension of activity**

**1** Within 30 days of becoming aware of any event or decision which is likely to give rise to the temporary suspension of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to suspend or has suspended.

**2** During temporary suspension of the activity the Activity Area must be managed and monitored by the person responsible for the activity to ensure that emissions from the Activity Area do not cause serious environmental harm, material environmental harm or environmental nuisance.

**3** If required by the Director, a Care and Maintenance Plan for the activity must be submitted to the Director for approval, by a date specified in writing by the Director. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition.

**3.1** The plan must be prepared in accordance with any guidelines provided by the Director.

**3.2** Once approved the person responsible must act in accordance with the approved Care and Maintenance Plan.

**3.3** The person responsible may apply to the Director to vary or substitute the Care and Maintenance Plan. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

**4** Unless otherwise approved in writing by the Director, if the activity on the Activity Area has substantially ceased for 2 years, decommissioning of the activity and rehabilitation of the Activity Area must be carried out in accordance with the requirements of these conditions as if the activity has permanently ceased.

**DC4 Notification of cessation**

Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

**DC5 DRP requirements**

**1** Unless otherwise approved in writing by the Director, a Decommissioning and Rehabilitation Plan (DRP) for the activity must be submitted for approval to the Director within 30 days of the Director being notified of the planned cessation of the activity. The DRP must be prepared in accordance with any guidelines provided by the Director. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition.

**2** The person responsible may apply to the Director to vary or substitute the DRP. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

**DC6 Rehabilitation following cessation**

**1** Following permanent cessation of the activity, and unless otherwise approved in writing by the Director, the Activity Area must be rehabilitated including:

**1.1** stabilisation of any land surfaces that may be subject to erosion;

**1.2** removal or mitigation of all environmental hazards or land contamination, that might pose an ongoing risk of causing environmental harm; and

**1.3** decommissioning of any equipment that has not been removed.

**2** Where a Decommissioning and Rehabilitation Plan (DRP) has been approved by the Director, decommissioning and rehabilitation must be carried out in accordance with that plan.

**3** The person responsible may apply to the Director to vary or substitute the DRP. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

**DC7 Activity to cease following decommissioning and rehabilitation**

**1** Following written notification by the Director confirming the completion of decommissioning of the Activity and rehabilitation of the Activity Area in accordance with these conditions:

**1.1** the Activity must not recommence; and

**1.2** the Person Responsible is not required to undertake monitoring, reporting and/or notification condition requirements relating to the activity, unless otherwise specified in writing by the Director.

## Groundwater

### GW1 Groundwater

1 Should there be evidence that groundwater has been intersected, or standing water is observed, within the Activity Area, the following measures must be taken:

**1.1** machinery is not permitted to operate in standing water; and

**1.2** the base level of the extractive activity must be raised by the addition of extracted material to prevent the occurrence of groundwater intersection within the Activity Area.

## Hazardous Substances

### H1 Spill kits

Spill kits appropriate for the types and volumes of materials handled within the Activity Area must be kept in appropriate locations and maintained in a functional condition to assist with the containment of spilt environmentally hazardous materials.

### H2 Storage and handling of hazardous materials

1 Unless otherwise approved in writing by the Director, environmentally hazardous materials held within the Activity Area must be:

**1.1** stored within maintained and functional impervious bunded areas, spill trays or other containment systems; and

**1.2** managed to prevent unauthorised discharge, emission or deposition of pollutants:

**1.2.1** to soils within the boundary of the Activity Area in a manner that is likely to cause serious or material environmental harm;

**1.2.2** to groundwater;

**1.2.3** to waterways; or

**1.2.4** beyond the boundary of the Activity Area.

### H3 Handling of hazardous materials - mobile

1 Where mobile containment of environmentally hazardous materials is utilised for the fuelling or servicing of mobile or fixed plant within the Activity Area, all reasonable measures must be implemented to prevent unauthorised discharge, emission or deposition of pollutants:

**1.1** to soils within the boundary of the Activity Area in a manner that is likely to cause serious or material environmental harm;

**1.2** to groundwater;

**1.3** to waterways; or

**1.4** beyond the boundary of the Activity Area.

2 Reasonable measures may include spill kits, spill trays/bunds or absorbent pads, and automatic cut-offs on any pumping equipment.

## Noise Control

### N1 Operating hours

1 Unless otherwise approved in writing by the Director, activities associated with the extraction of rock, gravel, sand, clay or minerals, and loading of product, and screening must not be undertaken outside the hours of 0700 hours to 1900 hours on weekdays.

2 Notwithstanding the above paragraph, activities must not be carried out on Saturdays, Sundays or on public holidays that are observed Statewide (Easter Tuesday excepted).

## Operations

**OP1 Machinery washdown**

Prior to entering the Activity Area, machinery must be washed in accordance with the Weed and Disease Guidelines, or any subsequent revisions of that document.

**OP2 Weed and Disease Management Plan**

**1** Unless otherwise specified in these conditions, the activity must be undertaken in accordance with the approved Weed and Disease Management Plan.

**2** The person responsible may apply to the Director to vary or substitute the Weed and Disease Management Plan. Any variation or substitution of the plan approved by the Director, by notice in writing, replaces the earlier approval with effect from the date specified in the notice.

## Stormwater Management

**SW1 Design and maintenance of settling ponds**

**1** Sediment settling ponds must be designed and maintained in accordance with the following requirements:

**1.1** ponds must be designed to successfully mitigate reasonably foreseeable sediment loss which would result from a 1 in 20 year storm event;

**1.2** discharge from ponds must occur via a stable spillway that is not subject to erosion;

**1.3** all pond walls must be stable and treated with topsoil and vegetated or otherwise treated in such a manner as to prevent erosion; and

**1.4** sediment settling ponds must be periodically cleaned out to ensure that the pond design capacity is maintained. Sediment removed during this cleaning must be securely deposited such that sediment will not be transported off the Activity Area by surface run-off.

**SW2 Perimeter drains or bunds**

**1** Perimeter cut-off drains, or bunds, must be constructed at strategic locations within the Activity Area to prevent surface run-off from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains, or bunds, remains within the Activity Area. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with *Best Practice Erosion and Sediment Control* or similar.

**2** Drains, or bunds, must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 20 year rainfall event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

**SW3 Stormwater**

**1** Polluted stormwater that will be discharged from the Activity Area must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.

**2** Notwithstanding the above, all stormwater that is discharged from the Activity Area must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside the Activity Area.

**3** All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained within the Activity Area. Such measures may include appropriately sized and maintained sediment settling ponds or detention basins.

## Schedule 3: Information

### Legal Obligations

**LO1 EMPCA**

The activity must be conducted in accordance with both the conditions in this document and the obligations of the *Environmental Management and Pollution Control Act 1994* (EMPCA) and subordinate regulations. The conditions of this document do not replicate legislated obligations; therefore, you should ensure you are aware of your obligations under EMPCA and subordinate regulations.

**LO2 Storage and handling of dangerous goods, explosives and dangerous substances**

**1** The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:

**1.1** *Work Health and Safety Act 2012* and subordinate regulations;

**1.2** *Explosives Act 2012* and subordinate regulations; and

**1.3** *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations.

**LO3 Aboriginal relics requirements**

**1** Aboriginal relics, objects, sites, places and human remains regardless of whether they are located on public or private land, are protected under the *Aboriginal Heritage Act 1975*.

**2** Unanticipated discoveries of Aboriginal heritage must be reported to Aboriginal Heritage Tasmania on **1300 487 045** as soon as possible.

**LO4 MRDA**

Operations must be undertaken in accordance with a mining plan approved by the Director of Mines and a Mining Lease issued under the *Mineral Resources Development Act 1995* (MRDA).

### Other Information

**OI1 Waste management hierarchy**

**1** Wastes should be managed in accordance with the following hierarchy of waste management:

**1.1** waste should be minimised, that is, the generation of waste must be reduced to the maximum extent that is reasonable and practicable, having regard to best practice environmental management;

**1.2** waste should be re-used or recycled to the maximum extent that is practicable; and

**1.3** waste that cannot be re-used or recycled must be disposed of at a waste depot site or treatment facility that has been approved in writing by the relevant planning authority or the Director to receive such waste.

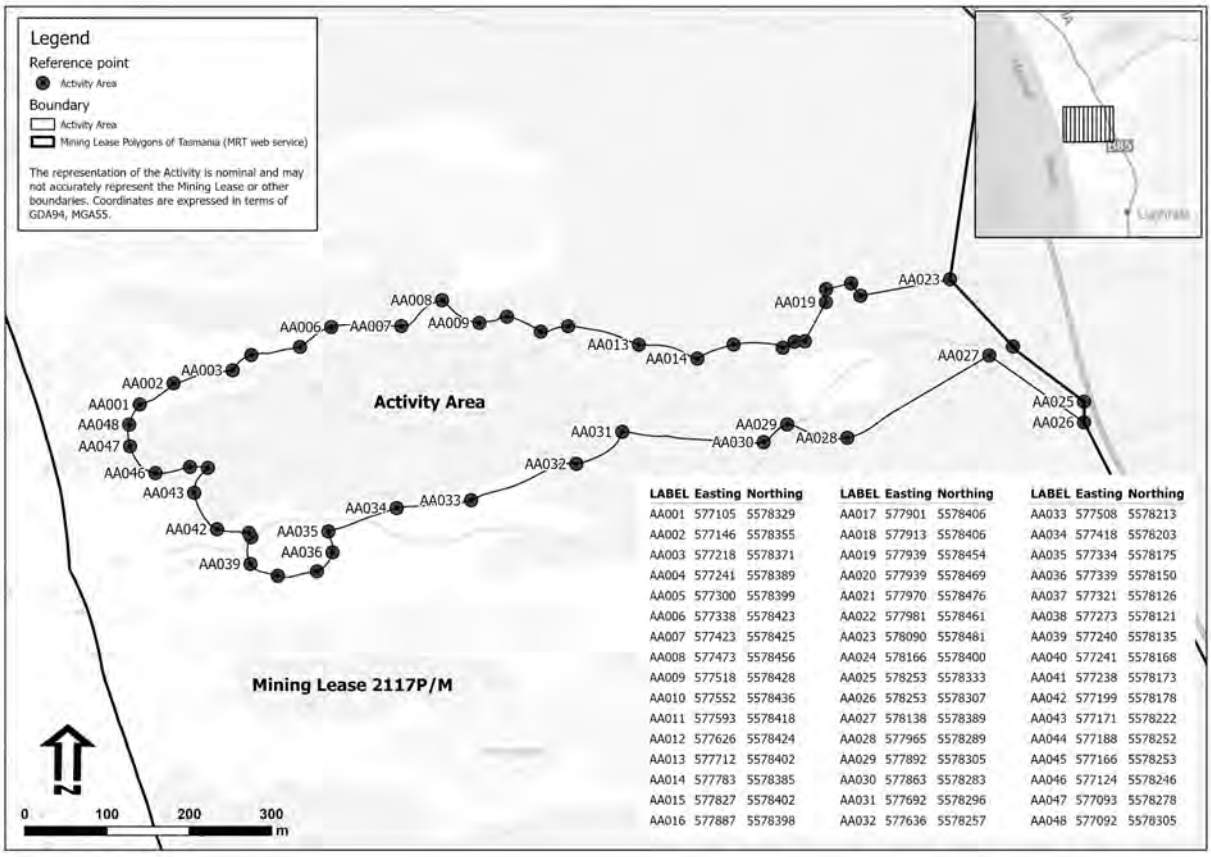
**OI2 Notification of incidents under section 32 of EMPCA**

Where a person is required by section 32 of EMPCA to notify the Director of the release of a pollutant, the Director can be notified by telephoning **1800 005 171** (a 24-hour emergency telephone number).

**OI3 Release of Relevant Information**

Under the provisions of section 23AA of EMPCA relevant information relating to monitoring of environmental impacts required under these conditions may be subject to publishing or public release by the Director.

# Attachment 1: Activity Area




| LABEL | Easting | Northing |
|---|---|---|
| AA001 | 577105 | 5578329 |
| AA002 | 577146 | 5578355 |
| AA003 | 577218 | 5578371 |
| AA004 | 577241 | 5578389 |
| AA005 | 577300 | 5578399 |
| AA006 | 577338 | 5578423 |
| AA007 | 577423 | 5578425 |
| AA008 | 577473 | 5578456 |
| AA009 | 577518 | 5578428 |
| AA010 | 577552 | 5578436 |
| AA011 | 577593 | 5578418 |
| AA012 | 577626 | 5578424 |
| AA013 | 577712 | 5578402 |
| AA014 | 577783 | 5578385 |
| AA015 | 577827 | 5578402 |
| AA016 | 577887 | 5578398 |

| LABEL | Easting | Northing |
|---|---|---|
| AA017 | 577901 | 5578406 |
| AA018 | 577913 | 5578406 |
| AA019 | 577939 | 5578454 |
| AA020 | 577939 | 5578469 |
| AA021 | 577970 | 5578476 |
| AA022 | 577981 | 5578461 |
| AA023 | 578090 | 5578481 |
| AA024 | 578166 | 5578400 |
| AA025 | 578253 | 5578333 |
| AA026 | 578253 | 5578307 |
| AA027 | 578138 | 5578389 |
| AA028 | 577965 | 5578289 |
| AA029 | 577892 | 5578305 |
| AA030 | 577863 | 5578283 |
| AA031 | 577692 | 5578296 |
| AA032 | 577636 | 5578257 |

| LABEL | Easting | Northing |
|---|---|---|
| AA033 | 577508 | 5578213 |
| AA034 | 577418 | 5578203 |
| AA035 | 577334 | 5578175 |
| AA036 | 577339 | 5578150 |
| AA037 | 577321 | 5578126 |
| AA038 | 577273 | 5578121 |
| AA039 | 577240 | 5578135 |
| AA040 | 577241 | 5578168 |
| AA041 | 577238 | 5578173 |
| AA042 | 577199 | 5578178 |
| AA043 | 577171 | 5578222 |
| AA044 | 577188 | 5578252 |
| AA045 | 577166 | 5578253 |
| AA046 | 577124 | 5578246 |
| AA047 | 577093 | 5578278 |
| AA048 | 577092 | 5578305 |

FLINDERS COUNCIL

# AM2025-02 Assessment Report

## Flinders Local Provisions Schedule

## Markana Park Lime Sand extraction

## Request for rezoning and Level 2 EPA extractive industry

**19 May 2026**

For Council consideration

Prepared by:

TOWN PLANNING SOLUTIONS

# Executive Summary

AM2025-02 is a combined application for rezoning of part of three titles and planning approval at 368 Five Mile Jim Road, Memana, which seeks for:

- Rezoning the majority of the subject landholdings from Landscape Conservation to Rural (AM2025-02); and
- Planning approval for establishment and operation of a lime sand extraction pit (DA2023-038), including:
  - removal, storage, screening and processing of up to 10,000 m3 or 15,000 tonnes of lime sands from the site per year;
  - ancillary infrastructure including access roads, buildings, wastewater system, access tracks and water management infrastructure; and
  - rehabilitation of the site.

The purpose for the requested amendments is to rezone the subject properties from Landscape Conservation to Rural to enable the proposal to occur.

The proposed production volumes (up to 10,000m$^3$ or 15,000 tonnes per year) trigger assessment of the environmental aspects of the proposal as a Level 2 Activity by the Environment Protection Authority under the *Environmental Management and Pollution Control Act 1993* (EMPCA).

As a result, environmental aspects and impacts of the proposal were assessed by the Environment Approval Authority (EPA). The EPA assessment was completed in accordance with the requirements of both Acts and determined that DA2023-038 could be sustainably operated, and issued recommended conditions of approval should AM2025-02 be supported and DA2023-038 be recommended for approval.

This report describes and considers the merits of AM2025-02 and DA2023-038 against the relevant statutory requirements and the Tasmanian Planning Scheme – Flinders, including revisions following the direction of the Tasmanian Planning Commission's (Commission) decision to refuse the application at the Planning Authorities 27 February 2026 meeting (the refusal) under section 40B(1) of the Act (40B Direction).

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# Abbreviations

| | |
|---|---|
| Act | *Land Use Planning and Approvals Act 1993* |
| AM2025-02 | draft amendment AM2025-02 to rezone the subject properties from Landscape Conservation to Rural |
| Application documents | Proposal Report and DA Report |
| Assessment Report | *AM2025-02 Assessment Report, Flinders Local Provisions Schedule. Markana Park Lime Sand extraction, Request for rezoning and Level 2 EPA extractive industry* |
| Commission | Tasmanian Planning Commission |
| Council | Flinders Council<br>Flinders Council in its role as a Planning Authority under *Land Use Planning and Approvals Act 1993* |
| DA2023-038 | Planning Application DA2023-038 to establish/operate a lime sands pit |
| DA Report | *Development Application Supporting Information*, Van Diemen Consulting, 1 January 2026 |
| EMPCA | *Environmental Management and Pollution Control Act 1994* |
| Effective Date: | 1 June 2022, Flinders Local Provisions Schedule |
| EIS | *Environmental Impact Statement V3*, Van Diemen Consulting, 31 May 2025 |
| EPA | Environment Protection Authority |
| EPA Report | *Environmental Assessment Report, Markarna Grazing Company Pty Ltd, Lime Sand Extraction Pit, 368 Five Mile Jim Road, Memana, Flinders Island*, EPA Tasmania, August 2025 |
| EPA Determination | Permit Part B Permit Conditions - Environmental No. 11576, EPA Tas, 5 August 2025 |
| Guideline No.1 | *Guideline No. 1 Local Provisions Schedule (LPS): zone and code application* |
| Listmap | www.theList.tas.gov.au |
| LCZ | Landscape Conservation zone |
| LPS | Local Provisions Schedule |
| LPS Decision | *Tasmanian Planning Commission Decision – Flinders Local Provisions Schedule*, (2022) TASPComm 16 |
| NEPM's | National Environmental Protection Mechanisms |
| Nicholbrook Report | *Lime Sand Requirement – Flinders Island* by Dr Lee Patterson of Nicholbrook Consulting |
| NTRLUS | *Northern Tasmanian Regional Land Use Strategy* |
| Practice Note 7 | *Practice Note 7: Draft LPS mapping: technical advice*, Tasmanian Planning Commission |
| Proposal | AM2025-02 and DA2023-038 |
| Proposal Report | *Planning Scheme Amendment Report*, Van Diemen Consulting, 6 January 2026 |
| Refusal | Flinders Planning Authority decision to refuse to initiate AM2025-02, 27 February 2026 |
| Sand Pit | Proposed lime sand pit, extracting up to 10,000 $m^2$ or 15,000 tonnes of lime sands per year |
| SPP | *State Planning Provisions* |

| | |
|---|---|
| Strategic Plan | *Flinders Council Strategic Plan 2021-2031* |
| Structure Plan | *Flinders Structure Plan 2016 (draft)* |
| Subject lands | Certificates of Titles CT 120064/1, CT 215120/1, CT 230282/1 – private freehold (PID 3513143), forming part of 368 Five Mile Jim Road, Memana |
| TIA | *Traffic Impact Assessment Report*, Van Diemen Consulting, February 2025 |
| TPS | *Tasmanian Planning Scheme* |
| TPP | *Tasmanian Planning Policies* |
| 2000 Scheme | *Flinders Planning Scheme 2000* |
| 40B Direction | Decision and direction to reconsider AM2025-02 under section 40B(1) of *Land Use Planning and Approvals Act 1993, Tasmanian Planning Commission, 13 April 2026.* |

Documents used to assess this proposal included the following:

- *Planning Scheme Amendment Report – Markarna Grazing Company Pty Ltd, Palana Road Flinders Island*, by Van Diemen Consulting, 6 January 2026 (Proposal Report).
- *Development Application Supporting Information – Markarna Grazing Company Pty Ltd, Palana Road Flinders Island*, by Van Diemen Consulting, 1 January 2026 (DA Report).
- *Environmental Assessment Report, Markarna Grazing Company Pty Ltd, Lime Sand Extraction Pit, 368 Five Mile Jim Road, Memana, Flinders Island*, EPA Tasmania, August 2025 (EPA Report ).
- Permit Part B Permit Conditions - Environmental No. 11576, EPA Tas, 5 August 2025 (EPA Determination).

Version:

| | | |
|---|---|---|
| 0.1 | 17 February 2026 | For Council consideration |
| 0.2 | 15 May 2026 | working review, following 40B Direction |
| 2.0 | 19 May 2026 | For Council consideration, following 40B Direction |

# 1 INTRODUCTION

An application was lodged for establishment of a Level 2 lime sand pit on property at Palana Road, Marshall Bay.

The application relates to part of the 'Markarna Park' property at 368 Five Mile Jim Road, Memana, contained on certificates of titles CT's 120064/1, CT 215120/1, CT 230282/1 (PID 3513143), which form part of the property described as Markarna Park, 368 File Mile Jim Road, Memana.

The application includes:

- Rezoning the majority of the subject landholdings from Landscape Conservation to Rural (AM2025-02); and
- Planning approval for establishment and operation of a lime sand extraction pit (DA2023-038), including:
- removal, storage, screening and processing of up to 10,000 $m^3$ or 15,000 tonnes of lime sands from the site per year;
- ancillary infrastructure including access roads, buildings, wastewater system, access tracks and water management infrastructure; and
- ongoing rehabilitation of the site.

The purpose for the requested amendments is to rezone the subject properties from Landscape Conservation to Rural to enable the proposed sand pit to occur.

The proposed production volumes (up to 10,000$m^3$ or 15,000 tonnes per year) trigger assessment of the environmental aspects of the proposal as a Level 2 Activity by the Environment Protection Authority under the *Environmental Management and Pollution Control Act 1993* (EMPCA).

As a result, environmental aspects and impacts of the proposal were assessed by the Environment Approval Authority (EPA). The EPA assessment was completed in accordance with the requirements of both Acts and determined that DA2023-038 could be sustainably operated, and issued recommended conditions of approval should AM2025-02 be supported and DA2023-038 be recommended for approval.

This report describes and considers the merits of AM2025-02 and DA2023-038 against the relevant statutory requirements and the Tasmanian Planning Scheme - Flinders.

## 1.1 Process

The application is comprised of the request to rezone the subject lands and the planning application for the lime sand pit, which is a level 2 activity under the *Environmental Management and Pollution Control Act 1994* (EMPCA) that required assessment by the Environment Protection Agency Tas (EPA).

The process for assessment of this application was shown at Figure 1.

Work completed to date on the application includes:

- Referral of the proposed lime sand pit to the EPA and completion of their initial assessment, resulting in the requirement to include *Permit Part B Permit Conditions - Environmental No. 11576, EPA Tas, 5 August 2025* (EPA Determination) on any planning approval that may be issued.
- Assessment of AM2025-02 to rezone the subject lands from Landscape Conservation to Rural, against the relevant statutory and strategic requirements, and referral to relevant State agencies and bodies.
- Assessment of DA2023-038 to establish and operate a lime sand pit and associated infrastructure from the subject lands.

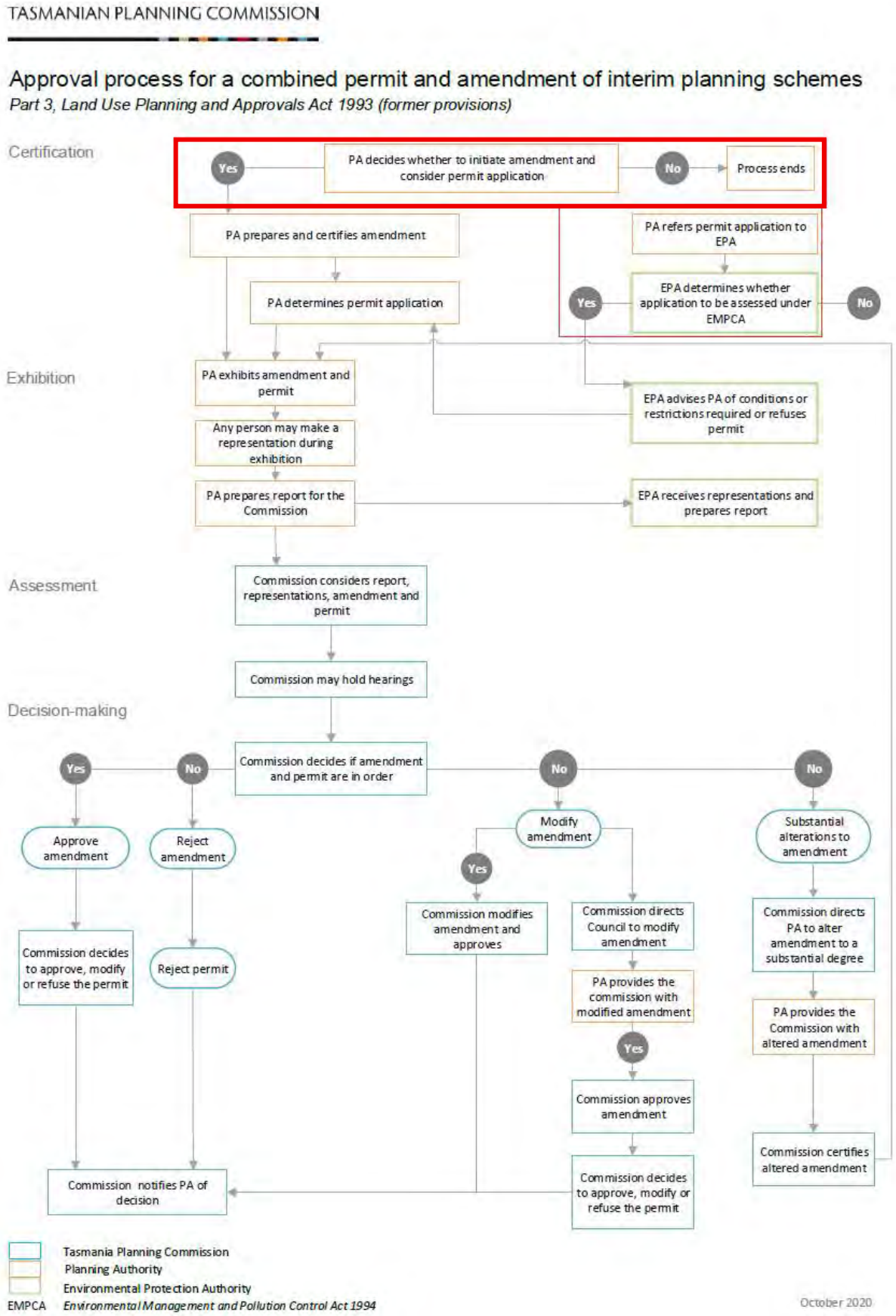



*Figure 1 – Application process – combined planning scheme amendment, planning application*
Source: modified from Tasmanian Planning Commission flowchart

# 2 SITE ANALYSIS AND DESCRIPTION

## 2.1 Subject lands

The subject lands are known as part of the Markarna Park property at Memana, PID 3513143 and contained within the following land titles:

- CT 120064/1
- CT 215120/1
- CT 230282/1

The titles have a collective area of 364.8 hectares. Copies of the land titles were provided in the Proposal Report.

The assessment of site and context provided at Part B within the DA & Proposal Reports by Van Diemen Consulting provides a detailed summary of existing character, context, available infrastructure and facilities. That assessment is supported.

## 2.2 Location

The subject lands are located to the western side of Palana Road, opposite the intersection with Five Mile Jim Road, Memana and described by Certificates of Title 120064/1, 215120/1, 230282/ and PID 3513143. Copy of the title documents were provided at certificate and plan were provided at Attachment 2 in the application documents.

The subject site lies to the northern side of Rheban Road, generally west of the main residential area at Orford and south of the existing residential development on East Shelley Road, as highlighted by the red box in Figure 2.



*Figure 2 - site and context, location plan inset*
Source: modified from LISTmap

## 2.3 Existing site conditions

The existing site conditions are shown on Figure 3.



*Figure 3 – existing site conditions*
Source: modified from LISTmap

Available records identify the existing use of the subject lands as low level rural operations, with some lime sand extraction having occurred outside the required approval processes.

Figure 3 clearly shows the areas of existing sand extraction, identified by the white colour and lack of vegetation cover .

## 2.4 Scenic Values

The subject ;lands form part of the vegetated landscape adjoining Marshall Bay, which is visible within the wider landscape of this part of Flinders Island.

The roadside lookout on the north side Pickford Hill provides the best view over the area, which was shown at Figure 4, identified as part of the Structure Plan and reflected through application of an overlay under the Scenic Protection Code as part of the LPS.

There are 3 existing extractive industries within the landscape shown in Figure 4. This image and the author's observations note that those existing operations do not appear as a distinctive feature within the visible landscape.



*Figure 4 – Landscape view - Marshall Bay and adjoining lands*
Source: LPS Supporting Report, Appendix 7.5

The following was provided at page 107 of the LPS Supporting Report regarding this area:

> *Marshall Bay*
>
> *The Scenic Management Overlay is proposed to be extended to encompass the area west of Palana Road that follows the coastline of Marshall Bay. The area joins the current extent of the overlay at Leeka, extends east to encompass seven freehold allotments west of Palana Road and then all allotments west of Palana Road south to where the current visually sensitive overlay recommences on Crown land north of Emita township. The scenic quality of this area is evident from the views from the Emita lookout and from north facing allotments on Port Davies Road.*
>
> *The components of the view relate to the uniting and harmonising effect of the intact vegetation, the high degree of naturalism that this provides and the contrast and compatibility of the long wide stretch of sandy beach and fore dunes around the wide expanse of the bay. There is, from the vantage of the lookout, no human effect on the landscape. Minimal clearance for development and non-reflective materials including for rooves will be critical to the maintenance of the scenic quality, particularly from the tourist lookout and Port Davies Road. Clearance of vegetation in this highly erosion sensitive environment has the capacity to significantly modify the integrity of the current scenic quality.*

The relevant provisions within the LPS were discussed at ???? of this report.

## 2.5 Surrounding Facilities

The subject lands form part of the established rural and vegetated landscape adjoining Marshall Bay.

Whitemark is the largest settlement and is located 29 km south by road from the subject lands. Whitemark offers primary education, commercial, police and social/recreation facilities.

Emita township is located approximately 7 km south by road and offers a museum and access to the Wybalenna Site. Emita Recreation Grounds and Hall are nearby, to the south east.

No other commercial or social facilities are located nearby.

The subject lands have access to recreation facilities on Marshall Beach and nearby at Mount Tanner. Other recreation facilities are located

Extensive recreation facilities are available within the wider area.

## 2.6 Natural and Environmental Hazards

Listmap identifies that the subject lands have the following attributes:

- it is subject to the Bushfire Hazard overlay under the Scheme;
- there are small intermittent waterbodies and watercourses that are not mapped on the property;
- there are small parts of the overall holdings that were identified as potentially subject to landslip;
- significant parts of the lands were identified as potentially subject to coastal inundation;
- small portions of the site adjoining the coast were at risk to coastal erosion processes;
- it has extensive native vegetation cover, substantive parts of which were identified as potentially containing or providing habitat to threatened species;
- the entire landform, including the subject lands, were identified as within the Present Dume Mobility overlay;
- the adjoining coast was identified as open sandy shore with potential erosion and recession vulnerability;
- the entire site and adjoining lands were identified as foredunes, other parallel dunes and beach ridges undefined; and
- the eastern parts of the subject and adjoining lands were identified as containing Karst.

Listmap did not identify the site as subject to any overlays for flood.

Local knowledge identified that parts of the subject land form have suffered sand blowouts, which are understood to have resulted from grazing activities. Consultation with the EPA confirmed their assessment addressed the stability of the dunes and impacts from DA2023-038 as part of their assessment.

The DA & Proposal Reports identify parts of the site contain threatened species and sensitive landforms (dune mobility), supported by expert assessments. The presence of these were confirmed in the EPA Report.

## 2.7 Special or significant features

Aside from those matters identified in this report, the DA/Supporting Reports, EIS and EPA Report, neither Listmap, Council records nor the extensive supporting information identify the site contains any other known scientific, aesthetic, architectural, historical and cultural values on the land that need consideration with the proposed amendment.

## 2.8 Land Capability

Land capability was mapped by the State as classes 5 to 6 and potentially class 7, depending on the specific limitations of the specific site.

Agricultural value of the land was examined as part of the assessment of the LPS to determine the zoning of the lands between the Landscape Conservation zone, or the nearby Rural zone applied to other properties.

The LPS assessment and decision identified that the subject lands did not require the protections established under the Agriculture zone.

## 2.9 Land Potentially Suitable for Agriculture

The subject lands were identified as unconstrained through the State Government project to identify lands potentially suitable for the agriculture zone under the Tasmanian Planning Scheme project as shown in Figure 5.

The identified site conditions and environmental qualities suggest that the unconstrained limitation is not consistent with their available land capability classification identified by the (then) Department of Primary Industries Water and Environment in their 2007 mapping, as shown in Figure 6on ???

## 2.10 Buildings and other improvements

The Application documents , Listmap and Council records confirm the site does not contain any existing buildings.

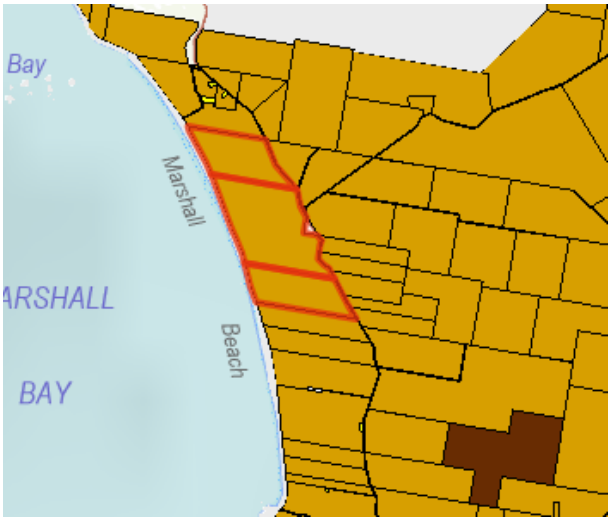



*Figure 5 – Outcome - land potentially suitable for Agriculture zone*
Source: LISTMAP

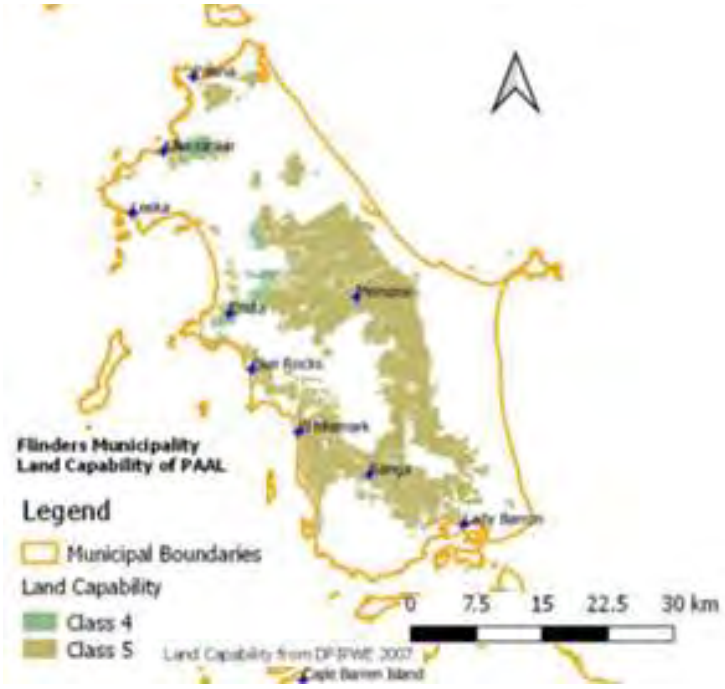



*Figure 6 – Modelled land capability*
Source: DPIPWE 2007 Land Capability in Tasmania, modified

## 2.11 Land use history

The DA & Proposal Reports confirm the known land use history of the site for low level rural activities, some low level sand excavation and retention of native vegetation.

The operation of the existing lime sand pit on part of the site was conducted as an ancillary activity to the rural operations over the lands.

No other available records suggest any other use.

## 2.14 Access

The Proposal identified that access to the site use a reserved road, part of CID 1182402. This was shown at Figure 7.

Listmap identified that this section of Palana Road was owned by State Growth, south of the intersection with Five Mile Jim Road.

As a result of providing access, the reserved road forms part of the application, which affects two parts of the assessment.

AM2025-02 – Section 37(3) of the Act requires any rezoning to include the written consent of the land owner. Crown consent for this rezoning was not provided. The reserved road cannot be included in the rezoning, except as required by Guideline No.1, which requires the adjoining zoning to be applied to half of the adjoining road reservation. There are also other requirements that may affect the application, which include the requirement to apply the Utilities zone to State Roads.

Council may initiate a rezoning of land without owner consent. To resolve these matters, Councils powers to rezone lands will be used under the Act to address the partial rezoning of the reserved road casement and Palana Road alignment as they relate to this application.

DA2023-038 –Under section 52(1A) of the Act, owner consent is not required for use of this land for the planning application, as the proposal is for mining activities that are subject to a mining lease.

This issue was also addressed as part of the statutory assessment of this application.




*Figure 7 – existing site access, adjoining reserved road and Palana Road*
Source: LISTMAP

## 2.15 Mineral resources

Listmap identified that the subject lands are within the Strategic Resources overlay identified by Mineral Resources Tasmania and is proximate to identified Mineral Resources for sand and gravel resources, as shown in Figure 8 and developed from public data sets maintained by the State.

The subject lands were identified by the red border, with the Strategic Resources overlay (shown hatched) was identified as buffered mining leases (All categories).




*Figure 8 – mineral resources around Marshall Bay*
Source: LISTMAP

## 2.13 LPS and decision.

The subject lands were zoned Landscape Conservation through establishment of the Flinders Local Provisions Schedule (LPS) and Tasmanian Planning Scheme – Flinders (Scheme).

Page 10 of the Proposal Report provided the following:

> *The purpose of the Amendment is to facilitate the establishment and use of a small-scale Extractive Industry use class – being the extraction of lime sands for use in the island's critically important agricultural sector. The Amendment will establish a permitted pathway for future extraction of lime sands within the mining lease (to be applied for progressively using the statutory mechanisms in force at the time as the lime sand resource is required) while retaining the Landscape Conservation zone on the sensitive coastal foreshore of Marshall Bay.*

Various other sections of the Proposal Report provide additional detail on the reasoning and need for the proposed lime sands pit on the subject property. Most notably, section A.7, page 22 of the Proposal Report refines this:

> *The intended outcome of the Amendment is to establish a zone (**Figure 2**) to ensure the extraction of lime sands and associated infrastructure is a permitted use to support the agricultural sector on Flinders Island. An Extractive Industry is Prohibited in the LCZ.*
>
> *The rezoning seeks to recognise the legitimate land use of lime sand extraction that underpins agriculture and other activities on the island, to promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity. It is submitted that 'maintenance' is not solely 'protection', rather protection is a component of maintenance.*
>
> *The lime sand deposits at Marshall Bay are well known, highly significant to the agricultural productivity of Flinders Island, and proven in their ENV on agricultural lands…*

Additional information was provided at Attachments 3 and 4 to the Proposal Report, most notably through the report titled *Lime Sand Requirement – Flinders Island* by Dr Lee Patterson of Nicholbrook Consulting (Nicholbrook Report).

The applicant made representation to the exhibition of the LPS contesting application of the (then) proposed Landscape Conservation zone to the subject lands, as it prevented use for an intended lime sand pit (the subject of this application). The applicant attended the hearings of the Flinders LPS and to support their concerns.

The representation was addressed at paragraphs 145-157 of the *Tasmanian Planning Commission Decision – Flinders Local Provisions Schedule*, (2022) TASPComm 16 (LPS Decision).

The LPS Decision ultimately supported application of the current Landscape Conservation zone, noting the following as part of the consideration:

152 – the subject lands had landscape values that warranted application of the Landscape Conservation zone.

153 – the location adjacent Marshall Bay contributed to the aesthetically to the appearance of Marshall Bay, which was identified in the draft Flinders Structure Plan 2016 (Structure Plan).

154 – the vegetation on the subject lands was important to the appearance of Marshall Bay, where vegetation removal may impact those values.

155 – the Structure Plan confirmed the intent to manage impacts through use and provide for landscape management. The Landscape Conservation zone was therefore most appropriate.

156 – absent further details of the proposed future use, the zone and other provisions proposed under the LPS made suitable provision for the intended activity where it was incidental to the existing use of the lands.

157 – the Commission did not support the representation and confirmed that the proposed Landscape Conservation zoning.

# 3.0 PLANNING CONTROLS

The subject lands are located within the Flinders Municipality and therefore subject to the provisions of the Tasmanian Planning Scheme – Flinders (Scheme), which commenced operation on 1 June 2022.

Planning scheme information was obtained from Listmap. The subject lands were identified by the red borders, reflecting the respective title boundaries.

## 3.1 Zoning



*Figure 9 – zoning at Memana area*
Source: LISTMAP

The subject lands are zoned Landscape Conservation, with further Landscape Conservation and Rural zones to the surrounding area. The Coastal reserve was zoned Environmental Management, consistent with Guideline No.1.

## 3.2 Code Overlays



*Figure 10 – Bushfire prone areas overlay*
Source: LISTMAP

Figure 10 shows the Bushfire Hazard Area overlay, over the subject and adjoining lands.



*Figure 11 – Coastal Inundation Hazard Areas overlay*
Source: LISTMAP

The pale orange hatching on Figure 11 shows the Coastal Inundation Hazard Area overlay, which applies to parts of properties between Palana Road and adjoining the coast with Marshall Bay.



*Figure 12 –Coastal Erosion area overlay, medium highlighted*
Source: LISTMAP

Figure 12 shows the Coastal Erosion Area overlay, which applies a medium hazard to parts of the subject lands (highlighted), and medium and high erosion bands to the coastal reserve adjoining Marshall Bay, identified by the hatched areas. These areas are clearly outside the activities proposed by the application. This Code will not apply to the proposal.



*Figure 13 – Scenic Protection Area overlay, FLI-C8.1.6 Marshall Bay*
Source: LISTMAP

Figure 13 shows the entire site subject to clause FLI-C8.1.6 Marshall Bay within the scenic protection area overlay, which applies over all of the subject and adjoining lands.



*Figure 14 – Priority vegetation area overlay*
Source: LISTMAP

The green hatching in Figure 14 shows the Priority vegetation area, which applies to the majority of the subject and adjoining lands.



*Figure 15 – Future coastal refugia area overlay*
Source: LISTMAP

The orange hatching in Figure 14 shows the Future Coastal refugia area overlay, which applies to parts of the Coastal Reserve adjoining the subject lands.



*Figure 16 – Waterway and coastal protection area overlay*
Source: LISTMAP

The blue hatching in Figure 14 shows the Waterway and Coastal protection area overlay, which applies to parts of the Coastal Reserve adjoining the subject lands.

## 3.3 General Overlays



*Figure 17 – General overlays – Fli-S3.0 Coastal Areas Specific Area Plan*
Source: LISTMAP

FLI-S3.0 Coastal Areas Specific Area Plan applies to the subject and nearby lands adjoining the coast, as shown by the highlighted area on Figure 17.

# 4 THE PROPOSAL

## 4.1 Brief description

AM2025-02 seeks to rezone parts of certificates of title CT's 120064/1, CT 215120/1, CT 230282/1 (PID 3513143) from Landscape Conservation to Rural. No alterations were requested or proposed to the overlays or general provisions that apply to the subject lands. Those portions of the subject lands within FLI-S3 Coastal Areas Specific Area Plan would retain the Landscape Conservation zone.

This was shown at Figure 18, taken from the Proposal Report.




*Figure 18 – Requested rezoning from Landscape Conservation to Rural*
Source: Proposal Report, Annexure 1

DA2023-038 seeks establish site facilities and infrastructure to extract up to 10,000 cubic metres per annum (equivalent is 15,000 tonnes per annum) of lime sands for use in the agricultural sector. Assessment of this application was addressed at Section 8 of this Report.

Consequential zoning matters were identified for parts of Palana Road adjoining the site, following the requirements of Guideline No.1 and Practice Note 7. Following consultation with the State Planning Office, the base zoning of the area will be applied to Palana Road.

It is submitted that application of the Utilities zone for adjoining portions of Palana Road affected by AM2025-02 would be inconsistent with the broader intent of the Guidelines, Practice Note 7 and Schedule 1 Objectives of the Act for coordinated action across different levels of government and orderly development.

## 4.2 Reasons for AM2025-02

AM2025-02 proposed to rezone parts of CT's 120064/1, 215120/1 and 230282/1 to establish an extractive lime sand pit.

Reasons for AM2025-02 were established at sections A7, and Attachments 3 and 4 of the

Proposal Report. Those reasons are accepted.

Section 4 of the Environmental Assessment Report by the EPA Tas (EPA Report) provided a more concise summary (page 17), reproduced for convenience.

> *The EIS states that soil acidification is a naturally occurring process influenced by numerous factors and is compounded by most of Tasmania's soils being naturally acidic.*
>
> *The EIS notes that acidification of agricultural land is a significant land degradation issue that can negatively affect productivity and sustainability of agricultural activities through:*
>
> - *Decreasing the availability of nutrients to plants;*
> - *Increasing the toxicity of aluminium and manganese;*
> - *Decreasing soil biological functions;*
> - *Reducing the ability of legumes to fix nitrogen; and*
> - *Making the soil more vulnerable to soil structure decline and erosion.*
>
> *The EIS notes that lime sands which are rich in calcium carbonate can reduce soil acidity by neutralising the acid reaction, thus raising pH.*
>
> *According to the EIS 'liming' is the most cost-effective way to manage low soil pH, to help prevent loss of production and profitability in farming systems and reverse acidification. Liming involves applying lime to the soil surface several months before sowing pasture or crops.*
>
> *According to the EIS commonly used liming materials include:*
>
> - *Agricultural lime - crushed and sieved natural limestone which is mainly calcium carbonate. Safe, cheap and effective.*
> - *Lime sand - mined from natural deposits that are mainly calcium carbonate. Safe and cheap but can be coarser and react slower with soil than agricultural lime.*
> - *Dolomite - a mixture of calcium and magnesium carbonates. Particularly valuable where soils are low in magnesium.*
> - *By-product lime - by-product from the production of soda ash, which contains mostly calcium carbonate, but with some calcium oxide and hydroxide.*
>
> *The EIS identifies agriculture as a critical employment and income generation activity on Flinders Island, therefore its longevity is important to the social and economic well-being of the island.*
>
> *The EIS states that the Marshall Bay land parcels owned by the Markarna Grazing Company ('Markana Park') were purchased to provide ongoing lime sands for use on the broader Markana Park land parcels and to sell to other agricultural enterprises as well as for use in making concrete for construction projects on the island. The EIS notes that the existing, but now disused pit, was once used by many islanders to access lime sand due to its ease of access and quality sand with a high effective neutralising value.*
>
> *According to the EIS, off-island supplies of lime / sand are costly due to high freight charges. This undermines the economic viability of agriculture on the island in the medium to long-term due to inadequate levels of lime being applied which affects long term soil health and productivity of agricultural land on the island.*
>
> *The EIS states that no alternative locations were considered as the lime sands are spatially limited on Flinders Island, are of very high quality, extensive in their geographic extent at Marshall Bay and can be extracted in a way and at a rate that is sensitive to the Marshall Bay environment.*

## 4.3 Request and Supporting Information

AM2025-02 results from a request lodged by the applicant on behalf of the owner under section 40D(b) of the Act, which was documented in the Proposal and DA Reports.

Extensive supporting information was provided for both the rezoning and the proposed lime sand pit. These included the Environmental Impact Statement (EIS) and Environmental Assessment Report (EPA Report).

Supporting documents for the application include:

- *Planning Scheme Amendment Report*, Van Diemen Consulting, 6 January 2026;
- *Development Application Supporting Information*, Van Diemen Consulting,1 January 2026;
- *Site and soil evaluation Report, New onsite wastewater management system at "Markana Park," 368 Five Mile Jim Road, Memana TAS 7255. (*Sand mine - Southern site), Richard Mason;
- *Traffic Impact Assessment Report*, Van Diemen Consulting, February 2025;
- *Survey of the Geomorphology and Soil characteristics of the Markarna Grazing Company Pty Ltd Property, Marshall Beach, Flinders Island*, Dr Adrian Slee, January 2024;
- *Environmental Impact Statement* V3, Van Diemen Consulting, 31 May 2025;
- *Lime Sand Requirement – Flinders Island* by Dr Lee Patterson, Nicholbrook Consulting January 2026;
- *Environmental Assessment Report, Markarna Grazing Company Pty Ltd, Lime Sand Extraction Pit, 368 Five Mile Jim Road, Memana, Flinders Island*, EPA Tasmania, August 2025

## 4.4 Owners Consent

Council property information identified the land owner as Markarna Grazing Company Pty Ltd.

Landowner consent was provided at Attachment 1 of the Proposal Report, as required under section 37 of the Act.

As noted previously in this report, the requested rezoning does not include the adjoining reserved road.

As a consequence of the requirements of the requirement under section 2.3 of the Tasmanian Planning Commission's Practice Note 7, the rezoning of parts of Palana Road adjoining the subject lands will be required. Owners consent was not provided for this. The Planning Authority will need to use its powers under section 40D(b) of the Act to initiate the required rezoning of parts of Palana Road under AM2025-02.

## 4.5 Land Use Conflict

Existing land use of the subject and adjoining lands was addressed at section *B.3 Land Use* of the Proposal Report. That assessment is accepted.

Figure 8 of section B.3 of the proposal report addresses established residential use that is proximate to the subject lands. One residential dwelling was identified within 300-metres of the lease boundary.

One adjoining and two nearby properties contain existing mining leases, as follows:

2056P/M – Lots 1 and 2 Palana Road, Lughrata – 82 hectares (whole of properties) , for sand and clay;

2059P/M – Lot 1 Palana Road, Lughrata, 44 hectares (part of property) for lime sand; and

1990P/M – Lot 1 Palana Road, Lughrata, 206 hectares (whole of property) for stone and clay.

These were shown at Figure 19 of this report, along with established dwellings, highlighted by the red dots and as listed below :

- 2889 Palana Road
- 2869 Palana Road
- 2426 Palana Road
- 2270 Palana Road
- 1460 Palana Road
- 2172 Palana Road
- 2154 Palana Road
- 2207 Palana Road

Darker green areas on Figure 19 identify existing vegetation (understood to be mostly native) while the lighter green areas identify existing pasture. The dominant land uses in the area are vegetation and rural.

The requested Rural zone is consistent with the zoning of the area under the *Flinders Planning Scheme 2000*, zoning to the eastern side of Palana Road, and within the wider area.




*Figure 19 – Existing conditions and mining leases and house (red dot) around the subject lands.*
Source: modified from Listmap

The EPA has a statutory obligation to manage all environmental matters and issues for Level 2 Activities. The EPA will retain liability for that role for the duration of the proposed operations under that assessment. Potential land use conflict to the nearby areas is most likely to result from matters regulated by the EPA through their approval and regulation process.

As a result of these considerations, the requested Rural zone is not likely to result in any significant increase in potential or realised land use conflict.

Potential land use conflict is not considered to be a major issue for AM2025-02 .

## 4.6 Environmental, Economic and Social impacts

The following sections of this report provide detailed examination of the environmental, economic and social impacts of the amendment as part of the statutory assessment.

Environmental impacts of the proposal were addressed in the Proposal Report and Environmental Impact Statement. Additional detail was provided in Attachment 4 to the Proposal Report.

Further expert information was provided by Dr Lee Peterson in the report on *Lime Sand Requirement* by Nicholbrook Consulting.

Those submissions are accepted.

Environmental issues for the proposed lime sand pit were addressed through the application documents and EIS, with a detailed assessment documented at section 7 in the EPA Report, including:

- air quality;
- groundwater;
- noise;
- natural values, including flora, fauna, geomorphology and soils (including karst, sand dunes, Acid soils and wetlands);
- waste management;
- environmentally hazardous materials; and
- decontamination/rehabilitation.

While limited to the proposed lime sand pit, the recommended conditions provided by the EPA as a result of their assessment supports the ability of the site to accommodate rural activities in ways that ought to be consistent with neutral to positive outcomes on environmental issues. The EPA assessment concluded that potential impacts could be managed through the operation of the lime sand pit and provided recommended conditions.

Social impacts of AM2025-02 were addressed by general statements in the application documents, often linked to the significance of the agricultural sector on Flinders and economic impacts/wellbeing. Those statements are consistent with the understanding of social wellbeing issues on Flinders.

AM2025-02 is not expected to create or increase the risk for adverse impacts on the environmental, economic and social conditions on Flinders Island.

## 4.7 Referral to Government Agencies and authorities

The proposal was referred to Taswater as required under the both the *Land Use Planning and Approvals Act 1993* and Water and *Sewerage Industry Act 2008*. Taswater responded to this referral by providing a SPAN reference TWDA 2026/00060-FC for the proposal and advised they had no objections to the proposal and did not require any further notifications.

The following referrals were completed to assist assessment of the request:

- State Growth;
- EPA;
- Aboriginal Heritage Tasmania;
- Aboriginal Land Council Tasmania;
- Mineral Resources Tasmania;
- Conservation Assessments;
- Natural Resources and Environment; and
- Mineral Resources Tasmania.

Other referrals may be required to relevant agencies if AM2025-02 is initiated by the Planning Authority.

The Environmental Impact Assessment Report identified that the following referrals were completed as part of the EPA assessment of the proposed level 2 activity:

- Conservation Assessment Section, Natural Resources and Environment Tasmania
- Parks and Wildlife Service, Natural Resources and Environment Tasmania
- Aboriginal Heritage Tasmania, Natural Resources and Environment Tasmania
- Heritage Tasmania, Natural Resources and Environment Tasmania
- Mineral Resources Tasmania, Department of State Growth
- Public Health Services, Department of Health
- Flinders Council

The following also provided specialist advice on the EIS:

- Regulatory Officer, Environment Protection Authority
- Air Section, Environment Protection Authority
- Water Section, Environment Protection Authority
- Noise Section, Environment Protection Authority

The following responses were received to these referrals:

Aboriginal heritage Tasmania – - AHDR10296 confirmed there were no known heritage recorded in the mining lease area, the Huys & Graham study was accepted and no objections were raised.

Mineral Resources Tasmania - There were no comments from MRT on the proposal, noting the mining lease issued in 2023 and recent inspections.

State Growth – Traffic Engineering/Network Management – while no response was received to the referral, their officers had previously advised they had no objections to the Traffic Impact Assessment in the application documents (February 2025).

Conservation Assessments Section, Natural Resources and Environment – an initial response was provided, based on DA2023-038. A response for the proposed rezoning is expected soon.

TasWater – TasWater does not object to the draft amendment to planning scheme and has no formal comments for the Tasmanian Planning Commission in relation to this matter and does not require to be notified of nor attend any subsequent hearings.

Noting the limited responses, no issues were raised as part of the referrals that raise valid reasons to refuse AM2025-02.

# 5 CONSIDERATIONS FOR THE AMENDMENT

## 5.1 Overview

AM2025-02 seeks to rezone the subject properties from Landscape Conservation to Rural, accompanied by an application to allow a lime sand pit (extractive industries) to be established and operate.

## 5.2 Request to amend

The process to enable a request for an amendment to an LPS is established at Part 3B of the Act, where Division 2 of the Act deals with the request and Division 4 enables the application to be combined with an application for planning approval to use or develop land. The following summarises the relevant sections:

| | |
|---|---|
| 37 | provides for a person to request an amendment to the LPS by or made with the consent of, the owner. |
| 38 | requires a decision to be made within 42 days of that request being lodged and notification to the Tasmanian Planning Commission. |
| 40T | allows a planning application for use or development of land that would otherwise be prohibited to be lodged with the requested amendment. |
| 40U | allows the planning authority to request additional information. |
| 40W | allows for the planning application to be approved or refused. |
| 40X | requires the relevant planning application to be determined with the relevant planning scheme amendment. |
| 40Y | requires the decision to be made before section 40G of the act is considered and sets out the relevant considerations (as addressed within this report). |

The Proposal Report and DA Report provide the specific requests for the amendment to rezone the subject lands under sections 37(1) and 40T(1) of the Act, and application for planning approval for the proposed lime sand mine.

Multiple information requests and submissions were processed under the relevant sections of the Act, starting before formal lodgement of the application in June 2023. The final documentation was lodged with Council on 7 January 2026.

While responses were not provided to all of the statutory referrals, this can be addressed through the future exhibition process, if AM2025-02 is initiated.

The Commission Form No.1 Owners Consent was provided as part of the application documents. The applicant has copied the voluminous communications relating to the proposal to the owners representatives.

The requirements of Section 37 of the Act were satisfied for AM2025-02

## 5.3 Section 8A Guideline No.1

The Commission publication, *Section 8A Guideline No. 1 Local Provisions Schedule (LPS): zone and code application* (Guideline No.1) informs the zoning process under the Scheme.

The LPS Decision addressed the requirements of Guideline No.1 and determined that the Landscape Conservation zone was appropriate to the subject lands. The request seeks to rezone the property from Landscape Conservation to Rural, and is supported by the proposal for a lime sand pit to be established.

Section 3 of Guideline No.1 establishes principles for zone and code application through a LPS and provides the following guidance:

> *3.4 The primary objective in applying a zone should be to achieve the zone purpose to the greatest extent possible…*

A response was provided to the requirements of Guideline No.1 at Section C.6 of the Proposal

Report. Key components of that response include:

- use of the Rural zone for the subject property was consistent with the LPS Decision for other properties with established extractive industries in Marshall Bay and other areas (page 60);
- statements that retention of the Landscape Conservation zone was inconsistent with the primary objective of the zone in considering an extractive industry, which eliminated use of any other mechanism aside from rezoning to the Rural or Agriculture zone (page 60); and
- the highest likely outcome that the site could sustain was identified as extractive industry, due to limitations of locality, soil types, financial limitations and existing vegetation; (page 62).

No response was provided to the RZ series of guidelines in the proposal report. Given the requested rezoning, they require examination.

> *RZ 1 The Rural Zone should be applied to land in non-urban areas with limited or no potential for agriculture as a consequence of topographical, environmental or other characteristics of the area, and which is not more appropriately included within the Landscape Conservation Zone or Environmental Management Zone for the protection of specific values.*

As previously noted within this and the Application Reports, the subject lands were identified as having low land capability classification, based on the State mapping, and subject to a number of environmental limitations. Those observations were consistent with the Environmental Assessment Report by the EPA and advice documented within that from State Agencies.

Available information suggests that the subject lands have limited potential for the majority of forms of more intensive agriculture, due to topographical, ecological and other considerations. It is understood that the area has suffered sand blowouts that resulted from vegetation clearance and/or grazing activities.

While the Commission determined that the Landscape Conservation zone was appropriate for the subject lands following from local strategy, the Proposal Report contends the rural use of the lands for extractive industry are more significant and the local strategy has no relevance (page 58) with a response provided *to avoid appeal*.

No simple way exists to resolve this conflict between the proponent's intents and local strategy.

> *RZ 2 The Rural Zone should only be applied after considering whether the land is suitable for the Agriculture Zone in accordance with the 'Land Potentially Suitable for Agriculture Zone' layer published on the LIST.*

The respective merits considering application of the Rural zone to the subject lands were considered during the LPS process, which determined that it was not suitable.

No evidence was provided in the application documents for AM2025-02 to support variation of that determination, nor was any other information identified as part of the assessment.

Use of the Agriculture zone for the subject lands is therefore not warranted. Application of the Rural zone to the subject lands would therefore be consistent with RZ2.

> *RZ 3 The Rural Zone may be applied to land identified in the 'Land Potentially Suitable for Agriculture Zone' layer, if:*
>
> *(a) it can be demonstrated that the land has limited or no potential for agricultural use and is not integral to the management of a larger farm holding that will be within the Agriculture Zone;*

The subject lands were excluded from the Agriculture zone through the LPS process. The application documents nor assessment of AM2025-02 did not present any information to contest that assessment.

> *(b) it can be demonstrated that there are significant constraints to agricultural use occurring on the land;*

As noted within the application documents and this report, the natural form and values of the

subject lands present significant constraints to their agricultural use, arguably to the point of preventing any intensive agricultural use.

> *(c) the land is identified for the protection of a strategically important naturally occurring resource which is more appropriately located in the Rural Zone and is supported by strategic analysis;*

The application documents seek rezoning of the subject lands on the basis that lime sands are an important resource for the agriculture sector on the Islands, supported by multiple reports and the EPA determination to approve the proposed lime sand pit with conditions.

The subject lands were identified in the Mineral Resources Tasmanian Strategic Resources layer for buffered mining leases, and they were not identified in the Strategic Prospectivity zones, as shown in Figure 8 of this report.

Discussion on the strategic assessment of the requested Rural zoning in the Proposal Report was effectively limited to the proposed lime sands pit, with little broader strategic analysis.

The available strategic assessments of this area were:

- the Nicholbrook Report, which provided an assessment of the strategic significance of the lime sands resource to the local agriculture sector; and
- the Structure Plan, which identified the ongoing protection of the landscapes for their scenic value and natural functions.

The strategic assessments of the area identified conflicting perspectives that are not easily resolved.

> *(d) the land is identified for a strategically important use or development that is more appropriately located in the Rural Zone and is supported by strategic analysis; or*

As with criterion c, the proposed activity requires the subject location based on the available lime sand resource on the subject lands, while the available strategic analysis was either limited to the scope of this application or conflicts with the proposal.

> *(e) it can be demonstrated, by strategic analysis, that the Rural Zone is otherwise more appropriate for the land.*

As with criterion c, the proposed activity requires the subject location based on the available lime sand resource on the subject lands, while the available strategic analysis was either limited or conflicts with the proposal.

Guidelines UZ1 and 2 are potentially relevant given the State ownership of part of Palana Road adjoining the subject lands.

> *UZ 1 The Utilities Zone should be applied to land that is used, or intended to be used, for utilities infrastructure, including:*
>
> *a) category 1, 2, 3, 4 and 5 roads as defined in the Tasmanian State Road Hierarchy published by the Tasmanian Department of State Growth;*
>
> *b) any listed major local roads;*
>
> *…*
>
> *UZ 2 The application of the Utilities Zone to category 1,2,3, 4or 5 roads as defined in the Tasmanian State Road Hierarchy should be based on the 'State Road Casement' layer published on theLIST.*

Both UZ1 and 2 establish a clear intent for the State road assets to be zoned Utilities.

As previously noted in this report, consultation with the State Planning Office identified they did not consider that application of the Utilities zone was required in this case.

Department of State Growth took ownership of Lady Barron Road and part of Palana Road in 2023 to reflect their significance as essential infrastructure to both Flinders Island and the wider region. The Department has not sought rezoning of those roads since taking ownership.

AM2025-02 was generated by a specific application from the applicant to enable commercial operations as part of their established farming operations, with potential to sell to the local

community.

State Growth did not request the rezoning since taking ownership of the relevant road assets, nor as part of consultation on this application. The State Road network on Flinders Island extends far beyond the subject lands. Any proposal for rezoning the State Road network to reflect Guidelines UZ1 and 2 should be completed as a discrete exercise that deals with the entire network and does not potentially disadvantage a private applicant.

As a consequence, it is submitted that Guidelines UZ1 and 2 should not be considered relevant for assessment of AM2025-02.

AM2025-02 has a mixed compliance with the requirements of Guideline No.1.

## 5.4 Preparation and Certification

AM2025-02 requires decisions to be made:

- in response to the requested rezoning under section 37 of the Act; and
- on compliance with the LPS criteria under section 40F of the Act.

The request was addressed in a previous section of this report.

The LPS criteria are established at section 34 of the Act and were addressed in following sections of this report.

## 5.5 Section 32 – Contents of LPS

Section 32 of the Act regulates what a LPS can contain. Assessment against section 32 was established at section 34(2)(b) of the Act. This was assessed as follows.

*(1) An LPS is to consist of provisions that apply only to a single municipal area specified in the LPS.*

AM2025-02 does not impact compliance with this requirement through the LPS.

*(2) An LPS –*

*(a) must specify the municipal area to which its provisions apply; and*

AM2025-02 does not impact the naming of the LPS.

*(b) must contain a provision that the SPPs require to be included in an LPS; and*

AM2025-02 does not impact the SPP provisions required to be included within an LPS.

*(c) must contain a map, an overlay, a list, or another provision, that provides for the spatial application of the SPPs to land, if required to do so by the SPPs; and*

AM2025-02 does not impact the required maps, overlays, lists or other provisions that provide for application of the SPP's to land.

*(d) may, subject to this Act, contain any provision in relation to the municipal area that may, under section 11 or 12 , be included in the Tasmanian Planning Scheme; and*

AM2025-02 seeks the rezoning of land within the LPS. Compliance with sections 11 and 12 of the Act is not impacted.

*(e) may contain a map, an overlay, a list, or another provision, that provides for the spatial application of the SPPs to particular land; and*

AM2025-02 seeks the rezoning of land and does not otherwise impact spatial application of the SPP's or the relevant overlays.

*(f) must not contain a provision that is inconsistent with a provision of section 11 or 12 ; and*

AM2025-02 seeks the rezoning of land. Compliance with sections 11 and 12 of the Act is not impacted.

*(g) may designate land as being reserved for public purposes; and*

AM2025-02 does not seek to designate reserve status to land for public purposes.

*(h) may, if permitted to do so by the SPPs, provide for the detail of the SPPs in respect of, or the application of the SPPs to, a particular place or matter; and*

AM2025-02 seeks to alter the zoning of the subject lands within the structure of the SPP's.

*(i) may, if permitted to do so by the SPPs, override a provision of the SPPs; and*

AM2025-02 does not seek to override any provision of the SPP's through the LPS.

*(j) may, if permitted to do so by the SPPs, modify, in relation to a part of the municipal area, the application of a provision of the SPPs; and*

AM2025-02 does not seek to modify application of a provision of the SPP's to a part of the municipal area.

*(k) may, subject to this Act, include any other provision that –*

*(i) is not a provision of the SPPs or inconsistent with a provision of the SPPs; and*

*(ii) is permitted by the SPPs to be included in an LPS; and*

AM2025-02 seeks to alter the zoning of the subject lands through the LPS. Consistency with provisions under the SPP's will not change. Zoning of land is a requirement for LPS under the Act and the SPP.

*(l) must not contain a provision that the SPPs specify must not be contained in an LPS.*

AM2025-02 does not seek to remove any required provisions under the SPP.

*(3) Without limiting subsection (2) but subject to subsection (4) , an LPS may, if permitted to do so by the SPPs, include –*

*(a) a particular purpose zone, ….:or*

*(b) a specific area plan, being a plan consisting of –*

*(c) a site-specific qualification, ….*

AM2025-02 does not seek to alter or establish a particular purpose zone, specific area plan or site specific qualification.

*(4) An LPS may only include a provision referred to in subsection (3) in relation to an area of land if –*

*(a) a use or development to which the provision relates is of significant social, economic or environmental benefit to the State, a region or a municipal area; or*

*(b) the area of land has particular environmental, economic, social or spatial qualities that require provisions, that are unique to the area of land, to apply to the land in substitution for, or in addition to, or modification of, the provisions of the SPPs.*

AM2025-02 does not seek to establish a particular purpose zone, specific area plan or site specific qualification under subsection (3).

*(5) An LPS must be in accordance with the structure, if any, that is indicated, or specified, in the SPPs to be the structure to which an LPS is to conform.*

AM2025-02 does not seek to alter the requirements for the LPS established under the SPP's.

*(6) A provision of an LPS must be in the form, if any, that the SPPs indicate a provision of an LPS is to take.*

AM2025-02 seeks the rezoning of land and does not seek to establish any new provisions within the LPS.

*(7) A provision of an LPS in relation to a municipal area is not to be taken to have failed to comply with this section, or to be inconsistent with a provision of the SPPs, by reason only that it is inconsistent with a provision of the SPPs that has*

*not come into effect in relation to the municipal area.*

Subsection (7) is not relevant to AM2025-02.

The conclusion of this assessment was that AM2025-02 complies with section 32 of the Act.

## 5.6 Section 40F – LPS Criteria

Section 40F(1) of the Act requires that draft amendments must meet the LPS criteria at section 34(2) of the Act. This was assessed as follows.

*(a) contains all the provisions that the SPPs specify must be contained in an LPS; and*

AM2025-02 does not seek to alter the structure or type of provisions that the SPP's specify must be contained in an LPS.

*(b) is in accordance with section 32 ; and*

AM2025-02 complies with section 32 of the Act, as detailed at section 5.4 of this report.

*(c) furthers the objectives set out in Schedule 1 ; and*

A detailed assessment of AM2025-02 against the Schedule 1 Objectives was provided at section 5.7 of this report and found to be generally consistent.

*(d) is consistent with each State policy; and*

AM2025-02 was assessed against the current State Policies at section 7 of this report and found to be consistent with them.

*(da) satisfies the relevant criteria in relation to the TPPs; and*

The Tasmanian Planning Policies (TPP) were made by the Minister for Planning in late 2025 but do not commence until July 2026. It is understood that they do not operate and are therefore not required to be considered for the current application.

Council officers requested advice from the Tasmanian Planning Commission regarding their requirements for assessment of compliance with the TPP's, which was repeated at a recent hearing for AM2025-01. No formal response was received to inform this assessment.

It is difficult to determine compliance of AM2025-02 with the TPP, given their voluminous content, intended high level of operation, and lack of any supporting information having been provided by the State to inform their implementation.

Given the lack of responding advice, a generalised response was provided for this assessment.

On first reading and taking the requirements of section 2A(a) at their apparent meaning (however that may be determined), the requested rezoning is unlikely to cause the Amendment or the LPS to cease to comply with the collective requirements of the TPP.

The State recently consulted on draft legislation that clarified the TPP would only apply to amendments that were either certified or the report on representations under section 35F was prepared.

Further clarification on the TPP may become available during the process, after which a better assessment may to be conducted.

*(e) as far as practicable, is consistent with the regional land use strategy, if any, for the regional area in which is situated the land to which the relevant planning instrument relates; and*

AM2025-02 was assessed against the *Northern Tasmanian Regional Land Use Strategy* (NTRLUS) at section 6.1 of this report.

That assessment identified that while AM2025-02 generally complied with the NTRLUS, AM2025-02 was not consistent with sections D2.2 Rural areas, D.2.3 Natural Environment Areas and the recognition of local strategy in application of section E.5.1 Regional Economic Development Policy of the NTRLUS.

The conclusion of that assessment was that AM2025-02 did not achieve practicable consistency with the NTRLUS.

> *(f) has regard to the strategic plan, prepared under section 66 of the Local Government Act 1993 , that applies in relation to the land to which the relevant planning instrument relates; and*

AM2025-02 was assessed against the relevant sections of the Council Strategic Plan at section 6.3 of this report and found to comply.

> *(g) as far as practicable, is consistent with and co-ordinated with any LPS's that apply to municipal areas that are adjacent to the municipal area to which the relevant planning instrument relates; and*

Flinders Council is an island based municipality and does not have any adjacent LPS. AM2025-02 does not impact the operation of LPS in adjoining municipal areas.

> *(h) has regard to the safety requirements set out in the standards prescribed under the Gas Safety Act 2019 .*

AM2025-02 does not impact lands subject to the *Gas Safety Act 2019* (refer also section 7.5).

AM2025-02 has a mixed compliance with the certification criteria under the Act.

## 5.7 Objectives of the Land Use Planning and Approvals Act 1993

Schedule 1 establishes the objectives of the Resource Management and Planning system of Tasmania.

Part C of the Proposal Report provided a response to the Schedule 1 Objectives of the Act, based on the documents prepared to support the planning application for the proposed lime sands pit.

That assessment is accepted, noting that the application and supporting reports referred to in this part of the document relate to the planning application and do not address the wider impacts of the requested rezoning.

Compliance with Part 1 is further examined as follows.

> *(a) to promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity; and*

The DA Report and assessment provided through the EPA Report and Determination suggest that the rural use of the subject lands can be sustainable managed, provided the required management regime is supported.

> *(b) to provide for the fair, orderly and sustainable use and development of air, land and water; and*

This objective is procedural and relates to the operation and useability of the planning system, including applications made under planning schemes.

AM2025-02 seeks the rezoning of land and includes the associated DA2023-038 to establish a lime sands pit on the site, which was subject to a Level 2 Assessment under associated environmental legislation. The EPA Report and Determination identify that the lands can be used for a specific rural purpose in a sustainable manner.

> *(c) to encourage public involvement in resource management and planning; and*

This objective establishes a procedural requirement for consultation and involvement in the development of strategic documents that inform operation of the planning system and the future development within specific areas. Further public involvement forms part of the statutory process under the Act.

The Application documents did not describe any public involvement in its development.

> *(d) to facilitate economic development in accordance with the objectives set out in paragraphs (a), (b) and (c); and*

AM2025-02 seeks to rezone the subject lands and will not alter the regulatory regime under the SPP for managing sustainable economic development.

> *(e) to promote the sharing of responsibility for resource management and planning between the different spheres of Government, the community and industry in the State.*

This objective is procedural and relates to the system established under the Act and related legislation.

It is submitted that following the assessment and advice provided by the EPA, the proposal can be considered to comply with the Part 1 Objectives.

The following response is provided to the objectives for the planning process set out in Part 2 of Schedule 1.

> *(a) to require sound strategic planning and co-ordinated action by State and local government; and*

This objective is procedural and is largely beyond the scope of the current applications. AM2025-02 and DA2023-038 were as coordinated as the legislation allowed. AM2025-02 cannot address legislative change.

> *(b) to establish a system of planning instruments to be the principal way of setting objectives, policies and controls for the use, development and protection of land; and*

The Act provides the regulatory systems and decision points to deliver this objective.

> *(c) to ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land; and*

The requested Rural zone was developed and assessed to generally consider the environmental impacts of proposals through the SPP.

Environmental impacts of DA2023-038 were assessed by the EPA under the Level 2 assessment process established by the *Environment Management and Pollution Control Act 1993*.

Economic impacts of the proposed sand pit were addressed by the proponent.

Social impacts of the proposed sand pit were addressed by the proponent, but limited in their consideration to the potential impacts on the subject property and agricultural sector.

Social impacts identified for the wider Flinders community through the Structure Plan were not addressed in the Application documents .

> *(d) to require land use and development planning and policy to be easily integrated with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels; and*

This objective is procedural and delivery is largely beyond the scope of the current applications. The regulatory processes for AM2025-02 and DA2023-038 were as integrated as the existing legislative process allows and included assessment by the EPA and consultation with those State agencies who were willing or able to provide a response to referrals.

> *(e) to provide for the consolidation of approvals for land use or development and related matters, and to co-ordinate planning approvals with related approvals; and*

This objective is procedural and relates to the legislative system for planning assessments and approvals. AM2025-02 is consistent with this objective, in so far as it applies to the statutory regulatory regime.

> *(f) to promote the health and wellbeing of all Tasmanians and visitors to Tasmania by ensuring a pleasant, efficient and safe environment for working, living and recreation.*

This objective is procedural and is beyond the scope of AM2025-02 to address.

> *(g) to conserve those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value; and*

AM2025-02 seeks to rezone land to enable rural operations to be conducted upon it, including the current application or a lime sand pit.

The EPA Report document consultation with the specialist State agencies who manage the specific values identified for the lands. The outcome of that assessment and the Determination identify the rural use of the subject lands can accommodate conservation values and practices, noting they are regulated by the EPA under DA2023-038.

> *(h) to protect public infrastructure and other assets and enable the orderly provision and co-ordination of public utilities and other facilities for the benefit of the community; and*

The subject lands have limited access to public infrastructure and assets. AM2025-02 does not seek to alter the regulation of impact on public infrastructure. AM2025-02 is consistent with this objective.

> *(i) to provide a planning framework which fully considers land capability.*

AM2025-02 is consistent with land capability.

The examination of AM2025-02 confirmed compliance with the objectives of the Act.

It is submitted that the proposal meets each of the stated objectives, and is generally consistent with the objectives of the Resource Management and Planning System.

# 6. PLANNING STRATEGIES

## 6.1 Northern Tasmanian Regional Land Use Strategy

Section A.1 of the *Northern Tasmanian Regional Land Use Strategy* (NTRLUS) provides the following:

> *The Regional Land Use Strategy (RLUS) is the statutory regional plan for Northern Tasmania. It applies to all land in the norther region of Tasmania.*
>
> *It sets out the strategy and policy basis to facilitate and manage change, growth, and development to 2032.*
>
> *Across the Northern Region the RLUS will guide land use, development and infrastructure decisions made by State and local government, and by key infrastructure providers.*
>
> *The RLUS is a living document. As the strategy is implemented and results monitored, this document will be updated to reflect new and revised State, regional and municipal land use, policies, projects and initiatives.*
>
> *(Northern Tasmania Regional Land Use Strategy, amended 23 June 2021, Page 2)*

Compliance with the NTRLUS was addressed by the Council and assessed by the Commission in the decisions on the LPS and determined to comply.

Since that assessment, the NTRLUS was revised to include the Local Provision Schedules Implementation Statement and Part G Local Provisions Schedule Preparation. Implementation Statement establishes that Part G of the NTRLUS does not apply to amendments to LPS. Part G of the NTRLUS is therefore not relevant to AM2025-02.

The following NTRLUS provisions were identified as substantially the same to those that informed preparation and assessment of the LPS by the Commission:

- C.1 The Region's Vision
- C.2 Structure
- C.3 Principal Understandings
- C.4 Goals And Strategic Directions
- E.2 Regional Settlement Network Policy
- E.3 Regional Activity Centre Network Policy
- E.4 Regional Infrastructure Network Policy
- E.5 Regional Economic Development Policy
- E.6 Social Infrastructure And Community Policy
- E.7 Regional Environment Policy

The NTRLUS provides extensive recognition of the specific challenges for the Furneaux group of islands., particularly through section B.3 Regional Challenges.

Specific recognition of the need for local strategy to drive settlement, activity centre, development, land use and economic policy was provided at the following sections:

- D2.1 Regional Settlement Network Policy;
- D2.2.4 Key Planning Principles for Rural Areas;
- RSN-P3 local settlement and strategy;
- RSN-P25 local rural residential areas; and
- E5.1 local economic strategy.

Noting this recognition of local strategy within the Furneaux Group of Islands, the Draft Flinders Structure Plan was adopted through the assessment process for the LPS and for all other planning scheme amendment applications.

The application documents submit that AM2025-02 complied with the NTRLUS. Section C2, pages 47-52 of the Proposal Report provide a response to the NTRLUS based on the proposed lime sand pit. As one possible rural operation, that submission is accepted.

The application documents provide little examination of this issue or justification on the requested Rural zoning beyond a single, specific proposal.

Part D of the NTRLUS is arguably relevant to AM2025-02, specifically part D2 Land Use Categories.

D.1.1 Purpose of Categories – recognised the distinct physical and visual amenity and characteristics of the region, identifying that land use categories would help to achieve the following:

- *Define Urban Growth Areas for urban settlements;*
- *Prevent unplanned expansion of urban settlements;*
- *Promote sustainable land use and development;*
- *Protect high value productive rural land;*
- *Protect and enhance natural resources;*
- *Protect environmental values and landscapes;*
- *Provide appropriate opportunities for non-agricultural activities including rural living and tourism;*
- *Promote environmental conservation; and*
- *Enhance regionally significant open space and biodiversity.*

D.2.1 Urban Growth Areas – AM2025-02 does not apply to urban lands. It is submitted that the D2.1 Series are not relevant to AM2025-02;

D.2.2 Rural Areas – AM2025-02 seeks to rezone land to increase the available opportunities for rural activities to occur on the subject lands. The following aims were established under this section for considering rural land use planning and management:

- *Recognise the importance of agricultural land and industries near major population centres as a key determinant of future food costs and liveability;*
- *Prevent inappropriate fragmentation of rural land;*
- *Improve infrastructure and investment opportunities for agriculture;*
- *Protect farming operations from conflict with rural/environmental living residents;*
- *Enable rural industries to diversify, adjust, innovate and value-add;*
- *Identify preferred future uses of unproductive lands, recognising that some forms of agricultural production are not necessarily constrained by soil type or fertility;*
- *Assist local government to protect and enhance productive rural lands and their associated environmental and landscape values;*
- *Maintaining benefits to the community that are derived from the natural environment; and*
- *Constrain the expansion of Rural Residential Areas.*

The following was noted in respect of this section:

D2.2.1 AM2025-02 and the proposed activity are consistent with the land use category Productive Resource Areas;

D2.2.2 Rural Residential Areas – not relevant to AM2025-02.

D2.2.3 Other non-rural/agricultural land uses – these relate to tourism and are not relevant to AM2025-02.

D2.2.4 The following Key Planning Principles for Rural Areas were identified as relevant:

- *Conserve and manage rural areas to enhance their contribution to the regional economy, rural industries and regional rural landscape values; …*
- *Recognise that the Furneaux Group of Islands are more reliant on local strategies for Rural Residential Area and the protection of agricultural land to respond to the complexities of the remote area economics; …*
- *Protect quality agricultural land from incompatible development and provide for the expansion of agricultural production in Productive Resource Areas; …*
- *Identify and protect mineral resources from inappropriate development; and*
- *Permit secondary or non-agricultural land uses where water quality, scenic rural landscapes, agricultural activities and the natural environment are not adversely*

*impacted and the strategic purpose of rural land use zones is not undermined, preferably in locations proximate to existing settlement.*[1]

The following was noted:

- The second principle (fifth in the NTRLUS list), identified the need for local strategy to protect the agricultural sector and the complexities of remote area economics on Flinders.
- The final principle under this section recognised the need to balance the impacts of non-agricultural activities such as extractive industries with scenic and environmental values.

D2.2.4 recognised both the resources and scenic/landscape values issues within this application affecting the subject lands.).

The aims established under clause D2.2 do not assist in identifying a way to balance assessment between the rural and scenic landscape values, such as presented with this application.

While the proposal is generally consistent with the principles in this section, the fifth and final principles raise questions.

As noted elsewhere in this Report and other such reports submitted to the Commission, the Flinders Structure Plan was adopted for assessment of the LPS and other requested amendments the LPS, to provide the local strategy. Figure 20 clearly identified the overarching strategic direction for the subject area as protection of the Marshall Bay dune systems, as opposed to other areas that were identified as protection primary production.

D1.1 clearly identified protection of environmental values and landscapes as an outcome to be achieved through implementation of the land use categories within the NTRLUS.

Given the lack of examination of the opportunity proposed by the requested Rural zoning in the Application Documents (aside from the proposed lime sand pit), it is not clear that AM2025-01 is consistent with the Key Planning Principles for Rural Areas established at D2.2.4 of the NTRLUS.

D.2.3 Natural Environment Areas – the following key value statements were identified as relevant to AM2025-02:

- *Support biodiversity, rural production, scenic amenity, landscape heritage and outdoor recreation.*
- *Recognise the region's distinctive environmental features including:*
  - *Rich and diverse native flora and fauna;*
  - *A dynamic coastline and marine waters including rocky foreshores, reefs, headlands and pristine beaches;*
  - *Spectacular forested mountain ranges and peaks;*
  - *Freshwater wetlands, waterways and floodplains; and*
  - *Good air and water quality.*

Discussion under this section recognised the diverse locations and significant contribution of regional landscapes to the economy, lifestyle and ability to enjoy the northern region for multiple purposes, while maintaining and enhancing landscapes.

D.2.3.1 Key Planning Principles for Natural Environment Areas identified that planning for Natural Environment Areas should seek to:

- *Protect, manage and enhance the region's biodiversity values;*
- *Protect, manage and enhance regional landscape values that advance the region's liveability, health, lifestyle and economy;*
- *Protect significant biodiversity values, improve ecological connectivity, and promote improved habitat condition and rehabilitation within biodiversity networks;*
- *Optimise biodiversity conservation outcomes by locating environmental (and carbon) offsets within identified biodiversity networks and other suitable areas, giving priority to*

[1] P20, NTRLUS

*the protection or rehabilitation of significant biodiversity values; …*

- *Prioritise where, when and how investment can be most effectively targeted to restore and maintain landscape values.*[2]

While AM2025-02 does not seek to alter the regulation of identified natural environments under the SPP, the requested Rural zone significantly changes the allowable uses and development that can occur on the subject lands.

The subject site and wider area contain natural values, as demonstrated within the application documents and the EPA Report. The EPA Report also identified that the local impacts of the lime sand pit proposed under DA2023-038 can be managed.

The application documents do not investigate or analyse the impact of the requested Rural zoning beyond the lime sand pit under DA2023-038.

The potential impacts to the wider landscape of the Marshall Bay area could be significant, given the full ambit of use and development provided under the requested Rural zone of the SPP. Those impacts were not documented or examined in the Application Documents.

The outcomes for land use categories established at D1.1 generally take an approach to protect, maintain or conserve the relevant outcomes.

Based on this, it is not clear that the requested Rural zoning under AM2025-02 is consistent with the key planning principles established for natural environment areas at clause D2.3.1 of the NTRLUS.

Compliance with section D2.3 is not clear.

This assessment identified that compliance with section D of the NTRLUS was not demonstrated, based on the application documents.

Section E.5 of the NTRLUS establishes relevant regional economic development policy.

Section E.5.1 provides a Strategic Context, including the following as the final point at page 43:

- *The Furneaux Group of Islands do not experience the same economic conditions as the balance of the region due to their remoteness. As such, the Furneaux Group relies on local strategies to capitalise on its unique attributes and to further economic objectives.*

As previously noted within this report, the Structure Plan was adopted to inform development and assessment of the LPS by the Council and the Commission, and all requested planning scheme amendments since the LPS commenced operation. The Commission decision on the section 40(B) review identified that the adoption of local strategy for such assessments was a matter for the planning authority (refer numbered paragraph 6, page 5).

There is no reason to vary from this practice for assessment of this decision.

As noted elsewhere in this report and reproduced at Figure 20, the overarching strategic priority identified for the wider area that includes the subject lands was the Marshall Bay dune system.

The conclusion and recommendation of EPA Report identified that the lime sand pit proposed under DA2025-038 is capable of being sustainably developed and managed within the various values of the subject site.

The applicant documents did not clearly examine or establish the impacts of the requested Rural zoning against this strategic outcome, nor request a change to the Structure Plan to revise that outcome, despite repeated requests.

Assessment against the remaining statements, policies and actions of section E5 of the NTRLUS identified that AM2025-02 was generally consistent with their collective requirements.

This assessment identified that compliance with section E.5 was conflicted between the delivery of strategic outcomes for the Furneaux Islands and the detailed actions and policies of this section.

[2] P20, NTRLUS

Section 34(2)(e) of the Act established that amendments to LPS must, as far as practicable, be consistent with the relevant regional land use strategy The NTRLUS is the relevant strategy application within the region. The requested rezoning under AM2025-02 was assessed as not complying with section D of the NTRLUS.

The conclusion of this assessment was that AM2025-02 does not achieve practicable consistency with the NTRLUS.

## 6.2 Draft Flinders Island Structure Plan 2016

The draft *Flinders Island Structure Plan* (Structure Plan) was developed following analysis of the unique circumstances of the Flinders LGA and a review of the earlier strategic works. The Structure Plan established the following four key strategic outcomes:

1. Primary production land is protected for future pastoral use
    - Maintain the pattern of large, connected allotments
    - Retain and enhance environmental services provided by biodiversity
    - Provide for clustering of associated uses within rural activity precincts
    - Address commercial forestry and biosecurity
2. Population growth achieved through rural land diversification
    - Diversify rural land uses on land not required for primary production
    - Facilitate a range of lot sizes
    - Encourage residential use in association with small business and value adding
    - Encourage clustering of dwellings
3. Land use planning contributes to nature-based tourism
    - Identify land for visitor accommodation
    - Integrate networks of walking, cycling and 4wd tracks
    - Minimise impact of development and use on the natural assets making the island unique
4. Planning maintains and enhances liveability
    - Employ principles of sustainable design and siting
    - Establish a public access network
    - Integrate biodiversity into decision making
    - Manage and facilitate resilience to climate change and natural hazards.

Key drivers for development of the Structure Plan and LPS relevantly recognised the need for diversification of the rural economy as significant, the need for diversification and a sustainable population base.

The Structure Plan was adopted by the Planning Authority to support the development and assessment of the LPS as a supporting document, and in development and adoption of other supporting documents for review and assessment of the LPS. The LPS Decision identified that the Structure Plan was used by the Commission to determine the LPS. The Structure Plan was also used to assess all other requested planning scheme amendments since the LPS commenced operation.

The 40B Direction examined use of the Structure Plan for assessment of applications to amend the LPS and identified that this was a matter for the Planning Authority to determine at paragraph 6.

Given the consistent use of the Structure Plan in this way, a recommendation was provided for the Structure Plan to be used to inform assessment of AM2025-02.

The Structure Plan identified key zoning initiatives that informed use of the SPP Rural, Agriculture, Rural Living and Landscape Conservation zones under the LPS, and produced the following LPS outcomes:

- East coast area - Primary Production Area 1 – Agriculture zone was selected
- Southern coastal plain - Primary Production Area 2 – Agriculture zone south and east of Whitemark, Rural zone surrounding and north of Whitemark;
- Blue Rocks precinct – Rural / Environmental Management zone south of Blue Rocks to PPA2 interface, Rural Living to Blue Rocks / Sawyers Bay; and

- Lifestyle precincts – use of Rural Living zone at Blue Rocks, Cooma/Badger Corner, Trousers Point, Emita and Lady Barron.
- Marshall Bay – extensive use of the Landscape Conservation zone.

The outcomes of the Structure Plan were identified on the Flinders Island - Structure Plan diagram, reproduced as Figure 20 of this report.

Outcomes for the Marshall Bay area at Figure 20 prioritise protection of the dune system, which is consistent with the use of the Landscape Conservation and Rural zones through the LPS as shown at Figure 21.

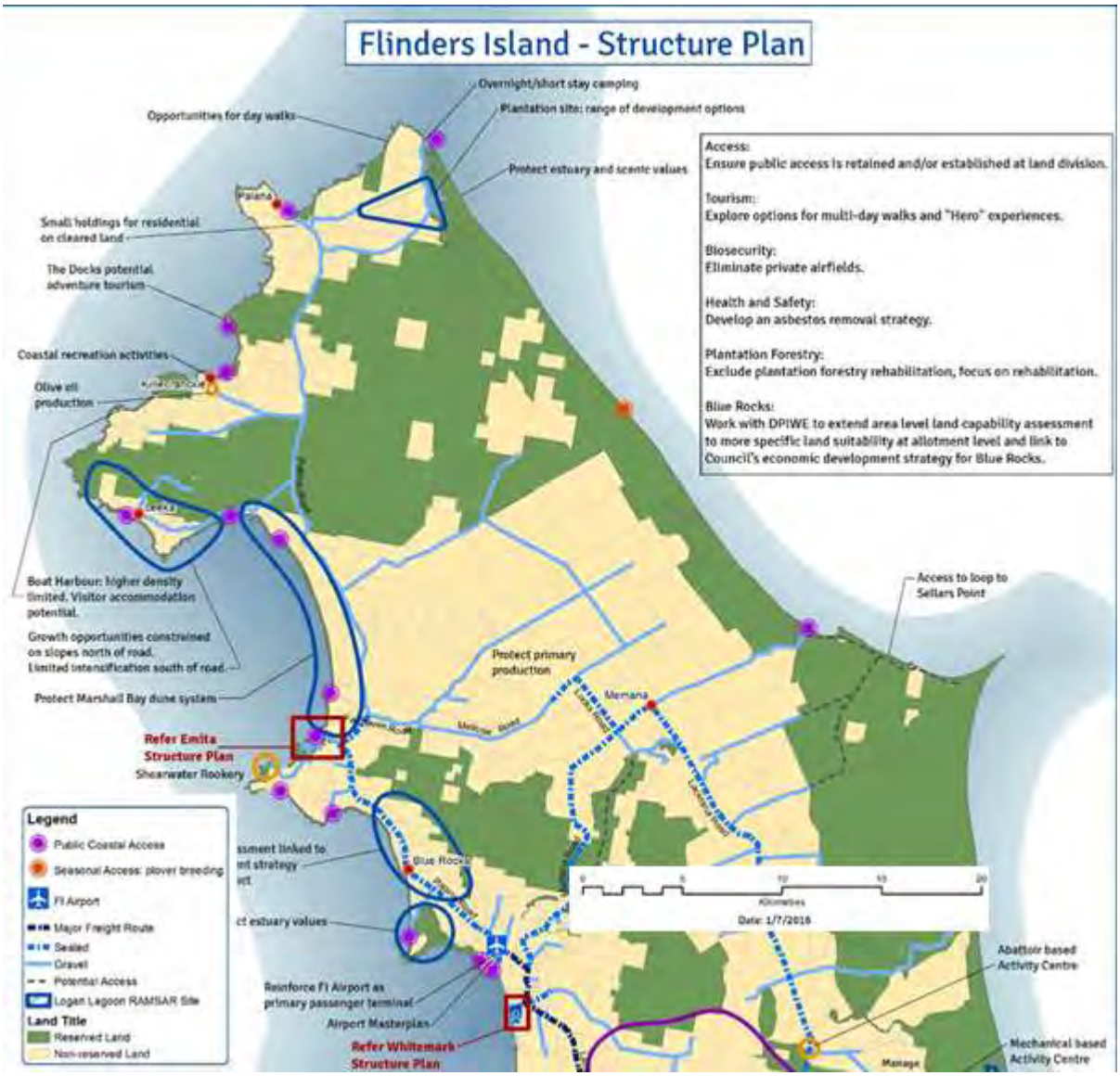



*Figure 20- Extract of Flinders Island – Structure Plan*
Source: adapted from draft Flinders Structure Plan

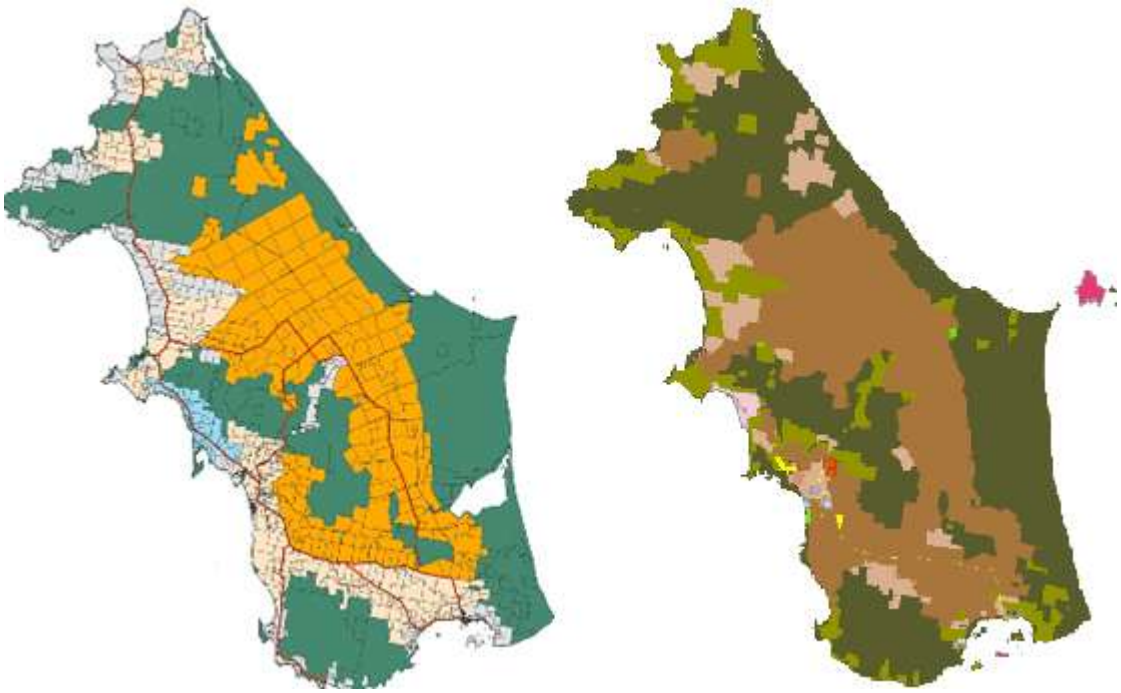


*Figure 21- Comparative diagrams, Structure Plan (left) to LPS zoning regime (right)*
Source: draft Flinders Structure Plan

The Structure Plan provided the following discussion regarding the Marshall Bay area:

> *Open Space linkages with large vegetation patches on Crown land, on Local Authority land adjacent to the Lady Barron Waste Transfer station and on Vinegar Hill are also important. Further north, threatened species are mapped at very high density on several individual allotments at Long Point Centre Hill and Killiecrankie. Threatened ecological communities occur in large patches at NE River; east of Palana Road near West End Road intersection; at Leeka and West End; along Boat Harbour Creek ; adjacent to Killiecrankie, Limestone and Marshall Bays; north of the Dock; on Quoin Hill and at NE River.*[3]
>
> ...
>
> *There are locations where loss of vegetation is unacceptable, for example, Marshall Bay where intensification of development is not warranted and where grazing is encouraged to reduce and ultimately cease as a use. The land adjacent to the length of Marshall Bay is potentially subject to extreme erosion and the Tasmanian land classification (Classification 6-7) confirms its unsuitability for grazing. An allotment near the Long Point Road and Palana Road intersection, Centre Hill and two Quoin allotments have the highest density of listed threatened species on the island.* [4]

The following was noted:

- Environmental values of the lime sand pit were assessed by the EPA. The recommendation for approval suggests the pit can operate and impacts to threatened species can be suitably managed through the EPA process.
- Rezoning to Rural will allow the Priority Vegetation overlay to remain, but is supported by extensive exemptions for vegetation removal at Table 4.4 of the Scheme and clause C7.4.1 of the Natural Assets Code. A wider range of uses enabled to support vegetation removal.
- Exclusion from the rural areas and specific identification as an area where vegetation loss is unacceptable require specific response for landscape impacts.

[3] P20 Structure Plan
[4] P35 Structure Plan

- Rural rezoning – the increased range of permitted and discretionary uses are not consistent with the identified management strategies for the wider area and subject lands.

Section 1.4 of the Structure Plan provided the following discussion on economics and primary production at page 9:

> *Agriculture, in the form of the pastoral related activity is vital to the municipal economy. In 2010, ABS reported a gross value of agricultural production on Flinders Island totalling $14 million. In 2008 there were 58 agricultural holdings running 119,159 head of sheep for meat and wool and 75 holdings running 20,032 head of meat cattle. There was also 1,119 hectares of pasture for cereal or hay. Since then, there has been a significant increase in the number of cattle and a reduction in sheep.*[5]
>
> *While there were 119 people working in the industry in 2006, it is expected that this number has decreased concomitant to the increase in cattle and the consolidation of soldier settler farms.*
>
> *The agricultural sector is nevertheless the main employment sector for the municipality. The agribusiness associated with Markana Park in the north of the island was reported in 2014 to have 15 full time employees with an expectation to substantially increase this number.*[6]
>
> *Even if projected increases in employment occur, it is unlikely that these will offset the population loss associated with the trend to subsume smaller holdings into larger farms to ensure ongoing viability.*
>
> *It is therefore important for the planning scheme to facilitate opportunities for diversification of the rural economy. Flinders Island already produces garlic, olive oil, honey, chillies and wine as well as agricultural products for the local market. Expansion of 'niche market' products and adding value to those products by some form of processing is a critical element of the Council's strategy to diversify the economy and is considered to be a fundamental strategic pillar of the new planning scheme.*

The following was noted:

- The significance of the agricultural sector to the local economy remains high.
- The proposed lime sand pit will assist local primary production, as documented by the applicant.
- The requested Rural zone would increase land available for rural operations and primary production, but has not provided a balanced argument with other requirements of the Structure Plan.

The following Land Use Principles were established at page 15 of the Structure Plan:

> *The options proposed in the Structure Plan are underpinned by the following principles:*
>
> *1. Retain and create public access and open space networks*
>
> *2. Development and use satisfies joint public and private objectives*
>
> *3. Cluster development at all scales to establish a land use pattern that maximises open space and consolidates settlements*
>
> *4. Consider the landscape level rather than only allotment level as a way of avoiding incremental attrition of natural and scenic values*
>
> *5. Identify and consider the long term implications of development*

[5] AK Consultants 2010 Agricultural Profile Flinders Municipality
[6] ibid

The following was noted:

- Principles 1-3 are not relevant to the proposal.
- Principle 4 supports taking a wider view of the proposal aside from the specific site. The environmental impacts of the proposed lime sand pit were considered by the EPA assessment. Recommendation of the proposal for approval identifies relevant issues for the lime sand pit can be managed within this site.
- The environmental impacts of the rezoning from Landscape Conservation to Rural were not considered by the EPA. The available documentation did not provide a relevant assessment.
- Principle 6 supports a long term view to the proposals. As noted, the environmental impacts of the proposed lime sand pit can be managed through the EPA process, consistent with the recommendation. Discussions with the EPA officers identified that impacts to the dune system and landform were assessed by the EPA, but that impacts to the landscape values of the area were outside the scope of their assessment and therefore not considered.
- The long term impacts of the proposed rezoning to Rural were not specially addressed by the proponent. Map 1 does not identify the subject lands as part of primary production areas 1 or 2, which was supported by the Structure Plan recommendations to manage the Marshall Bay dune system and associated landscape through the Structure Plan.
- The lime sand pit may be managed to achieve compliance with the principles.
- The requested rural zone was not addressed in the Application documents .

In terms of outcomes, the Structure Plan provided the following for primary production at page 16.

> ## *4.1 Outcome 1 –Primary Production land is protected for future pastoral use*
>
> *The Structure Plan framework seeks to contribute to the primary production sector by:*
>
> - *safeguarding primary production land in a two tiered approach*
> - *restricting commercial forestry*
> - *reinforcing biosecurity*
> - *retaining and enhancing environmental services provided by biodiversity*
>
> ### *Safeguarding primary production land*
>
> *Primary production on Flinders Island essentially involves pastoral activities. Farm gate values of production are estimated to be in excess of $14 million, with pastures for animal production providing virtually all of the Total Value of Agricultural Output.*
>
> *Under the current planning scheme the majority of the island is zoned Rural. The scheme reflects an earlier pattern of use. In the 22 years since the Flinders scheme was first declared, large patches of bushland have regenerated where they were once (but no longer) grazed. In some locations screening belts of native vegetation sown a decade or more ago have persisted and now provide valuable shelter for stock.*
>
> *In 2010, AK consultants concluded that while there were 467 Property Identification Numbers (PIDs): which can include more than one title) in the potentially available agricultural land in the Rural Zone, only 79 primary producers in the municipality had an EVAO greater than $5000. EVAO is the estimated value of agricultural operations. This conclusion supports the trend towards consolidation of smaller 'soldier settler' farms.*
>
> *According to AK agricultural consultants the farm size for a "viable" business based on either sheep or cattle is 5,000-10,000 dse.[7] The dse for Flinders Island on average is approximately 15dse per hectare. One 500 kilogram dry cow is taken to be the equivalent of 10 dse[8]*

[7] AK Consultants, 2010 Regional Summary of the Northern Tasmanian Municipalities
[8] Pers. Comm. June 2016

> *Preserving allotments at a size that continues to facilitate viable primary production operations is a key aim of the land use strategy. There are two areas where pastoral activity is currently the principal use and where allotment size and connectivity is sufficient to support such activities: the east coast plains and the southern coastal plain.*
>
> *The Structure Plan proposes the east coast area as the Primary Production Area 1 which seeks to maintain the existing large allotment size and restricts uses within the area to those essential to pastoral production.*
>
> *The southern coastal plain is proposed as Primary Production Area 2 where the status quo is maintained in relation to lot size but where the range uses is enlarged from resource development to include resource processing. Parts of Lughrata, Killiecrankie, Palana and North East River are also proposed to be included in Primary Production Area 2 with some locally specific provisions in relation to lot size, uses and land management. Map 1 Primary Production is* ***Appendix 1****.*

The following was noted:

- The subject land was identified as Other on Figure 22 and was not identified in the Primary Production Areas 1 or 2.
- The Proposal Report, more specifically the Nicholbrook Report, identified the benefits of the proposed lime sand pit.
- The proposal did not present any substantive new arguments that alter the assessment on the requested Rural zone that was completed by the Commission through the LPS assessment.

As the subject lands were not identified within either the East Coast- Primary Production Area 1 or Southern Plain- Primary Production Area 2, the discussions on those areas were not assessed for this application.

The benefits to the rural and agricultural sectors are noted. .

The Structure Plan provided the following for diversification of rural lands at page 22.

> ### *4.2 Outcome 2- Population growth through rural land diversification*
>
> In land use terms the strategic intent to stimulate population growth translates to diversifying the use of rural land not suitable or required for the function or expansion of the pastoral industry.
>
> While Outcome 1 seeks to preserve the status quo in relation to pastoral land, Outcome 2 is designed to be a catalyst for change.
>
> The Structure Plan seeks to contribute to growing the population to a sustainable level by:
>
> 1. Concentrating planning/place-making in the Blue Rocks locality to maximise proximity to services and consolidate potential development
> 2. Facilitating small holdings that can provide land for development of niche market products and adding value to primary products, a wide variety of land based production and processing businesses and for arts and craft uses
> 3. Providing larger parcels of land for countryside living
> 4. Providing for residential and visitor accommodation uses where impacts on environmental and scenic values can be mitigated.

The discussion though this section addressed the need to increase population, and did not provide any specific directions for the subject lands.

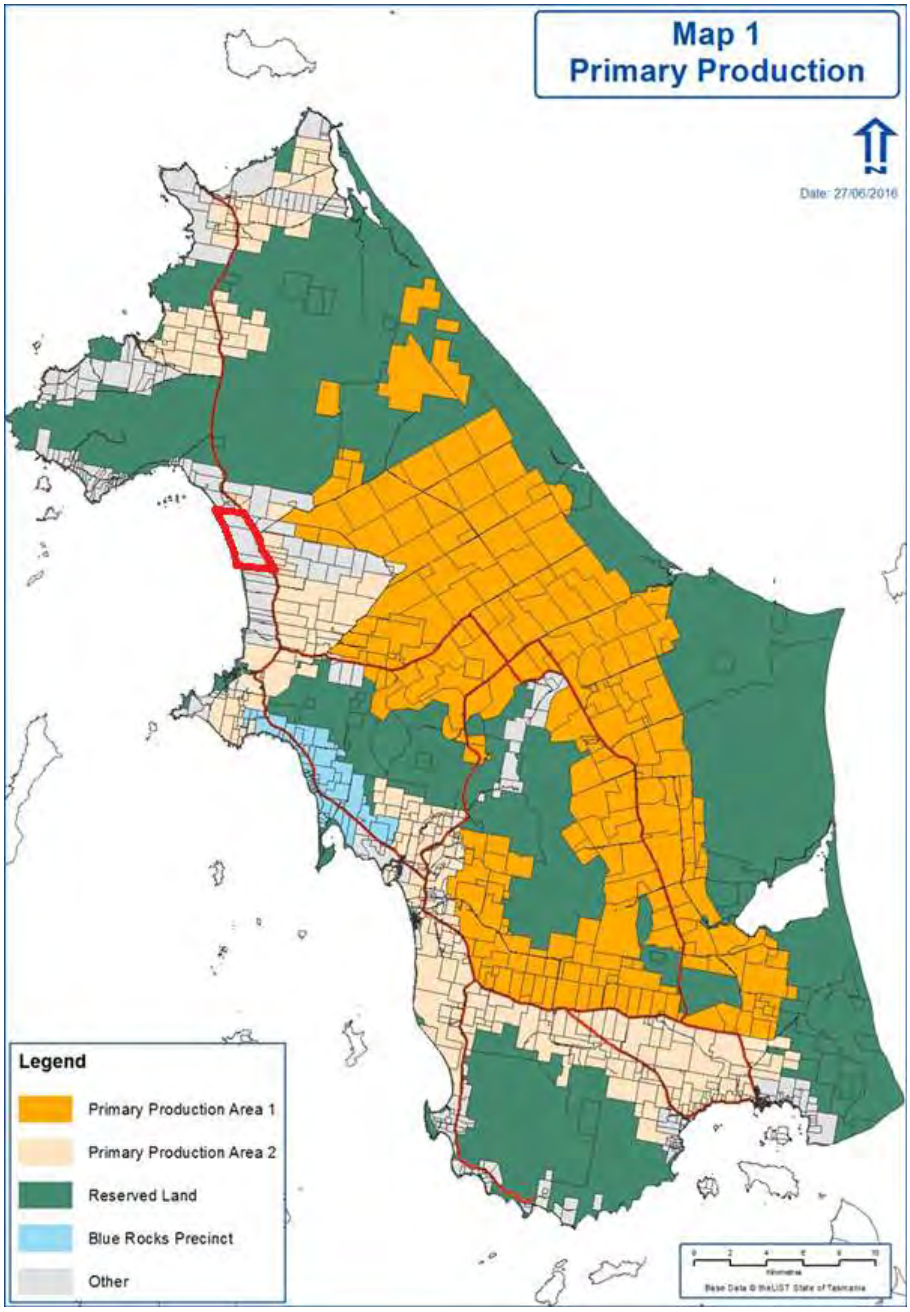



*Figure 22- Structure Plan map 1 – primary production, showing subject lands*
Source: modified from draft Flinders Structure Plan

The zoning of the subject lands was contested by the applicant through the LPS assessment process, which included representation, additional submissions and arguments to the Delegated Assessment Panel as part of the hearings for the LPS.

The Commission ultimately determined to support the proposed Landscape Conservation zone.

The Proposal Report response to the Structure Plan was openly dismissive of its relevance to the current process, including any need for an amendment to the Structure Plan. Discussion about the landscape and natural values significance of the area were presented in light of the agricultural sector.

No further response was provided to the zoning approach presented in the Structure Plan in the Application documents . Arguments that were provided relied on the zoning applied to existing grazing, agricultural operations within the area.

No detailed justification was provided for a departure to the zoning regime established through the Structure Plan and accepted by the Commission through the LPS assessment process.

The various submissions of the Council and the applicant were assessed by the Commission through the LPS process. The Commission ultimately determined that the landscape values identified in the Structure Plan required consideration of use to manage visual impacts, which was an inherent component of the proposed Landscape Conservation zone. The LPS Decision identified the delegates were *not persuaded that an alternative zone pro provide for Extractive Industry should be applied* at paragraph 156.

Absent further submissions by the proponent to address the strategic philosophy for the zoning of the Marshall Bay area within the Structure Plan, it is difficult to identify why a departure to the zoning regime for the Marshall Bay area that was accepted and ultimately approved by the Commission should be adopted by the Council.

The lack of a clear outcome on the conflict between management of the natural and landscape values established under the Structure Plan with the need to develop and diversity the local agriculture sector suggests that a precautionary approach may be suitable. Some guidance could be taken from the Flinders Island – Structure Plan diagram, reproduced at Figure 20 of this report, which identified protection of the Marshall Bay dune system as a key outcome of the Structure Plan.

As a result, it is submitted that AM2025-02 does not comply with the intent and strategic directions for land use and future development of the Marshall Bay area established within the Structure Plan.

## 6.3 Flinders Council Strategic Plan 2021-2031

The *Flinders Council 2021-2023 Strategic Plan* identifies the Council's strategic objectives to grow a sustainable population, improve housing affordability, enhance, maintain and protect the Island's agricultural economy, diversify and support a local economy and preserve the natural environment.

A detailed response was provided at section C.4 and Table 5 of the Proposal Report. That assessment is accepted.

The following Focus Areas and Goals of the Flinders Strategic Plan 2021-2031 were identified as relevant to AM2025-02:

***LIVEABILITY***

***1.3*** *Development and land use planning guidelines that promote balance between our built and natural environments.*

***1.4*** *Our natural environment protected and enhanced through land management activities.*

***ECONOMY / BUSINESS***

***3.1*** *Ongoing opportunities across all business sectors to future-proof the critical needs of the islands.*

Following the submissions within the Proposal Report and the assessment completed by the EPA and included in their Determination and this assessment, AM2025-02 can be considered to be consistent with the Council Strategic Plan.

# 7. STATE POLICIES

State Policies were addressed at section C.2 of the Proposal Report. That assessment is generally supported. The following was also provided.

### 7.1 State Policy on the Protection of Agricultural Land 2009

The purpose of this Policy is to conserve and protect agricultural land so that it remains available for the sustainable development of agriculture.

While the subject lands were identified as potential agricultural land project by the State, the application documents and this report identify they have significant limitations on any intensive agricultural use. Their exclusion from the Agriculture and Rural zones through the LPS assessment process confirmed they were not determined to be agricultural lands.

AM2025-02 seeks to establish the Rural zone over the lands, with allows for rural and some agricultural uses.

Section C.2 of the Proposal Report provided a general response to the intent of the PAL Policy and requested zoning.

Flinders Island does not have Prime Agricultural Lands as defined by the Policy (classes 1-3) or irrigation districts proclaimed under the Water Management Act 1999. Principles 2, 3, 4, 6, and 8 are not relevant to AM2025-02.

The following response was provided for the remaining principles.

> 1. *Agricultural land is a valuable resource and its use for the sustainable development of agriculture should not be unreasonably confined or restrained by non-agricultural use or development.*

AM2025-02 provides for rezoning and use that supports agricultural operations on Flinders Island. AM2025-02 was assessed as consistent with principle 1.

> 7. *The protection of non-prime agricultural land from conversion to non-agricultural use will be determined through consideration of the local and regional significance of that land for agricultural use.*

AM2025-02 does not seek to convert land to non-agricultural use. AM2025-02 was assessed as consistent with principle 7.

> 9. *Planning schemes must not prohibit or require a discretionary permit for an agricultural use on land zoned for rural purposes where that use depends on the soil as the growth medium, except as prescribed in Principles 10 and 11.*

AM2025-02 does not seek to alter the opportunity for use of land provided under the State Planning Provisions on land zoned for rural purposes. AM2025-02 was assessed as consistent with principle 9.

> 10. *New plantation forestry must not be established on prime agricultural land unless a planning scheme reviewed in accordance with this Policy provides otherwise. Planning scheme provisions must take into account the operational practicalities of plantation management, the size of the areas of prime agricultural land, their location in relation to areas of non-prime agricultural land and existing plantation forestry, and any comprehensive management plans for the land.*
>
> 11. *Planning schemes may require a discretionary permit for plantation forestry where it is necessary to protect, maintain and develop existing agricultural uses that are the recognised fundamental and critical components of the economy of the entire municipal area, and are essential to maintaining the sustainability of that economy.*

While plantation forestry is not proposed, the requested rezoning will allow for this activity within the opportunity provided under the State Planning Provisions. AM2025-02 was assessed as consistent with Principles 10 and 11.

It is submitted that AM2025-02 is consistent with the relevant Principles of the *State Policy for the Protection of Agricultural Land 2009*.

### 7.2 State Coastal Policy 1996

The purpose of the policy is to protect the natural and cultural values of the coast, provide for sustainable use and development of the coast, and promote shared responsibility for its integrated management and protection. The subject lands are within 1 kilometre of the coast and the Policy therefore applies.

The Proposal Report provided a detailed response to the Coastal Policy at pages 42 to 45, including specific responses to sections 1.1, 1.2, 1.4 and 2.1. Those submissions are accepted.

It is submitted that the remaining parts of the Policy do not require consideration under AM2025-02.

It is submitted that AM2025-02 complies with this Policy.

### 7.3 State Policy on Water Quality Management 1997

The purpose of the Policy is to identify and maintain water quality at appropriate levels to the expected use.

The Proposal Report provided a specific response to sections 31.1 and 31.5.

Those submissions are accepted.

The Proposal Report did not provide a specific assessment of the potential impact of the full range of the allowable uses under the requested Rural zoning.

The TPS addressed the requirements of this Policy through the inclusion of zone and codes that addressed the specific requirements of the Policy. AM2025-02 does not seek to alter the regime established under the TPS.

Specific consideration of impacts of the proposed activity that accompanies the requested Rural zoning of the land by the EPA through the Level 2 assessment process. The EPA ultimately determined that environmental impacts can be managed for the proposed operation.

On balance of these issues, AM2025-02 is consistent with the allowable use and development regime established under the Tasmanian Planning Scheme and can be considered to comply with this Policy.

### 7.4 National Environment Protection Measures

Section 12A of the *State Policies and Projects Act 1993* defines that a National Environment Protection Measure (NEPM) are taken to be a State Policy. The following, therefore, require consideration:

- Ambient air quality 2002
- Diesel vehicle emissions 2001
- Assessment of site contamination 1999
- Used packaging materials 1999
- Movement of controlled waste between States and Territories 1998
- National pollutant inventory 2000

The NEPM's were addressed by the Scheme. AM2025-02 does not alter the responses through the TPS.

### 7.5 Gas Pipelines Act 2000

The pipeline corridor does not apply on Flinders Island.

The *Gas Pipelines Act 2000* is not a relevant consideration for AM2025-02.

# 8. PROPOSED LIME SAND PIT DA2023-038

## 8.1 Proposal

The proposal seeks approval to establish an extractive industry for a lime sand pit, together with associated works and infrastructure. A detailed description was provided at Part B of the DA Report by the applicant.

The following summary was reproduced from Part B of the DA Report (note, all references to figures relate to the DA Report):

- a permit to extract, screen, and store lime sand (ready to be collected and delivered to land in agricultural use) applies to the Land shown in Figures 1 and 2, and further spatially defined as the Development Area mapped in Figure 3 (of the DA Report)
- 10,000 cubic metres per annum (equivalent is 15,000 tonnes per annum). Loose bulk density ratio is 1.5.
- Material is likely to be transported in greater volumes in summer and autumn because these seasons coincide with the peak activity periods for agricultural pasture improvement, maintenance, and establishment.
- The Maximum Extraction Area from where lime sands will be extracted is the *Initial Resource Area* depicted in Figure 23 and Figure 24.
- The MEA is a part of the Development Area (the Development Area includes the ancillary infrastructure including the shed, laydown area, car park, access to Palana Road etc.).
- The MEA has an estimated 30-year supply if full production levels are achieved every year from the commencement of the Activity.
- The indicative location of the lime sand resource more broadly in the Land (Mining Lease 2117P/M) is shown in Figure 23.
- Screening of up 10,000 cubic metres per annum (equivalent is 15,000 tonnes per annum). Loose bulk density ratio is 1.5.
- The maximum extraction volume of 15,000 tonnes equates to about 1,500 truckloads per annum based on 10 tonne loads (smaller loads are used given the material is to be spread on pastures and ploughed land).
- Lime sands are mainly required in summer and autumn (January to May) which coincide with the peak activity period of agricultural pasture improvement, maintenance, and establishment.
- Approximately 300 truck movements per week (150 truckloads) is expected for an 8 to 10-week period of carting (March to May). Over 5 days each week this equates to about 30 truckloads per day (or 60 truck movements per day).
- All traffic would enter and exit onto the sealed section of Palana Road using the now disused reserved road (unsealed) section of Palana Road – Figures 3 and 5A.
- Raw sand will be stockpiled in the pit, adjacent to the pit or at the storage shed ready for screening.
- Screened sands will be stored in the shed or on the hardstand ready for collection by trucks for transport to the delivery location.
- The removal of vegetation will occur as an area is required for pit expansion or the establishment of specific infrastructure, such as a cut-off drain, stockpile location etc.
- The management of vegetation removed to extract the resource will be in accordance with the QCP.
- The maximum area of disturbance, without any rehabilitation, is 5 hectares.
- Operating hours were proposed as 0700 – 1900 hrs Monday to Friday.
- The activity will utilise up to 5 staff per day when fully operational plus truck drivers.
- Most days will see only 2-3 staff at the site who would be loading trucks and carting lime sands from the active face to the shed.

Subject lands:

- CT 215120/1, CT 230282/1 – private freehold (PID 3513143).
- Reserved Road (Part of CID 1182402) – The Crown (vehicular access only).

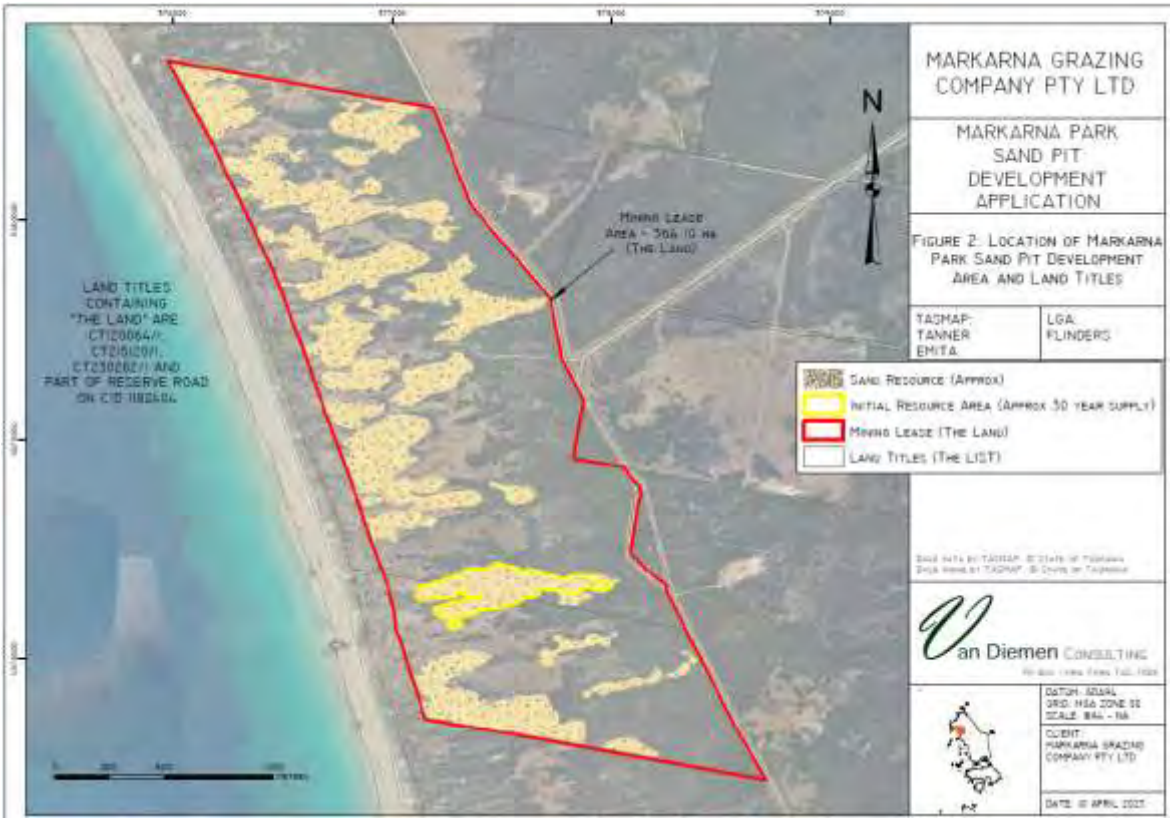



*Figure 23 – Proposed sand pit, sand resources in the area and Mining Lease*
Source: DA Report Figure 2

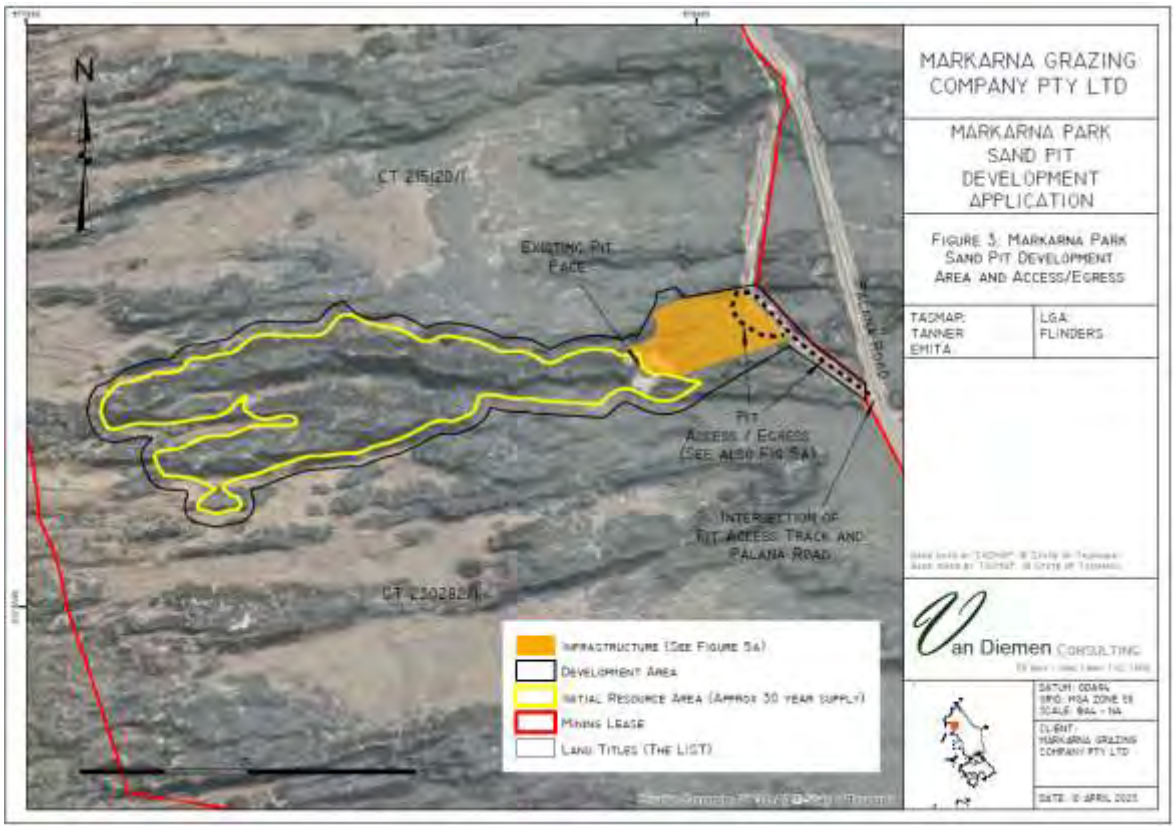



*Figure 24 – Proposed lime sand pit layout - overall*
Source: DA Report Figure 3

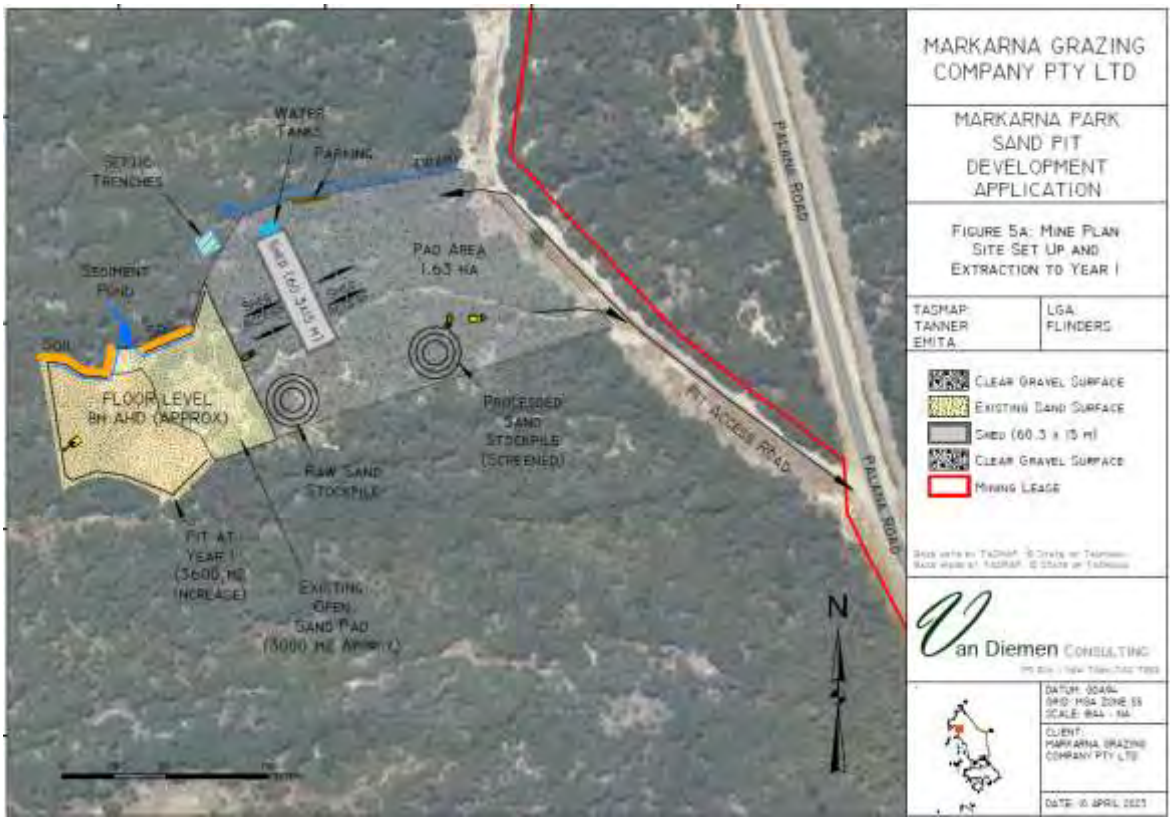



*Figure 25 – Proposed layout – establishment to year 1*
Source: DA Report Figure 5A

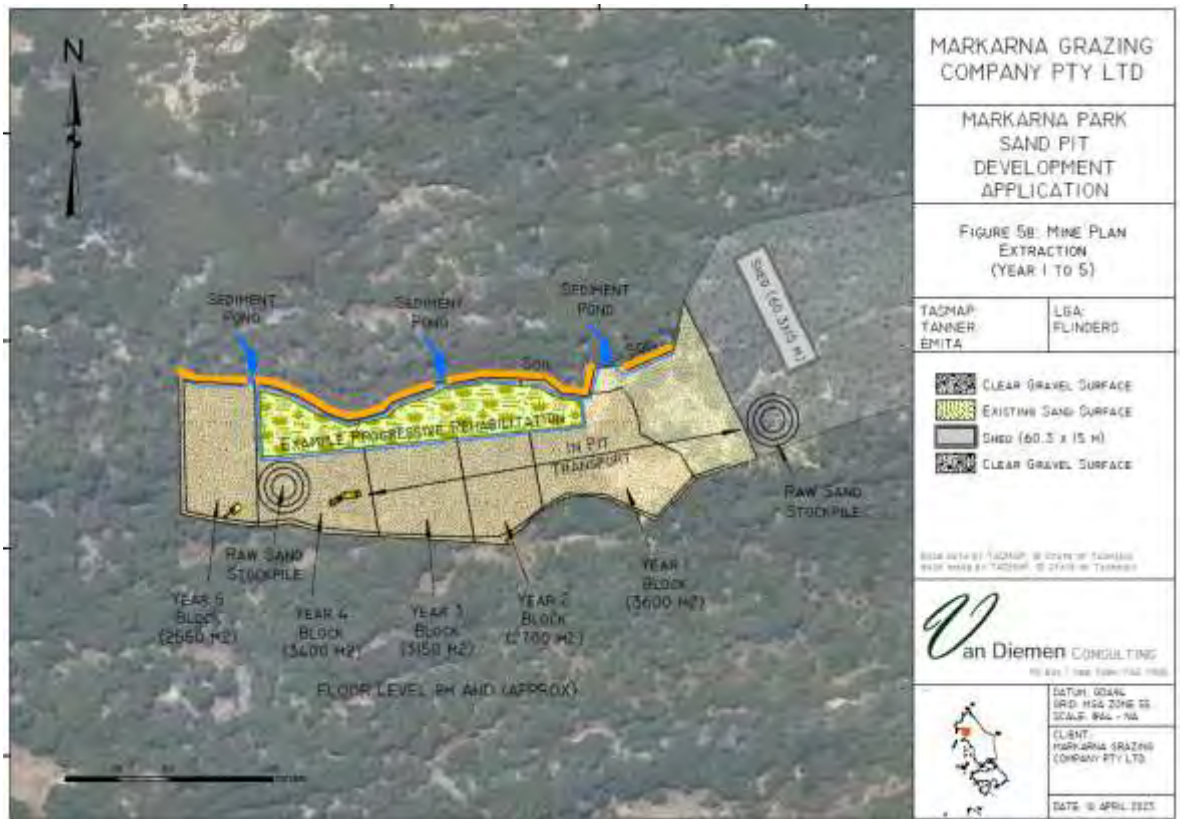



*Figure 26 – Proposed layout – establishment to year 1*
Source: DA Report Figure 5B

## 8.2 Preliminary matters

A planning application can be combined with a Scheme amendment under Division 4 of the Act, which provides for the amendment to rezone land to be combined with the application for development (in this case, subdivision and associated works).

Specific provisions under this section of the Act of relevance are:

| | |
|---|---|
| 40W & X | requires the planning application to be combined with the planning scheme amendment and determined; |
| 40Y | allows the planning application to be approved or refused, as if the planning scheme amendment had been approved and was effective (rezoning from Future Urban to General Residential in this case); |
| 40Z | the planning application must be exhibited with the Amendment; |
| 41 | Representations can be made to the planning application; |
| 42 | any representations to the planning application must also be assessed and provided with a recommendation; |
| 42B | the Commission may review the decision on the planning application and confirm it or issue a different decision; |

These matters affect the processing of the application and can be accommodated through processing the proposal.

## 8.3 Level 2 Activity – EPA Assessment

In addition, the extraction levels proposed under DA2023-038 triggered a Level 2 Assessment under Schedule 2 of the *Environmental Management and Pollution Control Act 1994* (EMPCA). This effectively means that all relevant environmental matters were assessed by the EPA through that process.

Significant departures from the normal planning application process for a Level 2 Activity include the following:

- The application must be referred to the EPA for assessment of environmental aspects of the proposal, set out under the provisions of EMPCA;
- The planning authority is not required to assess environmental matters under the terms of EMPCA,
- The planning authority cannot notify an application, and in this case, consider the request to amend the planning scheme amendment, until it receives a determination from the EPA that supports the proposal and provides conditions;
- The EPA may provide a decision to the Planning Authority that supports the proposal, with or without conditions, or refuses the proposal.
- The Planning Authority can only approve a proposal if the EPA provided a determination that supports approval, and must include any conditions the EPA provided;
- The Planning Authority can approve or refuse a proposal when the EPA recommends approval;
- The Planning Authority can Not approve a proposal when the EPA refuses a proposal.

Matters assessed by the EPA were identified at section 7 of the EPA Report as:

1. Air quality
2. Surface and ground water quality
3. Noise emissions
4. Natural values
5. Weed and disease management
6. Waste management, dangerous goods and environmentally hazardous materials

7. Decommissioning and rehabilitation

DA2023-038 was referred to the EPA and their assessment was completed under EMPCA. The EPA Report documented their assessment and determinations.

Council raised the issues associated with the sensitive dune landforms, karst, threatened species (flora and fauna) and the need to manage the impacts of the proposal to maintain the landforms, noting recent experience in the area. The EPA assessed those matters and ultimately determined the activity could proceed.

The EPA Determination provided the recommended conditions that the Planning Authority must include on any planning permit issued for DA2023-038 (*Permit Conditions - Environmental No. 11576*) under the terms of EMPCA.

## 8.4 Tasmanian Planning Scheme – Flinders

Under Division 4 of the Act, a planning application can be lodged with a requires to amend a planning scheme that must be assessed as through the relevant planning scheme had been amended.

For DA2023-038, this means that the application must be assessed as though the subject lands were zoned Rural, rather than Landscape Conservation. The following assessment was provided under that requirement.

## 8.5 Meeting the Standards via Acceptable Solution

The proposal has been assessed against the following Acceptable Solutions:

20 Rural zone

- 20.3 Use Standards (not applicable);
- 20.4.1 Building height;
- 20.4.2 Setbacks;
- 20.4.3 Access for new dwellings (not applicable);
- 20.5 Development Standards for Subdivision (not applicable);

C2.0 Parking and Sustainable Transport Code

- C2.5.1 Car Parking Numbers;
- C2.6.3 Number of accesses for vehicles
- C2.6.4 Lighting of parking areas within the General Business Zone and Central Business Zone (not applicable);
- C2.6.5 Pedestrian access (not applicable);
- C2.6.6 Loading bays (not applicable);
- C2.6.7 Bicycle parking and storage facilities within the General Business Zone and Central Business Zone (not applicable);
- C2.6.8 Siting of parking and turning areas (not applicable);
- C2.7.1 Parking precinct plan (not applicable);

C3.0 Road and Railway Asset Code

- C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction;
- C3.6.1 Habitable buildings for sensitive uses within a road or railway attenuation area; (not applicable);C3.7.1 Subdivision for sensitive uses within a road or railway attenuation area (not applicable);

C7 Natural Assets Code

- Exempt pursuant to clause C7.4.1(b) for level 2 activities;

C9.0 Attenuation Code

- Exempt pursuant to clause C9.4.1(a) for level 2 activities;

C11.0 Coastal Inundation Hazard Code

- Exempt pursuant to clause C11.2.3 for activities above the prescribed levels confirmed

by a suitably qualified person at FLI-Table C11.1 Coastal Inundation Hazard Bands AHD Levels;

C13.0 Bushfire-Prone Areas Code

- The proposal does not include a vulnerable or hazard use, this code does not apply.

C15.0 Landslip Hazard Code

- Exempt pursuant to clause C15.4.1 for extractive industries within a current mining lease.

## 8.6 Meeting the Standards via Performance Criteria

The standards not met by Acceptable Solution need to satisfy the relevant Performance Criteria to be approved. Those were:

C2.0 Parking and Sustainable Transport Code

- C2.6.1 Construction of car parking spaces
- C2.6.2 Design and layout of parking areas

C8.0 Scenic Protection Code

- C8.6.1 Development within a scenic protection area

## 8.7 Assessing the Proposal against the Performance Criteria

Assessment against the relevant performance criteria follows.

| **C2.6.1 Construction of car parking spaces** | |
|---|---|
| P1 All parking, access ways, manoeuvring and circulation spaces must be readily identifiable and constructed so that they are useable in all weather conditions, having regard to:<br>(a) the nature of the use;<br>(b) the topography of the land;<br>(c) the drainage system available;<br>(d) the likelihood of transporting sediment or debris from the site onto a road or public place;<br>(e) the likelihood of generating dust; and<br>(f) the nature of the proposed surfacing. | The proposal did not comply with A1 and required assessment against P1. A response was provided by the applicant at page 43 of the DA Report.<br>Councils Works staff did not contest any of the submissions. The response is accepted.<br>Complies with P1. |
| **C2.6.2 Design and layout of parking areas** | |
| **P1** All parking, access ways, manoeuvring and circulation spaces must be designed and readily identifiable to provide convenient, safe and efficient parking, having regard to:<br>(a) the characteristics of the site;<br>(b) the proposed slope, dimensions and layout;<br>(c) useability in all weather conditions;<br>(d) vehicle and pedestrian traffic safety; | The proposal did not comply with A1.1 and required assessment against P1.<br>A response was provided by the applicant at page 43-4 of the DA Report.<br>Councils Works staff did not contest any of the submissions. The response is accepted.<br>Complies with P1. |

| | |
|---|---|
| (e) the nature and use of the development;<br>(f) the expected number and type of vehicles;<br>(g) the likely use of the parking areas by persons with a disability;<br>(h) the nature of traffic in the surrounding area;<br>(i) the proposed means of parking delineation; and<br>(j) the provisions of *Australian Standard AS 2890.1:2004 - Parking facilities, Part 1: Offstreet car parking* and *AS 2890.2 -2002 Parking facilities, Part 2: Off -street commercial vehicle facilities.* | |
| **C8.6.1 Development within a scenic protection area** | |
| **P1.1** Destruction of vegetation within a scenic protection area must not cause an unreasonable impact on the scenic value of a scenic protection area, having regard to:<br>(a) the nature of the vegetation to be removed;<br>(b) the area of vegetation to be removed;<br>(c) the topography of the site;<br>(d) any visual impact on a skyline;<br>(e) the nature of the reduction of the scenic value; and<br>(f) the purpose of any management objectives identified in the relevant Local Provisions Schedule. | A response to P1.1 for vegetation destruction was provided at page 51 of the Proposal Report. That response is generally accepted.<br>The concluding statement is that there will be no reduction in scenic values of the site and the impacts will not be perceptible from the most obvious public vantage points, such as Port Davie Lookout (near Pickford Hill) or Emita.<br>The authors inspections confirm that the impacts of the proposed pit are unlikely to have a dominant impact on the scenic values of the area, noting the existing pits and activities are barely perceptible from Pickford Hill lookout and that the landform and vegetation on the subject and adjoining sites is likely to screen the proposal from visibility.<br>The location and topography means the site does not form part of a skyline, and therefore has no impact on skylines.<br>In addition, both the EPA Determination and the MRT lease require ongoing rehabilitation and revegetation of the site. While this is the Planning Authority to address under the terms of EMPCA, the ultimate outcome can be expected to be consistent with the scenic values and management objectives for the area.<br>The proposal complies with P1.1. |
| **P1.2** Buildings or works within a scenic protection area must not cause an unreasonable reduction of the scenic value of a scenic protection area, having regard to:<br>(a) the topography of the site;<br>(b) the location of, and materials used in | The DA Report identified that the proposed buildings will have Colourbond finishes, which can be conditioned to minimise visibility and that the siting within the undulating landscape provided by the sand dunes will minimise the visibility of the buildings. |

| | |
|---|---|
| construction of, driveways or access tracks;<br>(c) proposed reflectance and colour of external finishes;<br>(d) design and proposed location of the buildings or works;<br>(e) the extent of any cut or fill required;<br>(f) any visual impact on a skyline;<br>(g) any existing or proposed screening; and<br>(h) the purpose of any management objectives identified in the relevant Local Provisions Schedule. | This is expected to minimise the impacts of the proposed buildings within the landscape and the subsequent impacts on scenic values identified in FLI-C8.1.6.<br>Substantive works are proposed as part of the sand mining activity.<br>The DA Report contains 14 clear statements that the maximum area of disturbance will be 5 hectares, approximately 1.4% of the lease area (364 hectares). Part B – Project Description restates this commitment.<br>Condition DC2 of the EPA Determination confirms this limitation and requires progressive rehabilitation of the site.<br>No screening was proposed, however as with P1.1, the existing landform and remaining vegetation on the subject and adjoining sites is expected to provide screening to the area of works.<br>Presuming compliance with the proposed maximum area of disturbance and progressive rehabilitation requirements, visual impacts when viewed from when viewed from public roads, the foreshore and coastal waters are expected to be minimal, if perceptible.<br>The proposal complies with P1.2 |

The proposal demonstrated compliance with the relevant performance criteria and can be considered for approval, if AM2025-01 is initiated.

## 8.8 Conclusion

As noted at section 8.5 of this report, DA2023-038 met the majority of relevant standards under the Scheme by compliance with the acceptable solutions.

Assessment was required against performance criteria for the construction of car parking spaces, the design and layout of parking areas, and development and works within a scenic protection area. DA2023-038 complied with all relevant performance criteria.

As the proposal relates to a Level 2 Activity, the EPA determination must be included in any permit if a planning permit is issued, typically done through a condition that require compliance with *Permit Conditions - Environmental No. 11576* under the terms of EMPCA.

Under section 40Y of the Act, the planning application must be determined if AM2025-02 is supported.

# 9. CONCLUSION

The application seeks to:

- rezone three titles adjoining Marshall Bay, part of the 'Markarna Park' property at 368 Five Mile Jim Road, Memana, CT's 120064/1, CT 215120/1, CT 230282/1 (PID 3513143) from Landscape Conservation to Rural, and
- obtain planning approval for Extractive Industry for a proposed lime sand pit on part of the same property.

This assessment identified that AM2025-02:

- met the statutory tests for the making of a request at section 37 of the Act;
- was largely consistent with the RU series Guidelines for the Rural zone under the *Section 8A Guideline No. 1 Local Provisions Schedule (LPS): zone and code application* (Guideline No.1), noting the limited strategic recognition of the requested Rural zoning and conflict within the *draft Flinders Structure Plan* (Structure Plan) for diversification of the rural sector and protection of the Marshall Bay landscape and scenic values;
- complied with the Schedule 1 Objectives of the Act;
- did not comply with the LPS criteria at section 34(2) of the Act, as it was not practicably consistent with parts of the *Northern Tasmanian Regional Land Use Strategy* (NTRLUS);
- was not consistent with sections D2.2 Rural areas, D.2.3 Natural Environment Areas and the recognition of local strategy in application of section E.5.1 Regional Economic Development Policy of the NTRLUS, noting issues with conflicting requirements under local strategy recognised for the Furneaux Islands;
- complied with the Structure Plan outcomes for diversification of the rural sector, but not for the intent and strategic directions for land use and future development of the Marshall Bay area;
- complied with the Flinders Council Strategic Plan 2021-2031;
- was consistent with the established State Policies; and
- DA2023-038 achieved compliance with the requirements of the Tasmanian Planning Scheme – Flinders through compliance with both acceptable solutions and performance criteria.

This assessment determined that AM2025-02 did not meet the LPS criteria in the Act, as it did not achieve practicable consistency with the NTRLUS.

As a result, the AM2025-02 does not meet the required statutory tests and must be refused.

A recommendation was provided for the Planning Authority to determine the request based on this assessment.

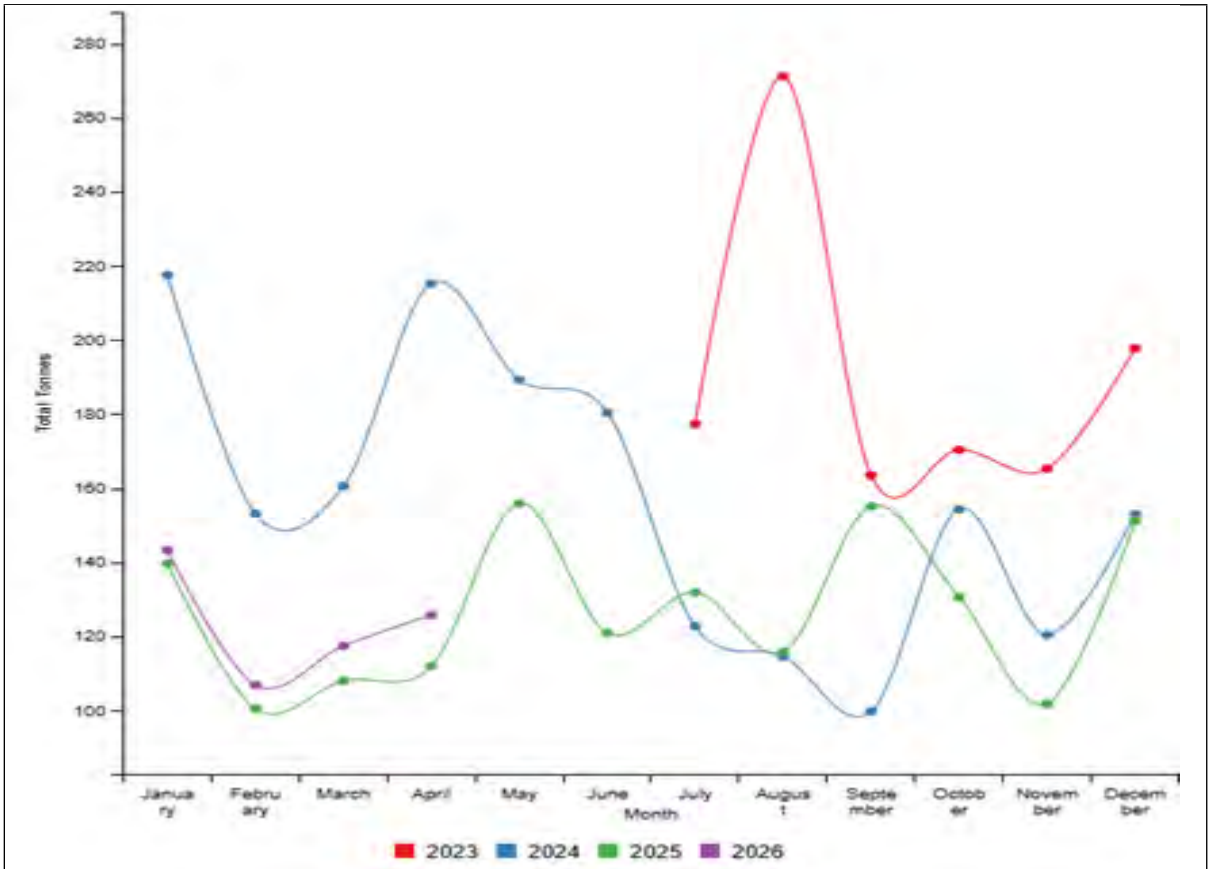
**WORKS AND SERVICES MANAGER'S REPORT**
**For 27 May 2026 Council meeting**

The purpose of this report is to provide Councillors with an update on the Works and Services Department activities and work undertaken during the month of **April 2026:**

| | |
|---|---|
| **Work Health and Safety Committee (WHSC)** | |
| Volunteers | The WHS induction process for volunteers is currently under review, with a focus on simplifying the procedure and improving usability while ensuring all mandatory WHS requirements continue to be met. |
| Lifting Devices | An external agency has been engaged to conduct annual assessment and testing of all lifting equipment to ensure ongoing compliance. Visual inspection at time of use and a quarterly documented audit has been implemented to ensure compliance with AS4991 |
| **Roads and Drainage** | |
| Gravel Road Pothole Repairs | Palana Road,<br>Wingaroo Road,<br>Melrose Road,<br>Reedy Lagoon Road,<br>Golden Mile Road,<br>Camerons Inlet Road,<br>Haulands Gap Road. |
| Maintenance Grading | Palana Road,<br>Fairhaven Road,<br>Wingaroo Road,<br>Cronleys Creek Bridge,<br>Big River Road. |
| Maintenance Grading Contractor | Potboil Road, Coast Road,<br>Trousers Point Road, |
| Bitumen Road Pothole Repairs | Memana Road,<br>Lackrana Road,<br>Lucks Road. |
| Drainage | Big River Road,<br>Fix washouts – Five Mile Jim Road. |
| Vegetation Control | Port Davies Road, |
| Guideposts | Wingaroo Road,<br>Fairhaven Road,<br>Melrose Road,<br>Lackrana Road,<br>Trousers Point Road,<br>Palana Road,<br>Port Davies Road,<br>West End Road,<br>Bluff Road. |
| Signage | Butter Factory Road,<br>Badger Corner Road,<br>Remove Vista's signs,<br>Signage audit. |
| Capital Works | Thule Road Resheeting,<br>Summers Road Resheeting. |

| | |
|---|---|
| Waste | Transfer Bins 13/4, 15/4 and 16/4,<br>Soil cartage at tip for waste cover,<br>Move soil and put in front of green waste Lady Barron Transfer Station,<br>Pothole repairs Lady Barron Transfer Station. |
| Funerals | Funeral Whitemark cemetery. |
| Other | Vet Clinic landscaping:<br>• Smooth out dirt,<br>Airport:<br>• Cart gravel for works,<br>• Black tacking runway,<br>Anzac Day:<br>• Set up. |
| **Town Maintenance** | |
| Parks and Reserves | Mowing/Brush cutting:<br>• Whitemark,<br>• Lady Barron,<br>• Whitemark Showgrounds,<br>• Cemeteries,<br>Lady Barron Tennis Courts<br>• Install barriers,<br>Whitemark:<br>• Tree trimming |
| Footpaths | Monthly inspection completed ,<br>Whitemark:<br>• Gutter cleaning |
| Park and Street Furniture | Rubbish Bins – Empty remote bins,<br>Rubbish Bins – Empty Town bins,<br>Install round bin on footpath in front of CWA park. |
| Signage | Lady Barron - Fixed broken 'Give Way' sign. |
| Boat Ramps | Inspected (every three months). |
| Bluff Track Maintenance | Cut back branches. |
| Building Maintenance | Install soap dispensers and jumbo toilet roll holders in toilets,<br>Dept roller door repair,<br>Flinders Arts and Entertainment Centre (FAEC) – Replaced globes in Rose Garden room with large Edison Screw (ES) LED (Light Emitting Diode) globes and hall with regular bayonet LED globes. |
| Capital Works | Lady Barron Boating Facility (Safe Harbour):<br>• Car park line marking,<br>Waste Facility Recycling shed:<br>• Deliver water tanks,<br>• Dug out drainage & filled with rock,<br>• Delivered oil shed,<br>Footpaths Whitemark:<br>• New installation at Robert Street,<br>Footpaths Lady Barron:<br>• Excavate for new footpath at 5 Barr Street,<br>Lady Barron Tennis Courts:<br>• Install treated pine post and rail barriers. |

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| Cleaning | Cleaning – Internal:<br>• All Public Toilets, Council offices, Airport, Halls, Gyms.,<br>Cleaning – External:<br>• Killiecrankie Public toilets,<br>• All BBQs,<br>• Tables and seats. |
| Other | Giving Shed<br>• Install wheelie bin post and bins for donations<br>• Fill in at tip as required<br>Lady Barron Boating Facility (Safe Harbour) opening:<br>• Deliver equipment,<br>• Set up and pull down. |
| **Resource Recovery and Waste Management** | |
| **Facilities** | • Recyclables and waste from Killiecrankie and Lady Barron Waste Transfer Stations (WTS) were transported to Whitemark Waste Facility (WWF) for further processing.<br>• Waste at the active tipping area was compacted and covered as part of regular landfill management.<br>• Recycling hubs and the Recycle Rewards machine were routinely serviced.<br>• The perimeter fence was completed.<br>• Magnetic signage was installed on hook lift bins. |
| **Landfill Levy** | • The April waste data was collated, checked, and reported to Department of Natural Resources and Environment Tasmania (NRE).<br>• The classification breakdown, total tonnage and monthly levy were as follows:<br>o General Waste (WWF): 6.45 t<br>o General Waste (WTS): 55.20 t<br>o Hard waste (WWF): 4.00 t<br>o Hard waste (WTS): 10.80 t<br>o Cardboard: 7.69 t<br>o Commercial & Industrial: 19.39 t<br>o Construction & Demolition: 22.40 t<br>o Operational Material (landfill cover): Nil<br>o **Total Leviable Tonnage: 113.34**<br>o **Monthly Levy Payable: $5,195.51**<br><br>The below graph was prepared to help visualise disposal data since July 2023. Please note this graph excludes operational materials, used for landfill cover, to improve legibility. |




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| **Recycling** | • A total of **3.35 tonnes** of materials were sent off-island for recovery (lead acid batteries, cooking fat, aluminium, and printer cartridges)<br>• The vape/e-cigarette recycling program was launched on April 14th.<br>• The recycling hubs collected **13.54 kg** of eligible products in April, bringing the total diversion from landfill to **609.03 kg** since launch.<br>• Top Five performing programs are:<br>o Household Batteries: 193.5 kg<br>o Coffee Pods: 146.5 kg<br>o Printer Cartridges: 96.1 kg<br>o Hair Care: 31.6 kg<br>o Dish and Air Care: 25.8 kg |
| **Administration** | • Reviewed and provided feedback on last year's waste audit report by JustWaste.<br>• Met with NRE to discuss upcoming changes to waste levy data collection.<br>• Participated in an online waste education session with ReThink Waste.<br>• The Bread Tags for Wheelchairs recycling program will conclude at the end of June. As such an alternate re-user was sought and found. From July our bread tags will be sent to The Breadtag Project—a long term art/environmental/awareness program.<br>• Secured a small chemical storage shed for the WWF, supplied by Circular North to safely store any dumped chemicals found.<br>• Made enquiries regarding new hub signage.<br>• Received new signage for the waste facility and transfer station.<br>• Distributed communications for Household Hazardous Waste events and erected signage at WWF. |

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| | • Drafted content and layout for the new website.<br>• Some staff completed AgSafe training for drumMUSTER and bagMUSTER programs.<br>• Drafting traffic flow options for the WWF.<br>• Compiled documentation for the acquittal of waste projects: Bulk Bag Baler and Scrap Metal Recovery.<br>• Began reviewing the Landfill Operations Manual draft prepared by Consulting Company. |
| **State Government** | |
| Department of State Growth | Bitumen Patching:<br>• Palana Road,<br>Signage works:<br>• Lady Barron Road. |
| TasWater | Sludge bag disposal. |

| | 2026/2027 FEES AND CHARGES<br>1 July 2026<br>(Includes GST where Applicable) | GST Status | 2026/2027<br>GST Inclusive<br>(Where Applicable) |
|---|---|---|---|
| 1 | Landing Charges - After hours Call Out fee | Taxable | $328.50 |
| 2 | Landing Charges - Commercial Flights (Maximum Take-off Weight [MTOW] per tonne) (including Royal Flying Doctor Service) | Taxable | $32.50 |
| 3 | Landing Charges - Helicopters (per landing if NOT paid on site) | Taxable | $64.00 |
| 4 | Landing Charges - Helicopters (per landing if paid on site) | Taxable | $25.00 |
| 5 | Landing Charges - Private Flight (per engine and per landing if NOT paid on site) | Taxable | $64.00 |
| 6 | Landing Charges - Private Flights (per engine and per landing if paid on site) | Taxable | $25.00 |
| 7 | Landing Charges - Air Transport Operations (ATO) Landings - MTOW per tonne | Taxable | $14.50 |
| 8 | Landing Charges - Ultra Lights <900Kgs(per landing if NOT paid on site) | Taxable | $31.50 |
| 9 | Landing Charges - Ultra Lights <900Kgs (per landing if paid on site) | Taxable | $10.00 |
| 10 | Passenger Tax - Passenger Tax ATO (per leg) - (7 tonne and over) | Taxable | $21.00 |
| 11 | Passenger Tax - Passenger Tax (per leg) - ATO | Taxable | $18.90 |
| 12 | Aircraft Parking fees - no charge first 7 days, thereafter Flat rate $10.50 per week - contact ARO | Taxable | $10.50 |
| 13 | ARO Charge, (fuel, oil clean-up or any other issues requiring ARO attendance - during working hours), per hour / person | Taxable | $89.50 |
| 14 | Terminal Advertising - A3 Slimline Frame (per month) includes one A3 advertising copy | Taxable | $80.00 |
| 15 | Terminal Advertising - Off Island Business DL Brochure (per 12 months) | Taxable | $125.00 |
| 16 | Terminal Advertising - Pull Up Banner (per month) | Taxable | $63.00 |
| DEVELOPMENT SERVICES: | | | |
| PLANNING: | | | |
| Note: Development Cost Values are determined by Councils preset average cost to build on Flinders Island per square metre: Sheds $450 per Square Metre (SQM); Small constructs ( includes decks and carports) $650 per SQM; and Houses ( including House alterations) and larger constructs $2500 per square metre. | | | |
| 17 | Planning - 001 Enquiry | GST Exempt | $103.00 |
| 18 | No Permit Required Confirmation | GST Exempt | $103.00 |
| 19 | Exemption Confirmation | GST Exempt | $103.00 |
| 20 | Planning - Permit Application - Residential Development (*Values are determined by Councils preset average cost to build per square metre) - Initial Fee | GST Exempt | $252.00 |
| 20a | Planning - Permit Application - Residential Development (*Values are determined by Councils preset average cost to build per square metre) - PLUS - per $1,000 on Value of development | GST Exempt | $0.95 |
| 21 | Planning - Permit Application - Non-Residential Development < or = $500,000 (*Values are determined by Councils preset average cost to build per square metre) - Initial Fee | GST Exempt | $846.50 |
| 21a | Planning - Permit Application - Non-Residential Development < or = $500,000 (*Values are determined by Councils preset average cost to build per square metre) - PLUS - per $1,000 | GST Exempt | $3.94 |
| 22 | Planning - Permit Application - Non-Residential Development $500,001 to $5,000,000 (*Values are determined by Councils preset average cost to build per square metre) - Initial Fee | GST Exempt | $2,742.50 |
| 22a | Planning - Permit Application - Non-Residential Development $500,001 to $5,000,000 (*Values are determined by Councils preset average cost to build per square metre) - PLUS - per $1000 over $500,001 | GST Exempt | $1.58 |
| 23 | Planning - Permit Application - Non- Residential Development >$5,000,001 (*Values are determined by Councils preset average cost to build per square metre) - Initial Fee | GST Exempt | $9,279.00 |
| 23a | Planning - Permit Application - Non- Residential Development >$5,000,001 (*Values are determined by Councils preset average cost to build per square metre) - PLUS - per $1000 over $5,000,000 (Max charge $10,000) | GST Exempt | $0.79 |

| | 2026/2027 FEES AND CHARGES<br>1 July 2026<br>(Includes GST where Applicable) | GST Status | 2026/2027<br>GST Inclusive<br>(Where Applicable) |
|---|---|---|---|
| 24 | Planning - Permit Application – Outer Island development | GST Exempt | At Cost |
| 25 | Planning - Advertising Fee | Taxable | $705.00 |
| 26 | Planning - Change of Use Application (If Discretionary Advertising Fee will also apply) | GST Exempt | $398.00 |
| 27 | Planning - Application for Minor Amendment | GST Exempt | $273.00 |
| 28 | Planning - Application for Permit Extension (2 years) | GST Exempt | $273.00 |
| 29 | Planning Application - Subdivision - Initial Fee | GST Exempt | $650.00 |
| 30a | Planning Application - Subdivision - Additional per lot fee | GST Exempt | $144.00 |
| 30b | Planning Application - Subdivision - MINIMUM FEE | GST Exempt | $1,202.50 |
| 31 | Planning Application - Boundary Adjustment - Plus Advertising (if requried) | GST Exempt | $318.00 |
| 32 | Planning Application - Consolidation of Lots - Plus Advertising (if required) | GST Exempt | $318.00 |
| 33 | Planning Application - Level 1 (Environmental Management & Pollution Control Act 1994) Application | GST Exempt | $800.00 |
| 34 | Planning Application - Level 2 (Environmental Management & Pollution Control Act 1994)<br>Application - Plus associated Environmental Protection Agency fees | GST Exempt | $1,600.00 |
| 35 | Planning - Part V agreement - Processing and Sealing | GST Exempt | $683.50 |
| 36 | Planning Applications - Section 40T Applications | GST Exempt | Fee for Amendment plus fee for Development application |
| 37 | Planning Application - Planning Scheme Re-zoning or Amendment (including text Amendment and Dispensation)<br>PLUS the fee payable to the Tasmanian Planning Commission | GST Exempt | $5,838.00 |
| 38 | Planning - Retrospective Applications (plus advertising fee if applicable) - Penalty applies so fees are Triple normal fee | GST Exempt | Triple the Normal Fee |
| 39 | Planning - Application to Erect Signage on Property | GST Exempt | $235.00 |
| 40 | Planning - Petition to Amend Sealed Plan - Full Fee | GST Exempt | $954.50 |
| 41 | Planning Fee - Sealing of Final Plan -Initial Fee (+ lot fee) | GST Exempt | $390.50 |
| 40a | Planning Fee - Sealing of Final Plan - Additional Per Lot fee | GST Exempt | $89.50 |
| 42 | Planning - Record Search Fee (not including photocopying fees) per application | Taxable | $113.50 |
| 43 | Planning - Copy of Current Planning Scheme Ordinance (Available free from Website) | Taxable | $272.00 |
| 44 | Planning - Outer Island assessment travel | Taxable | at cost |
| Public Open Space (POS)<br>a) a transfer to Council of up to 5% of the area of the relevant land to be used as POS in accordance with s116 of the Act; or<br>b) a cash-in-lieu arrangement or a security and bond requirement determined in accordance with s117 of the Act. | | | See POS Policy for full details |
| BUILDING PERMITS: (Note: Permit Authority Fee ( Cat 4 ) - also includes demolition and underpinning) | | | |
| 45 | Building Permits - Class 1 | GST Exempt | $437.00 |
| 46 | Building Permits - Class 1 Each additional unit if more than one dwelling unit | GST Exempt | $76.50 |
| 47 | Building Permits - Class 1 < $20,000 | GST Exempt | $292.00 |
| 48 | Building Permits - Class 2-9 | GST Exempt | $872.50 |
| 49 | Building Permits - Class 2-9 <$20,000 | GST Exempt | $437.00 |
| 50 | Building Permits - Class 10 | GST Exempt | $303.50 |
| 51 | Building Permits - Application for a staged building permit - permit authority fee | GST Exempt | $437.00 |
| 52 | Building Permits - Application to amend a building Permit - Class 1 | GST Exempt | $401.00 |
| 53 | Building Permits - Application to amend a building Permit - Class 2-9 | GST Exempt | $437.00 |
| 54 | Building Permits - Application to amend a building Permit - Class 10 | GST Exempt | $227.00 |
| 55 | Notifiable Work - Application for extension | GST Exempt | $227.00 |
| 56 | Building Permits - Application for Permit of Substantial Compliance* Govt Levies still applicable - Plus Government Levies | GST Exempt | $1,138.00 |

| | 2026/2027 FEES AND CHARGES<br>1 July 2026<br>(Includes GST where Applicable) | GST Status | 2026/2027<br>GST Inclusive<br>(Where Applicable) |
|---|---|---|---|
| 57 | Building Permits - Low Risk Work - Form 80 - Category 1 & 2 | GST Exempt | $91.50 |
| 58 | Building Permits - Application for Permit Extension per annum | GST Exempt | $147.00 |
| 59 | Building Permits - Building Administration Fee - over $20,000 | GST Exempt | 0.1% of total cost of works over $20,000 |
| 60 | Building Permits - State Govt Industry Building Levy - over $20,000 | GST Exempt | 0.2% of total cost of works over $20,000 |
| 61 | Building Permits - Permit Authority Fees - Notifiable Works | GST Exempt | $296.00 |
| 62 | Building Permits - Permit Authority Fees - Administration Services - Per Hour | GST Exempt | $145.00 |
| 63 | Building Permits - record search for plan or inspection details - per property | GST Exempt | $110.50 |
| PLUMBING PERMITS: | | | |
| 64 | Plumbing Permit - Class 1 (per dwelling unit) | GST Exempt | $613.00 |
| 65 | Plumbing Permit - Class 10 | GST Exempt | $613.00 |
| 66 | Plumbing Permit- Class 2 to 9 | GST Exempt | $822.00 |
| 67 | Plumbing - Notifiable Work | GST Exempt | $340.00 |
| 68 | Plumbing - notifable work - Extension - Initial fee | GST Exempt | $227.00 |
| 68a | Plumbing - notifable work - Extension - Each year after | GST Exempt | $56.50 |
| 69 | Plumbing - Amended Plumbing Permit | GST Exempt | $179.50 |
| 70 | Plumbing - Extension to Plumbing Permit - Initial fee | GST Exempt | $227.00 |
| 70a | Plumbing - Extension to Plumbing Permit - Each year after | GST Exempt | $56.50 |
| 71 | Plumbing - Illegal works | GST Exempt | Triple the Normal Fee |
| 72 | Plumbing - Backflow, pool, tradewaste | Taxable | $520.00 |
| 73 | Plumbing - Onsite wastewater replacements | Taxable | $537.50 |
| 74 | Plumbing - Additional Inspection | Taxable | $158.50 |
| BURIAL AND FUNERAL | | | |
| 75 | Full Professional Service - Burial on island (inc Services, Plot and Preparation, Coffin, Hearse, Audio / Visual, Design / Printing Order of Service, Death Certificate) | Taxable | $8,150.00 |
| 76 | Professional Service - repatriation and/or sending remains off island including Coffin, Hearse) Fee plus Airfare and Additional Funeral home fees | Taxable | $1,941.50 |
| 77 | Burial - Coffin Cost (Dexter) | Taxable | $987.00 |
| 78 | Burial - Coffin Cost (Travel) | Taxable | $691.00 |
| 79 | Private Burial | Taxable | POA |
| 80 | Live Streaming/Recording Funeral Service | Taxable | $472.50 |
| 81 | Funeral - Hearse Hire | Taxable | $318.00 |
| 82 | Funeral - Repatriation Professional Services | Taxable | $932.50 |
| 83 | Funeral - Professional Services | Taxable | $1,804.00 |
| 84 | Burial - Cemetery Plot - Right of Burial | Taxable | $380.00 |
| 85 | Burial - Reserved Cemetery Plot - Right of Burial (for 25 years) | Taxable | $380.00 |
| 86 | Burial - Grave Preparation - Children (under 10 years) | Taxable | $2,127.50 |
| 87 | Burial - Grave Preparation - Double depth site | Taxable | $5,367.50 |
| 88 | Burial - Grave Preparation - Single depth site | Taxable | $4,254.50 |
| 89 | Burial - Re-opening of grave (where second burial is permitted). *Costs do not include the costs to remove cap | Taxable | $2,889.50 |
| 90 | Burial - Body Exhumation and Re-internment | Taxable | POA |
| 91 | Placement of ashes in grave - (cost does not include removal of any cover) - excludes external costs to uncap Grave | Taxable | $404.00 |
| 92 | Placement of ashes in Niche Wall (Plus actual cost of plaque) | Taxable | $426.50 |
| 93 | Niche Wall - Right of Placement | Taxable | $127.00 |
| 94 | Prepaid Niche Wall - Exclusive Right of Placement (for 25 years) | Taxable | $127.00 |
| 95 | Misc - Funeral and Death Notices | Taxable | At Cost |
| 96 | Misc - Death Certificate | Taxable | $85.00 |
| 97 | Misc - Officiant Service | Taxable | $376.00 |
| 98 | Misc - Placement of Memorial Plaque (+ actual cost of plaque) | Taxable | $153.50 |
| 99 | Misc - Design / Printing Order of Service | Taxable | $317.00 |
| 100 | Misc - Surcharge for weekend or public holiday funerals | Taxable | $1,209.50 |
| 101 | Application for Private Burial Site | Taxable | $123.90 |
| 102 | Burial - Private Site (Where approved) | Taxable | POA |

| | 2026/2027 FEES AND CHARGES<br>1 July 2026<br>(Includes GST where Applicable) | GST Status | 2026/2027<br>GST Inclusive<br>(Where Applicable) |
|---|---|---|---|
| **ANIMAL CONTROL** | | | |
| 103 | Dog Reg Fees - First Registration (at six months) | GST Exempt | Prorata |
| 104 | Dog Reg Fees - paid after 30th July - Sterilised Dog - Late Fee | GST Exempt | $70.00 |
| 105 | Dog Reg Fees - paid after 30th July - Non-Sterilised Dog - Late Fee | GST Exempt | $90.00 |
| 106 | Dog Reg Fees - paid after 30th July - Working Dog - Late Fee | GST Exempt | $70.00 |
| 107 | Dog Reg Fees - paid after 30th July - Guide / Hearing Dog | GST Exempt | no charge |
| 108 | Dog Reg Fees - paid after 30th July - Dangerous Dog - Late fee | GST Exempt | $400.00 |
| 109 | Dog Reg Fees - paid on or before 30th July - Sterilised Dog | GST Exempt | $40.00 |
| 110 | Dog Reg Fees - paid on or before 30th July - Non-Sterilised Dog | GST Exempt | $60.00 |
| 111 | Dog Reg Fees - paid on or before 30th July - Working Dog | GST Exempt | $40.00 |
| 112 | Dog Reg Fees - paid on or before 30th July - Guide / Hearing Dog | GST Exempt | no charge |
| 113 | Dog Reg Fees - paid on or before 30th July - Dangerous Dog | GST Exempt | $250.00 |
| 114 | Dog Tags - Replacement Tag | GST Exempt | $6.00 |
| 115 | Dog Transfer Registration (Change of Ownership $12.50; No Charge for Registration if proof of current registration is provided) - Admin Charge | GST Exempt | $12.50 |
| 116 | Dog Impounding Fees - Seizure Fee for an Impounded Dog | GST Exempt | $400.00 |
| 117 | Dog Impounding Fees - Daily Fee for Impounded Dog | GST Exempt | $150.00 |
| 118 | Dog Disposal Fee - Non collection of Impounded Dog | GST Exempt | $400.00 |
| | * Fines may be charged in addition to the above fees in accordance with the Dog Control Act 2000 | | |
| **HEALTH** | | | |
| 119 | Abatement Costs - Associated with non-compliance - Fee plus cost of works | Taxable | $158.50 |
| 120 | Environmental Protection Notice - Issuing and investigation | Taxable | $158.50 |
| 121 | Food Premises - Annual Licence - High Risk P1 | GST Exempt | $304.50 |
| 122 | Food Premises - Annual Licence - Medium Risk P2 | GST Exempt | $153.50 |
| 123 | Food Premises - Annual Licence - Low Risk P3 | GST Exempt | $103.00 |
| 124 | Food Premises - Annual Licence - Low Risk Notification P3N | GST Exempt | $51.50 |
| 125 | Food Premises - Annual Licence - Notification only P4 | GST Exempt | Nil |
| 126 | Food Premises - Environmental Health Officer Report and Occupancy Permit for Commercial Kitchen - Form 49 and 50 | GST Exempt | $355.00 |
| 127 | Food Premises - Temporary Licence - Maximum 10 days | GST Exempt | $46.00 |
| 128 | Food Premises - Transfer of Licence | GST Exempt | $26.50 |
| 129 | Place of Assembly - Licence for Mass gathering event (over 1000 persons) | GST Exempt | $318.00 |
| 130 | Private Water Suppliers - Annual Licence (per premise or scheme) - Initial | GST Exempt | $134.50 |
| 131 | Private Water Suppliers - Annual Licence Renewal | GST Exempt | $108.00 |
| 132 | Water Carrier Annual Permit | GST Exempt | $150.00 |
| 133 | Public Health Risk Activity - Licence - Initial | GST Exempt | $134.50 |
| 134 | Public Health Risk Activity - Renewal - Annual | GST Exempt | $96.50 |
| 135 | Water Sampling - Private Samples Taken for Laboratory Fee + Laboratory costs | Taxable | $85.00 |
| 136 | Water Sampling - Swimming Pools & Spas - Public items Fee + Laboratory costs | Taxable | $85.00 |
| 137 | Water Sampling - Warm Water Suppliers - Fee + Laboratory costs | Taxable | $85.00 |
| **PHOTOCOPYING** | | | |
| 138 | Email - To send an email | Taxable | $3.40 |
| 139 | A3 - Black and White (B&W) - double sided | Taxable | $1.15 |
| 140 | A3 - B&W - single sided | Taxable | $0.75 |
| 141 | A3 - B&W double sided 10 - 350 copies (per copy) | Taxable | $1.00 |
| 142 | A3 - B&W Single sided 10 - 350 copies (per copy) | Taxable | $0.60 |
| 143 | A3 - Colour - per side | Taxable | $1.50 |
| 144 | A3 - Colour per side 10 - 350 copies (per copy) | Taxable | $1.40 |
| 145 | A3 - Laminating - per page | Taxable | $4.00 |
| 146 | A4 - B&W - Coloured paper - double sided | Taxable | $0.60 |
| 147 | A4 - B&W - Coloured paper - single sided | Taxable | $0.50 |
| 148 | A4 - B&W - White paper - double sided | Taxable | $0.60 |
| 149 | A4 - B&W - White paper - single sided | Taxable | $0.55 |
| 150 | A4 - B&W Double sided 10 - 350 copies (per copy) | Taxable | $0.50 |
| 151 | A4 - B&W Single sided 10 - 350 copies (per copy) | Taxable | $0.50 |
| 152 | A4 - Bulk B&W 350 or more (householder) prorata (single or double sided) | Taxable | $76.00 |
| 153 | A4 - Bulk Colour 350 or more (householder) prorata (single or double sided) | Taxable | $157.50 |
| 154 | A4 - Colour - double sided | Taxable | $1.50 |
| 155 | A4 - Colour - single sided | Taxable | $0.85 |
| 156 | A4 - Colour Double sided 10 - 350 copies (per copy) | Taxable | $1.40 |
| 157 | A4 - Colour Single sided 10 - 350 copies (per copy) | Taxable | $0.75 |
| 158 | A4 - Laminating - per page | Taxable | $3.50 |

| | 2026/2027 FEES AND CHARGES<br>1 July 2026<br>(Includes GST where Applicable) | GST Status | 2026/2027<br>GST Inclusive<br>(Where Applicable) |
|---|---|---|---|
| **ADMINISTRATION CHARGES** | | | |
| 159 | Other - Binding document (any document) | Taxable | $13.50 |
| 160 | Other - Copy of Council Agenda and Minutes (Free on website) | Taxable | $7.50 |
| 161 | Other - Copy of Council Agenda and Minutes - Electronic Copies via Email | Taxable | $3.80 |
| 162 | Other - Code of conduct submission | Taxable | As per Prescribed Fee |
| 163 | Other - Right to information application | Taxable | As per Prescribed Fee |
| 164 | Other - Certificates - Section 132 Certificate (30 Fee units) | GST Exempt | As per The LIST Fee |
| 165 | Other - Certificates - Section 337 Certificate | GST Exempt | As per The LIST Fee |
| **COMMUNITY SERVICES FACILITIES AND RECREATION SPACES** | | | |
| Hall Hire | | | |
| 166 | Bonds - Halls, Facilities, Equipment Hire | Taxable | $210.00 |
| *Notes* | *Notes*<br>*1 Bond is required regardless of fee waiver*<br>*2 Not-for-profit and community groups - Fees and Charges may be waived on application to the General Manager as per the Rationale for Waiver of Fees adopted by Council, Motion No: 144.05.2023*<br>*3 Regular Hirers can apply for a 50% discount on hall hire charges (User Agreement)*<br>*4 All FAEC Hall room hire includes VC or Smart TV* | | |
| 167 | Insurance - Public Liability Community Insurance Contribution - for most casual, ad-hoc and regular hire bookings (providing hire occurs no more than 12 times per annum, per hire) for activites conducted at and from the hired facility - | Taxable | $34.50 |
| 168 | Other - Cleaning fee - Per Hour | Taxable | $85.00 |
| 169 | Lost key charge | Taxable | $38.00 |
| 170 | FAEC - Carpet, Wooden Floor or Rose Garden Room - 4 hour hire (minimum) | Taxable | $44.00 |
| 171 | FAEC - Carpet, Wooden Floor or Rose Garden Room - per day | Taxable | $76.50 |
| 172 | FAEC - Elections | Taxable | $260.00 |
| 173 | FAEC - Entire hall including main rooms and small kitchen - per day | Taxable | $227.00 |
| 174 | FAEC - Entire hall including all main rooms and small kitchen - day and night events running after 5pm | Taxable | $278.50 |
| 175 | FAEC - Entire hall including main rooms and Commercial kitchen for events - per day | Taxable | $350.00 |
| 176 | FAEC - Commercial Kitchen - per 4 hours | Taxable | $50.00 |
| 177 | FAEC - Commercial Kitchen - per 8 hours | Taxable | $75.00 |
| 178 | FAEC - Commercial Kitchen - per night 24 hours | Taxable | $100.00 |
| 179 | FAEC - Commercial Kitchen - per event (3 day) | Taxable | $150.00 |
| 180 | FAEC - Office Hire - Per Hour (Small/ Large Room) | Taxable | $19.00 |
| 181 | FAEC - Office Hire - Per Day (Small / Large Room) | Taxable | $40.00 |
| 182 | Holloway Park - All areas (except Lapidary Room) per day | Taxable | $20.00 |
| 183 | Lady Barron Hall - Elections | Taxable | $260.00 |
| 184 | Lady Barron and Emita Halls - Kitchen min charge | Taxable | $38.00 |
| 185 | Lady Barron & Emita Hall including kitchen - per day | Taxable | $38.00 |
| 186 | Lady Barron & Emita Hall including kitchen - per night (after 5pm) | Taxable | $64.00 |
| 187 | Lady Barron & Emita Hall (including kitchen) - 24 hour (day and night) | Taxable | $103.00 |
| 188 | Show Grounds - Bar Area - per day | Taxable | $51.50 |
| 189 | Show Grounds - Exhibition Hall - full day and night | Taxable | $90.50 |
| 190 | Show Grounds - Exhibition Hall - fee for 4 hour hire (minimum) | Taxable | $32.50 |
| 191 | Show Grounds - Football Ground | Taxable | $51.50 |
| 192 | Show Grounds - Tea Rooms - including kitchen - per day | Taxable | $54.50 |
| 193 | Show Grounds - Tea Rooms - including kitchen - per hour | Taxable | $17.00 |
| 194 | Show Grounds - Trade Pavilion - per day | Taxable | $54.50 |
| 195 | Show Grounds - Whitemark showground (all areas) - per day | Taxable | $252.00 |
| Gym (Membership covers both Whitemark and Lady Barron Gyms - if inducted) | | | |
| NEW | Gym - Membership Weekly - Lite Access (*Monday and Friday - specified 2-3 hour* s) | Taxable | $5.00 |
| 196 | Gym - Membership Weekly | Taxable | $15.00 |
| 197 | Gym - Membership Quarterly | Taxable | $150.00 |
| 198 | Gym - Membership Annually | Taxable | $550.00 |
| NEW | Gym - New or Replacement Access Fob | Taxable | $19.00 |
| NEW | Gym - New or Replacement Access Card | Taxable | $8.00 |

| | 2026/2027 FEES AND CHARGES<br>1 July 2026<br>(Includes GST where Applicable) | GST Status | 2026/2027<br>GST Inclusive<br>(Where Applicable) |
|---|---|---|---|
| Materials and Equipment (ME) Hire Unless otherwise specified = per hire. | | | |
| 199 | ME - Hire of Crockery, Cutlery, Glassware | Taxable | At Cost as per Inventory List |
| 200 | ME - Equipment damage / breakages as per Inventory List supplied at time of hire | Taxable | At Cost as per Inventory List |
| 201 | ME - Chair Hire - Per Chair | Taxable | $3.00 |
| 202 | ME - Delivery and collection of chairs and/or tables - Per Truck load (80 chairs & 10 tables) (2 staff members) Per Hour | Taxable | $336.00 |
| 203 | ME - Delivery and collection of chairs and/or tables- Per Ute load (15 chairs & 3 tables) per hour or part thereof | Taxable | $122.00 |
| 204 | ME - Hire of PA system - per day | Taxable | $51.50 |
| 205 | ME - Hire of projector with screen - per day | Taxable | $38.00 |
| 206 | ME - Portable Stage- level 1 (Small Stage) Excluding Audio Technician Setup | Taxable | $252.00 |
| 207 | ME - Portable Stage- level 1 (Large Stage) Excluding Audio Technician Setup | Taxable | $380.00 |
| 208 | ME - Portable Toilet Hire - per day - Must be returned empied and clean or $162 additional fee applies. | Taxable | $127.00 |
| 209 | ME - Table cloths - each piece per event (To be returned clean) | Taxable | $6.30 |
| 210 | ME - Table Hire (Foldable Only) - per table | Taxable | $10.00 |
| 211 | ME - Audio Technician; to setup Hire Equipment - Weekday per hour | Taxable | $85.00 |
| 212 | ME - Audio Technician; to setup Hire Equipment - Weekend/ After Hours per hour | Taxable | $149.00 |
| Rubbish Bin Collection & Waste | | | |
| 213 | RC - Event Rubbish bins - provided, collected and emptied - Zone 2 Exceeding 10km of Whitemark Tip | Taxable | $303.50 |
| 214 | RC - Event Rubbish bins - provided, collected and emptied - Zone 1 Within 10km of Whitemark Tip | Taxable | $229.00 |
| 215 | RC - Event Rubbish bins Hire - per day (To be returned empty and clean) | Taxable | No Charge |
| 216 | RC - Commercial Skip Bins delivery and collection (if available) per hour | Taxable | $234.00 |
| 217 | RC - Commercial Skip Bins hire per day (if available) | Taxable | $52.50 |
| 218 | RC - Mobile (Red) Bin hire per day (if available) 4m3 or 600kg (Bin returned empty and clean, Vehicles must have min. 2-T towing Capacity) | Taxable | $189.00 |
| 219 | RC - Mobile (Red) Bin 2-day hire (if available) 4m3 or 600kg (Bin returned empty and clean, Vehicles must have min. 2-T towing Capacity) | Taxable | $325.50 |
| PRIVATE WORKS | | | |
| Private works excluding Department of State Growth and TasWater.<br>Upon written application and subject to availablility of resources | | | |
| 220 | Private Works | Taxable | Pricing per Private Works Policy |
| END: Council Decision - ###.MM.YYYY | | | |

# Rationale for Waiver of Fees

## Introduction

Council provides assistance to community groups, private enterprise, not-for-profit and charitable organisations, self interest groups and for community events through various means of support, such as dedicating staff time, providing financial contributions, and waiving fees for facility use and a range of services.

The combination of waivers, in-kind support, and direct expenses contribute to operating costs for Council facilities, with minimal income generated from user fees.

## User classification

Users encompass a wide range of individuals and organisations. Decisions regarding waivers or support may vary based on the specific type of user. As a guiding principle, groups and users have been broadly classified into the following categories:

Community Event
The support of community events aligns with Council's Strategic Plan. Through in-kind and financial assistance, Council enables the Community to organise and execute quality community events that enhance our liveability and support socio-economic wellbeing.

Community Group
Individual community members or groups where the aim is to deliver a community benefit through the use of the facility or services and where the group does not have enough financial resources.

Not-for-Profit Community Groups / Charitable Organisations
Community organisation that provides a direct community wide service.

Business
Private enterprise organisation.

Self Interest Group
Individual or community groups that meet to participate in an activity or event of personal interest.

Government
Government entity.

# Rationale for Waiver of Fees

Approval for waivers in relation to Council owned facilities are at the discretion of the General Manager.

| | |
|---|---|
| No Waiver | Any non-Furneaux Islands resident, non-Furneaux Islands business or commercial operator OR any other Government individual or group. |
| 25% Waiver | Non-Furneaux Islands Community Organisations, Registered Not-for-profit or Charitable Organisation. |
| 50% Waiver | Furneaux Islands Community Organisation, Not-for-profit or Self-interest group, Furneaux Islands business or commercial operator who is a regular facility hirer AND conducts its primary activities for the sole benefit of the Furneaux Islands Community. |
| 100% Waiver | Community Organisation, School, Not-for-Profit or Self-interest group where Flinders Council is an identified sponsor. |

## Facilities include:

- FAEC (Flinders Arts & Entertainment Centre)
- Emita Hall
- Lady Barron Hall
- Showgrounds
- Tea Rooms
- Exhibition Hall

## Fee Waiver Rationale for Council Services

Requested waivers for Fees and Charges services are not normally considered, as they represent hard costs to Council. However, certain situations may warrant exceptions. In extraordinary circumstances, the General Manager holds the discretion to waive expenses such as printing costs, equipment and staff labour costs, food licences, as well as audio-visual equipment and technician costs.

# Community and Economic Development Report

For activities and work undertaken during the month of **April 2026**.

## Overview

This report provides a monthly update to Council on key activities, projects and emerging priorities across the Community and Economic Development Department.

The Department manages a broad portfolio spanning: communications, community events, information technology (IT) and digital systems, grants, strategic projects, community gyms, school holiday program, funerals and community wellbeing initiatives.

## Communications and Digital

- Commenced redevelopment of the Council website.
- Progressing transition to SharePoint, planning and digital systems improvements.
- Supported monthly communications and planning schedule with the Waste Management Team.
- Delivered image and written content for website, Island News, monthly e-newsletters and adhoc community communications via print, website and social media.

## Community Events and Activation

- Coordinated the Marshall Bay Beach Discovery Day school holiday program in partnership with Parks and Wildlife Service.
- Delivered the Lady Barron Boating Facility Opening.
- Coordinated Kayaking Adventure for youth.
- Supported Dawn and 11am Anzac Day services at the Cenotaph and FAEC.
- Hosted the community screening of 2040 at FAEC.
- Completed an audit and reorganisation of Council event equipment and storage.

## Community Facilities and Programs

- Coordinated new equipment quotes and freight logistics for the Lady Barron and Whitemark community gyms for new purchases.
- Engaged in discussions regarding current Rural Flying Doctors (RFDS) gym access arrangements.
- Commenced investigation of online induction options for community gyms.
- Researched replacement parts for gym equipment and maintenance program.

## Grants, Capital Projects and Strategic Initiatives

- Audio Visual Upgrade to the FAEC completed and acquitted.
- BioChar unit grant funding successful through Circular North.
- Discussions held with Visit Northern Tasmania (VNT) regarding development of North East River precinct concept as funded by State Government grant.
- Collaborating with the Northern Tasmania Development Corporation (NTDC) and Brand Tasmania on the Population Profiling project.
- Project Management Tools for Managers program and upcoming workshop development in partnership with NTDC.
- Commenced development of Furneaux Save Water Challenge materials.
- Participated in initial meetings with Tourism Tasmania and VNT regarding 2026 visitor survey.

**AIRPORT OPERATIONS COORDINATOR'S REPORT**
**For 27 May 2026 Council meeting**

The purpose of this report is to provide Councillors with an update on the Airport activities and work undertaken during the month of **April 2026**:

**Airport**

## 1. Inspections

- Conducted all scheduled monthly airport inspections.
- Performed daily full serviceability inspections.
- Carried out runway inspections for Sharp Airlines prior to landings and departures.
- Carried out runway inspections for Royal Flying Doctor Service (RFDS) prior to landings and Departures.
- Performed monthly airport inspections.
- Performed weekly fuel checks.
- Performed monthly fuel check.

## 2. Maintenance and Repairs

- Checked airside fence and removed debris.
- Patched up area on Runway (RWY) 05/23
- Repairs to electric fence

## 3. Infrastructure and Works

- Added gravel and graded new access road for new office.
- Terminal glass sliding door fault with closing sensor, part ordered, repair expected 22 May 2026.
- Commenced works on new dog pound area.

## 4. Groundskeeping

- Mow runway strips.
- Commenced slashing landside areas.
- New Line marking at the Aviation Fuel area.
- Mowed the show ground.
- Sprayed runway edges.

## 5. Fuel and Aircraft Services

- Decanted Jet A1 from ISO containers into storage tanks.
- Refueled aircraft with Avgas or JetA1.
- Received new 24/7 self-serve aviation fueling station.

## 6. Other Notes / Follow-Up

- Disabled Person Lifter certification in the final stage of completion.
- AOC continuing to work with the Australian Transport Safety Board (ATSB) on near miss event – 17/12/2025.
- Sharp Airlines flight 807 callout 05/04/2026 – behavioral passenger incident reported onboard flight and request for assistance once on the ground received. Police in attendance.

## 7. Lighting Project Update

- ARO Office on schedule with framing completed and roof insitu. Windows, flooring and cladding onsite.
- Runway Lighting Upgrade – Delays in commencing works due to conflict in the Middle East creating shortage of materials. Trenching and laying of cables in conduit commenced on 27/04/2026. Eighty percent of all materials are now on site.

| Sharp Airlines Passenger Numbers | April 2025: 1929 | | | April 2026: 1794 | |
|---|---|---|---|---|---|
| Air Transport Operations (ATO) Movements | ATO-Sharp Air | ATO Other | Private | RFDS | Helicopters |
| April 2025 | 65 | 44 | 8 | 6 | 7 |
| April 2026 | 65 | 38 | 18 | 4 | 4 |

FLINDERS COUNCIL

# S-F2-C
# Code for Tenders and Contracts
## FILE NO: ADM/0900, WOR/0300

May 2026

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FLINDERS COUNCIL

# POLICY- CODE FOR TENDERS AND CONTRACTS

# 1.0 INTRODUCTION

Pursuant to section 333B of the *Local Government Act 1993* (Tas) (the Act), Flinders Council (Council) is required to adopt and comply with a Code for Tenders and Contracts (the Code), which must:

- be consistent with the Act;
- include any prescribed matter; and
- promote any prescribed principles as set out in the *Local Government (General) Regulations2015 (Tas)* (the Regulations);
- be reviewed at least every four years; and
- detail Council's specific legislative and regulatory obligations with respect to procurement per:
    - Section 333A and Section 333B of the Act; and
    - Regulations 23–29 of the Regulations.

## 1.1. PURPOSE

The purpose of the Code is to provide a framework for best practice procurement. The Code sets out how Council meets its legislative obligations in respect to procurement, tendering and contracting.

The Code aims to:

- ensure compliance with relevant legislation
- enhance value for money through fair, competitive, non-discriminatory procurement
- promote the use of resources in an efficient, effective and ethical manner
- encourage probity, accountability and transparency in decision making
- provide reasonable opportunity for competitive local businesses to supply to council
- minimise the cost to suppliers of participating in the tendering process
- allow council to appropriately manage risk
- promote council's economic, social and environmental plans and policies
- Provide guidance on required standards of ethics and best practice to Council and Service Providers

## 1.2. SCOPE OF THE CODE

This Code covers the procurement of goods, services and works for Council including building and construction, civil works, plant and equipment and consulting services. These Tender practices **do not** apply to the following activities:

- design and execution of works of art
- donations
- property transactions including valuation
- leasing
- Performers at/or Events

The Code is made up of policy and procedure documents, which together form The Code. It applies to Council, it's employees and agents and any Service Provider wishing to apply for Council business or provide goods, services or works to Council. This includes contractors, consultants and suppliers. Insofar as is reasonably possible, Service Providers engaged by Council will apply the Code when seeking Tenders or Quotations from subcontractors and suppliers. The Code applies to all Council procurement processes including tenders, requests for quotations, requests for proposals and expressions of interest for goods, services and works as required.

Council routinely receives unbudgeted income throughout the year i.e. election commitments and grants funding. Once this funding stream has been approved by Council this Code will apply as per approved budget.

### 1.3. AVAILABILITY OF THE CODE

A copy of the Code is available free of charge:

- at the Flinders Council Offices, 4 Davies Street, Whitemark
- from Monday–Friday, 8.30am – 4.30 pm
- on the Council website at flinders.tas.gov.au/tenders

## 2.0 PROCUREMENT THRESHOLDS

The purchasing thresholds describe when Quotations and Tenders are to be sought. Projects shall not be split into smaller purchases to avoid the requirements of purchasing thresholds.

| Purchasing Estimate | Minimum Documentation Requirement | Minimum Advertising Requirements | Documents Required | Approval |
|---|---|---|---|---|
| Less than $5,000 | Verbal quotation | Nil | Notation of verbal quotation on Purchase Order | Per approved budget and delegation register |
| From $5,000 to $29,999 | 2 written quotes (From separate providers) | Nil | Written assessment of quotes + Purchase Order | Per approved budget and delegation register |
| From $30,000 to $119,999 | 3 Written quotes (From separate providers) | Nil | Written assessment of quotes + Purchase Order | Per approved budget and delegation register |
| From $120,000 to $249,999 | Request for Quote (RFQ) process.* | Council Website and external media/tender provider | Tender Evaluation Panel (TEP) recommendations to GM + Purchase Order + Contract. | General Manager |
| From $250,000 to $499,999 | Request for Tender (RFT) process.* | Council Website and external media/tender provider | TEP recommendations to GM + Purchase Order + Contract. | General Manager or Council Decision |
| From $500,000 and above | Request for Tender (RFT) process.* | Council Website and external | TEP recommendations to GM and to | Council Decision |

| Purchasing Estimate | Minimum Documentation Requirement | Minimum Advertising Requirements | Documents Required | Approval |
|---|---|---|---|---|
| | | media/tender provider | Council + Purchase Order + Contract. | |

All procurement thresholds are GST exclusive. Tenders and Quotations will be sought on a GST exclusive basis.

* Thresholds may also include Expression of Interest (EOI) and Early Contractor Involvement (ECI) procurement methods.

## 2.1. NON-APPLICATION OF THE QUOTATION PROCESS

Exemptions from the requirement to seek written quotes under the quotation thresholds above can be sought from the General Manager in exceptional circumstances such as:

a) where, in response to a prior notice, invitation to participate or invitation to Quote
   (i) no Quotations were submitted
   (ii) no Quotations were submitted that conform to the essential requirements in the documentation
b) where the goods, services or works can be supplied only by a particular supplier and no reasonable alternative or substitute goods or services exist for the following reasons
   (i) the requirement is for works of art, performers or events
   (ii) the protection of patents, copyrights or other exclusive rights or proprietary information
   (iii) A continuation of a service agreement
   or
   (iv) due to an absence of market competition for technical reasons
c) for additional deliveries of goods, services or works by the original supplier that are intended either as replacement parts, extensions or continuing services, where a change of supplier would result in the purchase of goods, services or works that do not meet requirements of interchangeability with existing goods, services or works
d) where there is an emergency and insufficient time to seek quotes for goods, services or works required in that emergency
e) for purchases made under exceptional circumstances, deemed reasonable by the General Manager.
f) where a quotation was received within the last three months for the same goods, services or works (e.g. a recent value for money comparison was made).
g) for purchases made under exceptionally advantageous conditions that only arise in the very short term, such as from unusual disposals, liquidation, bankruptcy, or receivership and not for routine purchases from regular suppliers
   or
h) for a joint purchase of goods or services purchased with funds contributed by multiple entities, where Council is one of those entities and does not have express control of the purchasing decision.

## 2.2. NON-APPLICATION OF THE PUBLIC TENDER PROCESS

In accordance with section 27 of the Regulations, the requirement for public tendering does not apply for the following situations:

a) Where there is an emergency, and if, in the opinion of the General Manager there is insufficient time to invite Tenders for the goods or services required in that emergency
b) a contract for goods or services supplied or provided by, or obtained through, an agency of a State or of the Commonwealth
c) a contract for goods or services supplied or provided by another council, a single authority, a joint authority or the Local Government Association of Tasmania
d) a contract for goods or services obtained as a result of a Tender process conducted by one of the following entities
   (i) another council
   (ii) a single authority or a joint authority
   (iii) the Local Government Association of Tasmania
   (iv) any other local government association in this State or in another State or a Territory
   (v) any organisation, or entity, established by any other local government association in this State or in another State or a Territory
e) a contract for goods or services in respect of which a council is exempted under another Act from the requirement to invite a Tender
f) a contract for goods or services that is entered into at public auction
g) a contract for insurance entered into through a broker
h) a contract arising when a council is directed to acquire goods or services due to a claim made under a contract of insurance
i) a contract for goods or services, if by Council resolution and states the reasons for the decision, being that a satisfactory result would not be achieved by inviting Tenders because of one of the following reasons
   (i) extenuating circumstances
   (ii) the remoteness of the locality
   (iii) the unavailability of competitive or reliable Tenderers
j) a contract of employment with a person as an employee of the council.

## 3.0 PROCUREMENT PRINCIPLES

Council's purchasing will be conducted in line with legislative requirements and in accordance with the following principles:

### 3.1. VALUE FOR MONEY

Value for money is achieving the desired outcome at the best possible price. Factors which may be considered when determining value for money include:

- fitness for purpose
- whole-of-life costs over the lifetime of the product, good or service
- advantages of buying locally (e.g. shorter delivery lead-times, availability of local back-up and servicing and availability of spare parts)
- supplier's capacity and ability, including management and technical capability and physical and financial resources
- environmental considerations and energy conservation
- contribution to achieving one or more of Council's policies or strategic objectives
- social or community benefit
- risk assessment
- quality assurance
- disposal value.

### 3.2. FAIR DEALINGS

Ethical behaviour and fair dealing means acting ethically, being fair and unbiased and complying with the law in all dealings with Service Providers. The following standards of ethics and ethical behaviours shall be applied when dealing with suppliers:

- ensuring Council monies are spent effectively and in accordance with relevant policies
- acting without favour or prejudice
- complying with legal requirements
- always seeking to maximise the value for money in all transactions
- maintaining confidentiality at all times in dealings with Service Providers
- declining gifts, gratuities or any other benefit which may, or could be deemed to, influence equity or impartiality
- not disclosing the bid of a Service Provider to any other provider.
- not discussing matters of procurement or tender with anyone seeking information other than via internal procurement channels.

### 3.3. ENCOURAGING OPEN AND EFFECTIVE COMPETITION

Encouraging open and effective competition means ensuring that the procurement process is impartial, open and focussed on encouraging competitive offers. Open and effective competition will be encouraged through:

- putting transparent, open purchasing procedures in place
- ensuring the market is adequately tested by seeking an appropriate number of Quotations or calling for public Tenders
- avoiding use of biased or proprietary specifications
- if requested, de-briefing unsuccessful providers
- treating all Service Providers consistently and equitably.

### 3.4. ENHANCEMENT OF THE CAPABILITIES OF LOCAL BUSINESS AND INDUSTRY

Enhancement of the capabilities and opportunities of local business and industry means where local capacity exists, actively seeking to engage the local market and encourage their participation in Tender and Quotation processes, through:

- actively seeking quotes from local businesses and industry
- where local capability exists, ensuring that the discretionary elements of specifications do not prevent local businesses and industry from competing.

Enhancing opportunities for local business and industry does not mean giving preferential treatment to local Service Providers.

## 4.0 CONDUCT

### 4.1. ETHICS AND CONDUCT

Council's officers, Elected Members or any other person or entity making a purchase on Council's behalf, will comply with the following ethical standards of behaviour:

- the Procurement Process will be undertaken in accordance with this Code and all applicable procedures

- actual or potential conflicts of interest will be declared before inviting offers and measures put in place to appropriately manage any actual or potential conflicts of interest, monetary or otherwise
- accurate records of all dealings in respect to the purchase will be maintained during and after the process
- declining to accept any payments, gifts, gratuities, entertainment/hospitality and other benefits offered by a Service Provider for the discharge of official duties and the documenting of any offers
- avoiding any situation which is, or which may become, or which may be perceived as being a conflict of interest with the person's official duties and declaring any conflicts of interest
- avoiding any relationship with a Service Provider, financial or otherwise, which could be perceived as unfair or improper influence on their judgement, or which could expose Council to allegations or perceptions of impropriety or unwarranted preference. unfair dealings or which could represent a breach of legislation
- for any person, not attempting to intervene or exert influence on the outcomes of the Procurement Process, in particular not communicating or implying any preference for the selection of a particular Service Provider.

The role of Councillors in dealings of procurement must be highlighted at the time of any matter of procurement which is before them. Any conversations by prospective tenderers about a matter of procurement with a Councillor, in their capacity as a decision maker, must be reported to the procurement team handling the matter.

Whenever dealing with Service Providers, Council's officers will:

- clearly convey Council's requirements in an understandable manner and ensure that all Service Providers are provided with identical information upon which to base their Tender or Quotation
- ensure that a Service Provider is not provided with any information or clarification of the Specification or other Tender or Quotation document, which is not equally provided to all other Service Providers
- seek to minimise the cost to suppliers of participating in the Tender process
- ensure that Service Providers are provided with a specification or other statement of Council's requirements, which is sufficient to ensure that Service Providers are not required to undertake unreasonable unpaid design or other work in order to prepare a Tender or Quotation
- ensure that the Conditions of Contract are not excessively onerous on Service Providers
- as far as is practicable, ensure that the Specification does not restrict competition, prevent local businesses and industry from submitting a Tender or Quotation or reflect bias either towards or against any brand or proprietary system or method of work
- in so far as possible, ensure that the Specification does not act as a barrier to innovation
- if any particular Conditions of Participation, Conditions of Tender, or Conditions of Contract apply, advise Service Providers of these when inviting offers
- advise Service Providers of the evaluation criteria, and if applicable the weightings, which will be used to evaluate offers at the time of invitation and ensure that the same criteria are used to evaluate all of the offers received
- if offers are to be evaluated using weighted criteria, apply the procedure for Tender evaluation set out under the Tender Practices section of this Code
- not solicit or accept remuneration or other benefit from a Service Provider for the discharge of official duties.

## 4.2. ETHICS AND CONDUCT – SERVICE PROVIDERS

Whenever participating in a Council procurement process in any capacity, a Service Provider:

- will ensure they are acquainted with Council's requirements and all matters relating to the Tender or the Quotation and the proposed contract
- will not submit a Tender or Quotation unless they have the financial, technical, physical, management, resource, ethical and other capabilities to fulfil Council's requirements
- will apply Procurement Principles and the standards and ethics required by this Code in its dealings with contractors, subcontractors, suppliers and agents
- must not engage in any uncompetitive behaviour or other collusive practices, which deny or reduce legitimate business opportunities to other potential suppliers
- must at all times act in observance of all laws
- must not engage in acceptance or provision of secret commissions
- must not collude with other suppliers, potential or otherwise
- must not enter into improper commercial arrangements with other contractors, subcontractors, suppliers or agents
- must not attempt to contact any Council officer or councillor not nominated as contact person to deal with enquiries
- must not seek to influence the procurement process by any improper means whatsoever
- must not accept incentives to provide contracts or services to other contractors, subcontractors or agents
- must declare any matter or issue which is, or which may lead to or which could be perceived as, a conflict of interest regarding their participation in a procurement process or a contract to fulfil Council's requirements immediately upon the Service Provider becoming aware of the matter or issue.

If engaged by Council to provide goods, services or works of any nature a Service Provider will:

- act in a polite and courteous manner towards Council officers and agents and towards members of the general public
- refrain from the use of aggressive or inappropriate language and expressions and not act in an aggressive or threatening manner towards Council officers, agents and members of the general public
- insofar as is reasonably possible apply the standards and ethics required by this Code in its dealings with any contractors, subcontractors, suppliers or agents
- put in place and maintain policies, systems and procedures for workplace health and safety management, environmental management, and quality assurance, appropriate to the applicable level of complexity and risk associated with performance of Council's requirements
- comply with the provisions of awards and workplace arrangements which have been certified, registered or approved under relevant industrial relations legislation
- comply with all applicable legislative, regulatory and statutory requirements, including Acts of the Commonwealth and State, regulations, by-laws and proclamations made or issued under such Acts and lawful requirements or directions of public and other authorities
- make payments to employees, subcontractors, suppliers, consultants and agents in a timely manner
- not offer gifts, gratuities, entertainment/ hospitality and other benefits to a Council officer for the discharge of official duties.

Service Providers must not collude to influence the outcomes of a Procurement Process. Collusive behaviour includes but is not limited to:

- agreements between Service Providers as to who should be successful in winning Council's business
- any meeting of Service Providers prior to the submission of their Tender or Quotation that may disadvantage Council
- agreement between Service Providers for payment of money or securing of reward or benefit for unsuccessful Service Providers by the successful Service Provider
- agreement or collaboration between Service Providers to fix prices or Conditions of Contract
- submission of a cover Tender or Quotation or any assistance to another person to submit such a cover Tender or Quotation, that is intended to advantage another Service Provider or disadvantage Council
- any unlawful agreement between Service Providers before submission of Tenders or Quotations such as fixing a special rate of payment to a third party where the payment of such fees is conditional on that Service Provider being awarded a Contract
- any unlawful agreement providing for payment to any third party of money, incentives or other concessions contingent on the success of a Service Provider which do not relate to the provision of bona fide services relevant to that Tender or Quotation.

# 5.0 REPORTING

## 5.1 ANNUAL REPORTING

For the purposes of section 72(1)(e) of the Act and *Local Government (General) Regulations 2025* 30(1), where, in a financial year, a council enters into or extends (under regulation 24(5)(b)) a contract for the supply or provision of goods or services valued at or exceeding $250,000 (excluding GST), council will include the following information:

- a description of the contract
- the period of the contract
- the periods of any options for extending the contract
- the value of any Tender awarded or, if a Tender was not required, the value of the contract (excluding GST)
- the business name of the successful contractor
- the business address of the successful contractor
- any other prescribed matter

Where approval has been given for nonapplication of the Tender or Quotation process in accordance with regulation 28(a) and (i) of the Regulations, Council's annual report will include the following information:

- a brief description of the reason for not inviting public Tenders
- a description of the goods or services acquired
- the value of the goods or services acquired
- the name of the contractor.

For the purposes of section 72(1)(e) of the Act, where in a financial year, a contract, for the supply or provision of goods or services valued at or exceeding $100 000.00 (excluding GST) but less than the $250 000.00 (excluding GST) is, entered into, or extended, Council's annual report for that financial year will include the following information:

- a description of the contract
- the period of the contract
- the periods of any options for extending the contract

- the value of the contract (excluding GST)
- the business name of the successful contractor
- the business address of the successful contractor
- any other prescribed matter.

## 5.2 REPORTING TO COUNCIL

For purchases with a value equal to or exceeding the value where three written Quotations are required, the number of instances of non-application of the requirement to obtain three written Quotations according to reason must be reported to Council on a quarterly basis.

# 6.0 REVIEW OF THE CODE

This Code for Tenders and Contracts will be reviewed at least every four years unless it is necessary to amend prior.

# 7.0. DEFINITIONS

| TERM | DEFINITION |
|---|---|
| Alternative Tender or Quotation | A Tender or Quotation which meets all of Council requirements but in a manner different to that specified. |
| Closing Time | The closing time and date for Tenders or Quotations stated in the Conditions of Participation or Conditions of Tendering. |
| Conditions of Contract | The terms and conditions that a Service Provider will be required to substantially agree to if their Tender or Quotation is accepted. |
| Contract | A formal agreement entered into between Council and the successful Tenderer for performance of Council requirements |
| Conditions of Participation / Conditions of Tendering | The terms and conditions under which Council will seek receive and evaluate Tenders and Quotations. |
| Council | Flinders Council and where context permits, its employees and assigns. |
| Delegate | The Council Committee or officer authorised to expend funds to the value of Council requirements under the current version of Council's Delegations Register |
| Early Contractor Involvement (ECI) | A collaborative procurement method where construction contractors are engaged during the early design and planning stages rather than after design completion. |
| Emergency | A sudden, serious and dangerous event, or situation, often characterised as an unforeseen, urgent and often critical circumstance that demands fast action to prevent harm or damage. |
| Expression of Interest (EOI) | A non-binding, initial, procurement stage, to gauge market capability, filter, and shortlist contractors before issuing a formal request. |
| Local Businesses and industry | Includes suppliers with a permanent established business location in the Flinders Municipal Area, operating in the northern region of the State with a permanent office or presence in northern Tasmania or based in Tasmania with a |

| TERM | DEFINITION |
|---|---|
| | permanent business presence in the State mainly employing Tasmanian workers. |
| Multiple-Use Register | A register of suppliers who meet criteria established by Council in respect of the supply of particular categories of goods and services. Also referred to as Preferred Contractors List. |
| Open Tender | A public, competitive procurement process where interested suppliers can submit a bid. |
| Preferred Tenderer | The Tenderer adjudged by Council as best satisfying Council requirements. |
| Procurement Principles | The procurement principles prescribed under Regulation 28(a) of the Regulations. |
| Procurement Process | The process whereby Council seeks to engage a Service Provider to provide Council with goods, equipment, services or construction or building works. |
| Quotation | An offer from a prospective Service Provider in response to an Invitation issued by Council to a selected number of prospective suppliers. |
| Request for Tender (RFT) | The documents inviting Tenderers to offer to deliver Council's requirements by submitting a Tender in accordance with these Conditions of Tendering. |
| Request for Quote (RFQ) | The invitation of quotes as is required to procure goods and services of the relevant threshold. |
| Service Provider | Any contractors, subcontractors, consultants participating, or seeking to participate, in a Procurement Process, and where the context so permits includes a reference to the "Tenderer". |
| Specification | The documents prepared for the purpose of describing the extent and the manner of the performance of Council's requirements, including preliminary and general requirements, directions, schedules, programs and drawings and other documents included with or referenced in an RFT or Request for Quotation. |
| Standing Contract | A contract in which a single tenderer or multiple tenderers may be contracted for a specified period to provide specified goods or services during that period without the need for a further tender process. |
| Tender | An offer from a prospective Service Provider in response to an open and public Invitation to Tender by Council, whereby no limit is placed on the potential number of offers. |
| Tender Evaluation Panel (TEP) | The assessment panel as established under the Code to assess and select the most suitable bid. |

FLINDERS COUNCIL

# PROCEDURE - CODE FOR TENDERS AND CONTRACTS

# 1. METHODS OF PROCUREMENT

## 1.1 REQUEST FOR QUOTATION

When Council procures goods, services or works under its tendering threshold of $250 000 or seeks Quotations to establish a Standing Contract arrangement through a Panel process Council will request Quotations in line with its procurement thresholds outlined in the procurement thresholds table.

## 1.2 PROCUREMENT THRESHOLDS

The purchasing thresholds describe when Quotations and Tenders are to be sought. Purchases shall not be split into smaller purchases to avoid the requirements of purchasing thresholds.

| **Purchasing Estimate** | **Minimum Documentation Requirement** | **Minimum Advertising Requirements** | **Documents Required** | Approval |
|---|---|---|---|---|
| Less than $5,000 | Verbal quotation | Nil | Notation of verbal quotation on Purchase Order | Per approved budget and delegation register |
| From $5,000 to $29,999 | 2 written quotes (From separate providers) | Nil | Written assessment of quotes + Purchase Order | Per approved budget and delegation register |
| From $30,000 to $119,999 | 3 Written quotes (From separate providers) | Nil | Written assessment of quotes + Purchase Order | Per approved budget and delegation register |
| From $120,000 to $249,999 | Request for Quote (RFQ) process.* | Council Website and external media/tender provider | Tender Evaluation Panel (TEP) recommendations to GM + Purchase Order + Contract. | General Manager |
| From $250,000 to $499,999 | Request for Tender (RFT) process.* | Council Website and external media/tender provider | TEP recommendations to GM + Purchase Order + Contract. | General Manager or Council Decision |
| From $500,000 and above | Request for Tender (RFT) process.* | Council Website and external media/tender provider | TEP recommendations to GM and to Council + Purchase Order + Contract. | Council Decision |

All procurement thresholds are GST exclusive. Tenders and Quotations will be sought on a GST exclusive basis.

* Thresholds may also include Expression of Interest (EOI) and Early Contractor Involvement (ECI) procurement methods.

There may be occasions where, for a number of reasons, Quotation(s) cannot be obtained / sought or where doing so would have no additional benefit to Council or the market. Therefore, exemptions from the requirement to seek written quotes under the thresholds can be sought from the General Manager if the reason for doing so satisfies one of the grounds outlined in **Section 2.1 of the Policy document– non-application of the quotation process**, or **Section 2.2 of the Policy document – non application of the public tender process.**

## 1.3 REQUEST FOR QUOTATION OR TENDER

Council may invite Quotations or Tenders in accordance with the thresholds table shown above at 1.2. may provide  The following shall be issued as a minimum:

- advertisement in The Examiner newspaper and on the Council, website tenders page.
- details of the goods or services required
- details of the duration of any contract, including any extensions that are specified in the contract
- the conditions of participation to be met by applicants
- the criteria for evaluating Quotations or Tenders
- the method of evaluating Quotations or Tenders against the criteria
- any mandatory specifications and contract conditions
- a reference to Council's **Code for Tenders and Contracts** (this document)
- applicants must lodge the Quotation or Tender in the manner specified in the conditions of Quotation or Tender.

The period within which a Quotation or Tender is to be lodged will be a period ending at least 14 days after the date on which the notice is published. Applicants must make a response in writing, specify the goods or services provided for and lodge the Quotation or Tender within the period specified in the notice.

## 1.4 MULTIPLE-USE REGISTER (PREFERRED CONTRACTORS/SUPPLIERS LIST)

Council will establish a Multiple-Use Register otherwise referred to as a Preferred Contractors/Suppliers List, which serves to collate a list of suppliers that are determined by Council to satisfy the conditions of participation for the supply of particular categories of goods or services. The General Manager will invite applications from prospective suppliers for inclusion on the register by publishing a notice in The Examiner newspaper every two years, and on Council's website. The General Manager will ensure that applicants are provided with the following in order to make an application:

- details of the categories of goods or services required
- the conditions of participation to be met by applicants
- the criteria for evaluating applications
- the method of evaluating applications against the criteria
- a reference to this Code for Tenders and Contracts.

The relevant Council officer will advise all applicants of the results of their application including the categories for which they are registered and if applicable, the reasons for any rejection.

When Council requires goods or services of an emergency nature or that are under the procurement threshold, this register may be used. Should Council wish to seek a tender for procurement of goods or services, no favourability will be provided to those registered on the Preferred Contractors/Suppliers List.

Council will review any Multiple-Use Register/Preferred Contractors/Suppliers List at least once every two years. Council will allow a prospective applicant to apply for inclusion on the register or list at any time. Applicants/registrants may apply to be removed from Multiple-Use Registers/Preferred Contractors/Suppliers Lists by writing to the General Manager or will be removed if they no longer meet the conditions of contract (i.e. insurance, environmental and/or work health and safety breaches).

## 1.5 MULTIPLE-STAGE TENDER

Council may invite Tenders for a contract for the supply of goods or services using a multiple-stage Tender process, which is a process by which suppliers are evaluated through stages against criteria determined by Council. At the first stage of the multiple-stage Tender process, the General Manager will invite expressions of interest by publishing a notice in The Examiner newspaper and the relevant webpage. The General Manager will ensure that applicants are provided with the following in order to make an expression of interest:

- details of the goods or services required
- the conditions of participation to be met by applicants
- the criteria for evaluating expressions of interest
- the method of evaluating expressions of interest against the criteria
- details of any further stages in the Tender process
- a reference to this Code for Tenders and Contracts.

At the final stage in the multiple-stage Tender process, the General Manager will invite all suppliers who met the criteria determined by Council to Tender for the supply of goods or services. The criteria used at each stage of the multiple-stage Tender process will be consistent. If only one supplier meets the criteria determined by Council at the first stage, Council may contract with that supplier after the provision of a Tender for the next stage or a decision of Council may be sought to do so.

## 1.6 STANDING CONTRACT

Council may establish a Standing Contract through a Quotation or Open Tender process, refer to section 1 (Methods of procurement).4 above, in which a single provider or multiple providers may be contracted for a certain period to provide specified goods or services during that period without the need for a further procurement process.

When purchasing via a standing contract, Council will seek written quotations in line with its procurement thresholds set out in section 1.2 of this document.

There may be occasions where, for a number of reasons, Quotation(s cannot be obtained/sought from the standing contract providers or where doing so would have no additional benefit to Council or the market.

Therefore, exemptions from the requirement to seek written quotes under the thresholds can be sought from the General Manager if the reason for doing so satisfies one of the grounds outlined in either **Section 2.1 of the Policy document– non-application of the quotation process**, or **Section 2.2 of the Policy document – non application of the public tender process.**

## 1.7 ADDITIONS TO STANDING CONTRACTS

Council will generally not permit the addition of providers to a standing contract of providers during the term and any further terms of the contractual arrangement. However, additional providers may be able to join a contract during the term and any further terms of the arrangement with approval by the General Manager if the request meets at least one of the criteria and all of the conditions for additions outlined below.

## 1.8 CRITERIA FOR ADDITIONAL PROVIDERS

At least one of the following criteria for adding providers to an existing standing contract must be satisfied:

- An increase in the volume of goods, services or works under the existing arrangement has occurred that cannot be accommodated by existing members.
- A court order or directive has been made after the original Tender process changing the circumstances of the original contract members.
- A change in legislation, Australian Standard or similar has occurred after the original Tender process changing the circumstances of the original contract members.
- The prospective additional provider's legal entity was not in existence (i.e. registered, constituted, formed or incorporated) at the time the original Tender process was advertised.
- The prospective additional provider's business did not have an operational presence in Tasmania at the time the original Tender process was advertised.
- A corporate reconfiguration or restructure has impacted a provider on an existing Council arrangement.
- To accommodate market innovation not contemplated or available at the time of the original Tender process.
- The contract has insufficient providers to meet Council's needs under the arrangement.

## 1.9 CONDITIONS FOR ADDITIONAL PROVIDERS

In the event that Council is found to require additional goods or services or requests are forthcoming for inclusion by a service provider, all of the following conditions for adding providers to an existing standing contract must be satisfied:

- A submission to join the arrangement is made by the prospective additional provider by completing the provided Tender forms of the original Tender process for establishment of the arrangement.
- The Tender submission to join the standing contract is assessed against the same evaluation criteria and process as the original Request for Tender for establishment of the arrangement.
- The prospective additional provider meets the same requirements as the original Tenderers when the standing contract was originally established.
- The submission of the prospective additional provider is approved by the General Manager.
- The prospective additional provider substantially agrees to the conditions of contract already executed by existing providers.
- The additional provider's contract expires on the same date as that of the original providers.
- Providers may be removed from an arrangement if they fail to perform and meet key performance indicators or on the ground of insolvency. A decision to remove a provider from a contract will be at the sole discretion of the General Manager.

### 1.10 USE OF OTHER PROCUREMENT METHODOLOGIES

For project values above $120,000, Expression of Interest (EOI) and Early Contractor Involvement (ECI) procurement methods may be utilised. The EOI and ECI procurement methods will follow the same process described in the Request for Quotations/ Tender at 1.3 with differing outcomes for each.

- EOI – Scoping exercise that may not culminate in a contract being awarded. This is to be clearly articulated in the advertising process.
- ECI – Seeking early partnership engagement, providing technical/design expertise and culminates in a staged contract process. No work is to commence until a contract is in place.

Regardless of the value, where it is determined that it is cost effective to do so Council may use a State or Commonwealth Government Contract, the LGAT Procurement process or another council contract for the provision of goods, services or works. The use of such Contracts exempts Council from the requirement to tender under Regulation 29 of the Regulations.

### 1.11 ENGAGING A THIRD PARTY TO MANAGE A PROCUREMENT PROCESS

Council may engage third parties to manage the procurement process for individual projects. The use of a third party as an agent or consultant to advise on, arrange or manage a procurement process does not exempt Council from complying with Council's procurement framework, policy and procedures.

Should Council engage a third party to manage a procurement process, it must be ensured that material is included in the contractual arrangements with the third party that requires the third party to comply with Council's procurement framework, policy and procedures.

## 2. TENDERING PRACTICES

Consistent Tender practices must be applied to all procurements where a public Tender is required. These Tender practices may, at Council's discretion, be applied to a Quotation process. The purpose of these Tender practices is to ensure all Council Tenders are conducted in a fair and uniform manner. These Tender practices must be applied to all procurements where a public Tender is required.

### 2.1 ADMINISTRATION OF TENDERS

Council routinely seeks tenders for a range of activities including construction work, maintenance works and consulting works, and the purchase of goods and services. Public tender processes are conducted by Council's officers.

All projects with a value equal to or greater than $250,000 (excluding GST) must call for a public tender. This value has been set in accordance with the prescribed amount as per *the Act* at the date the Code was adopted by Council. Certain situations are provided for in the non-application of the public tender process, as outlined in Section 2.2 of the Code.

Tenders may, at Council's discretion be called for any project / purchase below the Prescribed Amount, where:

- A formal tender process is required to deal with the complexity, and/or importance of the purchase;
- There is a high probability of risk associated with the purchase; and
- Use of formal Conditions of Contract are advisable or required.

## 2.2 ETHICAL STANDARDS

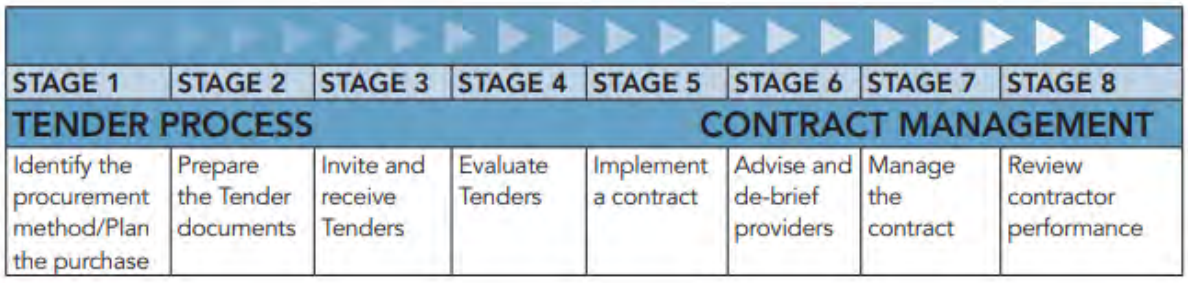
Council's ethical standard is to only support and / or contract companies, institutions and organisations that refuse to support or profit from practices which abuse any of the fundamental human rights. A company that is not abusive is one which:

- has zero tolerance for child abuse, in policy and practice
- does not treat people in a cruel, inhumane or degrading manner
- commits to transparency and independent monitoring to ensure these principles are upheld.

When submitting a Tender or Quotation Service Providers may be requested to provide statements in relation to ethical considerations including child safe provisions.

# 3. TENDER (RFT)/QUOTATION (RFQ) PROCESS

Council outlines its Tender/Quotation process in a series of stages. Stage 1 to 6 of the diagram below identifies the steps in Council's Tender/Quotation process:




*for this section 3. the word 'Tender' equally applies to the "Quotation' process.

## 3.1 STAGE 1 – PLANNING THE PROCUREMENT

The following actions are required prior to preparing a request for tenders (RFT):

- verifying that the appropriate Delegate has approval and/or delegation to undertake the purchase
- establishing the objectives of the purchase and preparing the Specification, which will clearly convey Council's requirements to Service Providers
- identifying the correct purchasing method, including determining if there is an appropriate Contract already in place
- valuing the purchase and, at a minimum, complying with the purchasing thresholds set out under this Code
- confirming sufficient funds are available in Council's budget
- establishing the evaluation committee, their roles and responsibilities
- consideration of conflict of interest for any person involved in the procurement process
- defining any mandatory Conditions of Participation or compliance criteria that a potential provider will be required to meet in order to have their Tender considered
- defining the evaluation criteria (and weightings if applicable) which will be used to evaluate Tenders and select the successful Service Providers(s).

### 3.1.1 CALCULATING THE VALUE OF A PURCHASE

The value of a contract must be estimated prior to seeking Tenders or Quotations and the contract value must not be underestimated in order to avoid the requirement to seek Tenders or a specified number of Quotations.

The duration of a contract (including standing offers for the supply of goods, services and works, or any combination thereof) must be based on the contract period that best fits Council's business, operational and risk management requirements. A shorter contract period must not be selected in order to avoid the requirement to seek Tenders.

A purchase must not be split into multiple smaller purchases in order to avoid the requirement to seek Tenders or Quotations.

Where relevant, provisional sums, prime cost items, allowances for contingency sums and the like are to be included in the estimated value of a purchase.

### 3.1.2 USE OF EXPERTS OR PROBITY ADVISORS

Council will engage the services of Probity Advisors and external experts where the nature of the Tender warrants it. For example, where Council is requesting Tenders with complex requirements or high cost or where the contractual arrangement is for extended periods.

## 3.2 STAGE 2 – PREPARE THE TENDER DOCUMENTS

A unique identifier will be allocated to all Request for Tenders and Requests for Quotations $120,000.00 and over. Once the contract is awarded the unique identifier will be provided for the contract. The unique identifier must be referred to on all correspondence and other documentation relating to the Tender/Quote and the contract. Appropriate records are to be maintained throughout the duration of a Tender process.

### 3.2.1 CONDITIONS OF TENDERING

The RFT must include Conditions of Tendering, setting out the terms under which a Tender will be accepted for evaluation, including at a minimum:

- a unique identifier number
- the place for lodgement of Tenders
- lodgement instructions
- the Closing Time and place
- specific lodgement requirements, including the information to be submitted with a Tender
- a single nominated contact officer, to which all enquiries concerning the RFT must be submitted
- the procedure for responding to enquiries and amending or clarifying the RFT documents
- any other matters relating to the RFT process, including details of pre-Tender briefings and site inspections
- mandatory Conditions of Participation or compliance criteria applicable to the RFT
- evaluation criteria and weightings and the method of selecting the Preferred Tenderer
- reference to the Code for Tenders and Contracts.

### 3.2.2 SPECIFICATION

A complete Specification, which describes the extent of the requirements and particulars of the manner or method of the performance of Council's requirements, must be provided for each RFT.

The Specification must, at a minimum include:

- a description of Council's requirements, which is sufficient to ensure that a Service Provider is not required to undertake an unreasonable amount of design work or other effort in preparing and lodging a Tender
- legislative and mandatory requirements and minimum fitness for purpose and quality standards
- health and safety and environmental management requirements
- The Specification must enable participation by local Service Providers wherever local capacity and capability exists and must not restrict competition to be biased towards a particular brand or Service Provider.

### 3.2.3 CONDITIONS OF CONTRACT

Service Providers must be provided with or advised of the terms and conditions of the contract that a successful Tenderer will be required to agree to. The RFT will include either:

- the Conditions of Contract or other document setting out the contractual terms defining the obligations and rights of the parties to a contract
- reference to the Australian Standard conditions of contract, or other Conditions of Contract, applicable to the RFT. Any Annexures, schedules or exhibits to the Conditions of Contract must also be issued with the RFT.

### 3.2.4 TENDER FORMS

At a minimum, Service Providers must be provided with a properly structured Tender form, on which to make their Tender.

## 3.3 STAGE 3 - INVITING AND RECEIVING TENDERS

### 3.3.1 INVITING TENDERS

The Invitation to Tender must be in the form of a public advertisement, which at a minimum provides:

- a description of Council's requirements
- the Closing Time
- instructions on how to obtain the Tender documents
- the times and dates for pre-tender meetings (if applicable).

At a minimum, the Invitation to Tender will be placed in the Tenders section of the Wednesday or Saturday edition of The Examiner newspaper and will be posted on Council's website – Tenders page.

### 3.3.2 TENDER CLOSING

All Tenders will be allocated with a Closing Time, specifying the time and date by which Tenders must be submitted. The Closing Time must be included in the Conditions of Tendering and the Invitation to Tender. Tenderers will be provided with sufficient time between issuing of the Invitation to Tender and the closing date in which to prepare their Tenders.

The period within which a Tender is to be lodged will be a period ending at least 14 days after the date on which the notice is published.

Unless Council's operational needs require otherwise, submission of Tenders will not be required:

- before 3 pm
- on a Monday or any day immediately after a day which is a declared statutory public holiday in Tasmania
- between the dates of 24 December to 2 January (inclusive).

Council may amend the Closing Time for Tenders by issuing a written notice to all parties in receipt of the RFT via email and on the website page.

### 3.3.3 REQUESTS FOR ADVICE AND INFORMATION

Council reserves the right not to respond to any requests for clarification or additional information, if requested after the closing date.

Information not included in the RFT/RFQ documents and/or clarifications will be provided to all interested parties to maintain equality to all tenderers.

Council will nominate an officer or other representative (the "contact person") to deal with RFT/RFQ enquiries. All enquiries about the RFT/RFQ must be directed to the contact person.

Any requests or queries regarding the RFT/RFQ process after the Closing Date or that are unable to be resolved via the contact officer are to be issued to the General Manager.

### 3.3.4 AMENDING OR EXTENDING A TENDER

Council reserves the right to amend any of the documents comprising the RFT or provide clarification of any matter relating to the RFT prior to the Closing Time.

If the RFT is amended or clarification of the RFT matter, other than clarification of the RFT process, is required, Council will issue a notice of addendum via its website. Tenderers will be provided with sufficient time to allow for incorporation of the requirements of any addenda issued in their Tender submission.

Council may allow Tenderers, which have already submitted a Tender, to lodge an amendment to their Tender, provided that any such amendment is lodged in accordance with the Conditions of Tendering prior to the Closing Time.

### 3.3.5 RECEIVING AND LODGEMENT OF TENDERS

Clear instructions on how to lodge a Tender will be provided in the Conditions of Tendering.

A Tenderer must comply with the lodgement instructions given in the Conditions of Tendering. Council may reject any Tender which is not lodged in accordance with the lodgement instructions, without consideration.

### 3.3.6 LATE TENDERS

Any Tender received after the Closing Time for Tenders will not be considered unless Council is of the opinion, and Council's decision shall be final, binding and not open to dispute, that:

- the cause of the lateness was beyond the Tenderer's reasonable control;
- consideration of the late Tender would not provide an unfair advantage to the Tenderer submitting the late Tender; and
- consideration of the late Tender would not compromise the Tender process

### 3.3.7 OPENING OF TENDERS

Council will hold tenders securely and digitally. Tender submissions will not be opened until the time set for the closing of Tenders has elapsed.

The opening of Tenders will not be public.

Tender submissions will be opened in the presence of at least two Council officers together with the external Probity Advisor if applicable, and the Tender submissions received will be clearly identified and recorded upon opening.

If a Tenderer is provided with the opportunity to correct unintentional errors of form between the opening of submissions and nomination of a Preferred Tenderer, the same opportunity to correct unintentional errors will be provided to all other Tenderers.

A Tenderer may withdraw its Tender at any time prior to acceptance of the Tender, by providing Council with written notification.

A Tender must remain valid for the period of time required by the Conditions of Tendering.

### 3.3.8 ALTERNATIVE TENDERS

Council may consider any Tender which meets Council's requirements in an alternative and practical manner provided that it meets the totality of those requirements (i.e. Council may consider an "Alternative Tender").

An alternative tender will only be considered in conjunction with a conforming tender.

Alternative Tenders may relate to the functional, performance and technical aspects of the requirements or to opportunities for more advantageous commercial arrangements. Council may either consider Alternative Tenders on their merits or reject Alternative Tenders without consideration at its absolute discretion.

### 3.3.9 CONFIDENTIALITY AND COMMERCIAL-IN-CONFIDENCE

Any of the documents, information or other materials provided to Tenderers by, or on behalf of, Council in connection to an RFT, remains the property of Council and may only be used by the Tenderer to the extent required to prepare its Tender.

A Tenderer or other person receiving the RFT must not publish, disclose or copy any of its content, except as necessary to prepare its Tender. The Tenderer must keep confidential all information provided by or on behalf of Council as part of, or in connection to, the Request for Tenders.

Council may publish and publicly disclose (in annual and other reports, on the internet or otherwise) a description of the Contract arising out of awarding of the Tender, the successful Tenderer's name and the value of the successful Tender.

Council may reproduce and disclose or distribute and save or store all or part of a Tender as required to enable the Tender evaluation process and as necessary to meet its legal, governmental and other obligations.

Council may disclose the name of the successful Tenderer to unsuccessful Tenderers.

Further information regarding confidentiality in the Tender evaluation process is outlined in Section 4 of this document. All Tenders become the property of Council immediately upon submission.

## 3.4 STAGE 4 – TENDER EVALUATION

Unless the Conditions of Tendering expressly state an alternative method, Tender evaluation will be carried out in accordance with the principles and practices set out in this Code.

### 3.4.1 CONFORMING AND NON-CONFORMING TENDERS

A Tender will initially be assessed for conformance. A conforming Tender will be taken to mean a Tender which:

- is lodged by the Closing Time and in compliance with the requirements of the Conditions of Tendering
- meets the mandatory Conditions of Participation.

Council will consider any conforming Tender on its merits. Council may reject, as a nonconforming Tender, any Tender which:

- is not submitted in conformance with the Conditions of Tendering
- is incomplete or which contains insufficient information to allow Council to carry out a valid evaluation in accordance with the procedure for evaluating Tenders set out in this Code.

Council reserves the right to exclude any Tender from evaluation which, in Council's judgement, is excessively low or high in price so as to have a detrimental effect on the relativity of other Tenders.

### 3.4.2 TENDER EVALUATION PANEL

A Tender Evaluation Panel (TEP) will be established for each Tender process. The TEP will consist of at least three members plus an independent advisor and/or probity advisor if required (for high value or complex contracts).

In order to ensure consistency a common structure for all TEPs within Council is required. Therefore, the TEP will always include the following:

- chairperson
- at least two staff members additional to the chairperson
- an independent probity advisor, if required

The chairperson should be a Council officer with suitable seniority, normally the TEP would be chaired by a relevant Manager at a minimum and at least one member should be proficient regarding the technical/subject matter.

A probity advisor may be required for high value or complex Tenders where independent probity advice and an independent probity contact for Tenderers would benefit the procurement process and reduce procurement risk.

### 3.4.3 CONFIDENTIALITY

Tender evaluations should be strictly confidential. All contact with the suppliers must be confirmed in writing through the nominated Contact Officer advising the TEP. Members of the TEP will not discuss with any other person outside the TEP issues regarding the evaluation. The Chair of the TEP may obtain advice from specialists to assist in the Tender evaluation process.

### 3.4.4 METHOD

Tenders will be evaluated with the aim of determining the Tender submission which offers the best value for money outcomes to Council. When assessing value for money, Council may:

- in addition to price, take into account any non-price criteria that it considers relevant to the successful performance of Council requirements and achievement of Council's desired commercial and other outcomes, including but not necessarily limited to Council's Procurement Principles
- apply a weighting to the price and non-price criteria.

The evaluation method and evaluation criteria and weightings must be determined before finalising the RFT and must be disclosed to Tenderers in the Conditions of Tendering.

Selection and manner of application of the evaluation criteria and weightings will be at the sole discretion of Council. Council will not be liable to any Tenderer for the application, or non-application, of any evaluation criterion or weighting. Evaluation criteria and weightings will apply equally to all Tenderers.

### 3.4.5 CLARIFICATIONS

During the evaluation process, Council may request additional information from any Tenderer in order to clarify matters in doubt or not made clear by the Tender submission. However, a Tenderer will not be provided with the opportunity to revise or amend its Tender price or submit additional material information in order to make a non-conforming Tender into a conforming Tender.

### 3.4.6 TENDER NEGOTIATIONS

During the evaluation process, Council reserves the right to negotiate with a Tenderer or Tenderers in order to:

- assess a Tenderer's understanding of Council's requirements, test any assumptions made by a Tenderer in determining their Tender prices(s) and rectify any false assumptions
- obtain clarification of matters in relation to the Tenderer's capability to fulfil Council's requirements
- enhance the commercial benefit to Council by achieving cost reductions or service improvements with the preferred tenderer
- finalise the commercial terms required to form a contract.

Council will not enter into negotiations which result in substantial modification to Council's requirements, or which would lead to a non-conforming Tender becoming a conforming Tender.

The outcomes of Tender negotiations will be reflected in the final contract documentation.

In the course of negotiations with a Tenderer, Council will not disclose the details of any other Tender submissions.

## 3.5. STAGE 5 – ESTABLISH A CONTRACT

The authority to award Tenders and Quotations, and enter into contracts, will be in accordance with the approved Delegate under the financial delegations set out in Council's Delegation Register, the relevant Council decision or approved budget.

### 3.5.1 TENDER REJECTION AND ACCEPTANCE

Council is not obliged to accept the lowest priced Tender or any Tender.

Council may reject all Tenders.

Council may accept a conforming or Alternative Tender.

If Council rejects all Tenders, it will advise all Tenderers accordingly in writing.

Council will advise all Tenderers of the outcome of the Tender process in writing. Unsuccessful Tenderers may be provided with the name of the successful Tenderer.

The requirements for acceptance of Tender and contract formation will be specified in the RFT.

### 3.5.2 CONTRACT EXTENSION

Council may extend a contract entered into by Tender under the following conditions:

- if the contract conditions provide for an extension of contract or if required,
- by a decision of the Council made by absolute majority.

Council will be mindful when such extension of contract is granted that the principle of open and effective competition is adhered to.

### 3.5.3 CONTRACT VARIATION

A variation to a contract could include, but not be limited to, a change in scope and type of Council's requirements, quality standard, service level, delivery times, timeframes, personnel and price.

All contract variations must be approved by the appropriate delegate in line with their financial delegation and generally:

- must not exceed budget unless a budget variation request has been approved; and
- must not materially alter the Specification for the goods, service or works initially tendered for;
- must be approved by the General Manager if any contract variation exceeds the Project Managers financial delegation;
- in the case of variations exceeding $100,000 in value, Council approval will be sought.
- the General Manager may seek Council approval for a variation below these thresholds as deemed appropriate to comply with best practice principles.

## 3.6. STAGE 6 – ADVISING AND DEBRIEFING PROVIDERS

The purpose of the debriefing session is to help unsuccessful tenderers improve their ability to successfully bid for future Council requirements.

The debriefing process is not to be used as a means of contesting the outcomes of a procurement process, but instead, promote continual improvement of submissions.

Council will provide a debriefing interview to any unsuccessful bidder who requests one.

Briefings will include:

- how their offer performed with respect to the evaluation criteria; and
- strengths as well as weaknesses of their offer.

Briefings will not include:

- comparisons between the unsuccessful tenderer's offer and the winning or any other offer; or
- the debriefing interview being used to justify the selection of the successful tenderer.

Council's debriefing team will include at least one member from the TEP. Council will document the proceedings at each debriefing interview including:

- who attended (from the agency and from the business concerned)
- the information provided to the unsuccessful tenderer
- any issues arising
- the details of any information that was requested, but not disclosed due to commercial in confidence considerations; and
- any likely future complaints, and recommendations for further action.

Where a multiple stage purchasing process is used (for example where EOIs are used to short-list tenderers), tenderers not short-listed may be offered a debriefing interview, in a similar way to unsuccessful tenderers.

### 3.7 STAGE 7 – MANAGING THE CONTRACT

Good communication protocols must be set up with the contractor. Ordinarily one project manager shall be assigned from Council to liaise with one site manager with key personnel, their roles and redundancy included in the Contract Management Plan. A minimum of weekly meetings should be held, to discuss the works, the provisions of the contract, timeframes and budget. Identifying issues, with the contractor, as early as possible will save further issues and delays as the project progresses.

### 3.8 STAGE 8 – REVIEWING CONTRACTOR PERFORMANCE

Prior to final payment and the issuance of any certificates of completion, a review of the contractor's performance will be undertaken to ensure both parties are satisfied that the project has been delivered successfully. Any concerns or grievances should be raised at this stage, rather than at a later date when neither party is in a position to respond or negotiate. Once all reviews have been completed, each party must confirm their satisfaction with the project outcomes.

## 4. COMPLIANCE AND REVIEW

### 4.1 REVIEW OF TENDER PROCESS

Following completion of the tender evaluation process a report is prepared for the General Manager to review the tender process and accept or reject the recommendation from the TEP.

Periodic reviews of procurement and tender process controls may be conducted by Council's internal auditors.

### 4.2 PROCUREMENT COMPLAINTS

A complaint about procurement can be communicated to Council via the process for making a complaint contained in Council's Customer Service Charter, which may be obtained via Council's website.

The contact officer should first attempt to find resolution to the procurement complaint in consultation with the Chairperson of the TEP. If the complaint can't be resolved the complaint should be referred to the General Manager

## 4.3. BREACH OF THE CODE

Council will comply with its Code and its legislative obligations.

If any employee of Council, or a body controlled by Council, breaches this Code, Council may take disciplinary action if, in its absolute discretion, it considers it necessary to do so.

If a Service Provider commits a breach of this Code, Council may, in its absolute discretion, take action against that Service Provider. Action may include, but not be limited to:

- giving a warning to the Service Provider;
- reporting of the breach to a statutory, professional or other relevant body; and
- termination or suspension of the Service Provider's engagement.

# Gifts and Donations

## GUIDELINE – AUGUST 2019

This Guideline has been developed to assist local government with the application of the gifts and donations requirements in the *Local Government (General) Regulations 2015*.

### New gifts and donations register

The *Local Government Act 1993* requires councils to keep a register of gifts and donations received by councillors.

The *Local Government (General) Regulations 2015* (Regulations) provide details of what gifts and donations need to be reported.

#### Classes of gift and donation

Gifts and donations to be reported include any of the following with a value of $50 or more:

- an item;
- a service;
- a loan of money;
- a loan of property; or
- any other benefit.

This includes a series of gifts or donations received by the same councillor from the same donor where the total value in a financial year is $50 or more.

For example, a $10 lunch bought for a councillor each week over a period of time.

The Regulations refer to 'donations' generally. This is any donation and includes political donations of $50 or more.

#### Who must notify?

Only sitting councillors are required to disclose gifts or donations received during their term and during an election period.

Gifts that have been received by councillors in their personal capacity, for example a birthday gift from a family member, are not required to be disclosed.

Candidates for a local government election who are not sitting candidates are not required to disclose gifts or donations received during the election period.

### Notification

A councillor is to give notice within 14 days of receiving a gift or donation. The notice must be in writing and include:

- the name of the councillor who received the gift or donation;
- a description of the gift or donation;
- the name of the donor (if known);
- the councillor's relationship to the donor (if known);
- the suburb/locality where the donor resides (if known);
- the date on which the gift or donation was received; and
- the estimated monetary value of the gift or donation.

If the gift or donation is received while the councillor is outside Australia, notice is to be provided within 14 days of returning to Australia.

Office of Local Government
Department of Premier and Cabinet

Tasmanian Government

## Register

The general manager is responsible for keeping the register, which must contain the following information:

- the name of the councillor;
- a description of the gift or donation;
- the name of the donor (if known);
- the councillor's relationship to the donor (if known);
- the suburb/locality where the donor resides (if known);
- the date on which the gift or donation was received; and
- the estimated monetary value of the gift or donation.

The gifts and donations register for elected members is required to be made available for public inspection at the relevant council's office and on the council's website. It is also required to be updated at least monthly.

## Personal versus public capacity

Councillors may need to assess whether a gift has been given to them in their personal capacity or their private.

To help distinguish this, councillors may wish to ask themselves the following questions:

- *Who is the giver of the gift or donation and what is their relationship to me?*

  Would I be receiving the gift or donation if I was not an elected member? Could the person or organization benefit from a decision I make?

- *Are they seeking to influence my decisions or actions?*

  Has the gift or donation been offered to me publically or privately? Does its timing coincide with a decision I am about to make?

- *Are they seeking a favour in return?*

  Would accepting it create an obligation (overt or otherwise) to return a favour? Has the person or organisation made several offers over the last 12 months?

- *Would accepting the gift or donation diminish public trust?*

  How would I feel if the gift or donation became public knowledge? What would my colleagues, family and friends think?

## Should gifts and donations be accepted?

Councillors should also ask themselves the above questions when determining whether to accept an offered gift or donation.

While there may be instances where it is appropriate to accept a gift, for example cultural differences, judgement should be exercised to determine whether gifts and donations be accepted, refused or donated to the council.

Councillors should also consider whether accepting a gift or donation would amount to a breach of Part 5 of the *Local Government Act 1993* or their council's Code of Conduct.



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FLINDERS COUNCIL



# 2021-2031 Strategic Plan

Revised May 2026

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*Flinders Council acknowledges the ancient history of the Tasmanian Aboriginal people as the First People of Lutruwita/Tasmania, and recognises the connection to the land, waters, and culture of the Furneaux group of Islands by the Palawa people of the Trawulwai Nation.*



Photographs – Sammi Gowthorp, Tasmanian Tuxedo, Len Zell

# Mayor's Welcome

Welcome to the Flinders Council Strategic Plan, a roadmap that outlines our vision, goals, and strategies to guide our organisation's future direction.

We recognise the importance of proactive planning to meet the evolving needs of our residents, businesses, and stakeholders. This strategic plan serves as a framework to align our efforts, allocate resources, and prioritise initiatives that will contribute to our municipality's sustainable development and prosperity.

Our strategic plan results from collaboration and engagement with community members, council staff, elected representatives, and industry partners. We have listened to your aspirations, concerns, and ideas to shape our strategic priorities and actions.

Some additions to this plan include a visitor economy that embraces regenerative tourism principles, and targets around food security, an issue that is of concern to many residents.

The Flinders Council Strategic Plan is built upon a clear vision for the future we aspire to create together. It outlines a set of strategic goals encompassing key focus areas and areas of opportunity within our community and will guide our decision-making into the future.

We invite all members of the Flinders Council community to participate in the realisation of this strategic plan. Your engagement and input are essential to its success. Together, we can work towards creating a vibrant, sustainable, and inclusive municipality that thrives now and for future generations.

Thank you for joining us on this exciting journey as we implement the Flinders Council Strategic Plan. Let us unite our efforts, harness our collective strengths, and positively impact the lives of all who call the Furneaux Group of Islands home.

Rachel Summers
Mayor



# Planning Overview

Under the *Local Government Act 1993*, a council must prepare and adopt a 10-year strategic plan for the management of its municipal area.

This Strategic Plan will guide Flinders Council's work over the next ten years in delivering the vison for the Flinders Municipality.

Every year, Council considers what needs to be done to deliver its Strategic Plan and sets out its priorities in an Annual Plan with accompanying budget.

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Quarterly operational reports and the Annual Report allow Council to monitor its progress against the Strategic Plan and pursue continuous improvement.

Council will regularly assess and review its progress on the Strategic Plan and check back with the Community for input so that we can consider new and exciting opportunities that are arising, and ensure we are on track and meeting community expectations.

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## Our Vision

A vibrant, welcoming and sustainable community, full of opportunity, celebrating and preserving our unique way of life and natural environment.

## Our Mission

Working collaboratively with the communities of the Furneaux Group of islands to preserve the 'island way' whilst embracing future opportunities.













## Our Guiding Principles

When setting our strategic priorities and decision making, Council will be guided by the following principles:

1. **Community Engagement** – encourage and value community contribution.
2. **Island Heritage and Character** – retain and enhance our heritage, cultural traditions and community spirit.
3. **Environment, Waste and Sustainable Land Use Practices** – value our unique natural environment and encourage sustainable industries, lifestyle and practices.
4. **Service Quality** –provide service excellence, efficiently and effectively, and within our means.
5. **Transparency** – make professional and transparent decisions, communicated and implemented in the interest of the Community.
6. **Governance and Financial Responsibility** –comply with government regulations and Council's guiding plans: Strategic Plan, Long-Term Financial Management Plan and Long-Term Asset Management Plan.
7. **Sustainability** – strive for sustainability in the social / community, economic / business, and built / natural environments.
8. **Continuous improvement** – Ensure ongoing, documented, continuous improvement processes.

## Interpreting our Plan

To realise our vision, we have identified the following four focus areas as the foundations upon which our community is built and thrives:

1. **Liveability -** To protect and build upon our islands' way of life.
2. **Accessibility / Infrastructure -** Quality infrastructure and services for community benefit.
3. **Economy / Business -** An environment where a variety of businesses can thrive and integrate.
4. **Good Governance -** Effective, efficient and transparent management and operations.

For each of the focus areas, specific goals we want to achieve within the life of the plan have been identified. Clearly articulated strategies that will give us the greatest results for our efforts express how we will achieve these goals. Other areas of focus, action and detail, will evolve within the Annual Plans of the Council. In order to measure our overall success, key outcomes for each of the focus areas have also been included.




# To protect and build upon our islands' way of life.

Liveability refers to the collective components that contribute to the overall well-being of our community. It encompasses our sense of identity, belonging, environment, culture, opportunities, challenges, resilience, and diversity.

We aim to find solutions that preserve the unique qualities that make the Furneaux Group of islands special while also nurturing and sustaining a thriving and "viable" population.

It is important to note that a viable population cannot be reduced to a mere numerical value. Rather, it represents the minimum requirement necessary to maintain the services and amenities that our community relies on, ensuring the desired quality of life for all residents.

## WHAT WE WANT TO ACHIEVE TOGETHER:

*1.1* *A viable population that enables the necessary services and activities required for the Community to prosper.*

*1.2* *A harmonious and healthy community actively engaged in employment, recreation, volunteering, arts and culture.*

*1.3* *Development and land use planning guidelines that promote balance between our built and natural environments.*

*1.4* *Our natural environment protected and enhanced through land management activities.*

*1.5* *Reliable and sustainable water security that strengthens community resilience, public health, and environmental balance.*



## HOW WE PLAN TO DO IT:

1.1.1 Encourage and support an increased supply of housing for long-term residential rental and purchase.

1.1.2 Promote the islands' authentic lifestyle, business and entrepreneurial opportunities to attract 'working age' population and families.

1.1.3 Collaborate with stakeholders to enable a variety of training and employment opportunities, including local skills and knowledge sharing.

1.1.4 Support provision of services to attract families as residents e.g childcare services.

1.2.1 Provide recreational facilities and assist community groups to encourage an active and healthy lifestyle.

1.2.2 Maintain and develop partnerships with Arts and Cultural organisations and support activities, projects and events that provide opportunities for community involvement and creative expression.

1.3.1 Promote and support sustainable activities to conserve the islands' natural and agricultural environments.

1.3.2 Develop a current Flinders Structure Plan for the Municipality.

1.4.1 Develop and implement strategies to reduce the risks of flood inundation.

1.5.1 Promote sustainable water use through education and awareness campaigns.

1.5.2 Collaborate with stakeholders to strengthen water security and prepare for climate change impacts.



### *Indicators of Success:*

- Development of a Housing Strategy for the Municipality.
- Sustainable levels of both long-term and short-stay housing.
- Simplified council processes that make building houses easier.
- Our population has grown to a level that sustains necessary trades, businesses and community activities and interests.
- Training and skills development programs meeting local industry needs.
- Reliable childcare and early childhood education facility and services.
- Our residents are more physically active and recreational facilities are well patronised.
- Harmonious partnerships with local arts and cultural organisations delivering quality community events and activities.
- A Natural Resource Management presence encouraging sustainable land use practices.
- A Flinders Structure Plan for the Municipality adopted.
- Flood mitigation projects and activities undertaken.



# ACCESSIBILITY / INFRASTRUCTURE

## Quality infrastructure and services for community benefit.

Our islands' isolation presents ongoing challenges in many areas including transportation, infrastructure, and asset and waste management.

Safe and reliable air, sea and road access, to and within our islands, is essential for our lifestyle, our economy and our growth. Extracting maximum benefit from Council assets through appropriate infrastructure maintenance, efficiency and upgrades will continue to be a focus. We will embrace our waste management challenges through innovation, partnerships and circular economy principles.

Affordable strategies that maintain and build on existing infrastructure and services will better meet current and future needs of our communities and visitors alike.

### WHAT WE WANT TO ACHIEVE TOGETHER:

*2.1 Quality public infrastructure, roads and footpaths.*

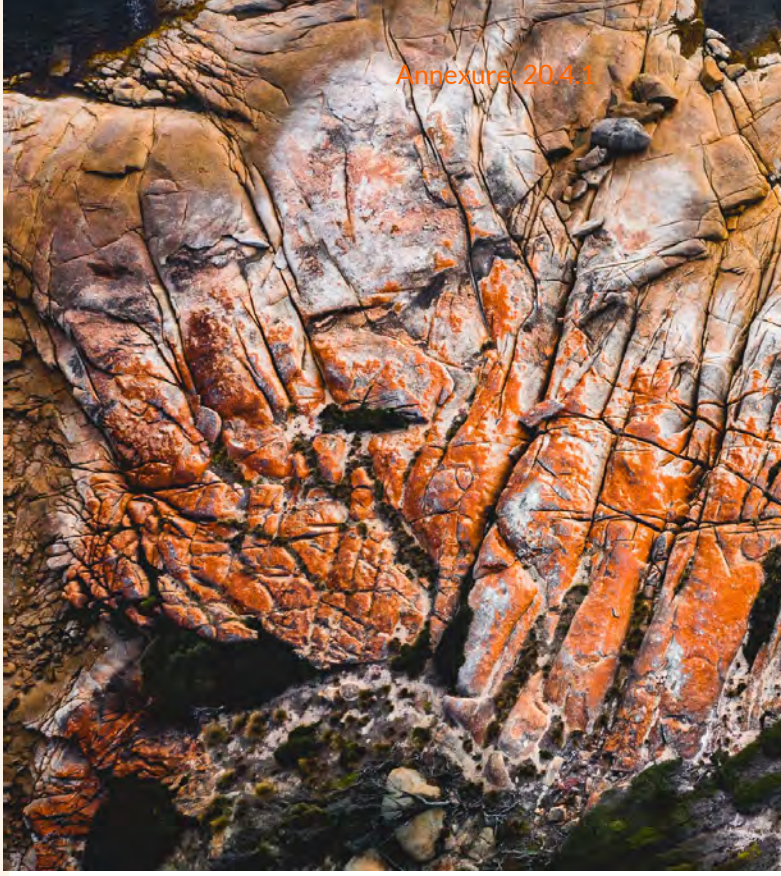
*2.2 Safe and reliable air and sea access to the islands.*

*2.3 Council assets/land maintained and utilised effectively.*

*2.4 Compliant, integrated waste management program that is cost-effective.*

*2.5 Compliant treatment and disposal of wastewater*

*2.6 A modern and equitable freight system that supports affordability and access for island communities.*



## HOW WE PLAN TO DO IT:

2.1.1 Maintain a network of safe roads and pedestrian pathways that recognises the changing needs of the Community.

2.1.2 Create townships that are attractive and welcoming through improvements to community infrastructure.

2.2.1 Review and update the Flinders Airport Masterplan.

2.2.2 Engage with key stakeholders to support and improve commercial and community sea access.

2.3.1 Develop and implement a Council Land Strategy to ensure land is utilised effectively.

2.3.2 Finalise and implement the Asset Management Plan, maintenance schedules and disposal procedures to meet audit and governance requirements.

2.4.1 Review and implement Council's Waste Management Strategy in line with relevant legislation, codes of practice and policy.

2.4.2 Deliver, support and partner in community waste education initiatives that encourage waste reduction, recycling, reuse and circular economy practices across the Furneaux Islands.

2.5.1 Collaborate with TasWater to provide an integrated septic and sewerage system for Flinders Island.

2.6.1 Advocate for an updated freight equalisation scheme that includes both air and sea freight across all industries.

2.6.2 Lobby for the inclusion of a CPI index to ensure Freight Equalisation remains responsive to rising costs.



### *Indicators of Success:*

- Road network and pedestrian pathways meet Community needs, including completion of Palana Rd sealing works.
- Increased percentage of State Government owned sealed roads.
- Townships are attractive and welcoming.
- Flinders Airport operating at increased efficiency, including upgrades to both airport runways and associated infrastructure.
- Safe Harbour completed and Lady Barron Port stakeholders working collaboratively.
- Council land utilised for greatest community benefit.
- Council's assets safely maintained.
- Less waste in landfill on Flinders and Cape Barren Islands.
- Compliant blackwater disposal.
- A freight equalisation scheme that includes both air and sea freight.
- Greater equity and affordability in freight access for local businesses and residents.




## An environment where a variety of businesses can thrive and integrate.

We recognise the importance of ongoing opportunities in all business sectors to ensure the long-term sustainability of our islands. By future-proofing the critical needs of our community, we can create a resilient and thriving economy.

Embracing sustainable and alternative energy sources presents a significant opportunity for us to reduce our environmental impact and move towards a greener future.

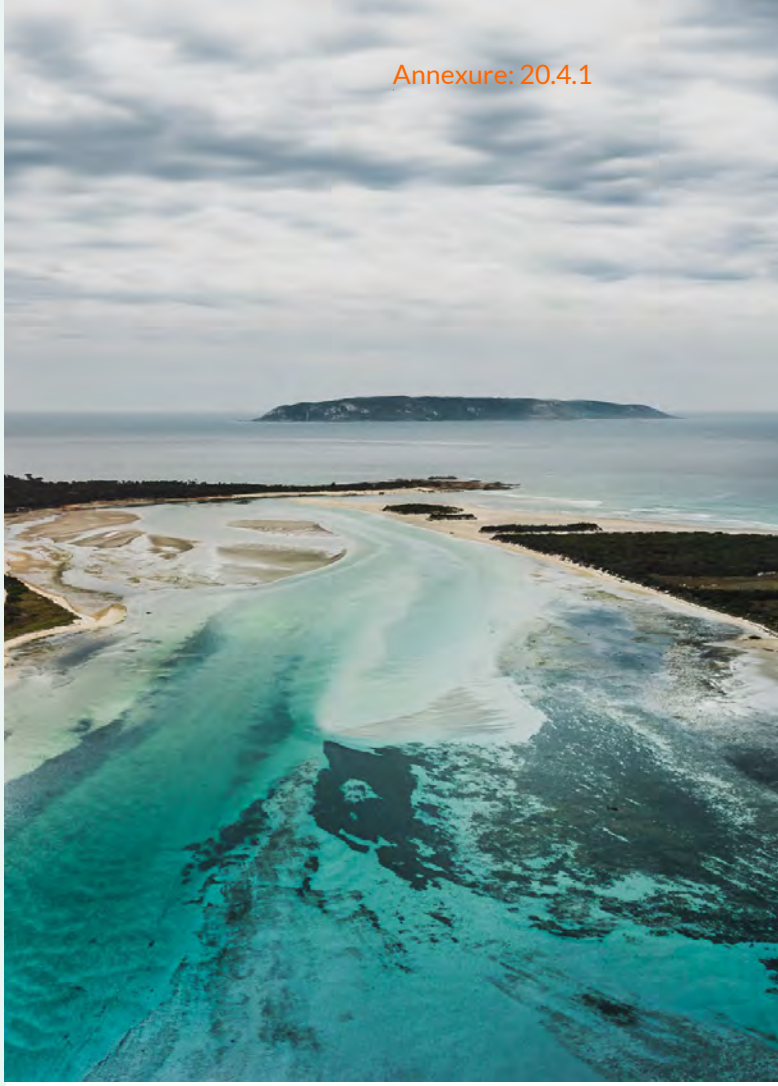
Our visitor economy will adopt regenerative tourism principles, promoting responsible and mindful tourism practices that benefit both our environment and local communities.

### WHAT WE WANT TO ACHIEVE TOGETHER:

*3.1 Ongoing opportunities across all business sectors to future-proof the critical needs of the islands.*

*3.2 Sustainable and alternative energy opportunities embraced.*

*3.3 A visitor economy that embraces regenerative tourism principles.*



## HOW WE PLAN TO DO IT:

3.1.1 Support and encourage innovation in business and industry through partnerships, infrastructure provision and support services.

3.1.2 Encourage diversity in agricultural endeavours to future-proof food security for the islands.

3.1.3 Advocate federal and state governments for improved availability of critical services and industries on the islands to benefit the Community and economy.

3.2.1 Engage with relevant partners to explore renewable energy options, including opportunities to turn waste streams into energy.

3.3.1 Encourage and support positive impact and regenerative visitor experiences that create conditions for people and places to thrive.



### *Indicators of Success:*

- More and varied businesses are operating.
- A fulltime, island-based veterinary practice established.
- Waste streams are generating energy.
- Support renewable energy options identified for Cape Barren Island.
- Visitor economy delivers social, cultural, economic, and environmental value for the Community.
- Increased and varied local food production and supply.




## Effective, efficient and transparent management and operations.

Good governance leads to better and more efficient decisions to give our community confidence in its Council. Through the strategies in this focus area, we will embrace new ways of working to ensure that we continue to provide quality services.

We will leverage our partnerships with all levels of government and stakeholders and work even more closely with our community towards shared goals.

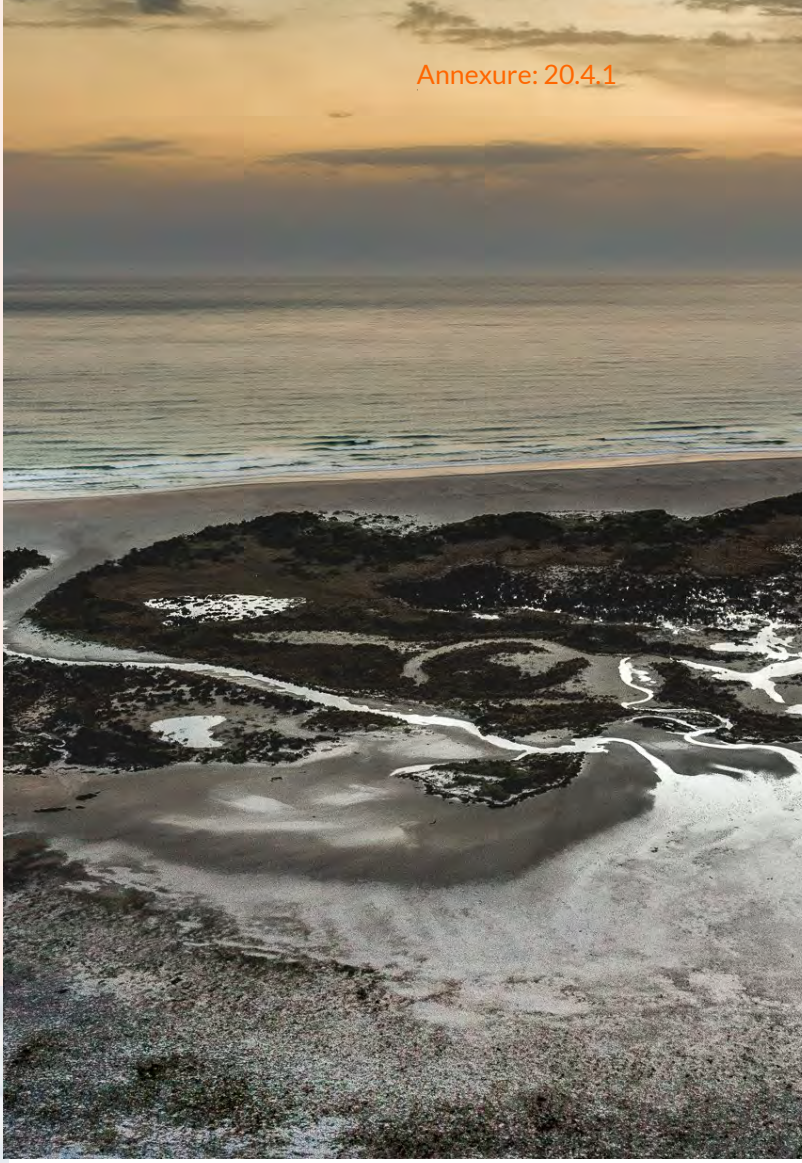
The values of integrity and accountability will continue to be upheld and deliver what we promise in a financially sustainable way.

Our decision-making process will be transparent and driven by data, evidence and our guiding principles, as well as our community's views.

### WHAT WE WANT TO ACHIEVE TOGETHER:

*4.1 An organisation that provides good governance, effective leadership and high-quality services, within our means.*

*4.2 Skilled, committed, and professional employees in a supportive environment.*



## HOW WE PLAN TO DO IT:

4.1.1 Council meets its statutory obligations to manage risk, achieve financial sustainability and model good governance.

4.1.2 Improve communication channels between Council and Community to foster greater community participation and outcomes.

4.1.3 Provide effective and timely incident and emergency management planning and response.

4.1.4 Collaborate with King Island Council, other councils, and stakeholders to improve efficiencies and advocacy.

4.2.1 Maintain a framework for staff performance management, training, and safety.



### *Indicators of Success:*

- Council delivers on its strategic and operational targets and meets statutory obligations.
- Council has the financial capacity to meet its long-term commitments.
- Community is satisfied with levels of collaboration, engagement, and transparency.
- Effective emergency service management of, and rollout to, critical incidents.
- Acknowledgement of emergency management respondents.
- Mutually beneficial relationships with King Island Council, other councils, and stakeholders.
- Dedicated workforce delivering services professionally and safely.

# Regular Health Checks

Throughout the life of this Strategic Plan, we will be regularly checking our progress against our success indicators in a variety of ways, including:




- Community and Stakeholder Surveys
- Timely and successful resolution of Requests for Service
- Timely and successful resolution of complaints received
- Improved Community and Council engagement
- Annual Plan performance indicators
- Councillor “Engaging our Community” sessions

# Thank you

We would like to thank all members of the Community who provided their thoughts and feedback via our community survey, Councillor “Engaging our Community” sessions and written submissions.

Your input has been invaluable in the development of this Strategic Plan and in ensuring the plan aligns with the sentiment of the Community. We were particularly appreciative of the quality and volume of feedback received during the process. We greatly value the interest shown in the future plans for the Furneaux Group of islands.



FLINDERS COUNCIL

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| 2026 Councillor Resolution Report | | May-26 | | |
|---|---|---|---|---|
| The following report identifies resolutions passed by elected members for the reporting period. The report provides the minute reference and date, the resolution, the elected member who moved and seconded the item, and the action taken to date to implement the decision. Where a resolution has been encapsulated in an Annual Plan Action, the progress of actions is then addressed through the normal Annual Plan Reporting requirements. | | | | |
| Minute | Resolution | Activity | Status | Date Completed |
| 172.09.2021 | Moved: Cr V GraceSeconded: Cr A Burke<br>That Council<br>a)Authorises the General Manager, Warren Groves to sign the Flinders Island Vet Facility grant deed under Common Seal for the purpose of constructing and equipping a new veterinarian facility,<br>b)Approves the investigation and use of appropriate Council land to site the facility and;<br>c)Approves the receipt of the veterinary facility onto Council's asset register upon completion. | 01/10/21 Initial meeting of Project committee - recommendation to undergo a risk assessment process to determine the most appropriate location for the proposed Vet facility per (b).<br>09/12/21 This project progresses well with detailed designs expected from Project Architects in the new year.<br>06/01/22 The Grant has been signed and a substantial amount of the funding has been received. Work is well underway with the successful architectural design team who aim to have a Development Application to Council in late January 2022.<br>08/03/22 DA expected to be submitted by week ending 18.03.22.<br>07/04/22 DA submitted and in process - advertising for DA and Community Consultation to commence together in second week of April.<br>09/05/22 Awaiting outcome of discretionary advertising period.<br>27/06/22 Tender pack for construction of facility advertised.<br>9/8/22 Two tenders were received and council is currently negotiating with the successful tenderer. Council negotiating with grant provider re the allocation of more funds to complete the project. Project currently on hold until these negotiations have been concluded.<br>11/10/22 Due to rising building costs, the funding is no longer sufficient to cover the entire project. Currently seeking direction from State Government on how it wishes to progress the project.<br>15/11/22 Council has submitted a request for further assistance to the State Government Committee charged with assessing State Government funded project cost over-runs.<br>16/03/23 Project Manager continues to follow up with Funding Committee without meaningful update to date.<br>15/05/23 Discussion with RDA Tas 11.05.23. Just released and upcoming Federal funding may assist with the progression of this project.<br>14/06/23 Considering funding application - Growing Regions to secure additional funding for this project.<br>17/08/23 Federal funding EOI for Veterinary Facility submitted 01.08.2023.<br>20/09/23 Awaiting release of grant application process, expected within the next month.<br>18/10/23 Still awaiting release of grant application process.<br>15/11/23 Expecting release of grant application around 28.11.23.<br>27/11/23 Advised funding application for Stage 1 of EOI Process successful.<br>15/01/24 Stage 2 of EOI process submission lodged 15/1/2024.<br>21/02/24 & 20/3/2024 Outcome of stage 2 expected March 2024<br>17/4/24 & 22/5/2024 Outcome still awaited,17/5/24 Advised Growing Regions grant application unsuccessful<br>26/6/24 Advocating with NRE re extension and future funding opportunities.<br>24/07/24: Extension of existing funding confirmed, advocacy continues for additional funding. Alternative building options being investigated.<br>25/09/24: Meetings with Ministers has secured option for interim existing facility to be utilised. New Facility building options being investigated.<br>30/10/24: Negotiations with building contractor are continuing to find resolution within budget.<br>18/11/24: Ongoing advocacy with State Government Ministers. Negotiations continue with building contractor to find suitable options within budget.<br>Jan 2025: Advocating to State Government to reallocate funds from election promises to Vet Project. Contract signed with building contractor.<br>Feb 2025: Advocacy continues March 2025: Advocacy continues for additional funding, Building manufacture scheduled. April 2025: Manufacture of Building commenced in Factory, Advocacy continues for extra funding.<br>May 2025: The new Vet Clinic is currently being built and due to be placed in situ on 29 May 2025. Expressions of Interest for Vet to provide services has been issued, closing 2 July.<br>June 2025: Contractors due to return late June to complete installation. EOI's close 2 July 2025<br>July 2025: Vet clinic arrived and in-situ. First round EOI's have been sent to Council for review, discussed during 9 July 2025 workshop. Second round invitations sent out to selected applicants.<br>Aug 2025: Electrical installation completed, TasBuilt to commence finalisation of building early September.<br>Sept 2025: Works continued with the contractor and local trades.<br>October 2025: Contract finalisation with contractor. Local trades to complete plumbing and drainage works.<br>November, December 2025 and January 2026: Working with local trades to complete plumbing and drainage works.TasBuilt has advised that expected completion by 31/03/2026.<br>February 2026 & March 2026:Plumbing works commenced and remains on track to complete by 31/03/2026<br>April 2026: Handover with contractor completed 8 April 2026.<br>May 2026: Construction complete and occupancy certificate achieved. Equipping of facility and operational model discussions in process. | a) Completed<br>b) Completed<br>c) in progress | |
| 142.03.2023 | Moved: Mayor Rachel Summers Seconded: Cr K Stockton<br>That Council works with relevant stakeholders, including our current childcare provider; Thrive Group, to:<br>a)investigate options for the provision of reliable early childhood education and childcare services (including before and after school care and school holiday care); and<br>b)advocate to both State and Federal governments for appropriate support and funding.<br>CARRIED UNANIMOUSLY (7-0) | 21/06/23 Council has participated in a number of meetings with Island and Tasmania mainland based stakeholders in furtherance of this project over the past few months. The Thrive Group is currently in the process of applying for federal funding to construct a purpose-built facility on Island.<br>20/09/23 Cr. Summers continues contact with Principal of FDHS regarding this matter. 2023.09.21 Flinders Island has been selected as a trial site for the Early Learning for 3 year old program to be started in early 2024. Whilst this should help alleviate concerns around the waiting list, there are still staffing issues that are being attended to by Thrive. Thrive have submitted an application to the Growing Regions Fund to construct a fit for purpose facility on school grounds.<br>27/9/23 DOE not happy to hand over land now project is in writing. M Fergusson proposed he could help but DOE have said no. Talks around DOE building re trial of 3YO's at school. Thrive will provide the 10% required for the EOI/Grant if successful<br>27/11/23 Thrive advised that stage 1 of EOI process - application was successful.<br>15/01/24 & 21/02/24 No Progress<br>20/03/24 included in State election promises<br>17/04/24 & 22/05/24 Awaiting clarification of likely outcomes based on election-based promises. Mayor is in process of writing to all elected members re same.<br>26/06/24 & 24/7/24 & 21/8/24 & 25/9/24: Ongoing advocacy with State and Federal Ministers<br>08/05/26: Letter of Support provided to Childcare operator for new proposal | In Progress | |

| 2026 Councillor Resolution Report | May-26 | | | |
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| Minute | Resolution | Activity | Status | Date Completed |
| SUBSTANTIVE (244.10.2024 ) | Moved: Cr Garry BlenkhornSeconded: Cr Rachel Summers<br>That Council:<br>a)accepts the donation of vermin resistant fencing from Waratah and others and works with the various community volunteers to install a vermin resistant perimeter fence, with an electronic entry gate with associated opening mechanism and solar power connection at the Lady Barron Cemetery.<br>b)approves a budget of up to $23,000, to come from the Public Open Space funds for the Council related costs of the proposed upgrade to the Lady Barron Cemetery fencing. Eighteen thousand dollars is to cover works and equipment as detailed in a), and up to $5,000 to cover survey costs.<br>CARRIED UNANMOUSLY (4-0)<br>Cr Aaron Burke, Cr Garry Blenkhorn, Deputy Mayor Vanessa Grace, Mayor Rachel Summers | 18/11/24: Tap signage installed. Project Code allocated (CAP2425-32).<br>Jan 2025: Surveying works ordered<br>Feb 2025: Survey works complete.<br>Mar 2025 : Councillors and Council Officers scheduled to meet at Lady Barron Cemetery to discuss project requirements.<br>April 2025: Meeting undertaken Fri 28th March 2025.<br>June 2025: Up to having the fence line cleared. Crs Grace and Cox met with Works and Services Coordinator about how that might be done and what trees to leave.<br>July 2025: Effected landowner letters in draft, clearing works and fence construction planning in progress<br>August 2025: Neighbouring landowners letters sent prior to engaging contractor to undertake works.<br>Sept 2025: Awaiting written quotes from contractors for fence line clearing.<br>Oct, Nov & Dec 2025: Contractor works scheduled to align with volunteers to do fencing in January 2026.<br>January 2026: Contractor engaged on other works, will commence when outside commitments are complete.<br>Feb 2026: Contractor has provided tentative start date of March 2026<br>March-April 2026: Works deferred to May 2026 to align removal of existing fence with availability of volunteers who will install immediately to protect integrity of graves from any possible damage.<br>May 2026: This is in hands of volunteers and contractor and will likely carry over to the next financial year. | In Progress | |
| 296.12.2024 | Moved: Cr Ken Stockton Seconded: Cr Garry Blenkhorn<br>That For item 20.2 the following motion be released to the public:<br>That the Code for Tenders and Contracts is reviewed to remove conflicting advice regarding the tender process.<br>CARRIED UNANIMOUSLY (5-0)<br>Cr Garry Blenkhorn, Cr Aaron Burke, Cr Carol Cox, Deputy Mayor Vanessa Grace and Cr Ken Stockton | Jan 2025: Review of document in progress.<br>Feb 2025: Review ongoing, Draft in progress.<br>March & April 2025: Progressing at Management Team level for input.<br>June 2025: Management Team reviewing, considering feedback and other template documents.<br>July - October 2025:Management Team continue to revise, considering feedback and other template documents.<br>November, December 2025, January 2026 and February 2026: Review in progress, draft scheduled to be present early 2026<br>March 2026: Review completed by Senior Management team and will go to April Council meeting for review.<br>April 2026: Workshopped on 15 April in preparation for next Council meeting.<br>May 2026: April Workshop item deferred to 13 May 2026 workshop. | In Progress | |
| SUBSTANTIVE (104.04.2025) | Moved: Cr Garry BlenkhornSeconded: Cr Chris Rhodes<br>That Council:<br>•Supports the installation of a new community time capsule;<br>•Endorses the formation of a working group comprising of Councillor(s) and interested community members/groups to develop the project, and coordinate planning and installation at a future Council event;<br>•Approves the inclusion of a $10,000 allocation in the 2025/26 budget for the project should there be enough community support; and<br>•Supports pursuing grant opportunities to assist with funding.<br>CARRIED UNANIMOUSLY (6-0)<br>Mayor Rachel Summers, Deputy Mayor Vanessa Grace, Cr Aaron Burke, Cr Garry Blenkhorn, Cr Chris Rhodes and Cr Ken Stockton. | May 2025: Community Survey is scheduled to be released for consultation following NE River Masterplan survey closure (9/6/25)<br>June 2025: Mayor took to Lions Market 7/6/2025 for community interest. Community Grant funding opportunities to be explored.<br>July 2025: Mayor exploring community interest and support to implement and look at funding options.<br>August 2025: Discussed at Council Workshop 13 August 2025, Mayor to readvertise for community support/input.<br>Sept 2025: Advertisement shared again to invite community support / input.<br>October 2025- May 2026: Mayor and Deputy Mayor to work with interested community to develop possible project plan. | In Progress | |

| 2026 Councillor Resolution Report | May-26 | | | |
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| 161.06.2025 | Moved: Deputy Mayor Vanessa GraceSeconded: Cr Ken Stockton<br>That the Planning Authority:<br>•Endorse preparation of AM2025-01 to the Flinders Local Provisions Schedule under section 40D(b) of the Land Use Planning and Approvals Act 1993 to remove FLI-S3.0 Coastal Areas Specific Areas Plan from the titles and properties identified in tables 1 through 5 inclusive, for Palana, Killiecrankie, Pats River, Lady Barron and Samphire River, as per Annexure 1 to this agenda item, and note the correction of the word 'Village' to 'Area' in section 2.8 in Annexure 1 to this item; and<br>•Pursuant to Section 40F of the Land Use Planning and Approvals Act 1993, certifies that AM2025-01 meets the LPS criteria; and<br>•Instructs that affected property owners as per Annexure 1 to this item, be notified of draft amendment AM2025-01; and<br>•Pursuant to Section 6 of the Land Use Planning and Approvals Act 1993, delegate to the General Manager the authority to:<br>oauthorise final revisions to the documentation for AM2025-01;<br>osubmit notice of the decision to initiate and certify AM2025-01 to the Tasmanian Planning Commission;<br>ocomplete the 28 day statutory notification of AM2025-01; and<br>owhere no representations are received during the statutory notification of AM2025-01, submit report under 40K of Land Use Planning and Approvals Act 1993, to the Tasmanian Planning Commission.<br>CARRIED (5-1)<br>For: Mayor Rachel Summers, Deputy Mayor Vanessa Grace, Cr Aaron Burke, Cr Carol Cox and Cr Ken Stockton.<br>Against: Cr Garry Blenkhorn | July 2025: Report prepared and advertised, representations close 6/8/2025<br>August 2025: To September 2025 workshop for discussion<br>Sept 2025:Presented at 10 September 2025 Council Workshop, for consideration at 24 September 2025 Council Meeting.<br>October 2025: See 261.09.2025 below<br>November 2025: Hearing date tentively booked for January 2026 with Commission.<br>January 2026: Hearing Scheduled with Commission 22/1/2026<br>February & March 2026: Directions from Commission received, extension of time for response submission approved to 18 March 2026.<br>NB See item 261.09.2025 also<br>April 2026: Submitted response and awaiting decision from the Commission.<br>May 2026: Response recievied from the Commission 15/4/2026 detailing decision and reasons for substantial modifications. | In Progress | |
| 261.09.2025 | Moved: Cr Carol CoxSeconded: Cr Ken Stockton<br>That the Planning Authority determines under section 40K of the Land Use Planning and Approvals Act 1993 in respect of representations received to the statutory notification of AM2025-01:<br>1Representation 1 is determined to:<br>•have merit as it raises matters relevant to consideration of AM2025-01,<br>•not alter the assessment of AM2025-01;<br>•not require modifications to AM2025-01;<br>•not raise any matters that impact assessment or implementation of the policies and requirements of the Tasmanian Planning Scheme and Guidelines; and<br>•not impact assessment of AM2025-01 against the LPS criteria: and<br>2Representations 2 and 3 are determined to:<br>•not have merit as they raise matters outside the scope of AM2025-01,<br>•not alter the assessment of AM2025-01;<br>•not require modifications to AM2025-01;<br>•not raise any matters that impact assessment or implementation of the policies and requirements of the Tasmanian Planning Scheme and Guidelines; and<br>•not impact assessment of AM2025-01 against the LPS criteria: and<br>3Representation 4 is determined to:<br>•have merit as it raises matters relevant to consideration of AM2025-01,<br>•require modifications to AM2025-01 to include the removal of FLI-S3.0 Coastal Areas Specific Area Plan from the following properties adjoining the Bootjack Flats drain:<br>oCoast Road, Lady Barron, CT 139505/1, PID 2205333;<br>oCoast Road, Lady Barron, CT 134868/3, PID 2017893;<br>o2146 Lady Barron Road, Lady Barron, CT 134868/1, PID 2205341;<br>oCoast Road, Lady Barron, CT 177061/1, PID 3556629;<br>oCoast Road, Lady Barron, CT 211956/1, PID 3556629;<br>oLot 1 Lady Barron Road, Lady Barron, CT 165957/1, PID 3227892; and<br>oCoast Road, Lady Barron, CT 134868/3, PID 2017893;<br>•not raise any matters that otherwise impact assessment or implementation of the policies and requirements of the Tasmanian Planning Scheme and Guidelines; and<br>•not otherwise impact assessment of AM2025-01 against the LPS criteria; and<br>4that Annexure 5 to this report, Flinders LPS Amendment 40K Report on Representations – AM2025-01 Corrections to application of Fli-S3.0 Coastal Areas Specific Area Plan, is submitted to the Tasmanian Planning Commission.<br>CARRIED (4-0) | See 161.06.2025 also.<br>October 2025: AM2025-01 submitted to the Commission.<br>November - December 2025: Hearing date tentively booked for January 2026 with Commission.<br>January 2026: Commission Hearing scheduled for 22/1/2026.<br>February & March 2026: Directions from Commission received, extension of time for response submission approved to 18 March 2026.<br>April 2026: Submitted response and awaiting decision from the Commission.<br>May 2026: Response recievied from the Commission 15/4/2026 detailing decision and reasons for substantial modifications. | In Progress | |
| 166.06.2025 | Moved: Cr Carol CoxSeconded: Cr Garry Blenkhorn<br>That during the 2026 Financial year that Council holds discussions on the current exemption of the outer Bass Strait Islands from paying the waste levy.<br>CARRIED UNANIMOUSLY (6-0)<br>Mayor Rachel Summers, Deputy Mayor Vanessa Grace, Cr Aaron Burke, Cr Carol Cox, Cr Garry Blenkhorn, and Cr Ken Stockton. | July - December 2025: Scheduled for future workshop discussion Jan/Feb 26 (Prior to Rates setting for 2026/27)<br>January 2026: Discussed at 7/1/2026 Council Workshop - to be included in 2026/27 Rates discussions.<br>February-May 2026: Included in 2026/27 budget discussions | In Progress | |

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| 167.06.2025 | Moved: Cr Carol CoxSeconded: Deputy Mayor Vanessa Grace<br>•That by absolute majority, Council adopts the Budget Estimates 2025/26, as presented in Annexure 1 to this item; and<br>•That an in depth mid-year budget be undertaken in Jan/Feb 2026 and that in the lead up in the review Council staff identify any cost saving options for Council to consider; and<br>•Reviews the Long Term Financial Management Plan.<br>CARRIED UNANIMOUSLY (6-0)<br>Mayor Rachel Summers, Deputy Mayor Vanessa Grace, Cr Aaron Burke, Cr Carol Cox, Cr Garry Blenkhorn, and Cr Ken Stockton. | July - December 2025: Scheduled for future workshop discussion Jan/Feb 26. Long Term Financial Management Plan and Long Term Financial Asset Management Plan scheduled for November 2025 workshop.<br>January 2026: Draft presented at 21 January 2026 Council Workshop.<br>February 2026: Efficiencies achieved and opportunities for future savings report in progress.<br>March 2026: Budget discussion for 2026-27 commenced and LTFMP review commened at Council Workshop 11/3/2026.<br>April-May 2026: Budget discussion for 2026-27 commenced and LTFMP review ongoing. | In Progress | |
| 301.10.2025 | Moved: Cr Carol CoxSeconded: Deputy Mayor Vanessa Grace<br>That Council:<br>1.Rescinds motion 127.06.2024, item 1. 'Approves the Committees recommendation to Council that the funds on hand for the improvements to the Boat ramps (approx. $110,000) be put towards installing a boat ramp on the northern side and an extension to the Jetty, noting that the funds will not cover the entire project but that the committee seek further funding opportunities. ' ; and<br>2. Allocates the remaining funding to:<br>oApplication for a Crown Land consent to lodge and Development Application (DA) for a three-stage development to:<br>i. Extend the existing jetty by 12metres in two 6metre stages; and<br>ii.Construct a new boat ramp on the northern side of the jetty;<br>o Extending the existing Whitemark jetty by 6 metres as stage one.<br>3.Undertake betterment of the boat ramp on the southern side of the Whitemark jetty;<br>4.Seeks additional funding for a boat ramp on the northern side of the jetty and the second stage 6metre jetty extension, noting that following successful application for the Crown Land consent to lodge and DA, this will be a shovel ready project.<br>CARRIED (5-1)<br>Mayor Rachel Summers, Mayor Vanessa Grace, Cr Carol Cox, Cr Chris Rhodes and Cr Ken Stockton<br>Against: Cr Garry Blenkhorn | November and December 2025: Development Application requirements and additional funding opportunities to be sought.<br>January 2026: Improvements (SS Ladders and Rubbers) installed. Project Management discussions with MAST. Boating Committee meeting scheduled for 9/2/2026.<br>February 2026: Boating committee meeting was deferred due to not meeting quorum. Resceduled to 2/3/2026.<br>March 2026: Boating Committee Meeting held 2/3/2026. Discussions continue with MAST Project Manager regarding project and repair works.<br>April - May 2026: MAST Project Manager has been liaising with engineering company regarding drawings for proposed works. | In Progress | |
| 331.11.2025 | Moved: Cr Carol CoxSeconded: Cr Aaron Burke<br>That Council consult the community regarding future development at Holloway Park.<br>CARRIED UNANIMOUSLY (4-0)<br>Mayor Rachel Summers, Cr Aaron Burke, Cr Carol Cox, and Cr Ken Stockton | December 2025: Lady Barron Special Committee asked to provide suggested consultation questions.<br>January 2026: Lady Barron Special Committee meeting scheduled for 27/1/2026 to inform survey consultion questions.<br>February 2026: Feedback from unconfirmed minutes of 10 February 2026:<br>(i) F.Henwood has requested that Council brief the Committee on the proposal it has received from a Private Investor.<br>(ii) Noted that there seems to be some confusion as to who owns/controls the site.<br>(iii) The Committee requests, with regard to the community survey, that hard copies of the survey be made available at FIAAI, the Tavern and the Lady Barron Store (among other venues).<br>(iv) Suggested questions for the Survey will be developed by email conversation and forwarded to Council.<br>March 2026 - May 2026: Awaiting survey question suggestions from Lady Barron Special Committee. | In Progress | |
| 345.12.2025 | Moved: Cr Carol CoxSeconded: Deputy Mayor Vanessa Grace<br>That Council:<br>•Approves and adopts the Strategic Asset Management Plan (The Plan) at Annexure 1 to this item;<br>•That it is acknowledged that the maintenance table on page 31 of the document is outdated and will be revised prior to 30 June 2026;<br>•Councillors acknowledge that some of the information this document is dated and that the accuracy and reliability will be improved over time; and<br>•Authorises the General Manager to make a copy of the Strategic Asset Management Plan available on the Council Website and for public inspection at the Council Office during ordinary business hours.<br>CARRIED UNANIMOUSLY (5-0)<br>Mayor Rachel Summers, Deputy Mayor Vanessa Grace, Cr Garry Blenkhorn, Cr Carol Cox, and Cr Ken Stockton | January 2026: Author and Contract accountant inform of decision and review of Maintenance table on pg 31 of document required.<br>February 2026: Work has commenced to update the maintenance table on page 31 of the SAMP toward meeting the timeline of 30/6/26.<br>March 2026: Work continues on upgrading SAMP maintenance table.<br>April - May 2026: The Asset maintenance table has been reviewed and updated by Works and Services Department. At final review, on track to meet 30 June 2026 timeline. | In Progress | |

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| 35.02.2026 | Moved: Cr Ken StocktonSeconded: Deputy Mayor Vanessa Grace<br>That Council by absolute majority approves up to $5,000 excluding GST from the 2025-2026 budget for trenching works and electrical cable installation across the Port Davies Road in two sections, to be completed by the Aboriginal Land Council (ALCT) nominated contractor at Wybalenna to facilitate the installation of electricity to the site.<br>CARRIED UNANIMOUSLY (6-0)<br>Mayor Rachel Summers, Deputy Mayor Vanessa Grace, Cr Aaron Burke, Cr Carol Cox, Cr Garry Blenkhorn, and Cr Ken Stockton | March 2026: ALCT CEO advised of Council decision<br>April 2026: Awaiting invoice from ALCT<br>May 2026: Funds allocated and contractor engaged by ALCT. Start date to be confirmed, coordinating road access and will make good. | | |
| 41.02.2026 | Moved: Cr Carol CoxSeconded: Deputy Mayor Vanessa Grace<br>That Council approves the use of Public Open Space funds as a co-contribution to support a grant funding application for improvements to the Whitemark Exercite area up to 50% of the full cost of the improvements or a maximum of $25,000.<br>CARRIED UNANIMOUSLY (6-0)<br>Mayor Rachel Summers, Deputy Mayor Vanessa Grace, Cr Aaron Burke, Cr Carol Cox, Cr Garry Blenkhorn, and Cr Ken Stockton | March & April 2026: Council monitoring grant opportunities<br>May 2026: Continue to monitor grant opportunities. | | |
| 75.04.2026 | Moved: Cr Rachel Summers Seconded: Cr Garry Blenkhorn<br>That Council:<br>1. **Endorses the Mayor's attendance at the Australian Local Government** Association National General Assembly to be held in **Canberra from 23–26** June 2026;<br>2. Approves Council funding of 50% of associated registration, travel and accommodation costs, with the Mayor contributing the remaining 50%; and<br>3. Requests the Mayor provide a report to Council following attendance, outlining key outcomes, advocacy opportunities, and relevance to Flinders Council.<br>CARRIED UNANIMOUSLY: (4-0) Mayor Rachel Summers, Cr Carol Cox, Cr Garry Blenkhorn and Cr Ken Stockton | May 2026: Mayor will book and submit expense claim to Council for 50%. | | |
| SUBSTANTIVE (93.04.2026) | Moved: Cr Garry Blenkhorn Seconded: Cr Carol Cox<br>That Council:<br>1.Resolves to undertake community consultation to seek feedback on whether the Flinders community supports or opposes a reduction in councillor numbers; and<br>2. A report be presented to Council following consultation, summarising community feedback and outlining options for Council's consideration.<br>3.Given the impending election in September 2026, that the c onsultation be held over until the new Council and Council communicates to the public that the legislation has changed.<br>CARRIED UNANIMOUSLY: (4-0) Mayor Rachel Summers, Cr Carol Cox, Cr Garry Blenkhorn and Cr Ken Stockton | May 2026: Consultation scheduled post 2026 Council elections. | | |

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| Minute | Resolution | Activity | Status | Date Completed |
| 252.12.2021 | Moved: Deputy Mayor D Williams Seconded: Cr R Summers That Council adopts the land known as 165274/1: as a local highway under s6 of Local Government (Highways) Act 1982 and develops a staged approach regarding forming the road and associated budget.<br>CARRIED UNANIMOUSLY (6-0) | From Closed Council: Road Off Pot Boil Road, Lady Barron - 17/05/2023 Chris advised he provided budget but works not commenced<br>13/06/23 Due to the lack of development, there has been very little done to progress this matter. However, I have been monitoring the existing road/ex-driveway for maintenance requirements. The plan going forward: 1.engage a surveyor to mark the boundaries (Jul-Dec 2023). 2.arrange to remove the trees and clear the ground (Jan-Jun 2024). 3.design the road (Jul 23 - Jun 24) and budget funds in 2024/25 for the first stage of construction.<br>Of course, this can be brought forward if development of the lots starts to occur earlier.<br>04/12/2023 Acting Infrastructure Manager plans to re-visit matter following completion of roads program in February/March 2024.<br>17/4/2024 Not required at present, deferred until May 2024<br>22/05/24 A Purchase Order for the survey works was issued in 2023 The survey works have not been undertaken. The scope of the work has now been discussed and the Surveyor has been asked to proceed asap.<br>Once the centre lines of the road are established by the surveyor, the extent of road requirements can be determined. Costing top phases and timelines can then be established. A tentative sum of $80k was in the 2023/24 FY budget, proposed to commence works in 2024/25 and should be carried over. If the budget is approved, some priority work for access to the residences in question can be planned for 2024/25 FY.<br>24/7/24: Survey undertaken, funding included in 24-25 Budget<br>30/10/24: Scheduling this to a contractor for pricing following the completion of drainage and re-sheeting.<br>21/11/24: Due to limited resources of roads and drainage staff, the Works and Services Coordinator is planning on engaging a contractor to do the work. Indicative pricing has not yet been received, contractors pricing will be sought asap. The FY2024/25 budget has $80,000 allocated.<br>Jan 2025: RFQ being developed, 3 quotes required per Code for Tenders and Contracts. Feb 2025: RFQ advertised in Flinders Island News 31/1/25 March 2025:Following advertising for quotes, a quote was received and PO issued, waiting for contractor to commence.<br>April 2025: Vegetation works completed. June 2025: Budgeted to be completed over 2025-2027 years<br>July 2025: Included in 2025/26 budget ($50,000)<br>August 2025: Contractor engaged to undertake works.<br>Sept 2025: Contractor has commenced forming road.<br>October 2025: Road forming commenced and some gravel placed. Additional works to be undertaken in 2026/27 financial year as budgeted.<br>November 2025 - March 2026: Finalisation works to be undertaken in 2026/27 financial year as budgeted. Naming and gazetting of roadway project underway.Proposed agenda item for April 2026 Council meeting.<br>April 2026: Naming of Road in progress in accordance with the Act.<br>May 2026: Naming of roads adopted at the 21 April 2026 Council Meeting: Names of Adelaide Bay Drive and Silas Road adopted per decision 90.04.2026. | Complete | 21/04/26 |
| SUBSTANTIVE (264.09.2025) | Moved: Cr Carol CoxSeconded: Cr Aaron Burke<br>That Council:<br>•Authorises the General Manager to establish a Memorandum of Understanding (MOU) with the Show Society;<br>oThe MOU is to ensure that other showground users that have annual agreements or leases are not have any access or use restricted at any time;<br>•Provides in-kind support to the value of $4,000 per year, commencing the 2025/26 financial year, to assist the Flinders Island Show Society with running the Flinders Island Show; and<br>•Reviews the level of support through the MOU every 2 years.<br>CARRIED UNANIMOUSLY (6-0)<br>Acting Mayor Vanessa Grace, Cr Aaron Burke, Cr Carol Cox, Cr Garry Blenkhorn, Cr Chris Rhodes and Cr Ken Stockton | October 2025: MOU updated following Council Workshop discussions and ready to present to Show Society.<br>November 2025: MOU submitted to Show Society for signing<br>December 2025: Show Society proposed amendments to asset lists - to be signed by New Year<br>January 2026: Further amendments requested by Show Society.<br>February 2026: Show Society followup undertaken - awaiting feedback.<br>March 2026:Some additional elements identified for inclusion.<br>April 2026: MOU issued to Show Society for review and signature<br>May 2026: MOU signed and sealed, copy chared with Councillors. | Complete | 20/04/26 |
| 79.04.2026 | Moved: Cr Carol Cox Seconded: Cr Ken Stockton.<br>That the Airport Operations Coordinators Report – March 2026 be received and accepted by Council and a copy of the report at Annexure 1 to this item and the airport financial report as presented at this meeting at annexure item 18.1.1. be shared with the Furneaux Group Aviation Special Committee members.<br>CARRIED UNANIMOUSLY: (4-0) Mayor Rachel Summers, Cr Carol Cox, Cr Garry Blenkhorn and Cr Ken Stockton | 22/04/2026: Airport update and Airport quarterly financial reportShared with the Aviation Special Committee. Noted that the quarterly financial report will be shared moving forward. | Complete | 22/04/20026 |