Extractive Mineral Quarry Lease Application

Mineral Claims 4564 and 4574

Story Sands Quarry

WON Solution Pty Ltd

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Date: 26 September 2025 (MC 4564) and 19 December 2024 (MC 4574)

Version Control

Version	Date	Comment
1	26 September 2024	Original submission
2	19 December 2024	Updated submission for MC 4574 following feedback from DEM
3	01 August 2025	Updated document to address feedback received from DEM on 18 March 2025 and to update the quarry plan.

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Declaration of Accuracy

We declare under regulation 84 of the Mining Regulations 2020, that we have taken reasonable steps to review the information provided for the Story Sands Quarry to ensure its accuracy.

Steps include:

- Engagement of suitable qualified and experienced personnel to collate application
- Peer review by suitably qualified and experienced personnel
- Internal process of review by responsible managers

SIGNED by Kenneth William Lamb and Valerie Patrena Lamb in the presence of:

Witness

Name of Witness: Donna McGoldrick Date: 01.08.2025

SIGNED by WON Solution Pty Ltd in accordance with its Constitution by:

Director

Name of Director: Kenneth William Lamb Date: 01-08-2025

Director

Name of Director or Secretary: Valerie Patrena Lamb Date: 01-08-2025

1. Description of the Existing Environment

This mining lease proposal (MLP) relates to two separate mining lease applications for two adjacent mineral claims (MC). The first MC (MC 4564) was granted on 17 October 2023 and MC 4574 was granted on 13 June 2024. It is intended that both mineral claims will be assessed under this mining lease application, and if granted they will be managed under a single Program for Environment Protection and Rehabilitation (PEPR). The two mineral claims will be collectively referred to as the Project Area.

The size and shape of the Mining Lease (ML) associated with MC 4564 is to remain the same, however the proposed ML area related to MC 4574 is to be reduced (Figure 1).

1.1. Topography and Landscape

The Project Area is situated approximately 14 km WSW of Cowell, on the Eyre Peninsula in South Australia. Figure 1 shows the location of the MCs (and proposed mining lease boundaries) in a regional context. The area falls under the District Council of Franklin Harbour.

The land is predominantly flat, sitting within and adjacent the Yabmana Creek, just below the foothills associated with Elbow Hill and the Middlecamp Hills. There is a gentle slope towards the ocean to the south. The topography of the region is shown in **Drawing 5219.DRG.013R2 – Topographic Map** (Appendix B).

The Project Area is located in the Eyre York Block bioregion (6,120,409 ha of which 15.14% is protected). This bioregion is described as “Archaean basement rocks and Proterozoic sandstones overlain by undulating to occasionally hilly calcarenite and calcrete plains and areas of aeolian quartz sands, with mallee woodlands, shrublands and heaths on calcareous earths, duplex soils and calcareous to shallow sands, now largely cleared for agriculture” (DCCEEW, 2023).

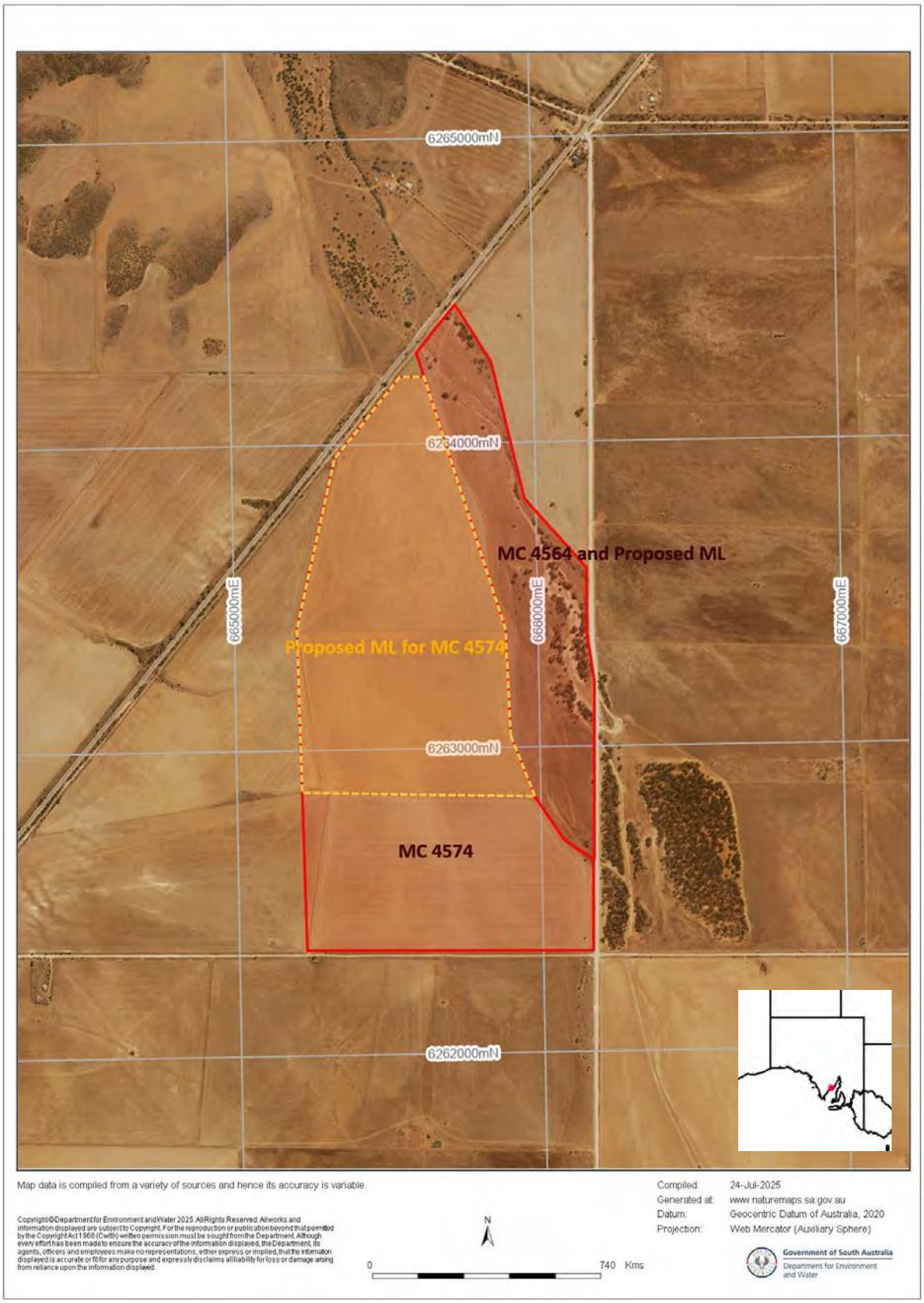


Figure 1: Location of the mineral claims and proposed ML area

1.2. Climate

Majority of the Eyre Peninsula region is identified to have a Mediterranean climate with hot, dry summers paired with cool, wet winters. Bureau of Meteorology (BoM) weather data from the Cleve Aerodrome weather station (station no. 018116) has been utilised to best determine the climate conditions for the Site, being approximately 29 km west from Site. Based on these provided records, the average annual rainfall is 356.8 mm with August being the wettest month on average (43.5 mm), and January being the dryest month (17.2 mm). Monthly temperature varies throughout the year with January being the hottest month of the year with an average maximum temperature of 29 degrees Celsius, and July being the coolest with an average maximum temperature of 15.6 degrees Celsius. Refer to Table 1 for a monthly breakdown of climate data in the area.

Table 1: Cleve Aerodrome Climate Data (Station No. 018116)

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years		Plot	Map
Temperature																	
Mean maximum temperature (°C)	29.0	28.3	26.0	23.4	19.2	16.1	15.6	16.8	20.3	23.1	25.6	27.3	22.6	27	1996 2024		
Mean minimum temperature (°C)	16.1	16.1	14.6	12.5	10.3	8.2	7.5	7.4	8.6	10.0	12.3	14.0	11.5	27	1996 2024		
Rainfall																	
Mean rainfall (mm)	17.2	18.5	21.1	25.1	36.2	42.9	41.4	43.5	34.8	28.7	22.8	24.3	356.8	60	1963 2024		
Decile 5 (median) rainfall (mm)	9.4	9.6	11.3	20.0	35.8	40.2	36.3	39.0	33.8	22.8	18.8	19.0	335.8	60	1963 2024		
Mean number of days of rain ≥ 1 mm	2.2	2.1	2.9	4.5	6.3	7.9	8.1	8.2	6.4	4.6	3.3	3.1	59.6	57	1963 2024		
Other daily elements																	
Mean daily sunshine (hours)																	
Mean number of clear days																	
Mean number of cloudy days																	
9 am conditions																	
Mean 9am temperature (°C)	21.4	20.9	18.8	17.6	14.3	11.2	10.6	11.7	14.5	16.8	18.7	19.8	16.4	14	1996 2010		
Mean 9am relative humidity (%)	58	63	65	61	71	77	76	72	64	55	56	57	65	14	1996 2010		
Mean 9am wind speed (km/h)	22.9	21.4	19.5	19.3	18.1	19.3	20.2	21.1	23.0	23.0	21.9	22.5	21.0	14	1996 2010		
9am wind speed vs direction plot																	
3 pm conditions																	
Mean 3pm temperature (°C)	27.0	26.7	24.4	21.7	17.9	15.0	14.4	15.5	18.4	20.6	23.7	25.0	20.9	14	1996 2010		
Mean 3pm relative humidity (%)	37	41	43	44	53	59	59	55	48	41	38	39	46	14	1996 2010		
Mean 3pm wind speed (km/h)	25.6	25.1	23.6	22.9	21.3	22.3	22.9	23.3	24.9	24.8	24.9	25.6	23.9	14	1996 2010		
3pm wind speed vs direction plot																	

red = highest value blue = lowest value

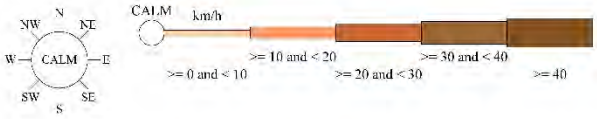
- (Source: BoM, 2024)

Wind directions during the morning varies from the north and south east, whereas afternoon wind directions are predominately from the south east (Figure 2 and Figure 3).

Rose of Wind direction versus Wind speed in km/h (16 Jul 1996 to 10 Aug 2024)
Custom times selected, refer to attached note for details

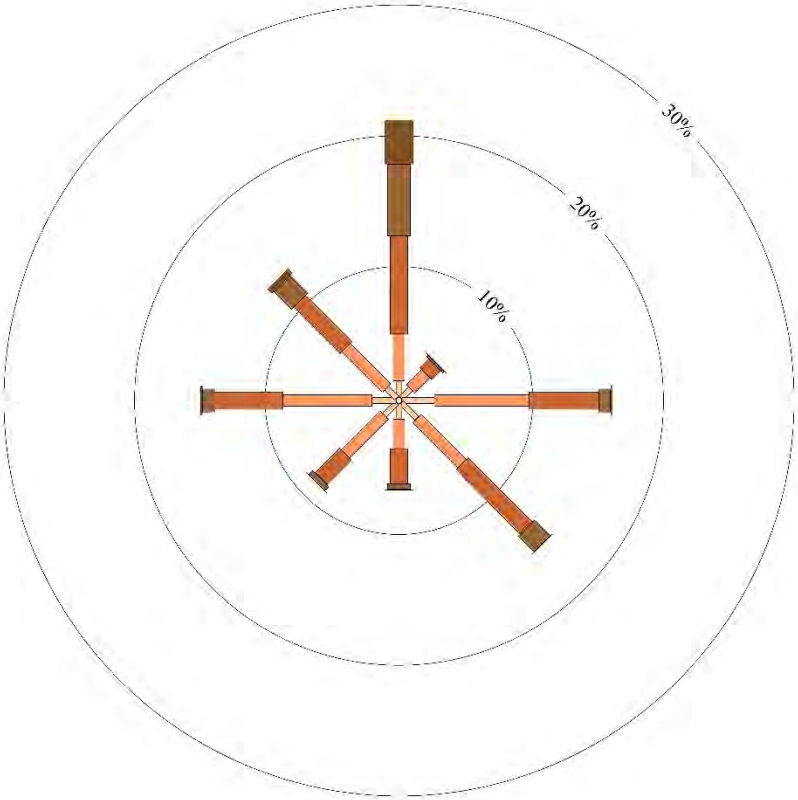
CLEVE AERODROME
Site No: 018116 • Opened Jan 1963 • Still Open • Latitude: -33.7081° • Longitude: 136.5026° • Elevation 175m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.



9 am
12843 Total Observations

Calm 1%



Australian Government
Bureau of Meteorology

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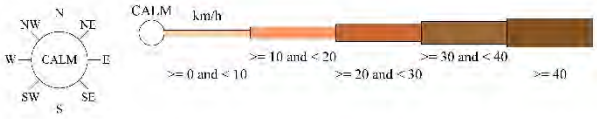
Figure 2: Wind rose for Cleve Aerodrome – 9am

Rose of Wind direction versus Wind speed in km/h (16 Jul 1996 to 10 Aug 2024)
Custom times selected, refer to attached note for details

CLEVE AERODROME
Site No: 018116 • Opened Jan 1963 • Still Open • Latitude: -33.7081° • Longitude: 136.5026° • Elevation 175m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.



3 pm
12845 Total Observations

Calm *

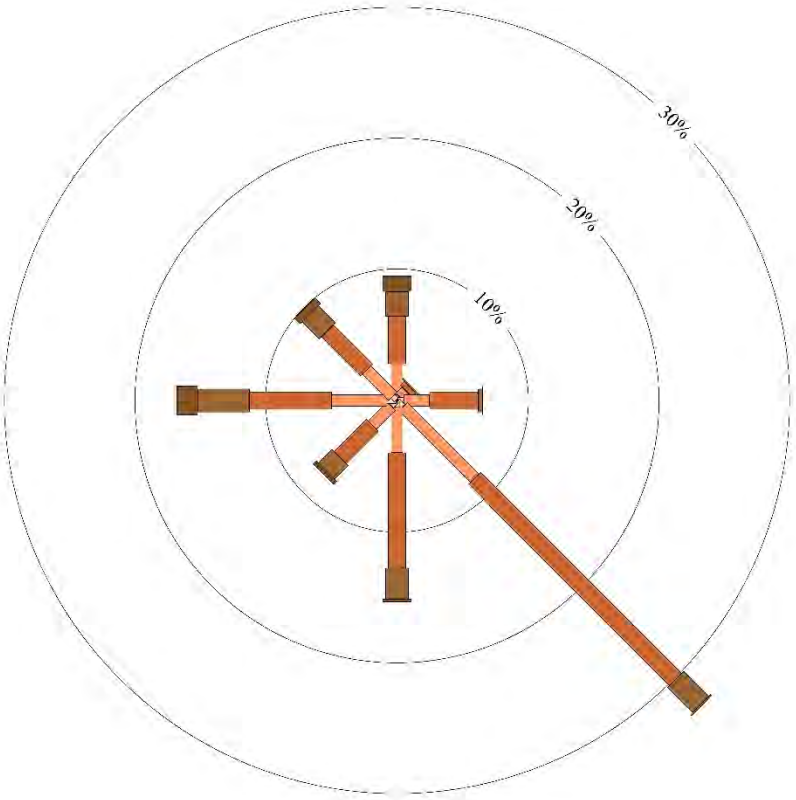


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Figure 3: Wind rose for Cleve Aerodrome – 3pm

1.3. Topsoil and subsoil

The Site has been identified as primarily consisting of deep hard gradational sandy loam soil. The alkaline topsoil and subsoils within MC 4564 contain minimal acidity and calcareous content. Soils within the adjacent MC 4574 are highly alkaline and are greater than 60% calcareous within the top 30 cm of soil. The soil in the area contains moderate inherent fertility, providing acceptable potential for future rehabilitation activities (Nature Maps, 2024).

The topsoil profiles within the Site are primarily shallow, reaching depths upwards of 250 mm and within the extraction area it is approximately 100 mm depth.

1.4. Geological Environment

A search on the government database South Australian Resources Information Gateway (SARIG, 2024) confirmed the Project Area is located within the Gawler Craton. The area primarily consists of gneissic gabbronorite, charnockite, alkali-feldspar granite and mafic dykes from the Palaeoproterozoic geological time period (SARIG, 2024).

An illustration of the surface geology parent material within the area is available within **Drawing No. 5219.DRG.003R2 – Geology Map** (Appendix B). The Project Area lies completely within undifferentiated Holocene alluvial and fluvial sediments, with varying surface geology within the area:

- Granite gneiss; augen gneiss; migmatitic gneiss; pegmatite; amphibolite (ALsi)
- Clay, sand and carbonate earth, silty, with gravel lenses (Qpap)
- Undifferentiated Holocene alluvial/fluvial sediments (Qha)
- Pleistocene gravel, clay, silt and sand with soft carbonate, overlying nodular / tabular calcrete (Qpr4).

Drilling investigations via four test holes up to a depth of 10 m was undertaken in March 2024 within MC 4564. The location of the test holes is shown in **Drawing No. 5219.DRG.002R1 – Resource Investigation Map** (Appendix B) and the drilling logs are provided in Appendix F. The results identified a gravelly or fine / medium particle sand to approximately 7.5 m and clayey sand/ fine gravel from approximately 7.5 to 10 m depth with no intersection of groundwater at any hole. Additionally test holes were undertaken in MC 4574 with results showing consistent depth of resource.

1.5. Geohazards

The area surrounding the Project Area has low potential for any natural geohazards such as slips, faults or karst features. A search on government database SARIG confirms that the Project Area does not cross any geological unit boundaries. The immediate area is a relatively flat landscape. However, the Middlecamp Hills are located north of the Site. Within a five km proximity to the Project Area, there are four recorded earthquake occurrences. The magnitudes of these earthquakes range from a maximum of 2.2 and a minimum of 1.2 (SARIG, 2024).

Due to the alkaline nature of the area and the unlikeliness of acidity to develop in the future, acid mine drainage is of low risk during operations. The land is not susceptible to any sulphide minerals which may generate acid when extracted. Additionally, due to the parent material of the area, no radioactive and asbestos minerals are believed to be present, with minimal risk of respirable silica.

1.6. Groundwater

The proposed mining lease areas are not within an area where water resources are prescribed under the *Landscape South Australia Act 2019*.

A review of available well data on WaterConnect (Government of SA, 2024) identified a number of bores within the broader Project Area. A single bore (6230-140) is situated within a one kilometre radius of the site, however no standing water levels (SWLs) were available for this bore. A field inspection was also unable to find this bore so it is assumed this bore is no longer intact. A second bore (6230-774) is located within a three kilometre radius of the site, but this also has no recorded SWL. Of the eleven additional bores located within a 5 km radius of the site, only two have SWLs recorded: 17.09 m at bore 6230-136 and 3.45 m at bore 6230-139.

A review of the shallow water data layer in SARIG identified that the Project Area is in the yellow zone (5-10 m), bordering the edge of the 10-20 m zone (Figure 4).

Across the Project Area the seasonal high water table is assumed to be higher within the creekline in MC 4564. In March 2024, resource drilling was undertaken at a number of locations within the creekline within MC 4564. No water was detected to a depth of 9 m therefore groundwater level is deeper than 9 m.

Mining within MC 4564 will be limited to a depth of 4 m, therefore maintaining a buffer of at least 5 m from the 9 m depth of resource drilling during which no water was found.

The depth of quarry operations within MC 4574 will be 5 m in the southern pit and 6 m in the northern pit. Therefore, quarrying operations are expected to remain at least 3 m from groundwater levels.

Searches of the Australian Government Bureau of Meteorology (BOM) database (2024) one (1) Terrestrial Groundwater Dependent Ecosystem (GDE) described as a moderate potential GDE comprising of Eucalyptus mallee forest and mallee woodland is located within the southern portion of the MC 4564.

As per the outcomes of groundwater investigations for the Site, no groundwater has been detected within excavations up to nine (9) m deep. Proposed quarry operations are intended to remain above the groundwater table with buffers of 3 m or greater expected and not intercept groundwater. On this basis, impacts to GDE's from groundwater intersection is not likely.

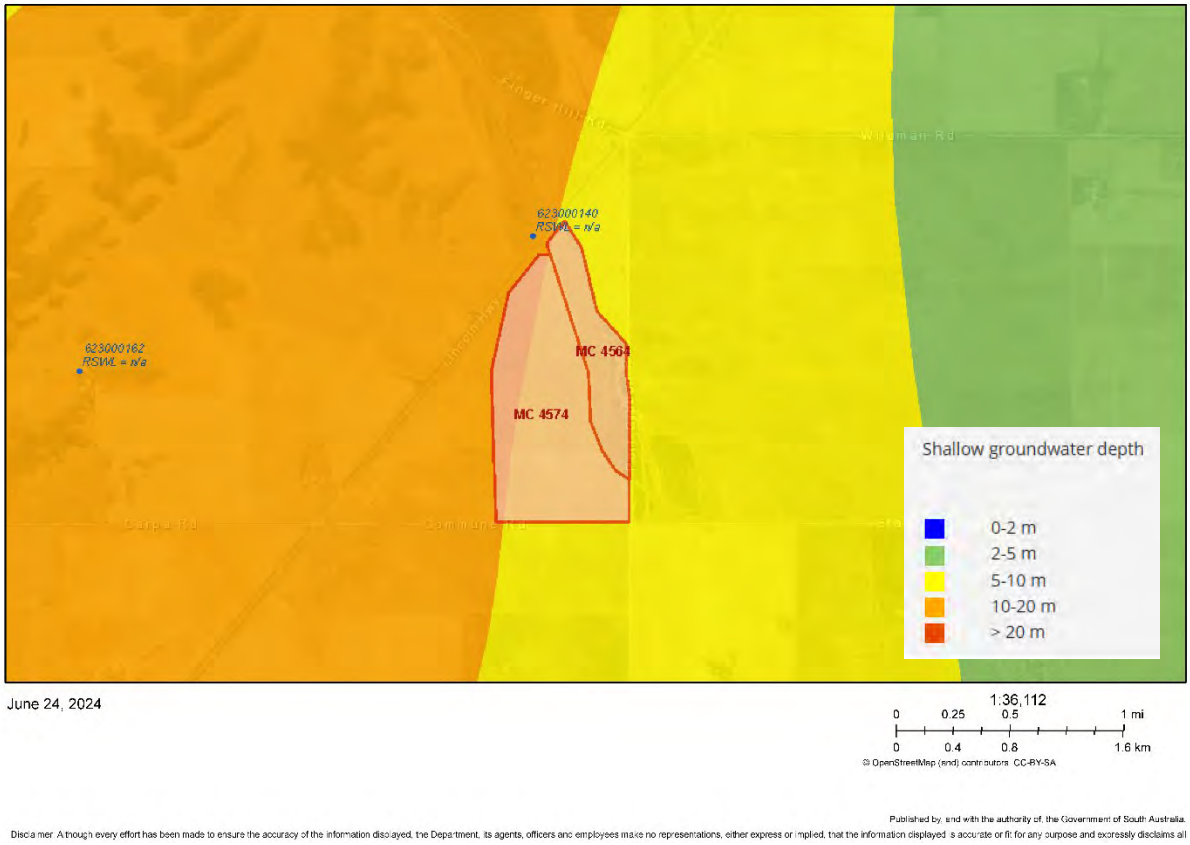

Figure 4: Shallow water data layer (SARIG, 2024) [1]

1.7. Surface Water

A search of the DEW database 'NatureMaps' (2024) identified the Project Area is not located within an area prescribed under the *Landscapes South Australia Act 2019* or the *River Murray Act 2003*. The Site does not lie within the Murray Darling Basin.

Yabmana Creek is located within MC 4564 and enters from the north eastern corner of the MC 4564, runs along the eastern side of MC 4564 exiting the south eastern side of MC 4564 refer to **Drawing No. 5219.DRG.013R2 – Topographic Map** (Appendix B). The creek is located within the southern portions of the Yabmana Creek catchment area (Figure 5). Yabmana Creek is largely an ephemeral vegetated creek.

Searches of the Australian Government Bureau of Meteorology (BOM) database (2024) identified two Aquatic Groundwater Dependent Ecosystems (GDE) are present within the Project Area. One named the Yabmana Creek, described as a moderate potential GDE, ecosystem type river - seasonal and irregular rivers and streams. The second described as moderate potential GDE, ecosystem wetland, however this forms part of and borders the Yabmana Creek. Refer to the Native Vegetation Assessment for a description of the vegetation present within the Site and the creek line.

[1] Note: the proposed boundary for MC 4574 cannot be shown on this map. SARIG does not support the upload of additional spatial layers. Refer to Figure 1 for proposed ML boundaries related to the shown MCs.

Searches of the Australian Government Bureau of Meteorology (BOM) database (2024) identified one Terrestrial GDE described as moderate potential GDE comprising of Eucalyptus mallee forest and mallee woodland is located within the southern portion of the MC 4564.

A desktop surface water assessment was undertaken in April 2024 (Appendix C) to determine the likelihood and rainfall events required for flooding of the creek line. The assessment was used to model surface water and erosion control management tools for diversion bunds around the pit area and a diversion channel to redirect the flow of water to the original creek line along the western boundary of the Site. It is noted the Site is approximately 37.38 ha in size and forms 0.2% of the 17,700 ha catchments area.

An extract of the assessment is provided below:

"As shown in Figure 5 – Upstream Catchment there is a significant upstream catchment of approximately 177km^2, which forms the Yabmana Creek catchment (including its tributaries). The Yabmana Creek ultimately passes through the proposed Project Area.

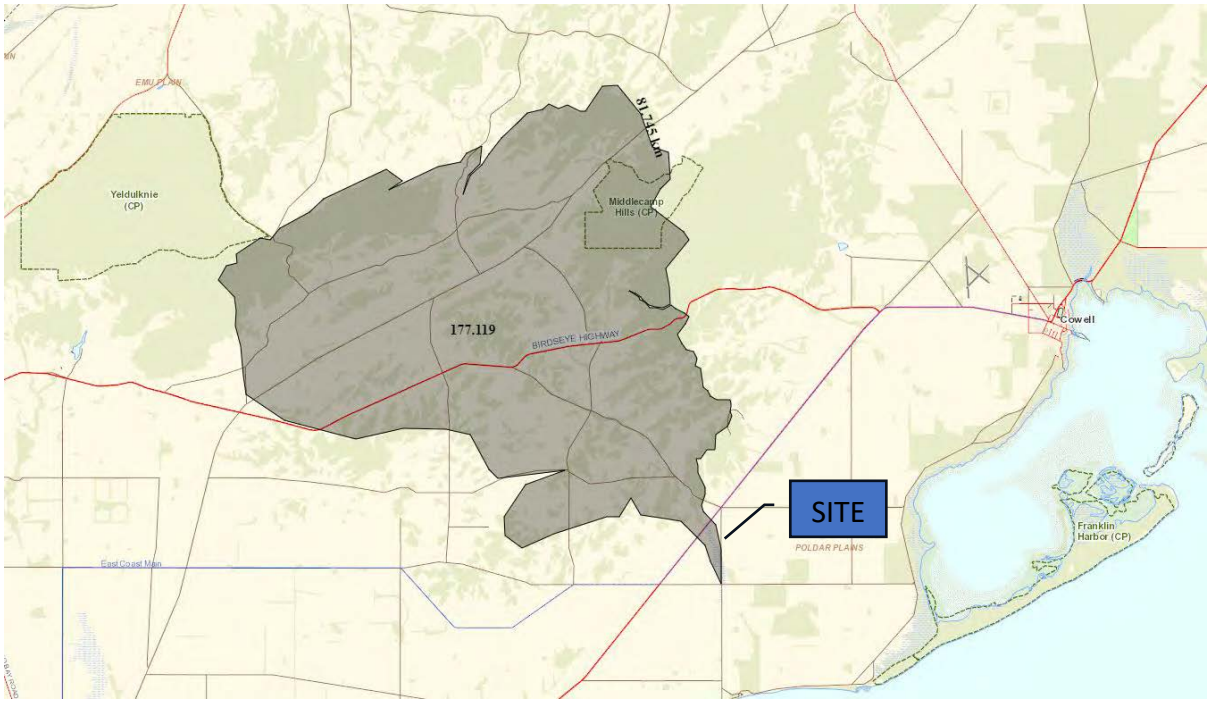

Figure 5: Upstream Catchment

Recent extensive rainfall over the Yabmana Creek catchment was recorded with a summary shown in Table 2 sourced from the BoM.

Table 2: Yabmana Creek Rainfall

Location	Date	Rainfall (mm)	Total Rainfall (mm)
Upper Catchment (Narridy Creek)	10/12/2023	58.7	113.1
	11/12/2023	54.4	
Site Location	10/12/2023	57.9	111.5
	11/12/2023	53.6	

As outlined in Table 2, both the upper and lower catchment of the Yabmana Creek received more than 110 mm in the days between 10th and 12th of December 2023.

1.7.1. Historic Rainfall Data

The historic daily rainfall data was also downloaded from BoM for all available years at the site, comprising data from the 1st of January 1958 to 9 April 2024. Upon analysis of all daily rainfall data, only 15 days have been recorded with 39mm or higher in a 24 hour period.

Further, only two times has there been two consecutive days of higher than 39mm, being the 23rd and 24th of January 2022, and the 10th and 11th of December 2023. A summary of historical rainfall exceeding 39mm is shown in Table 3.

Table 3: Historical Rainfall Data (days above 39mm rainfall)

Year	Month	Day	Rainfall (mm)
1961	11	17	44.4
1963	10	27	40.3
1964	11	18	47.3
1968	2	20	50.9
1969	2	9	42.3
1971	3	15	47.9
1973	2	6	42.3
1979	2	24	39.4
1983	7	6	53.9
1992	3	1	57.9
1997	2	6	53.6
2022	1	23	44.4
2022	1	24	40.3
2023	12	10	47.3
2023	12	11	50.9

Following the December 2023 rainfall event, a site investigation was carried out to examine the runoff at the site. Refer to Figure 6 which shows the Lincoln Highway Culverts immediately upstream of the site on 12th December 2023. No runoff was noted in the subsequent days in the Yabmana Creek within the site Project Area. This indicates that there is a likely presence of sandy soils (with high infiltration capacity) both in the vicinity of the Project Area, and also broadly upstream of the site in the upper reaches of the catchment."

1.7.2. Water Affecting Activity

A water affecting activity permit (WAAP) for construction of the diversion channel within a watercourse. This was granted on the 13th November 2024 as WAAP number E24011.

Figure 6: Site runoff Lincoln Highway

1.8. Vegetation, Weeds and Plant Pathogens

Native vegetation exists within MC 4564, while MC 4574 is entirely made up of cropping land with no native vegetation present.

Barron Environmental completed a desktop database search which was carried out before, and scrutinized again, after a site inspection and fauna assessment on the 13th and 15th of March 2024. Over 5 hours was spent on site in total and the Bushland Assessment Method (BAM) was applied, including searches for the presence of species listed under the NP&W 1972 or the EPBC Act 1999. No threatened communities, species (or relevant habitat for) were observed.

The vegetation to be cleared in MC 4564 consists of 0.88 ha of very open low *Maireana brevifolia* shrubland with sparse emergent trees and shrubs (mainly *Eucalyptus porosa* and *Acacia rigens*) and 0.26 ha of chenopod shrubland. At the time of the visit it was being grazed by livestock (sheep) and was in low/poor condition.

The vegetation is a relatively isolated patch in an agricultural landscape, although adjacent vegetation on the site in better condition will be avoided and is more than 8-10 km from the nearest Conservation Parks and Heritage Agreements.

The site appears to have a long history of annual/seasonal set livestock grazing, as well as of some areas of cultivation/cropping adjacent the watercourse.

The survey found that the mineral claim area consists of five key vegetation types (Figure 7):

- Open Mallee and low open woodlands with a chenopod understory - this vegetation association is currently expressed in low/poor condition as a very open low *M. brevifolia* shrubland with

sparse emergent trees and shrubs (mainly *E. porosa* and *A. rigens*). *Sclerolaena obliquicuspis*, *Enchylaena tomentosa* and *Enneapogon nigricans* are other sparse but dominant native species.

- Mallee box woodland – this vegetation association is described as an open woodland with a low to moderate species diversity. It is degraded by long term livestock grazing and weed invasion but is considered to have a relatively intact overstory.
- Chenopod shrubland – this vegetation association is located in the southern area and is described as a low chenopod shrubland that has regrown from previous clearing (grazing and possible cropping /cultivation) and although degraded as such has a moderate species diversity and habitat structure.
- Non-native vegetation.
- Cropping.

Flora species recorded during the survey are shown in Table 4.

Table 4: Species list from the flora survey.

Species	Common name	Rating
Eucalyptus porosa	Mallee Box	-
Sclerolaena obliquicuspis	Oblique-spined Bindyi	-
Vittadinia sp.	New Holland Daisy	-
Rhagodia parabolica	Mealy Saltbush	-
Enchylaena tomentosa var. tomentosa	Ruby Saltbush	-
Sida petrophila	Rock Sida	-
Austrostipa sp.	Spear-grass	-
Acacia rigens	Nealie	-
Enneapogon nigricans	Black-head Grass	-
Maireana brevifolia	Short-leaf Bluebush	-

From database searches, Silver Daisy-bush was the only threatened flora species recorded within 5 km (Table 4). No threatened communities, species (or relevant habitat for) were observed.

There are no records of Broomrape or Phytophthera within 100 km of the proposed quarry site (NatureMaps, 2024 – accessed on 26/08/2024).

The following weed species were found present within the mineral claim areas during the flora survey:

Table 5: Weeds found during the flora survey

Common Name	Species Name	Comment
African Boxthorn	*Lycium ferocissimum*	Common throughout the region, especially along roadsides.
Blanket Weed	*Galenia pubescens var. pubescens*	Widespread throughout the region.
Onion Weed	*Asphodelus fistulosus*	Widespread throughout the region.
Ward's Weed	*Carrichtera annua*	Widespread throughout the region.
Statice	*Limonium* sp.	Widespread throughout the region.

In addition to those found during the survey, a search on NatureMaps (accessed on 26/08/2024) also noted the following declared species:

- Buffel Grass (*Cenchrus ciliaris*/*pennisetiformis*) – located along the Lincoln Highway approximately 3.5 km from the mineral claim areas.
- Drooping Prickly Pear (*Opuntia monacantha*) – a record exists off the south eastern boundary of MC 4564.
- Bridal Creeper (*Asparagus asparagoides f. asparagoides*) – records exist within 4 km from the mineral claim areas; however records are associated with the habitat offered by Elbow Hill and the Cleve Hills.
- Boneseed (*Chrysanthemoides monilifera spp. Monilifera*) – a record exists approximately 3 km from the mineral claim areas, up in the hills. The record is from 2010.

Refer to Appendix C for results of database searches.

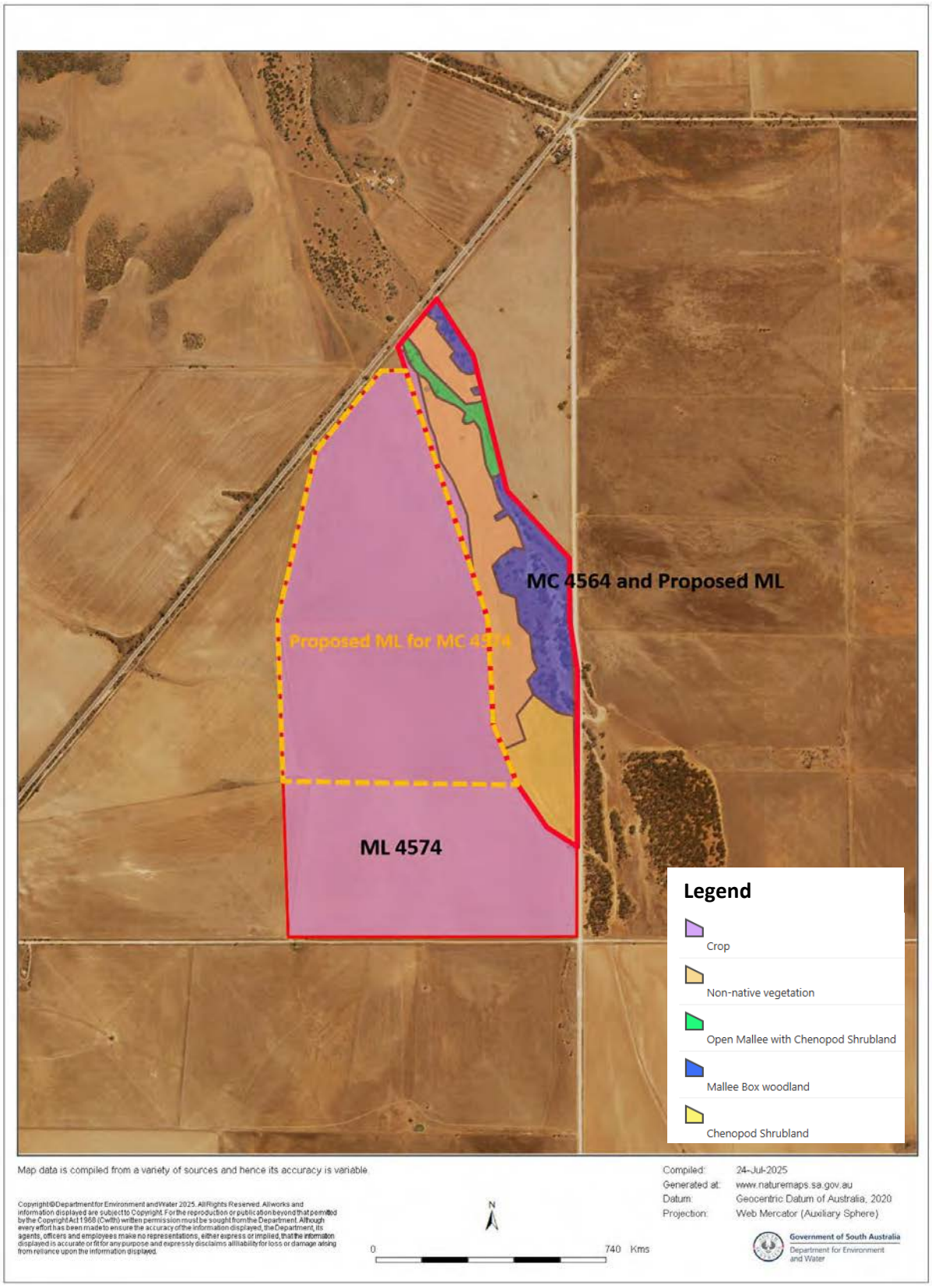

Figure 7: Vegetation types

1.9. Fauna

The fauna assessment was undertaken by Barron Environmental at the same time as the flora assessment and initially comprised a 'ramble' survey through the site. This included areas not

subsequently proposed for clearance, as part of an overall initial reconnaissance of the site. Following the initial BAM assessment on the 13th, a subsequent survey involving a transect that looped through the site covering all areas of different condition was conducted on the 15th. This survey was conducted from 7.30-9.30am, using an intermittent start-stop method, aimed at focusing on birds, and was followed up by a revised BAM assessment based on consideration of the initial condition assessment and application options.

Very low species diversity was recorded overall, but especially low in the area proposed for clearance, and no species with conservation significance were detected. The results are shown in Table 6. The highlight was a pair of Tawny Frogmouths observed in the Mallee Box Woodland, for which clearance will be avoided.

Table 6: Species list from the fauna survey

Species	Common name	Rating
Oryctolagus cuniculus	European Rabbit	Introduced – declared
Barnardius zonarius	Australian Ringneck	
Corvus coronoides	Australian Raven	
Eolophus roseicapilla	Galah	
Falco cenchroides cenchroides	Nankeen Kestrel	
Pardalotus striatus	Striated Pardalote	
Gymnorhina tibicen	Australian Magpie	
Manorina flavigula	Yellow-throated Miner	
Ocyphaps lophotes lophotes	Crested Pigeon	
Rhipidura leucophrys leucophrys	Willie Wagtail	
Smicrornis brevirostris	Weebill	
Sturnus vulgaris vulgaris	Common Starling	

From database searches, no threatened fauna records are present within 5 km, except for the Ruddy Turnstone, which has different habitat requirements. No threatened communities, species (or relevant habitat for) were observed. Numerous fauna species flagged by the Protected Matters Area Search were found to have records that were either out of date, beyond 5km and with different habitat requirements.

Rabbits were the only introduced species recorded during the survey; however it is expected that foxes, cats, House Mice are also present at the site.

Refer to Appendix D for results of database searches.

1.10. Caves

There are no caves in the vicinity of the Project Area. The closest known caves, Talia Caves, are located approximately 191 km west-north-west of the Project Area.

1.11. Land Use

Current and historical land use for the Project Area and surrounds, is agricultural (cropping) and sheep grazing.

The Project Area land and surrounds is designated as rural. There are no known plans for future land use changes by other parties.

An electrical easement (SWER line) runs across the property (NE to SW). A water main runs along the Eyre Highway on the north boundary of the property.

The Project Area is not within land used for defence purposes (Woomera Prohibited Area or the Cultana Army Training Area).

The Project Area is subject to two exploration leases and a petroleum lease:

- EL6728 – held by Tri-Star Minerals Pty Ltd
- EL6469 – held by Ausmin Development Pty Ltd
- PEL691 – held by H2EX South Australia Pty Ltd

1.12. Proximity to Infrastructure and Housing

There are no houses within the Project Area. A number of residences, and ruins, exist within several kilometres of the Project Area (Figure 8). The nearest residence is in Elbow Hill and is approximately 650 m from the boundary of MC 4564. Several other houses are also located in Elbow Hill. Distances have been measured to the nearest MC boundary; distance to actual quarrying activity will be greater.

The only infrastructure present within the Project Area is a powerline (SWER line), water main and two troughs.

The main entry point to the proposed quarry is along the Port Gibbon Road. Vehicles will enter and exit the Port Gibbon Road on the Lincoln Highway. Traffic numbers along the Lincoln Highway are estimated at 650 each day (SARIG road traffic volumes layer, 2024). Vehicle numbers are not available for the Port Gibbon Road.

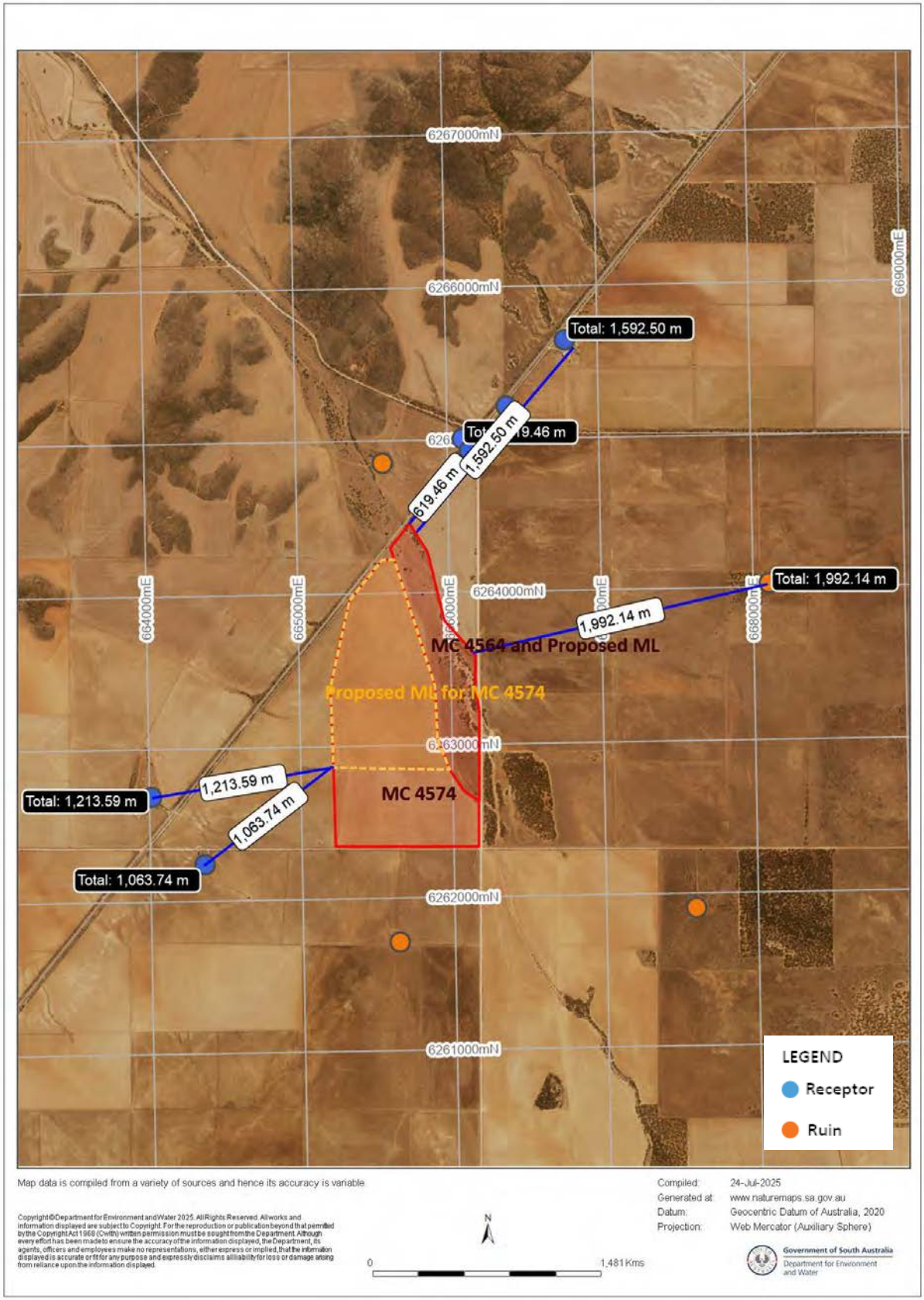

Figure 8: Location of nearest receptors

1.13. Exempt Land

The following exempt land exists within MC 4564 and MC 4574 (Figure 9):

- Land with 150 m of a SWER powerline
- Land within 150 m of a water main
- Land within 150 m of a trough
- Cropping land

Details of exempt land agreements are shown in Table 7.

Table 7: Waivers associated with the proposed quarry

Name of person entitled to exemption	Certificate of Title or Crown Land details	Reason for exemption (from Section 9 of the Mining Act)	Area of exemption	Waiver obtained	Any relevant conditions
Leon Story	CT5678/783	Cropping land, land within 150 of water troughs, powerline and water pipeline	*Crops* MC 4564 – 1.94 ha MC 4574 – 120.36 ha (proposed ML – 74.23 ha) *Troughs* MC 4574 – 5.92 ha	MC 4564 – 02/12/2021 MC 4574 – 25/05/2024	Nil
SA Power Networks	CT5678/783	Proximity to powerline	MC 4564 – 7.87 ha MC 4574 – 23.12 ha	MC456 and MC 4574 – 7/8/2024	• 24/7 vehicle access (including heavy vehicles) must not be impacted in a way that would restrict SA Power Networks ability to access their infrastructure (overhead powerlines and poles) • No excavation is permitted within 10 m (horizontally in any direction) of any poles • No excavation is permitted directly under the powerlines • Ground levels must not be altered under the powerlines • All required clearances and working safely near powerlines must be adhered to as mandated in the Electricity (General) Regulations 2012.

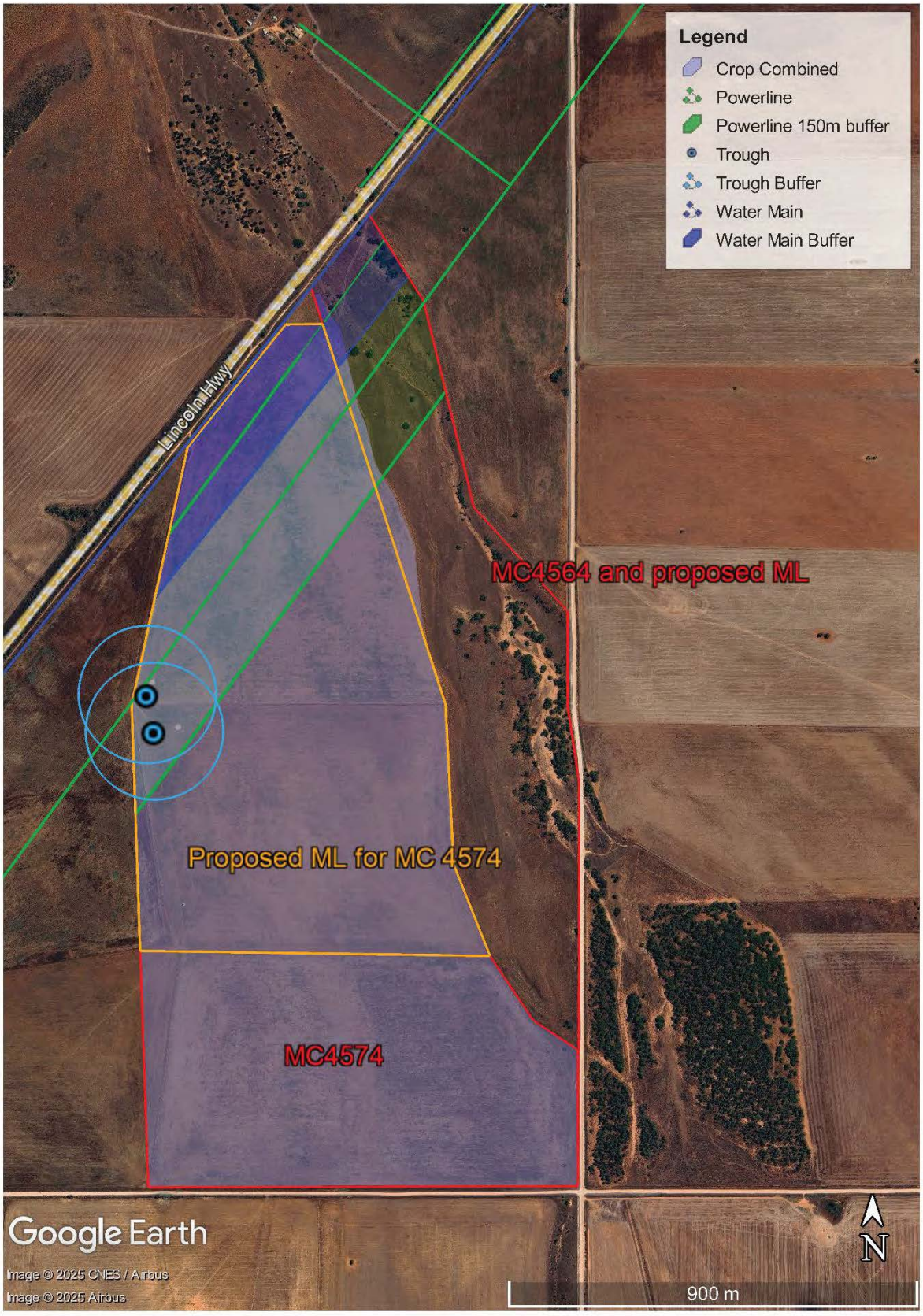

Figure 9: Land access map for MC 4564 and MC 4574

1.14. Amenity

The Project Area offers a typical rural vista, largely cleared agricultural land and a sparsely vegetated creek. The Project Area is visible from the Lincoln Highway (Figure 10, Figure 11 and Figure 12). Occupied housing in the Elbow Hill area will have a limited view of quarrying activities, with the terrain and creek line vegetation to provide some screening (Figure 13).

Figure 10: View from along the Lincoln Highway, distant from the Project Area

Figure 11: View from along the Lincoln Highway, closer to the Project Area

Figure 12: View from Project Area towards the Lincoln Highway

Figure 13: View from Project Area towards Elbow Hill

1.15. Air Quality

The Project Area is located within a rural area used for cropping and grazing activities. Dust generation sources include cropping and grazing activities, and traffic (vehicles and farm equipment) travelling on land and unsealed roads in the area.

1.16. Noise

The Project Area is located within a rural area used for cropping and grazing activities. Noise generation sources include farming equipment, local traffic and vehicles travelling on the Lincoln Highway.

1.17. Heritage (Aboriginal and Geological) and places, areas and objects of national, state or local heritage significance

There are no places of geological significance, or places, areas or objects of national, state or local significance within the Project Area.

A search of the Register of Aboriginal Sites and Objects was received on 21st August 2024 and stated that no entries for Aboriginal sites were found within 2,000 m of the Project Area.

As the land is held under freehold title, native title has been extinguished. The Barngarla People hold determined native title rights over various non-freehold parts of the Eyre Peninsula (NNTT, 2018) but are not 'owners' for the purposes of the Mining Act in relation to the area of the proposed ML.

1.18. Proximity to Conservation Areas

There are no conservation areas or areas under heritage agreement within 5 km of the Project Area.

1.19. Pre-Existing Site Contamination and Previous Disturbance

There is no known areas of site contamination within the Project Area. MC 4574 has been previously disturbed for cropping and grazing activities. MC 4564 is located within a creek line which is sparsely vegetated – it is expected that some land disturbance has been undertaken post European settlement, mainly grazing and some cropping.

2. Description of proposed quarry operations

2.1. General Description and Maps/Plans of operations

The chosen quarrying method and only applicable one for this operation is a traditional surface strip quarrying style. The resource is a shallow with minimal cover of topsoil which in nominally 200 mm deep. A free dig, single bench, open pit operation utilising a Front-End Loader/Bulldozer, Hydraulic Excavator and Dump Truck will be undertaken. The narrow band of topsoil will be removed initially and stockpiled around the perimeter to form the diversion bund which will surround each quarry stage.

MC 4564 will be mined in three stages, commencing in the northern section of the creek and moving progressively south. MC 4574 will be mined in three sections, the first section north of the powerline and the subsequent two sections south of the powerline. Each section will be rehabilitated once quarrying in that section has been completed. It is expected that quarrying in MC 4564 and MC 4574 will occur concurrently.

An overview of the Site's activities and extraction operations are provided below. In support of the MLP the following plans are provided and can be found in Appendix B:

- **Drawing No. 5219.DRG.003R2 – Geology Map**
- **Drawing No. 5219.DRG.002R1 – Resource Investigation Map**
- **Drawing No. 5219.DRG.013R2 – Topographic Map**
- **Drawing No. 5219.DRG.014R1 – Site Access Map**
- **Drawing No. 5219.DRG.005AR2 – Quarry Development Plan – Stage 1**
- **Drawing No. 5219.DRG.005BR2 – Quarry Development Plan – Stage 1 Sections A-A' to D-D'**
- **Drawing No. 5219.DRG.006AR2 – Quarry Development Plan – Stage 2**
- **Drawing No. 5219.DRG.006BR2 – Quarry Development Plan – Stage 2 Sections A-A' to C-C'**
- **Drawing No. 5219.DRG.007AR2 – Quarry Development Plan – Stage 3**
- **Drawing No. 5219.DRG.007BR2 – Quarry Development Plan – Stage 3 Sections A-A' to D-D'**
- **Drawing No. 5219.DRG.004AR2 – Conceptual Final Landform Plan**
- **Drawing No. 5219.DRG.004BR2 – Conceptual Final Landform Plan Sections A-A' to D-D'**
- **Drawing No. 5219.DRG.009R2 – Erosion and Sediment Control Plan – Stage 1**
- **Drawing No. 5219.DRG.010R2 – Erosion and Sediment Control Plan – Stage 2**
- **Drawing No. 5219.DRG.011R2 – Erosion and Sediment Control Plan – Stage 3**

2.2. Reserves, Products and Market

2.2.1. Resources

The extractive mineral proposed to be extracted from the Site are sand, gravel and river rock. The products will be used within the construction industry, concrete sand, bedding/backfill sand, landscaping rock products.

The quantities of the resource are based upon the calculation of material that was surveyed via an Unmanned Aerial Vehicle (UAV) versus a design that was implemented by a mining engineer with the use of Surpac and AutoCAD mining software and observations of the sand resource from within the resource and groundwater investigations undertaken in March 2024.

The attributed density is estimated at the following:

- Sand 1.65 tonne / sg per cubic metre (t/m^3).

The overall reserves calculated for the Project Area is 2,810,610 tonnes (t) as per the calculations provided below in Table 8.

Table 8: Resource Calculations

Stage	Volume (m3)	Tonnes	Approximate Stage Years
1A	72,700	119,955	4
1B	516,300	851,895	28*
2A	84,700	139,755	5
2B	411,000	678,150	22*
3A	94,300	155,595	6
3B	524,400	865,260	28*
TOTAL	**1,703,400**	**2,810,610**	**93**

* These stages will be progressively extracted to fulfill campaigns and whilst the total area provides for a larger volume and overall potential life, the material will be extracted in smaller extraction areas to align with campaigns most likely 3-5 ha and equates to approximately 9 years from opening an extraction area to rehabilitation.

Locations of resource investigations are shown in **Drawing No. 5219.DRG.002R1 – Resource Investigation Map** (Appendix B) and resource investigation logs for MC 4564 are included in Appendix F.

2.2.2. Production Rate and Products

Expected rate of extraction is approximately 30,000 tonnes (t) annually, dependent on market demand. The Site will be managed on a regular periodic basis.

Based on the estimated annual extraction volume and the calculated product, there will be approximately 93years of quarry life dependent on market demand.

There is no overburden expected to be produced with all extracted material to be sold.

2.3. Quarrying Activities

2.3.1. Type or types of proposed quarry operation to be carried out

Extraction undertaken within the Project Area will comprise of traditional open cut operations with extraction activities primarily occurring with an excavator or dozer loading into mobile screening plant onsite and product stockpiled within the pit floor in preparation for distribution to market. Progressive rehabilitation will follow the operations.

2.3.2. Sequence of Quarrying and Progressive Rehabilitation

The Site has been developed as three Stages (two pits per Stage) with a total of six pits. Each Pit may be operated concurrently or separately depending on the market demand and specific blends required. Each Pit is described below within each Stage of extraction with a summary of disturbance and progressive rehabilitation area summarised for each Stage. Each pit area will be progressively extracted and rehabilitated following the direction of mining arrows indicated on plans. Extraction will be in line with campaigns.

Note that it is not proposed to mine across the mining tenements. This is to aid in management of surface water within the creek line. Keeping the pits within each MC boundary will maintain separation between the differing relative levels of the existing creek line in MC 4564, which is lower

than the adjacent plain of MC 4574. This will also reduce the size of the final landform and likelihood of any impacts to surface water downstream of the Project area.

Progressive rehabilitation will be undertaken in a staged manner following extraction. The following information is provided.

2.3.2.1. Stage 1

- **Drawing No. 5219.DRG.005AR2 – Quarry Development Plan – Stage 1**
- **Drawing No. 5219.DRG.005BR2 – Quarry Development Plan – Stage 1 Sections A-A' to D-D'.**

Stage 1 – Pit 1A

Stage 1A has been designed to factor in the required buffers from powerline infrastructure as requested by the infrastructure owner. Therefore Stage 1 A has been constructed in two sections.

Prior to extraction of the resource, topsoil will be pushed to the edges of the extraction areas to form a 2 m high diversion bund around the Pit 1A extraction areas and exposing the pit area for production. Note: whilst deliberate sowing and/or planting will not take place due to the temporary nature of the topsoil stockpiling onsite, growth from existing seed stock will be encouraged by natural watering (rainfall).

Following topsoil removal, extraction of sand will commence from the north of each extraction area and develop in a southerly direction to a depth of 4 m (as indicated by the direction arrows) until extraction is completed in the southern end of each extraction area in Stage 1A. Product stockpiles and mobile plant will be located within the extraction area throughout the life of the quarry. A minimum buffer of 8.5 m from overhead powerlines and 10 m from pole infrastructure will be maintained.

Stage 1A includes the creation of a culvert diversion drain as per **Drawing No. 5219.DRG.009R2 – Erosion and Sediment Control Plan – Stage 1** (Appendix B) to redirect flows from the Lincoln Highway culvert drainage path to the original Yabmana Creek drainage line west of the pit. The culvert drainage diversion line will be constructed by excavating material using a dozer/FEL constructing the 3 m width drainage line battered to 1V:3H and allowed to naturally revegetate. This will remain intact throughout all stages of quarrying.

The total disturbance area of Pit 1A is 2.4 ha.

Progressive rehabilitation activities are generally limited at this stage to battering the pit edges to a 1H:3V batter.

Stage 1 – Pit 1B

Prior to extraction of the resource, topsoil will be pushed to the edges of the pit to form a 2 m high diversion bund around the Pit 1B extraction area with the entry pit contoured for safe entry / egress, exposing the pit area for production. Note: whilst deliberate sowing and/or planting will not take place due to the temporary nature of the topsoil stockpiling onsite, growth from existing seed stock will be encouraged by natural watering (rainfall).

Following topsoil removal, extraction of sand will commence from the north of extraction area and develop in a south westerly direction to a depth of 6 m (as indicated by the direction arrows) until extraction is completed in the southern end of Stage 1. Product stockpiles and mobile plant will be located within the extraction area throughout the life of the quarry.

As per **Drawing No. 5219.DRG.009R2 – Erosion and Sediment Control Plan – Stage 1** (Appendix B) shows the construction of a sediment basin within the south western corner of the pit to a depth of 1 m battered to 1V;4H.

Progressive rehabilitation activities will follow the direction of mining and occur progressively in line with the rate of new extraction area opened. Progressive rehabilitation activities will include battering the pit edges to a 1H:3V batter, placement of the topsoil onto the batters and allowing for natural revegetation of those terminal pit areas.

The total disturbance area of Pit 1B is 10 ha.

Total disturbance area for Stage 1 (all pits) is 12.4 ha.

2.3.2.2. Stage 2

Stage 2 – Pit 2A

- **Drawing No. 5219.DRG.006AR2 – Quarry Development Plan – Stage 2**
- **Drawing No. 5219.DRG.006BR2 – Quarry Development Plan – Stage 2 Sections A-A' to C-C'**

Pit 2A will commence as Pit 1A resource is exhausted.

Prior to extraction of the resource, topsoil will be pushed to the edges of the pit to form a 2 m diversion bund around Pit 2A extraction area to the south, east and west of the pit. Note: whilst deliberate sowing and/or planting will not take place due to the temporary nature of the topsoil stockpiling onsite, growth from existing seed stock will be encouraged by natural watering (rainfall).

Following topsoil removal, extraction of sand will commence from the north of Pit 2A and develop in a southerly direction to a depth of 4 m (as indicated by the direction arrows) until extraction is completed in the southern end of Pit 2A. Product stockpiles and mobile plant will be located within the extraction area throughout the life of the quarry.

Pit 2A includes the creation of a sediment basin to be located within the south section of the Pit. The sediment basin is to be constructed to 1 m depth with a 1V:4H batters, refer to **Drawing No. 5219.DG.010R2 – Erosion and Sediment Control Plan – Stage 2** (Appendix B).

The total disturbance area of Pit 2A is 2.2 ha.

Progressive rehabilitation activities in Stage 2A includes rehabilitation of Stage 1A terminal extraction areas (approximately 2.4 ha) via final contouring of batters, infill of the sediment basin, application of topsoil from the Stage 1A diversion bunds and scarifying the soils to promote natural revegetation. Diversion bunds contain topsoil which will be respread as part of rehabilitation activities and therefore diversion bunds will not remain in place once rehabilitation has been undertaken.

Stage 2 – Pit 2B

Pit 2B will commence as Pit 1B resource is exhausted.

Prior to extraction of the resource, topsoil will be pushed to the edges of the pit to form a 2 m high diversion bund around the Pit 2B extraction area. Note: whilst deliberate sowing and/or planting will not take place due to the temporary nature of the topsoil stockpiling onsite, growth from existing seed stock will be encouraged by natural watering (rainfall).

Following topsoil removal, extraction of sand will commence from the north of Pit 2B and develop in a southerly direction to a depth of 5 m (as indicated by the direction arrows) until extraction is

completed in the southern boundary of Stage 2B. Product stockpiles and mobile plant will be located within the extraction area throughout the life of the quarry.

Pit 2B includes the creation of sediment basin to be located within the south eastern section of the Pit. The sediment basin is to be constructed to 1 m depth with a 1V:4H batters, refer to **Drawing No. 5219.DG.010R2 – Erosion and Sediment Control Plan – Stage 2** (Appendix B)**.**

Progressive rehabilitation activities will follow the direction of mining and occur progressively in line with the rate of new extraction area opened. Progressive rehabilitation activities will include battering the pit edges to a 1H:3V batter, placement of the topsoil onto the batters and allowing for natural revegetation of those terminal pit areas.

Diversion bunds contain topsoil which will be respread as part of rehabilitation activities and therefore diversion bunds will not remain in place once rehabilitation has been undertaken.

The total area of disturbance in Pit 2B is 8.2 ha.

The total area of disturbance of Stage 2 (both pits) is 10.4 ha.

Rehabilitation of 10.6 ha including Stage 1A rehabilitation of 2.4 ha and Stage 2B of 8.2 ha.

2.3.2.3. Stage 3

Stage 3 – Pit 3A

- **Drawing No. 5219.DRG.007AR2 – Quarry Development Plan – Stage 3**
- **Drawing No. 5219.DRG.007BR2 – Quarry Development Plan – Stage 3 Sections A-A' to D-D'**

Pit 3A will commence as Pit 2A resource is exhausted.

Prior to extraction of the resource, topsoil will be pushed to the edges of the pit to form a 2 m high diversion bund around the Stage 3A extraction area. Note: whilst deliberate sowing and/or planting will not take place due to the temporary nature of the topsoil stockpiling onsite, growth from existing seed stock will be encouraged by natural watering (rainfall).

Following topsoil removal, extraction of sand will commence from the north of Pit 3A and develop in a southerly direction to a depth of 4 m (as indicated by the direction arrows) until extraction is completed in the southern end of Pit 3A. Product stockpiles and mobile plant will be located within the extraction area throughout the life of the quarry.

Pit 3A construction includes the creation of sediment basin to be located within the southwestern corner of Stage 3A. The sediment basin is to be constructed to 1 m depth with a 1V:4H batters as per **Drawing No. 5219.DRG.011R2 – Erosion and Sediment Control Plan – Stage 3** (Appendix B).

Progressive rehabilitation activities in Stage 3A includes rehabilitation of remaining Stage 2A terminal extraction areas (approximately 2.2 ha) via final contouring of batters, infill of sediment basin and application of topsoil from the Stage 2A diversion bunds and scarifying the soils to promote natural revegetation. Rehabilitation to include filling in the sediment basin within Stage 2A and encouraged to naturally revegetate. Diversion bunds contain topsoil which will be respread as part of rehabilitation activities and therefore diversion bunds will not remain in place once rehabilitation has been undertaken.

Total disturbance area of Pit 3A is 3.0 ha. Rehabilitation of Stage 2A of 2.2 ha.

Stage 3 – Pit 3B

- **Drawing No. 5219.DRG.007AR2 – Quarry Development Plan – Stage 3**
- **Drawing No. 5219.DRG.007BR2 – Quarry Development Plan – Stage 3 Sections A-A' to D-D'**

Pit 3B will commence as Pit 2B resource is exhausted.

Prior to extraction of the resource, topsoil will be pushed to the edges of the pit to form a 2 m diversion bund around the Pit 3B extraction area. Note: whilst deliberate sowing and/or planting will not take place due to the temporary nature of the topsoil stockpiling onsite, growth from existing seed stock will be encouraged by natural watering (rainfall).

Following topsoil removal, extraction of sand will commence from the north of Pit 3B and develop in a southerly direction to a depth of 5 m (as indicated by the direction arrows) until extraction is completed in the southern boundary of Pit 3B. Product stockpiles and mobile plant will be located within the extraction area throughout the life of the quarry.

A sediment basin is to be constructed within the southeastern section of the pit to 1 m depth with a 1V:4H batters as per **Drawing No. 5219.DRG.011R2 – Erosion and Sediment Control Plan – Stage 3** (Appendix B).

Progressive rehabilitation activities will follow the direction of mining and occur progressively in line with the rate of new extraction area opened. Progressive rehabilitation activities will include battering the pit edges to a 1H:3V batter, placement of the topsoil onto the batters and allowing for natural revegetation of those terminal pit areas.

Diversion bunds contain topsoil which will be respread as part of rehabilitation activities and therefore diversion bunds will not remain in place once rehabilitation has been undertaken.

Total disturbance area in Pit 3B is 11.6 ha.

Total disturbance for Stage 3 is 14.6 ha and progressive rehabilitation undertaken during Stage 3 is 11.6 ha.

2.3.3. Stockpiles

2.3.3.1. Topsoil and Subsoil Stockpiles

Topsoil depth is approximately 100 mm within the extraction areas. To ensure adequate topsoil health, a maximum of height of 2 m will be achieved in bunds around the edges of the active pits which will also serve as a diversion bund for stormwater management. Topsoil bunds will be encouraged to naturally revegetate.

Entry points to each pit will have an opening in the bund to allow vehicles to traverse safely into each pit.

There is no overburden produced onsite with all extracted material sold.

2.3.3.2. Product Stockpile

Product stockpiles will be stored in stockpiles to 5 m height and located within the Pit floor of each stage.

2.3.4. Use of Explosives

The use of explosives is not required for quarrying activities.

2.3.5. Modes and Hours of Operation

The quarry will be operated on a regular periodical basis, dependent upon demand.

The quarry will only be in operation during the hours 7am to 7pm Monday to Friday and 7am to 1pm on Saturdays. Works on Sundays or public holidays will not be undertaken.

2.4. Crushing, Processing and Product Transport

2.4.1. Fixed Plant

No fixed plant will be used for the proposed quarry.

2.4.2. Hours of Operation

Hours of operation will be consistent with quarrying activities and will be undertaken from 7am till 7pm Monday to Friday and 7am till 1pm on Saturdays. Works on Sundays or public holidays will not be undertaken.

2.4.3. Processing Wastes

No other wastes are expected to be produced during quarrying operations.

2.4.4. Industrial and Domestic Wastes

Minimal waste is expected to be generated during quarrying activities. Any wastes will be contained onsite in enclosed containers and disposed of offsite via a registered waste disposal facility. The nearest facility is operated by the District Council of Franklin Harbour in Cowell.

2.5. Supporting Service Infrastructure

2.5.1. Access and roads

The entry point and all site access to the Project Area will be from the Port Gibbon Road, which runs along the eastern side of the Project Area (refer to **Drawing No. 5219.DRG.014 – Site Access Map** in Appendix B). The entry point has been selected to allow for suitable visibility when leaving the site (Figure 14 and Figure 15). A site access road will be constructed from the entry point to quarrying operations. No other roads are required.

Vehicles associated with the quarry (including product transport) will enter the site via the main entry point and traverse the Port Gibbon Road to the Lincoln Highway, entering the Lincoln Highway at the existing intersection at Elbow Hill. This intersection has been chosen as it allows at least 500 m of visibility for entering and exiting the intersection (Figure 16 and Figure 17).

A small number of support vehicles will access the site when quarrying activities are occurring. Trucks sizes for product transport will be rigid, semi and road train (HR, HC and MC). An estimated average of 1.9 loads (60 tonne each) per day when operational, which is expected to fluctuate dependant on market demand. There may be periods where increased truck movements are required in support of material supplied to infrastructure projects.

Figure 14: View from main gate looking north.

Figure 15: View from main gate looking south.

Figure 16: View from Lincoln Highway intersection looking in the direction of Port Lincoln.

Figure 17: View from Lincoln Highway intersection looking in the direction of Cowell.

2.5.2. Accommodation and offices

No accommodation will be provided onsite, with employees housed within the local region. A small office block will be located onsite and will consist of a temporary demountable facility which can be

easily relocated when quarrying operations cease. A portable toilet facility will also be utilised. A parking area for light vehicles will be located near the office facility.

2.5.3. Public and services and utilities used by the operation

Mains supply water is available on MC 4574. A 30,000 L tank will be installed adjacent to the supply point and accessed as required. Any water to the site will be trucked from the access point.

If power is required for the office facility it will be provided by a generator.

Telecommunications will be provided via the local mobile network. No telecommunications lines are proposed to be installed.

2.5.4. Visual screening

No visual screening is proposed to be required or constructed. Some visual screening is provided by roadside vegetation along the Lincoln Highway.

2.5.5. Fuel and chemical storage

Large volumes of chemicals and hydrocarbons will not be stored on site. A service vehicle will hold the requirements for servicing of vehicles. Fuel for machinery will be transported to site in a fuel truck and vehicles filled directly from the truck.

2.5.6. Site security

Fences exist around the perimeter of the Project Area which will be maintained whilst quarrying operations are undertaken. A lockable gate will be installed at the main entry point which will be locked white the site is not in use. Other gates around the perimeter will be closed and signage installed to prevent unauthorised access.

2.5.7. Erosion, Sediment and Silt Control

As discussed in Section 1.7 the Project Area is located within the Yabmana Creek Catchment area.

A desktop Surface Water Assessment was undertaken by Groundwork Plus (as part of SLR) to determine the requirements to mitigate potential sediment and erosion impacts during high rainfall events (refer to Appendix C).

Based on an initial preliminary surface water assessment, it seems highly probable that the site will not encounter significant rainfall runoff during the project development phase. This is based on both a historical rainfall analysis and the ability to conduct a site investigation for the highest rainfall event recorded since records began in 1958 for the area.

It is likely that both the lower and upper reaches of the catchment experience initial surface water losses resulting from direct soil infiltration, accompanied by ongoing continual losses during rainfall events, which represents sandy soil conditions with significant subsoil aquifer recharge capacity volumes.

In accordance with industry best practice (IECA 2008), stormwater runoff from disturbed areas of the site, generated by (up to and including) a 5-day 75th percentile rainfall event is proposed to be captured by a sediment basin system onsite or managed to remove contaminants prior to offsite discharge (if required). Details of sediment basin details are shown in the drawings included in Appendix B.

The total upper settling storage requirements for sediment basins are estimated based on the following formula (IECA 2008):

Vs = 10 x A *Cv * R ($_{Y\%, 5\text{-day}}$), where:
A = Catchment Area (Ha)
Cv = Coefficient of Discharge
R = Rainfall depth (m) from 95th Percentile, 5-day rainfall event.

Table 9 details the sediment basin storage requirements, based on a rainfall depth (R) of 14.15 mm, (1 year ARI, 120h intensity source: Bureau of Meteorology).

Table 9: Sediment Basin Storage Requirements

Stage	Basin ID	Location	Catchment Area (ha)	Upper settling volume (ML)	Sediment storage volume (ML)	Total volume (ML)
1A		Northern and eastern catchment	2.4	Not required	Not required	Not required
1B	SB1	Western catchment	10	0.75	0.28	1.13
2A	SB2	Eastern catchment	3.7	0.28	0.14	0.42
2B	SB3	Southern catchment	8.2	0.62	0.31	0.92
3A	SB4	Eastern catchment	6.7	0.5	0.25	0.75
3B	SB5	Southern catchment	19.8	1.49	0.74	2.23

As per Appendix C, based on an initial preliminary surface water assessment, it seems highly probable that the site will not encounter significant rainfall runoff during the project development phase. This is based on both a historical rainfall analysis and the ability to conduct a site investigation for the highest rainfall event recorded since records began in 1958 for the area.

Notwithstanding this, further investigation is recommended to also examine shorter high intensity bursts of rainfall that may produce runoff where the continual losses along the creek line may be exceeded.

Therefore a Diversion Drainage Culvert will be constructed north of Stage 1 to redirect flows from the Lincoln Highway Culvert to the original Yabmana Creek flow path. The Culvert will be constructed creating a 3 m culvert constructed at a 1:3 batter (Figure 18).

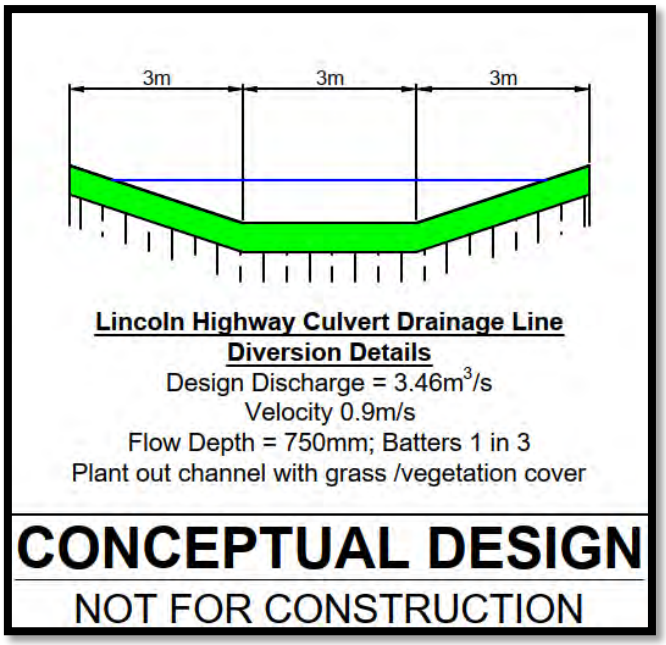

Figure 18: Conceptual design Lincoln Highway culvert drainage diversion details.

The culvert will remain in place and be inspected and maintained (including treatment for weeds) throughout each Stage of extraction.

Additionally, diversion bunds 2 m in height constructed of stripped topsoil will be placed around the perimeter of each extraction pit to ensure surface water is contained within the pit area and redirected to a sediment basin. The topsoil will be placed back onto the pit floor as per progressive rehabilitation activities of the Siet once the extraction areas become terminal.

2.5.7.1. Stage 1

Refer to **Drawing No. 5219.DRG.009R2 – Erosion and Sediment Control Plan – Stage 1** (Appendix B).

Activities for Stage 1A and Stage 1B include the creation of diversion bund around the active extraction pits. The diversion bunds are to be created by stockpiling topsoil to 2 m height.

A sediment basin (SB1) will be created in Stage 1B is planned to be constructed with the south western corner of the active pit to a depth of one (1) m and battered to a 1V:4H batter with a holding capacity of 1,130 kilolitres (kL).

2.5.7.2. Stage 2

Refer to **Drawing No. 5219.DRG.010R2 – Erosion and Sediment Control Plan – Stage 2** (Appendix B).

Activities for Stage 2A and Stage 2B include the creation of diversion bund around the active extraction areas of the pits. The diversion bunds are to be created by stockpiling topsoil to 2 m height.

A sediment basin (SB2) will be created in Stage 2A is planned to be constructed with the south eastern corner of the active pit to a depth of 1 m and battered to a 1V:4H batter with a holding capacity of 420 kL.

A sediment basin (SB3) will be created in Stage 2B is planned to be constructed with the south eastern corner of the active pit to a depth of one (1) m and battered to a 1V:4H batter with a holding capacity of 920 kL.

2.5.7.3. Stage 3

Refer to **Drawing No. 5219.DRG.011R2 – Erosion and Sediment Control Plan – Stage 3** (Appendix B).

Activities for Stage 3A and Stage 3B include the creation of diversion bund around the active extraction areas of the pits. The diversion bunds are to be created by stockpiling topsoil to 2 m height.

A sediment basin (SB4) will be created in Stage 3A is planned to be constructed with the south western corner of the active pit to a depth of 1 m and battered to a 1V:4H batter with a holding capacity of 750 kL.

A sediment basin (SB5) will be created in Stage 3B is planned to be constructed with the south eastern corner of the active pit to a depth of 1 m and battered to a 1V:4H batter with a holding capacity of 2,230 kL.

A Water Affecting Activities permit has been applied for in conjunction with the Mining Lease application for the activities within MC 4564.

2.6. Vegetation Clearance

Some native vegetation clearance will occur within MC 4564. No native vegetation exists within MC 4574. Mallee box woodland associated with the creek line will be avoided, with 1.14 ha of sparse open woodland and chenopod shrublands cleared. Clearance is associated with the access road, quarry pit and construction of a diversion channel. Refer to Figure 19 for a map of the site layout, vegetation types and proposed native vegetation clearance area.

With regard to the mitigation hierarchy the following has been considered:

- Avoidance – Mallee box woodland vegetation associated with the creek line is to be avoided.
- Minimisation – the majority of clearance is to be undertaken in an area where vegetation is sparse and more degraded.
- Rehabilitation or restoration – each stage of the quarry will be rehabilitated, once activity has ceased. Refer to the following drawings for proposed stages and rehabilitation.
    - Drawing No. 5219.DRG.005AR2 – Quarry Development Plan – Stage 1
    - Drawing No. 5219.DRG.005BR2– Quarry Development Plan – Stage 1 Sections A-A' to D-D'
    - Drawing No. 5219.DRG.006AR2 – Quarry Development Plan – Stage 2
    - Drawing No. 5219.DRG.006BR2 – Quarry Development Plan – Stage 2 Sections A-A' to C-C'
    - Drawing No. 5219.DRG.007AR2 – Quarry Development Plan – Stage 3
    - Drawing No. 5219.DRG.007BR2 – Quarry Development Plan – Stage 3 Sections A-A' to D-D'
    - Drawing No. 5219.DRG.004AR2 – Conceptual Final Landform Plan
    - Drawing No. 5219.DRG.004BR2 – Conceptual Final Landform Plan Sections A-A' to D-D'
- Offset – no on ground SEB is proposed to offset clearance activities. Payment will be made in the SEB offset fund.

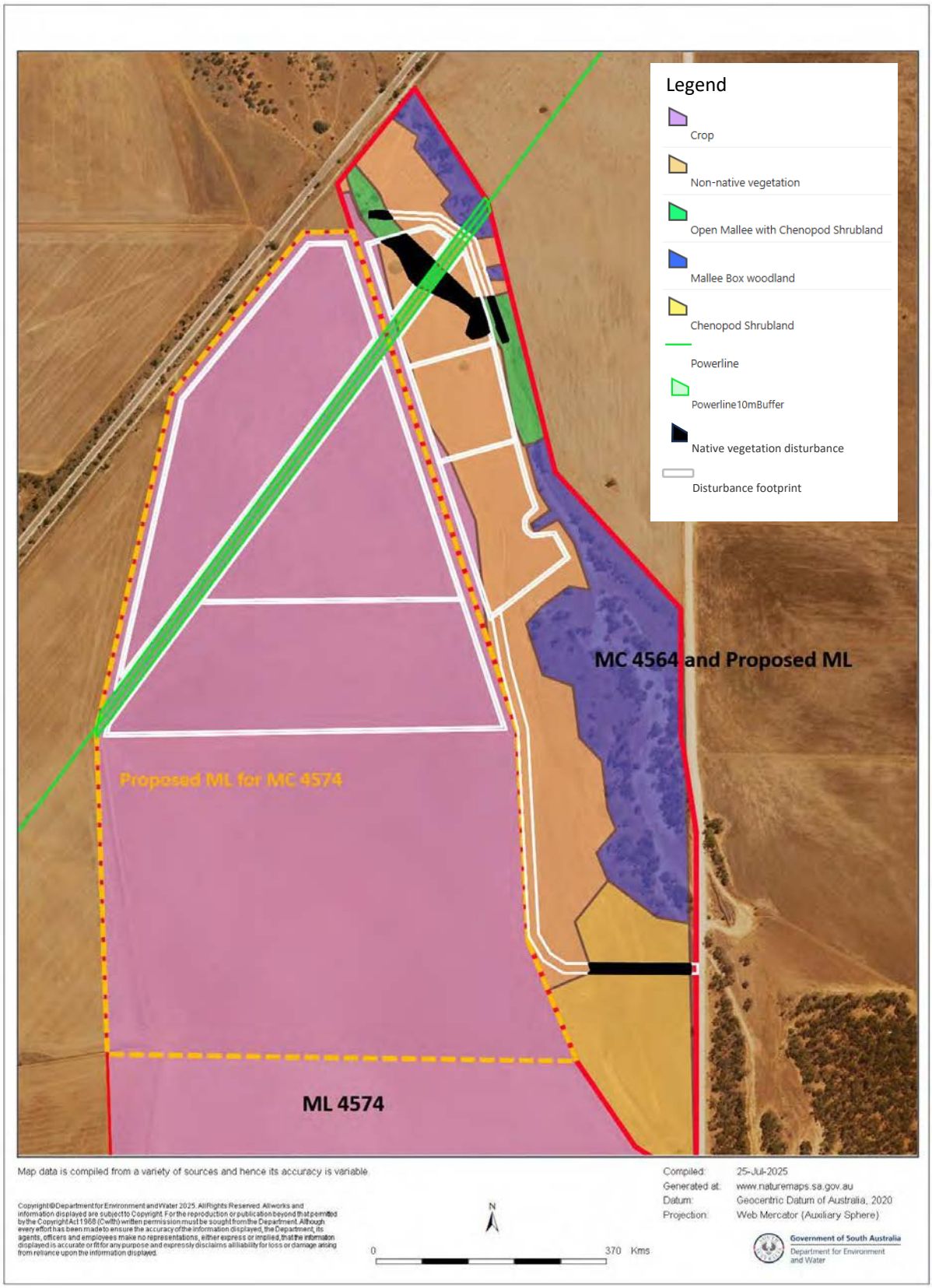

Figure 19: Proposed site layout, vegetation types and proposed clearance

2.7. Site Water Management

Water will be required for site amenities and dust suppression activities. No water will be required for processing and process water ponds will not be used.

Water will be accessed from mains water supply point in MC 4574. A tank will be installed to support water supply.

2.8. Description of Quarry at Completion

The final land use is proposed to return to an agricultural land use of grazing. Refer to **Drawing No. 5219.DRG.004AR2 – Conceptual Final Landform Plan** and **Drawing No. 5219.DRG.004BR2 – Conceptual Final Landform Plan Sections A-A' to D-D'** (Appendix B).

As a general guide, the following measures may be used to prepare the final landform:

- Using earthmoving equipment to progressively shape and trim the workings to the desired profiles and flattening the gradients of batters to 1V:3H on reaching the terminal limits of extraction within both Stages.
- Fill in final sediment basins within Stage 3.
- Rounding or marrying the contours into the natural ground surface.
- Providing access to the terminal workings to allow continual maintenance of rehabilitation works.
- Designing landform and drainage to control erosion.

The following measures are to be implemented for topsoil and overburden (if available) spreading:

- Areas to be spread are to be re-profiled prior to placing of overlying materials.
- Topsoil and overburden (if available) are to be removed from stockpiles in a manner that avoids vehicles travelling over the stockpiles and causing compaction.
- Topsoil and overburden (if available) are to be respread in the reverse sequence to its removal where possible so that the original soil layer is returned to the surface to re-establish the entrapped seed content of the soil.
- After spreading topsoil, ensure the surface is left in a roughened state to assist moisture infiltration and inhibit soil erosion.
- If erosion occurs on treated surfaces, the area is to be re-profiled and re-spread as necessary (note: traversing tracked machinery perpendicular to the slope gradient may assist in reducing the erosion potential of the re-profiled surface).

Any roads and tracks located within areas to be rehabilitated that are no longer required for the operational functionality of the Site, or for ongoing access to rehabilitated areas, are to be removed, topsoiled, seeded and allowed to regenerate with vegetation. Ongoing access is to be prevented to these roads and tracks to avoid compaction and increase germination survival rates.

2.9. Description of Workforce and Local Procurement

Approximately two full time equivalent employees will be created by the proposal. These are expected to reside in the local community.

Employees will be given an induction to the site when commencing.

Goods and services required for the quarry will be minimal, but where possible local businesses will be used.

3. Consultation

3.1. Stakeholder identification process

Neighbouring properties (both residential and vacant) were identified on maps with the owners name and address sought from the District Council of Franklin Harbour.

3.2. Process for information delivery

A face to face visit was undertaken on 5th August 2024 to neighbours in residence. Ken Lamb and Michelle Stening visited properties, delivered a letter and spoke of their roles in the organisation, how the operation will run and provided contact details to present any concerns. No one expressed any concerns and they all thanked us for the information. One contact was not able to be spoken to, a note to say 'we missed you' was left and a letter posted out.

A separate meeting was also held with the District Council of Franklin Harbour. No concerns were raised during this meeting.

3.3. Individuals/groups not able to be consulted

A letter of explanation has been sent via Aust Post to individuals and organisations who were unable to be met face to face. No response was received following the letters being sent.

3.4. Engagement led development of outcomes

No concerns were raised regarding environmental elements and as a result outcomes were developed independently of this process.

3.5. Stakeholder engagement results

Details and outcomes of stakeholder engagement related to the proposed quarry operation are shown in Table 10.

Table 10: Details and outcomes of stakeholder engagement

Persons consulted	Date	Consultation method	Concerns/issues raised	Response/steps taken or proposed to address concerns
Dorothy Story (landholder POA)	14/10/2021	Face to face	Land access and compensation agreement	Land access and compensation agreement signed
Dorothy Story (landholder POA)	19/12/2023	Phone	Advise of pegging underway	Nil concerns
Dorothy Story (landholder POA)	04/03/2024	Phone	Advise vegetation survey and resource drilling taking place	Nil concerns
Kane Schubert (Elders Insurance)	19/03/2024	Phone	Insurance update for property and payment of account	Nil concerns
Dorothy Story (landholder POA)	15/04/2024	Face to face	Primary production lease agreement	Nil concerns
Dorothy Story (landholder POA)	06/05/2024	Face to face	Waiver of exemption forms	Nil concerns
Dorothy Story (landholder POA)	26/05/2024	Face to Face	Signing of amended land access agreement	Nil concerns

Persons consulted	Date	Consultation method	Concerns/issues raised	Response/steps taken or proposed to address concerns
SA Power Networks	16/07/2024	Email	Waiver of Exemption Application	Signed document with noted conditions
SA Water	16/07/2024	Email	Waiver of Exemption Application	No response
Des and Donna Story (neighbours)	05/08/2024	Letter via post	Stakeholder consultation	Nil concerns
Greg and Shaana Williams (neighbours)	05/08/2024	Face to face	Stakeholder consultation	Nil concerns
Brenton and Jane Smith (neighbour)	05/08/2024	Letter via post (not available for face to face on the day)	Stakeholder consultation	Nil concerns
K Mathai (neighbour)	05/08/2024	Letter via post	Stakeholder consultation	Nil concerns
The Lamb Shed (neighbour)	05/08/2024	Face to Face	Stakeholder consultation	Nil concerns
Dept Infrastructure and Transport	05/08/2024	Letter via post	Stakeholder consultation	Nil concerns
Mick Guidera (neighbours)	05/08/2024	Face to face (left letter with daughter)	Stakeholder consultation	Nil concerns
Gary Hughes (neighbour)	05/08/2024	Face to face	Stakeholder consultation	Nil concerns
Leon Story (landholder)	05/08/2024	Letter via post	Stakeholder consultation	Nil concerns
RV Atkinson Super Pty Ltd (neighbour)	05/08/2024	Face to face	Stakeholder consultation	Nil concerns
Jake Nairn (neighbour)	05/08/2024	Face to face	Stakeholder consultation	Nil concerns
District Council of Franklin Harbour	07/08/2024	Face to face	Stakeholder consultation	Nil concerns
David Pearce	12/09/2024	Letter via post	Stakeholder Consultation	Nil concerns

4. Management of Environmental Impacts

The assessment of environmental impacts has been prepared in accordance with sections 36(1)(c)(ii)(A) and 49(1)(c)(ii)(A) of the *Mining Act 1971* and regulation 46(2) of the Mining Regulations 2020.

4.1. Environmental Elements and Receptors

Elements of the environment that were considered during the assessment of environmental impacts which may be impacted by the proposed development (during operation, closure and post completion[2]), include:

- Aboriginal heritage
- Air quality
- Groundwater
- Land use
- Native fauna
- Native vegetation
- Noise
- Public safety
- Soil
- Surface water
- Third party property
- Traffic
- Weeds
- Visual amenity

4.2. Community engagement and legislated limits

Stakeholder engagement was undertaken with neighbours and others close to the proposed quarry. No environmental concerns were raised during stakeholder consultation. Refer to Section 3 for more information.

4.3. Potential impact events

Potential impact events that were identified during the assessment process are shown in Table 11.

Table 11: Potential impact events

Environmental Element	Potential impact event
Aboriginal heritage	• Disturbance during quarrying and construction impacts unknown Aboriginal heritage sites.
Air quality	• Dust from site access road, quarrying and screening impacts on public amenity.
Groundwater	• Reduced quality and/or quantity of groundwater available to GDEs as a result of pit interactions with groundwater
Land use	• Rehabilitation success limits land use post quarrying.
Native fauna	• Clearance of native vegetation results in a reduction in available habitat for threatened species. • Putrescible waste generated during quarrying operations results in an increase in populations of pest animals which impacts on native fauna.

[2] Note that a construction phase has not been included due to limited construction activities (building access road).

Environmental Element	Potential impact event
Native vegetation	• Clearance of vegetation results in the loss of conservation listed species and communities.
Noise	• Noise from quarry equipment and product transport vehicles impacts on public amenity (nuisance).
Public safety	• Unauthorised access to quarrying area by a member of the public results in death or injury.
Soil	• Contamination of land from spills and leaks during refuelling or maintenance impacts soil and land quality. • Stockpiling of topsoil leads to reduced soil quality.
Surface water	• Erosion within Yabmana Creek caused by extraction activities and construction of diversion culvert. • Discharge of surface water from quarrying operations results in contamination and sedimentation of adjacent land and outside of the Tenement. • Reduction of surface water quality and quantity for terrestrial and groundwater dependant ecosystems downstream.
Traffic	• Heavy vehicles entering and exiting public road at mine access point interacts with general public.
Weeds	• Introduction or spread of weeds as a result of the mine development.
Visual amenity	• Reduced visual amenity from surrounding roads and nearby residences as a result of the quarry development.

An impact assessment for the identified potential impact events has been undertaken in Section 4.4.

4.3.1. Aboriginal heritage

The proposed ML areas have been subject to grazing and agricultural practices for over 100 years. The land has been largely cleared of native vegetation and ground disturbed for planting of crops and a further reduction in native vegetation within the creek line is likely as a result of grazing.

It is possible that aboriginal heritage sites and objects may exist in the area, however none are currently known or registered in the relevant databases. Appropriate controls and management practices will be implemented if any sites, objects or remains are uncovered during quarry operations.

No concerns or issues regarding Aboriginal heritage were identified during stakeholder engagement.

Given the possibility of Aboriginal heritage components being present in the quarry area, the SPR pathway for this impact event has been confirmed and an outcome is proposed (refer to Table 12).

4.3.2. Air quality

Existing dust sources in the area include agricultural activities and traffic on local unsealed roads. Whilst quarrying activities will introduce a new dust source for the area, low vehicle numbers associated with quarrying activities are not expected to increase dust loads significantly beyond existing.

The nearest occupied residents are in Elbow Hill, with the nearest over 650 m from the boundary of MC 4564. The distance to active quarrying activities will be at least 800 m. Native vegetation within the creek line and the slight rise in between the houses and quarry will offer some screening of dust loads. Additional controls such as progressive rehabilitation to reduce exposed areas, watering of haul roads as required, and no quarrying activities during extreme wind days.

No concerns or issues regarding air quality were identified during stakeholder engagement.

Whilst dust is not expected to be an issue, given proximity to Elbow Hill residences, the SPR has been confirmed and an outcome is proposed (refer to Table 12).

4.3.3. Groundwater

Groundwater data in and around the Project Area is limited with the majority of local bores not having an SWL recorded. A review of the shallow water data layer in SARIG shows the project sitting in the 5-10 m zone, bordering the 10-20 m zone. Resource drilling was undertaken at a number of locations within MC 4564 and no water was detected to a depth of 9 m suggesting groundwater depths are lower than this. The floor depth of the quarry will be limited to between 4-6 m and therefore a minimum buffer of 3 m or greater to groundwater levels is expected to be achieved and allows for any seasonal fluctuation.

As per the outcomes of groundwater investigations for the Site, no groundwater has been detected within excavations up to nine (9) m deep. Proposed quarry operations are intended to remain above the groundwater table with buffers of two (m) or greater expected and not intercept groundwater. On this basis, impacts to GDE's from groundwater intersection is not likely.

No concerns or issues regarding groundwater were identified during stakeholder engagement.

As a consequence the SPR pathway has not been confirmed and no outcome is proposed to be included for groundwater.

4.3.4. Land use

Rehabilitation will be undertaken progressively during quarrying operations, rehabilitating each section of the quarry once completed and moving on to the next section. The sides of each pit will be battered to a 1V:3H batter and will not be steep sided. Topsoil will be stockpiled (to a maximum height of 2 m around the pit perimeter) before quarrying commences and will be respread during rehabilitation activities. It is not expected that there will be any issues with returning the land for use as grazing following quarry operations.

No concerns or issues regarding land use were identified during stakeholder engagement.

As a consequence the SPR pathway has not been confirmed and no outcome is proposed to be included for land use.

4.3.5. Native fauna

Some pest fauna species are known to benefit from the presence of putrescible waste, leading to an increase in the population size of pest species. This can in turn impact on native fauna via competition for resources or predation.

A very small amount of putrescible waste is expected to be generated by quarry personnel during break periods. All waste generated will be kept in the office complex and removed regularly for disposal at the Cowell Waste Facility. It is not expected that putrescible waste will be accessible to pest fauna species.

Clearance of native vegetation can result in a reduction of habitat available for threatened fauna species. Native vegetation clearance associated with the proposed quarry is limited to 1.14 ha and will avoid the Mallee box woodland associated with the creek line. No threatened fauna species were detected during the site inspections. Fauna species flagged during database searches were found to have records that were out of date, beyond 5 km and with different habitat requirements. No threatened fauna species are expected to be impacted by the proposed clearance of native vegetation.

Controls to avoid unnecessary clearance of native vegetation include a buffer of 5 m from the canopy drip line of scattered trees; and clearance areas and areas not to be disturbed will be flagged prior to commencement of quarrying.

No concerns or issues regarding native fauna were identified during stakeholder engagement.

As a consequence the SPR pathway has not been confirmed for fauna related impact events and no outcome is proposed to be included for native fauna.

4.3.6. Native vegetation

Clearance of native vegetation can result in the loss of threatened flora species and communities. Native vegetation clearance associated with the proposed quarry is limited to 1.14 ha and will avoid the Mallee box woodland associated with the creek line. No threatened communities or flora species (or relevant habitat for) were observed during the site visit. The Silver Daisy-bush was on the only threatened flora species recorded within 5 km of the Project Area; however the habitat present is not suited for this species. No threatened flora species are expected to be impacted by the proposed clearance of native vegetation.

Controls include ensuring a buffer of 5 m from the drip line of scattered trees; flagging vegetation to be cleared and ensuring operators are made aware of clearance areas.

No concerns or issues regarding native flora were identified during stakeholder engagement.

The SPR pathway has not been confirmed for flora related impact events, however, to ensure controls are in place an outcome is proposed to be included for native flora.

4.3.7. Noise

The Project Area is located within a rural area used for cropping and grazing activities. Background noise generation sources include farming equipment, local traffic and vehicles travelling on the Lincoln Highway.

Quarry operations will include trucks and earthmoving machinery which will be the main source of noise. Quarry operations will be limited to daylight hours and are expected to be comparable to local agricultural and highway related noise.

No concerns or issues regarding noise were identified during stakeholder engagement.

As a consequence the SPR pathway has not been confirmed for noise related impact events and no outcome is proposed to be included for noise.

4.3.8. Public safety

Members of the public may access the site and interact with quarry equipment, resulting in injury or death. Access to the site will be via the Port Gibbon Road and not the Lincoln Highway. Fences and gates are in place and will be maintained to ensure access is restricted. The site will also be signposted appropriately to ensure risks are known and to prevent unauthorised access. Gates and signage will be installed at the main entrance. Gates will be locked when the quarry is not being operated.

No concerns or issues regarding public safety were identified during stakeholder engagement.

The SPR pathway has been confirmed for public safety related impact events and an outcome is proposed to be included for public safety.

4.3.9. Soil

Soils throughout the site are primarily consisting of deep hard gradational sandy loam soil. Topsoils are primarily shallow, reaching depths of 250 mm and within the extraction area is approximately 100 mm deep.

Soils may be impacted via spills during refuelling activities. Storage of chemicals and fuel at the site is not proposed. A fuel trailer will be used for storage and distribution of fuel. Controls include only refuelling vehicles on the pit floor via a mobile tanker and ensuring spill kits are in place.

Soil condition may also be impacted by incorrect stockpiling of topsoil. Controls include limiting height of stockpiles to 2 m and allowing topsoil stockpiles to naturally revegetate to prevent erosion and retain soil quality.

No concerns or issues regarding soil were identified during stakeholder engagement.

The SPR pathway has been confirmed for soil related impact events and an outcome is proposed to be included for soil.

4.3.10. Surface water

Yabmana Creek is located within MC 4564 and enters from the north eastern corner of the MC 4564, runs along the eastern side of MC 4564 exiting the south eastern side of MC 4564 refer to **Drawing No. 5219.DRG.013R2 – Topographic Map** (Appendix B). The creek is located within the southern portions of the Yabmana Creek catchment area (Figure 5). Yabmana Creek is largely an ephemeral vegetated creek.

A desktop surface water assessment was undertaken in April 2024 (Appendix C) to determine the likelihood and rainfall events required for flooding of the creek line. Assessment of rainfall data indicated that there is a likely presence of sandy soils (with high infiltration capacity) both in the vicinity of the Project Area, and also broadly upstream of the site in the upper reaches of the catchment which minimises surface flow through the MC area.

The assessment was used to model surface water and erosion control management tools for diversion bunds around the pit area and a diversion channel to redirect the flow of water to the original creek line along the western boundary of the Site. Other controls include progressive rehabilitation, construction of stormwater sumps in the larger pits and inspections after heavy rains to monitor for damage to diversion bunds and the diversion channel.

With respect to changes to impacts to surface water hydrology the Site (total life of quarry disturbance footprint of 37.38 ha) is approximately 0.2% of the Yabmana Creek Catchment area (approximately 17,700 ha) which will be undertaken in staged manner. Additionally, surface water flows from the creek (if it flows, and evidence of lack of flows in high rainfall events have been documented) are not intended to be impacted as the creek will be diverted around the extraction areas of the Site. Any changes to surface water hydrology are only likely to result in localised changes within the quarry footprints and not contribute to significant changes to regional hydrology. Additionally, water quality will also be managed through the retention of surface water within the quarry void and associated sediment basins.

No concerns or issues regarding surface water were identified during stakeholder engagement.

The SPR pathway has been confirmed for surface water related impact events and an outcome is proposed to be included for surface water.

4.3.11. Traffic

Quarry products will be trucked from the site via the main entrance, along the Port Gibbon Road and to the Lincoln Highway. The existing intersection on the Lincoln Highway will be utilised and allows good visibility for traffic entering the highway and other road users. Numbers of vehicles entering and exiting the site each day are not considered to be high and are expected to be around two trucks and two light vehicles.

Controls will include operators being made aware during the site induction of dangers of machinery entering public roads, road signs displayed at mine entry and exit points warning public of dangers, no vehicles being parked along the road verge outside the tenement and all quarry machinery using a specified channel.

No concerns or issues regarding traffic were identified during stakeholder engagement.

The SPR pathway has been confirmed for traffic related impact events and an outcome is proposed to be included for traffic.

4.3.12. Third party property

A powerline (SWER line) runs across both MC 4564 and MC 4574. There exists the potential for damage to occur to the third party property from quarry vehicles.

Controls include ensuring an exclusion zone of 10 m around all poles and 7 m from the powerline, no excavation directly below the powerline, no blasting will occur, no hot works during fire ban days and any hot works to only occur on the pit floor away from vegetation.

No concerns or issues regarding third party property damage were identified during stakeholder engagement.

The SPR pathway has been confirmed for third party property damage related impact events and an outcome is proposed to be included for third party property damage.

4.3.13. Weeds

Equipment entering and leaving the site can possibly result in the spread of weeds into and out of the quarry area. A number of weeds species were detected during the site visit and are known to occur within the surrounding area. Declared species within the Project Area includes African Boxthorn.

Controls include weeds control as required.

No concerns or issues regarding weeds were identified during stakeholder engagement.

The SPR pathway has been confirmed for weed related impact events and no outcome is proposed to be included for weeds.

4.3.14. Visual amenity

The site is visible off the Lincoln Highway, just south west of Elbow Hill, and is also visible from Elbow Hill. Some vegetation along the edge of the highway offers some screening for people travelling along the Highway. The time taken to travel past the Project Area is approximately 45 seconds. The vegetation along the creek line and terrain offers some screening from residences in Elbow Hill. Soil stockpiles will also offer some screening of the pit floor and quarry machinery. Progressive rehabilitation of each quarry stage will also be undertaken.

No concerns or issues regarding visual amenity were identified during stakeholder engagement.

As a consequence the SPR pathway has not been confirmed for visual amenity related impact events and no outcome is proposed to be included for visual amenity.

4.4. Environmental impact assessment

The environmental impact assessment for identified potential impact events is shown in Table 12. The assessment includes identification of source, pathway and receptors; description of uncertainty; confirmation of the event; and justification for confirmation or non-confirmation.

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Table 12: Environmental impact assessment

Environmental element	Mine life phase	Relevant Mineral Claim	Potential impact event	Source	Pathway	Receptor	Uncertainties and assumptions	Sensitivity to change in assumptions	Confirmation of Source-Pathway-Receptor (yes/uncertain/no)	Justification for confirmation or non-confirmation
Aboriginal Heritage	Operation, Closure	MC 4564, MC 4574	Disturbance during quarrying and construction impacts unknown Aboriginal heritage sites.	Ground disturbing activities	Disturbance	Aboriginal heritage	SPR is unlikely. No sites recorded during desktop assessment.	Physical survey may record sites or artefacts not previously recorded on Register of Aboriginal Sites and Objects.	Yes	No sites or artefacts expected, unless a physical survey records sites or artifacts.
Air quality	Operation, Closure	MC 4564, MC 4574	Dust from site access road, quarrying and screening impacts on public amenity.	Disturbance and quarrying operations	Dust, air	Local residents	SPR is confirmed.	Unlikely to change due to quarrying production rate and distance to nearest receptor.	Yes	Quarrying activities will be low volume and dust generated is expected to be minimal.
Groundwater	Operation, Closure	MC 4564, MC 4574	Reduced quality and/or quantity of groundwater available to GDEs as a result of pit interactions with groundwater	Quarrying operations	Construction of the pit	GDEs	SPR is not confirmed. Limited groundwater information available for the region. Minimum 3 m buffer to be maintained.	Unlikely to change due to outcomes of resource drilling and observations during flooding events.	No	Groundwater was not observed up to 9m from surface during resource drilling. Pit floor will be limited to 4-6m and therefore is not expected to interact with groundwater.
Land use	Closure, Post Closure	MC 4564, MC 4574	Rehabilitation success limits land use post quarrying.	Rehabilitation activities	Post quarrying land use	Landholders	SPR is unlikely. Post land use is expected to support grazing.	Unlikely to change	No	Low risk of rehabilitation not being successful.
Native fauna	Operation, Closure	MC 4564, MC 4574	Clearance of native vegetation results in a reduction in available habitat for threatened species.	Native vegetation clearance	Ground disturbance activities	Threatened species	SPR is not confirmed. Threatened species may not have been identified during the fauna study. Area of clearance is known.	Unlikely to change as habitat proposed to be cleared is unsuitable or of limited importance for most threatened species.	No	Quarrying activities are not taking place in higher value habitat of the creek line. Majority of land disturbance is over cropping land.
Native fauna	Operation	MC 4564, MC 4574	Putrescible waste generated during quarrying operations results in an increase in populations of pest animals which impacts on native fauna.	Pest animals attracted to waste	Predation by pest animals	Native fauna	SPR is not confirmed. Very low volumes of putrescible waste is expected.	Unlikely to change. Low personnel numbers forecast for operations will generate minimal amounts of waste.	No	Limited waste (from low personnel numbers) will be generated in site office and will be disposed of offsite.
Native vegetation	Operation	MC 4564, MC 4574	Clearance of vegetation results in the loss of conservation listed species and communities.	Native vegetation clearance	Ground disturbance activities	Native flora	SPR is unlikely, however threatened species may not have been identified during the fauna study. Area of clearance is known.	Unlikely to change as habitat proposed to be cleared is unsuitable or of limited importance for most threatened species.	Yes	Quarrying activities are not taking place in higher value habitat of the creek line. Majority of land disturbance is over cropping land. The impact event has been included to ensure controls are in place around clearance of vegetation.
Noise	Operation	MC 4564, MC 4574	Noise from quarry equipment and product transport vehicles impacts on public amenity (nuisance).	Quarrying operations and product transport	Noise transmission	Local residents		Unlikely to change due to operations being limited to day time only and comparable to local agricultural and highway noise.	No	Quarrying activities are located at least 700m from the nearest residences (which are located along the Lincoln Highway). Noise from quarrying operations is expected to be lower than highway traffic.
Public safety	Operation, Closure, Post closure	MC 4564, MC 4574	Unauthorised access to quarrying area by a member of the public results in death or injury.	Unauthorised entry by member of the public	Interaction with quarrying equipment	Member of the public	Confirmed SPR linkage for operational phase. SPR not confirmed for closure due to rehabilitation of the pit.	Unlikely to change.	Yes (operation and closure only)	Known from other sites. This impact event for post closure was not identified as having a confirmed SPR due to final closure pit structure not including steep sided walls.
Soil	Operation	MC 4564, MC 4574	Contamination of land from spills and leaks refuelling or maintenance impacts soil and land quality.	Chemical and hydrocarbon use	Spills and leaks	ML areas		Low	Yes	Storage of chemicals and hydrocarbons in volume is not planned. A fuel trailer will be used for storage and distribution of fuel and a service truck will store requirements for servicing machinery.
Soil	Operation, Closure	MC 4564, MC 4574	Stockpiling of topsoil leads to reduced soil quality from extended storage, wind and/or runoff erosion.	Stockpiled topsoil	Removal and stockpiling of topsoil	Soil quality	SPR is confirmed.	Unlikely to change.	Yes	Inappropriate stockpiling practices are known to reduce soil fertility. The length of time that topsoil is stockpiled, in addition to wind and/or

Environmental element	Mine life phase	Relevant Mineral Claim	Potential impact event	Source	Pathway	Receptor	Uncertainties and assumptions	Sensitivity to change in assumptions	Confirmation of Source-Pathway-Receptor (yes/uncertain/no)	Justification for confirmation or non-confirmation
										runoff erosion may also result in impacts to rehabilitation success.
Surface water	Operation, Closure	MC 4564	Erosion within Yabmana Creek caused by extraction activities and construction of diversion culvert.	Quarrying activities	Rainfall event	Surface water dependent ecosystems	Confirmed SPR link. A desktop Surface Water and Erosion Assessment informed by onsite assessment after recent rainfall events, has been undertaken to inform control and management strategies for the Site. The assessment identified the creek does not experience flows from upstream and requires localised management strategies. Construction of Lincoln Highway previously altered flow paths. Addition of Culvert will redirect flows to natural pathway.	Seasonal variations in rainfall may occur but risk is low as creek does not receive downstream flows to affect currently as outlined in Surface Water Assessment.	Yes	Refer to surface water study.
Surface water	Operation, Closure	MC 4564, MC 4574	Discharge of surface water from quarrying operations results in contamination and sedimentation of land.	Quarrying activities	Rainfall events	Land surrounding quarry	Confirmed SPR link. Desktop Surface Water and Erosion assessment was undertaken to inform a SPR exists and provide management strategies exist.	Seasonal variations in rainfall may occur but risk is low as demonstrated in Surface Water Assessment with overland flows unlikely.	Yes	Refer to surface water study.
Surface water	Operation, Closure	MC 4564, MC 4574	Reduction in surface water quality and quantity for terrestrial and groundwater dependant ecosystems downstream	Quarrying activities	Rainfall events	Creekline downstream	Confirmed SPR link. Desktop Surface Water and Erosion assessment was undertaken to inform a SPR exists and provide management strategies exist.	Seasonal variations in rainfall may occur but risk is low as demonstrated in Surface Water Assessment with overland flows unlikely.	Yes	Refer to surface water study.
Third party property	Operation, Closure	MC 4564, MC 4574	Proximity to infrastructure results in impacts to third party property from quarry vehicles.	Quarrying activities	Interaction with quarrying equipment	Third party property	Confirmed SPR link.	Unlikely to change.	Yes	Known from other sites.
Traffic	Operation, Closure	MC 4564, MC 4574	Heavy vehicles entering and exiting public road at mine access point interacts with general public.	Traffic entering and exiting site	Road accidents	Member of the public	Confirmed SPR link.	Unlikely to change.	Yes	Known from other sites.
Weeds	Operation	MC 4564, MC 4574	Introduction or spread of weeds as a result of the mine development.	Unclean equipment entering/leaving quarry	Vehicles and other equipment	Lease area and native vegetation	Confirmed SPR link. Large diversity of common EP weed species within the MC area.	Unlikely to change. Weed species may not have been detected during vegetation assessment.	Yes	Known from other sites.
Visual amenity	Operation, Closure	MC 4564, MC 4574	Reduced visual amenity from surrounding roads and nearby residences as a result of the quarry development.	Quarry pits and stockpiles	Line of sight	Local residents and traffic on highway	No confirmed SPR link.	Unlikely to change. Contours and native vegetation not expected to change. Progressive rehabilitation to occur.	No	Site is not expected to be obviously visible from the site. The woodland vegetation of the creek line will not be removed and will provide some screening. Elevation contours also mean the quarry area will not be in view from local residences. Minimal interaction with site from vehicles travelling along the Lincoln Highway. Progressive rehabilitation will also occur.

4.5. Control and Management Strategies, Uncertainty Assessment, Statement of Environmental Outcomes and Criteria

Management of environmental impacts is shown in Table 13. The table includes control measures, uncertainties and assumptions, sensitivity to change and proposed outcomes for each impact event.

Measurement criteria for each environmental outcomes are shown in Table 14.

Table 13: Control measures, uncertainty and outcomes

	Mine life phase	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumptions	Proposed outcome
Aboriginal Heritage	Operation, Closure	Disturbance during quarrying and construction impacts unknown Aboriginal heritage sites.	• All contractors and employees operating within the tenement will understand their obligations in regard to the *Aboriginal Heritage Act 1988* with regards to the discovery of Aboriginal sites, objects or remains and the *Heritage Places Act 1993* with regards to the discovery of places or objects of significance.	Government heritage databases are based on local knowledge, assessments and historical information.	Limited as controls are industry standard.	No damage, disturbance or interference to Aboriginal or non-Aboriginal heritage sites, objects or remains unless it is authorised under the relevant legislation.
Air Quality	Operation, Closure	Dust from site access road, quarrying and screening impacts on public amenity.	• Rehabilitation will occur progressively in accordance with the Quarry Development Plan. • All loaded trucks leaving the Tenement with be covered. • Haul roads will be watered when required to control dust. • Quarrying will not occur during extreme wind days (ie dry conditions and wind speeds over 50 km/h).	The controls proposed are industry standard. Effectiveness may fail on very high wind days.	Limited as controls are known and proven to be effective.	No public health and/or nuisance impacts from dust generated by quarry operations.
Native Flora	Operation	Clearance of vegetation results in loss of conservation listed species and communities.	• A buffer of a minimum of 5 m from the canopy drip line of scattered trees will be maintained. • Native vegetation not to be cleared will be flagged during operations to avoided additional clearance. • Native vegetation to be cleared will be identified and flagged and all operators will be made aware of areas for clearance based on the NVMP prior to commencement of mining.	The controls proposed are industry standard.	Limited as controls are known and proven to be effective.	The tenement holder must ensure no loss of abundance and/or diversity of native vegetation on or off the land through clearance unless a significant environmental benefit has been approved in accordance with the relevant legislation.

	Mine life phase	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumptions	Proposed outcome
Public Safety	Operation, Closure	Unauthorised access to quarrying area by a member of the public results in death or injury.	OPERATION PHASE • Access to the Tenement will be controlled through fencing and gates will be locked when not operational. • All fences and gates will be inspected regularly. Site will be sign posted making the public aware of hazards associated with the mine. CLOSURE PHASE • Quarry operations will be progressively rehabilitated as per the Quarry Plan. • All plant and equipment will be removed from the site.	Assumes control measure (such as fencing, gates and signage) will prevent people from accessing.	Unable to control a deliberate breach in access.	No public injuries and/or deaths resulting from unauthorised entry to the site that could have been reasonably prevented.
Soil	Operation	Contamination of land from spills and leaks impacts soil and land quality.	• Machinery will be refuelled onsite on the pit floor via mobile tanker. Spill kits will be available for use if required.	Procedures in place to manage spills and known to be effective. Relatively small quantities of fuels used.	Spill procedures will be in line with relevant legislation and standards.	The existing (pre-quarrying) soil quality and quantity is maintained.
Soil	Operation	Stockpiling of topsoil leads to reduced soil quality	• Soil stockpiled to a maximum of 2 m in height to preserve seed and micro-organism function. • Soil stockpiles will naturally revegetate to prevent erosion and retain soil quality.	Assumes that topsoils harvested and stockpiled correctly will ensure soil quantity and quantity.	Soil storage methods are standard and known to be effective.	

	Mine life phase	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumptions	Proposed outcome
Surface Water	Operation, Closure	Erosion within Yabmana Creek caused by extraction activities and construction of diversion culvert	• A bund will be constructed around each working section of the pit to ensure surface water from creek flows does not report to the pit and surface water disturbed by quarrying is retained within the tenement area to absorb or naturally evaporate. • A diversion channel will be installed to divert water from the Highway overflow to the main creek channel away from quarry operations and allow flows to continue if they are experienced. • Rehabilitation will occur progressively in accordance with the Quarry Development Plan. • A sump will be created to capture and hold stormwater within the working pit. • Inspection after heavy rainfall events to monitor for damage to diversion funds and diversion channel. • Pits within creekline of MC 4564 will be kept distinct from pits within MC 4574 to reduce size and volume of final depressions. Final depression in MC 4564 will be 4 m.	A desktop surface water assessment was undertaken to assess the Site's conditions and historic rainfall events. The planned management activities are sufficient to control surface water and prevent erosion impacts.	Unlikely to change.	The Tenement Holder must ensure there is no adverse impact on surface water quality or quantity as a result of quarry operations.
Surface Water	Operation, Closure	Discharge of surface water from quarrying operations results in contamination and sedimentation of land	• Rehabilitation will occur progressively in accordance with the Quarry Development Plan. • A sump will be created to capture and hold stormwater within the working pit.	A desktop surface water assessment was undertaken to assess the Site's conditions and historic rainfall events an. The planned management activities are sufficient to control surface water and prevent erosion impacts.	Unlikely to change.	

	Mine life phase	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumptions	Proposed outcome
Third party property	Operation, Closure	Proximity to infrastructure results in impacts to third party property from quarry vehicles.	• Exclusion zone maintained from powerline (10 m (horizontally in any direction) from poles and 8.5m from powerline). • No excavation directly below powerline. • Ground levels must not be altered under the powerlines. • All required clearances and working safely near powerlines must be adhered to as mandated in the *Electricity (General) Regulation 2012*. • Blasting is not proposed. • No hot-works during total fire ban days. • Hot works will be undertaken on the pit floor away from vegetation.	Assumes exclusion zones are correctly marked out.		The Tenement Holder must, during construction and operation, ensure there are no adverse impacts to third party property on or off the land as a result of quarry operations
Traffic	Operation, Closure	Heavy vehicles entering and exiting public road at mine access point interacts with general public	• All operators, during the site induction, will be made aware of the dangers of mine machinery and mine vehicles entering public roads during the site induction. • Road signs will be displayed at mine entry and exit points, warning the public of the dangers of large trucks entering and entering the tenement. • Vehicles and machinery will be parked inside the tenement, not along road verges. • All site vehicles within the site will use a specified UHF channel.	Assumes public road users will abide by road traffic rules.	Traffic accidents may occur if road users choose to not follow road traffic rules.	No traffic accidents involving members of the public and mine related traffic that could have been reasonably prevented by the Tenement Holder.
Weeds	Operation	Introduction or spread of weeds as a result of the mine development	• Weed spraying will be conducted by a suitably experienced person as required.	Controls are widely accepted and known to be successful. Assumes weed species not recorded during surveys are not present.	May change if a particularly noxious weed is recorded that was previous not known.	No introduction of new species of weeds, or pests (including feral animals), nor increase in abundance of existing weed or pest species on the Land.

Table 14: Measurement criteria

	Outcome	Measurement criteria					Leading indicator criteria
		What will be measured (method) and form of measurement	Locations	Outcome achievement	Frequency	Control or baseline data	
Aboriginal Heritage	No damage, disturbance or interference to Aboriginal or non-Aboriginal heritage sites, objects or remains unless it is authorised under the relevant legislation.	Review of quarry log book and records of discovery of any possible Aboriginal or non-Aboriginal: - sites of significance - objects - remains. Review of management actions following discovery.	Disturbance areas within MC 4564 and MC 4574	Any discoveries of possible Aboriginal or non-Aboriginal sites, objects or remains are left without further disturbance, reported to the relevant authorities and investigated. Work only recommenced once authorised to do so.	During land disturbance activities and quarrying operations.	Quarry log book.	None proposed.
Air Quality	No public health and/or nuisance impacts from dust generated by quarry operations.	Review of quarry log book and records of dust complaints. Review of management actions following complaint.	MC 4564 and MC 4574	Records from the Quarry log book demonstrate that any dust complaints received were acknowledged within 48 hours and resolved with the complainant within 7 days (or other time as agreed with the regulator). If complaints are not resolved to the satisfaction of the regulator, air quality monitoring is to occur at locations, and using methods, as agreed with the regulator to demonstrate: • PM_{10} concentrations leaving the tenement when measured over a 24-hour period (midnight to midnight) as specified in the *Environment Protection (Air Quality) Policy 2016*, and or, • Dust deposition leaving the tenements does not exceed 4mg/m^2/month.	As required.	Quarry log book.	None proposed.
Native Flora	The tenement holder must ensure no loss of abundance and/or diversity of native vegetation on or off the land through clearance unless a significant environmental	Clearance will be undertaken in accordance with the Native Vegetation Management Plan.	MC 4564	Annual site survey will show no clearance of native vegetation outside of that approved in the NVMP.	Annually.	Audit report.	None proposed.

	Outcome	Measurement criteria					Leading indicator criteria
		What will be measured (method) and form of measurement	Locations	Outcome achievement	Frequency	Control or baseline data	
	benefit has been approved in accordance with the relevant legislation.						
Public Safety	No public injuries and/or deaths resulting from unauthorised entry to the site that could have been reasonably prevented.	Review of quarry log book and records of any unauthorised access incidents.	MC 4564 and MC 4574	All public injuries or deaths resulting from unauthorised access will be investigated by a suitable qualified independent party within one month (or other time as agreed with the regulator) and the results of the investigation show that the accident could not have been reasonably prevented by the Tenement Holder. *Closure* Following final rehabilitation work an appropriate person will inspect the site and verify in a report (to be stored in the Quarry log book) that final rehabilitation has been undertaken in accordance with the Quarry Plan.	When incident occurs	Quarry log book	Not proposed.
Soil	The existing (pre-quarry) soil quality and quantity is maintained.	Annual inspections of soil stockpiles to confirm heights are less than 2m.	MC 4564 and MC 4574	Annual review of the Quarry log book of all soil stockpiles will demonstrate that all stockpiles are less than 2m high and are maintained at the height when established.	Annually	Quarry log book	None proposed.
		Following rehabilitation work, rehabilitated areas will be inspected by an appropriate person to determine amount of regrowth and that rehabilitation has been undertaken in accordance with the Quarry Plan. If deemed necessary, seeding may be undertaken.	MC 4564 and MC 4574	Annual review of rehabilitated areas to determine success of revegetation.	Annually	Quarry log book	None proposed.
Surface Water	The Tenement Holder must ensure there is no adverse impact on surface water quality or quantity as a result of quarry operations.	Bunds and the diversion channel will be inspected within seven days of rainfall events that resulted in surface water flows. Maintenance activities if required are completed within 14 days.	MC 4564 and MC 4574	Annual review of the Quarry log book of all inspections undertaken and maintenance activities undertake within specified timeframes.	As required	Quarry log book	None proposed.

	Outcome	Measurement criteria					Leading indicator criteria
		What will be measured (method) and form of measurement	Locations	Outcome achievement	Frequency	Control or baseline data	
Traffic	No traffic accidents involving members of the public and mine related traffic that could have been reasonably prevented by the Tenement Holder.	Review of quarry log book and records of any traffic incidents that involved the public	Transport routes	All accidents involving the public will be investigated by a suitable qualified independent party within one month (or other time as agreed with the regulator) and the results of the investigation show that the accident could not have been reasonably prevented by the Tenement Holder.	When incident occurs.	Quarry log book	None proposed.
Weeds	No introduction of new species of weeds, or pests (including feral animals), nor increase in abundance of existing weed or pest species on the Land.	Annual inspections (in spring) by the tenement holder) of weed species present.	MC 4564 and MC 4574	Quarry log book records of annual inspections (in Spring) by the Tenement Holder will demonstrate no introduction of new weeds or pests and no increased abundance of declared weeds or pests.	Annually	Baseline flora surveys and Quarry log book	Not proposed.

5. Additional Information

5.1. Effective and efficient mining and outcome achievement statements

From information presented within this document, WON Solution believes that there is a reasonable prospect that the land in respect of which the lease is sought could be effectively and efficiently mined. The appropriate environmental outcomes, that have been identified, will be able to be achieved.

5.2. Resource Justification

As demonstrated in Section 2.2, the mineral resource has been appropriately identified and estimated.

5.3. Reasonable Prospect of Access to Land

As demonstrated in Section 1.13, there are no issues with access to land and accessing the resource. A land access and compensation agreement has been signed by both parties.

5.4. Operator Capability and Resource Statements

WON Solution is the Tenement Holder for MC 4564 and MC 4574 and any subsequently granted mining leases.

WON Solution is committed to provide a safe and healthy working environment for all employees, contractors, visitors and stakeholders and to ensuring that activities are planned and conducted in an environmentally sustainable manner.

During all phases of the mine life, WON Solution and its contractors will comply with the requirements of:

- The terms and conditions of any MLs granted from MC 4564 and MC 4574
- The subsequent approved PEPR
- *Mining Act 1971* and Mining Regulations 2020
- All other relevant State and Commonwealth Government Acts and Regulations including but not limited to:
    - Work Health and Safety Act 2012
    - Environmental Protection Act 1993 and relevant Policies
    - Public and Environmental Health Act 1987
    - Native Vegetation Act 1991
    - Aboriginal Heritage Act 1988
    - Mines and Works Inspection Act 1920
    - Road Traffic Act 1961
- All relevant Australian Standards, Regulations, Codes of Practice and Guidance notes
- All WON Solution policies, procedures and management plans

5.4.1. Technical Capabilities

The Directors of WON Solution are Kenneth William Lamb and Valerie Patrena Lamb. Collectively, they have extensive history in business ownership and the successful management of these enterprises. This includes specifically a business formerly known as ODT Australis which held

contracts in mining, crushing and screening. This includes projects in Olympic Dam for BHP and in Whyalla for OneSteel. ODT Australis was sold to Toll Mining and became the SA mining services business (for Toll Mining).

This experience ensures all required project management, operations management, safety and quality management needs for the proposed quarry can be met to industry best practice standards.

Ken and Val Lamb (WON Solution's Directors) and their subsequent businesses have no history of non-compliance, offence, prosecution or suspension with regards to mining regulations in Australia at any time.

5.4.2. Operational Capabilities

The directors of WON Solution are 50% shareholders in Extractive Industry Services Australia Pty Ltd (EISA).

EISA currently operates two quarries in the Cowell/Cleve district. These quarries are known as Poodra Springs and Khraehes. EISA currently provides aggregates to Port Lincoln , Whyalla as well as the immediate Cowell/Kimba and Cleve districts. The EISA business holds all required heavy equipment to ensure the proposed quarry can be self-performed effectively. This includes mining, loading, hauling, crushing and screening.

WON Solution's Directors will utilise their EISA business assets to complete the operational and remediation activities at Story Sands.

5.4.3. Policies, Procedures and Practices

WON Solution will develop company-wide policies and objectives for the protection of the environment and the promotion of health and safety for all staff and contractors. These policies will be reviewed and amended regularly to ensure relevancy, and input from employees, contractors and service providers will be a valuable part of the review process.

All WON Solution employees and contractors will complete an induction before being granted access to any part of the Story Sands Quarry and this induction will include a review of the relevant policies.

WON Solution will develop and implement documents, policies and procedures before site activities commence to cover the following topics:

- Environmental management
- Work, health and safety management
- Site management
- Incident reporting
- Site security and emergency response
- Site induction
- Risk management

5.4.4. Monitor, Evaluate, Audit, Review and Report

Regular inspections (formal and informal) will be undertaken throughout the reporting year in order to monitor, audit and assess compliance against ML conditions and the agreed environmental outcomes in the subsequent PEPR. Records of inspections will be kept electronically and relevant results detailed in the annual compliance report.

An incident and compliance management process will be established to record reported incidents and near misses. This process will support reporting of non-compliance during annual compliance reporting or other reporting in accordance with the *Mining Regulations 2020* and Terms of Reference 009.

5.4.5. Financial Capabilities

The Directors of WON Solution hold an asset base that can fund/support all development, working capital and remediation costs.

This includes other functioning enterprises that can deliver the works at a subcontract/cross hire capacity or the purchase and delivery of new assets to deliver the works.

5.4.6. Offences associated with laws or Acts

WON Solution has not contravened or failed to comply with a provision of a corresponding law or designated Act in connection with authorised operations carried out by them within the preceding period of 5 years.

6. Description of Contributions to the Economy

The project will generate economic contributions to the economy with forecast revenues created at approximately $18M over the life of the mine. Other contributions include:

- All consumables required for the project will be sourced locally where possible;
- Employment for two FTE local personnel with a total wage generation in excess of $2M;
- Royalties generated for the landowner in excess of $1.5M and Government royalties in excess of $500K;
- Forecast taxes generated from the project including payroll tax in excess of $4.2M

7. References

Australian Government Bureau of Meteorology (2024), viewed June 2024, http://www.bom.gov.au/climate/averages/tables/cw_018116.shtml

Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2023). Australian Protected Areas Dashboard (dcceew.gov.au) https://www.dcceew.gov.au/environment/land/nrs/science/capad/dashboard (accessed on 13/11/2023)

NatureMaps, viewed June 2024, http://spatialwebapps.environment.sa.gov.au/naturemaps/?locale=en-us&viewer=naturemaps

SARIG (2024). Road traffic volumes layer. Government of South Australia. https://map.sarig.sa.gov.au/ (accessed on 17 July 2024).

SARIG (2024). Shallow water data layer. Government of South Australia. https://map.sarig.sa.gov.au/ (accessed on 24/6/2024).

Water Connect (2024). Government of South Australia. https://www.waterconnect.sa.gov.au/Systems/GD/Pages/Default.aspx#Coordinates (accessed on 24/06/2024).

Appendix A – Application contents checklist and self-assessment

Framework	Requirement	Included
	Application Form and Fee	
	Complete online application form	✓
S. 36(1)(e)	Payment of Applicable Fee through online application form	✓
TOR 003	***Format and submission of the MP***	
	An electronic version must be submitted; hardcopies must be submitted upon request; the information in all must be identical;	✓
	Each page, plan or other separate sheet must include the mineral claim, retention lease or exploration licence number(s), date of the application submission and sequential page numbering; and	✓
	The electronic version must be submitted in one single Acrobat PDF file or if requested by the Director of Mines or an authorised officer, Microsoft Word compatible files must be submitted.	✓
Guideline	***Basic information on the proposed mine***	
	Title page detailing: • all relevant mineral claim number(s) or MPL application areas that comprise the proposed operation and are covered by the application to be assessed as a whole • name(s) of the applicant, including phone and email • name of the proposed operation • date of document preparation.	Front page
	Table of contents	Page 3
r. 84	***Declaration of accuracy***	
	Signed statement by the applicant stating that the person has taken reasonable steps to review the information and to ensure its accuracy.	Page 7
TOR003 – 1	***Description of the environment***	
	Each of the elements of the existing environment must be described only to the extent that they may need to be considered in assessing the potential impacts of the proposed quarry operations. If the element is not likely to be impacted by the operation, a statement to that effect must be included.	Section 1
TOR003 – 1.1	***Topography and landscape***	
	Provide a description and map (as per 5.1.1.1) of the topography and landscape, detailing the: • application area; and • general surroundings.	Section 1.1
TOR003 – 1.2	***Climate***	
	Provide a summary from the nearest relevant weather station of: • annual rainfall and temperature patterns; and • prevailing wind directions and speed (including maximum wind gusts).	Section 1.2
TOR003 – 1.3	***Topsoil and subsoil***	
	A description of the soil profile (type and depth), and the characteristics and/or productivity of all soils on the application area (show this information on a map as per 5.1.1.2 if there is a variation in soils over the application area); and	Section 1.3
	Identify any soil characteristics that may be an issue for disturbance or rehabilitation.	Section 1.3
TOR003 – 1.4	***Geological environment***	
	Local geological or site map (as per 5.1.1.2), showing location and dimensions of the deposit and structure (dip and strike where appropriate);	Section 1.4
	representative cross sections (as per 5.2.1.1) of the proposed quarry area that identify the extent of the resource and estimate any overlying overburden; and	Section 1.4
	a description and results of any geological evaluation work carried out.	Section 1.4
TOR003 – 1.5	***Geohazards***	
	Provide an assessment of the potential for any of the following natural geohazards to be present in the application area: structural instability including slips, faults, karst features or geological unit boundaries;	Section 1.5
	minerals that may occur in the material to be quarried (including overburden) and are hazardous to human health specifically radioactive minerals, asbestiform minerals or minerals which have the potential to produce respirable silica; and	Section 1.5
	minerals that may occur in the material to be quarried (including overburden) that may have the potential to pollute the environment - including but not limited to sulphide minerals that may generate acid.	Section 1.5
TOR003 – 1.6	***Groundwater***	
	Provide: a statement describing if the application area is within an area where the water resources are prescribed under the *Landscape South Australia Act 2019*;	Section 1.6
	a map (as per 5.1.1.3) showing groundwater wells in the surrounding area, highlighting those used to determine the seasonally high-water table elevation;	Section 1.6 Figure 4
	a cross section (as per 5.2.1.2) showing the proposed quarrying and seasonally high-water table elevation in metres Australian Height Datum (AHD); and	Section 1.6 Appendix B
	evidence to validate the estimated seasonally high-water table.	Section 1.6

Framework	Requirement	Included
	If the proposed quarry has the potential to intersect the seasonally high-water table, the following must be provided:	Section 1.6
	details of local groundwater systems, including information on water quality and static water level (including seasonal fluctuations), recharge and discharge mechanisms, aquifer hydraulic properties, location of any aquifer and static water level of any other known drill holes; and	Section 1.6
	an assessment of any current use of this water by the landowner, adjacent landowners and groundwater dependent ecosystems.	Section 1.6
TOR003 – 1.7	***Surface water***	
	Provide a Topographic Map (as per 5.1.1.1) and description of the current drainage patterns for the application area and water catchment including: location of watercourses, drains, dams and wetlands;	Section 1.7
	surface water catchment boundaries;	Section 1.7 Figure 5
	direction of drainage and discharge from the application area;	Section 1.7 Figure 5
	a statement describing if the application area is within an area where the water resources are prescribed under the *Landscape South Australia Act 2019*, and provide details on the current availability of water resources within the prescribed area;	Section 1.7
	a statement describing if the application area is within a water protection area including areas under the *River Murray Act 2003*; and	Section 1.7
	a statement as to whether the application area falls within the Murray Darling Basin.	Section 1.7
	If there is potential for changing a flow regime (including change in flow volume) or discharge into these watercourses from the proposed quarry operations, an assessment of the use of this water by the landowner, downstream users and water dependent ecosystems must be included.	Section 1.7
TOR003 – 1.8	***Vegetation, weeds and plant pathogens***	
	Provide: a description and map (as per 5.1.1.1) of existing flora (native and introduced) in the application area and surroundings;	Section 1.8 Figure 7
	the State conservation status and habitat value of native vegetation present in the application area;	Section 1.8
	a description of the presence of EPBC Act listed species and ecological communities;	Section 1.8
	a description of the extent the application area and adjoining land is affected or potentially affected by pathogens and prescribed weeds, including but not limited to phytophthora and broomrape; and	Section 1.8
	if known, a description of the history of land use to identify if the existing vegetation is the result of deliberate cultivation or natural regrowth arising from previous clearance.	Section 1.8
TOR003 – 1.9	***Fauna***	
	Describe the native and feral fauna that may be present in the application area noting State or Commonwealth conservation status of all species	Section 1.9
TOR003 – 1.10	***Caves***	
	If the application area is within, or near to, known caves or significant limestone formations a survey for the presence of caves must be performed.	N/A
	Provide a summary of the results of the survey and describe the presence of any caves in karst (limestone) areas within, or near to, the application area and show on a map (as per 5.1.1.5).	N/A
TOR003 – 1.11	***Land use***	
	Provide a description of: land use (historical and current) for the application area and the surrounding areas;	Section 1.11
	the zoning as defined by the Planning and Design Code or relevant council development plans;	Section 1.11
	policies relevant to the application area, including region or council wide, zone specific and sub areas within a zone;	Section 1.11
	known plans for potential future land use changes by other parties;	Section 1.11
	other interests or restrictions on the application area, including: public utility easements; if the application is within land used for defence purposes, including the Woomera Prohibited Area or the Cultana Army Training Area; and any overlapping or adjacent tenements under the *Mining Act 1971* or *Petroleum and Geothermal Energy Act 2000*;	Section 1.11
TOR003 – 1.12	***Proximity to infrastructure and housing***	
	Provide information and a map (as per 5.1.1.4): identifying residences within and near the application area;	Section 1.12 Figure 8
	identifying other human infrastructure including but not limited to schools, hospitals, commercial or industrial sites, roads, sheds, bores, dams, ruins, pumps, cemeteries, scenic lookouts, roads, railway lines, fences, transmission lines, gas and water pipelines, telephone and communication lines (both underground and above ground); and	Section 1.12
	identifying public roads to be utilised or affected as part of proposed quarrying operations, including an estimate of the existing traffic movements.	Section 1.12
TOR003 – 1.13	***Exempt Land***	

Framework	Requirement	Included
	Provide a description and map (as per 5.1.1.4) of any applicable exempt land under Section 9 of the *Mining Act 1971*.	Section 1.13 Figure 9
TOR003 – 1.14	***Amenity***	
	Provide a summary description of scenic or aesthetic values for the application area and immediate surrounds.	Section 1.14
TOR003 – 1.15	***Air quality***	
	Provide a description of the existing levels of dust and contributors to air quality (both natural and anthropogenic).	Section 1.15
TOR003 – 1.16	***Noise***	
	Provide a description of existing noise levels and contributors to noise (both natural and anthropogenic).	Section 1.16
TOR003 – 1.17	***Heritage (Aboriginal, European, Geological)***	
	Detail and show on a map (as per 5.1.1.1) any registered heritage sites in or adjacent to the application areas that are protected under legislation (in so far as may be permitted under the relevant legislation).	Section 1.17
	Include a statement concerning whether or not an Aboriginal cultural heritage survey has been conducted by the applicant and, if so, the results of the survey.	Section 1.17
TOR003 – 1.18	***Proximity to conservation areas***	
	Provide information and a map (as per 5.1.1.1) showing proximity to national parks and reserves, private conservation areas, Commonwealth recognised conservation areas, heritage agreement areas and geological heritage sites.	Section 1.18
TOR003 – 1.19	***Pre-existing site contamination and previous disturbance***	
	Provide information and a map (as per 5.1.1.1) showing any known existing contamination of the site and/or any disturbance by previous mining operations or other activities.	Section 1.19
s. 36(1)(c)(i) & s. 49(1)(c)(i)	***Description of the proposed mining operations***	
	Each of the elements of the proposed mining operations must be described only to the extent that they apply to the application.	Section 2
OR003 – 2.1	***General description and maps/plans of operations*** A summary description of all elements of the proposed operation must be included.	
TOR003 – 2.2	***Resource and Products***	
TOR003 – 2.2.1	***Resource***	
r. 30(1)(a) & TOR003 – 2.2.1	Provide a statement of the extractive minerals proposed to be extracted, recovered and sold.	Section 2.2.1
r. 30(1)(b) & TOR003 – 2.2.1	Provide a statement of the current estimated resource or reserve (or both), including: details of the basis of this estimate; and	Section 2.2.1
r. 30(1)(b) & TOR003 – 2.2.1	a declaration that the resource or reserve (or both) has been appropriately identified and estimated.	Section 2.2.1
TOR003 – 2.2.2	***Production rate and products***	
	State: the potential end use and products for all extractive minerals proposed to be sold.	Section 2.2.2
	Provide estimates of the: • annual production rate (product and overburden); • life of the quarry; and • material movement over life of quarry (product and overburden).	Section 2.2.2
TOR003 – 2.3	***Quarrying activities***	
TOR003 – 2.3.1	***Type or types of quarry operation to be carried out***	
	Provide: a summary and map (as per 5.1.2.1) of the proposed site layout;	Section 2.3.1 Appendix B
	a description of the proposed quarrying method; and	Section 2.3.1
	conceptual dimensions and depth of proposed pit(s).	Section 2.3.1
TOR003 – 2.3.2	***Sequence of mining and rehabilitation operations***	
	Describe conceptually and show on a map (as per 5.1.2.2): staging and description of each progressive quarrying stage;	Section 2.3.2 Appendix B
	milestones that will instigate progressive rehabilitation; and	Section 2.3.2
	staging and description of each progressive rehabilitation stage including: • use of overburden; • battering of mining faces and other earthworks; • topsoil management; and • revegetation.	Section 2.3.2
TOR003 – 2.3.3	***Stockpiles***	
TOR003 – 2.3.3.1	*Topsoil and Subsoil Stockpiles*	Section 2.3.3
	Describe and show on a map (as per 5.1.2.1): conceptual location, size, shape and height of topsoil/subsoil stockpiles.	Section 2.3.3 Appendix B
TOR003 – 2.3.3.2	***Product Stockpile***	
	Describe and show on a map (as per 5.1.2.1): conceptual location and height of product stockpiles.	Section 2.3.3.2 Appendix B

Framework	Requirement	Included
TOR003 – 2.3.4	***Use of explosives***	
	If explosives are proposed to be used, describe: estimated frequency of blasting; and	N/A
	whether explosives will be stored onsite.	N/A
TOR003 – 2.3.5	***Modes and hours of operation***	
	State if the proposed quarry operation will be operated on a continuous (24 hour, 7 days a week), regular periodical or campaign basis.	Section 2.3.5
	If the proposed quarry operation is to be operated on a regular periodical basis or campaign basis, specify:	Section 2.3.5
	proposed period(s) (daily, weekly and public holidays) to be worked; and	Section 2.3.5
	proposed start and finish hours the site is to be worked per period.	Section 2.3.5
TOR003 – 2.4	***Crushing, processing and product transport***	
TOR003 – 2.4.1	***Fixed Plant***	
	Describe the specifications (to at least a conceptual standard) of fixed plant including but not limited to: area, size, and location of fixed plant and associated structures including as applicable concrete batching plant, wheel wash facilities, silos, fuel tanks, water tanks, chemical storage proposed to be used for processing the extractive minerals on site;	Section 2.4.1
	a description of rock or sand processing; in particular crushing, washing, drying, screening and separation; and	Section 2.4.1
	the type(s) of processing/value adding used on the raw material and conducted onsite including but not limited to concrete, bitumen, separation and drying.	Section 2.4.1
TOR003 – 2.4.2	***Hours of operation***	
	Describe the proposed hours of crushing, processing and product transport activities.	Section 2.4.2
TOR003 – 2.4.3	***Processing wastes***	
	If processing wastes are to be generated provide a conceptual description of: management of any proposed chemical additives contained within waste to prevent environmental harm;	Section 2.4.3
	management and disposal of processing wastes;	Section 2.4.3
	construction and geotechnical details of proposed storage facilities; and	Section 2.4.3
	construction details/design of evaporation ponds and proposed use of waste material.	Section 2.4.3
TOR003 – 2.4.4	***Industrial and domestic wastes***	
	A description of management of any of the following industrial and domestic wastes must be provided: putrescible waste;	Section 2.4.4
	oil;	Section 2.4.4
	other onsite waste disposal or recycling; e.g. workshop waste, tyres, drums, oil filters;	Section 2.4.4
	offsite disposal; and	Section 2.4.4
	a description of the type, area and layout of sewage systems installed at the site.	Section 2.4.4
TOR003 – 2.5	*Supporting surface infrastructure*	
TOR003 – 2.5.1	*Access and roads*	
	Describe: access route to the site and show on a map (as per 5.1.2.3);	Section 2.5.1 Appendix B
	indicate if any new roads are to be constructed, or if existing roads or intersections (public and private) are to be upgraded; and	Section 2.5.1
	transport system(s) used to and from the site and the estimated number of vehicle movements per day.	Section 2.5.1
TOR003 – 2.5.2	***Accommodation and offices***	
	Describe onsite personnel accommodation and offices, including but not limited to: number, area, size, type of construction and location of accommodation, office, meals or laboratory buildings, caravans or camp, and associated structures – eg car parks, water tanks, etc.) to be used on site; and	Section 2.5.2
	if temporary or permanent.	Section 2.5.2
TOR003 – 2.5.3	***Public services and utilities used by the operation***	
	Describe: sources of services or utilities that are, or are to be supplied to the proposed site, such as power, water, telecommunications etc.;	Section 2.5.3
	if new connections to services and utilities are required, the proposed routes for connection; and	Section 2.5.3
	the effects to any existing services or utilities that have been or may be affected by the mining operations.	Section 2.5.3
TOR003 – 2.5.4	***Visual screening***	
	Describe the type of screening, including existing or proposed vegetation ie species and density of plantings) and show on a map (as per 5.1.2.1 or 5.1.2.2).	Section 2.5.4
TOR003 – 2.5.5	***Fuel and chemical storage***	
	For all fuels and chemicals stored on site show the proposed location of storage on a map (as per 5.1.2.1) and provide detail on:	Section 2.5.5
	types of bulk chemicals and the volumes of each; and	N/A
	proposed bunding and containment for all chemical and fuel storage vessels.	N/A
TOR003 – 2.5.6	***Site security***	

Framework	Requirement	Included
	Describe infrastructure and measures that will be adopted to prevent unauthorised access by the public, including, but not limited to: • fencing; and • signage.	Section 2.5.6
TOR003 – 2.5.7	***Erosion, sediment and silt control***	
	Describe and show on a map (as per 5.1.2.1): location and design of sediment management structures;	Section 2.5.7 Appendix B
	management and disposal of silt;	Section 2.5.7
	strategies to control runoff on disturbed areas and rehabilitated areas; and	Section 2.5.7
	storage, diversion and release of clean water.	Section 2.5.7
TOR003 – 2.6	***Vegetation clearance***	
	If clearance of native vegetation is proposed, a description of the vegetation type to be cleared and map (as per 5.1.2.2) showing the proposed clearance area must be provided.	Section 2.6
	State the estimated quantum of significant environmental benefit (SEB) to be gained in exchange for the proposed clearance and describe how the SEB will be provided.	Section 2.6
TOR003 – 2.7	***Site Water Management***	
	Provide an estimate of the quantity of water to be used and the proposed source of that water.	Section 2.7
	If processing water is to be used, provide a water balance including: • approximate water volumes required for processing; and • a summary of all water inputs and outputs.	Section 2.7
	Provide a description of all process water ponds, including: • size, capacity, layout and location of ponds; • design and construction methods; and • minimum freeboard to be maintained.	Section 2.7
TOR003 – 2.8	***Description of quarry site at completion***	
	Provide a map (as per 5.1.2.4), cross-section (as per 5.2.2.2) and a conceptual description of the quarry site as it will be at completion after all rehabilitation and closure activities have been completed, including:	Section 2.8 Appendix B
	potential land use options;	Section 2.8
	landforms;	Section 2.8
	proposed vegetation covers (including native vegetation that will not be disturbed due to proposed quarrying operations);	Section 2.8
	any quarrying infrastructure that may remain on site and become the responsibility of the landowner;	Section 2.8
	location, description and management of waste disposal areas;	Section 2.8
	location of reshaped and rehabilitated areas, proposed surface contours and revegetation; and	Section 2.8
	location of surface water infrastructure including ponds and diversions.	Section 2.8
	Provide a description of the proposed mechanism for transferring responsibility for any potential residual liability – eg ongoing maintenance or monitoring) subsequent to surrender of the tenement.	Section 2.8
TOR003 – 2.9	***Description of workforce and local procurement***	
	Describe: number of full-time equivalent employee positions that would be directly created by the proposal (not to include existing positions);	Section 2.9
	the proportion of the workforce that would likely reside in the local community and the estimated impact on local employment;	Section 2.9
	any programs to target and assist Indigenous or local employment at the quarry;	Section 2.9
	training to be provided to employees and potential employees;	Section 2.9
	approximate timelines for creation of the positions; and	Section 2.9
	potential for local business participation, and procurement of local goods and services.	Section 2.9
TOR003 – 7	***Description of contributions to the economy***	
	A description of the economic contributions of the proposed operations, including (but not limited to):	Section 6
	goods and services used in the local community, state and external to state;	Section 6
	wages and other employee benefits;	Section 6
	economic benefits derived from local employment;	Section 6
	approximate royalty payments and other direct state government taxes; and	Section 6
	any other potential economic contributions proposed during the development of the quarry, operation of the proposed quarry and post quarry completion.	Section 6
r. 38	***Infrastructure Sharing (MPLs only)***	
r. 38	If an application for a MPL proposes infrastructure, be constructed or installed on the land in respect of which the licence is being sought and the infrastructure is of a kind that is capable of being shared with other persons then the following must be provided: A description of any similar infrastructure that exists in the region where the land is located; and Either If infrastructure is present: a statement as to why that infrastructure cannot be used for any relevant ancillary operations; or If infrastructure is not identified; a statement demonstrating the benefit (if any) that the infrastructure proposed to be constructed or installed under the MPL would provide to the region where the land is located and outlining any proposal to share that infrastructure with any other person.	N/A
TOR003 - 3 s. 36(1)(c)(iv) &	***Consultation Results of consultation***	

Framework	Requirement	Included
s. 49(1)(c)(iv)		
TOR003 - 3	A description of: the process undertaken for identifying stakeholders with an interest in, or stakeholders likely to be directly affected by the proposed quarry operation;	Section 3.1
TOR003 – 3	the process undertaken for the delivery of information to, gathering of feedback from, and responding to those identified stakeholders;	Section 3.2
TOR003 – 3	if any individual or group of similar affected persons were not able to be consulted, the steps taken to consult with them; and	Section 3.3
r. 47(2)(a)(i) & TOR003 - 3	the extent to which the outcomes proposed in clause 4.2.2 have been developed in consultation with the landowner and any other person who may be directly affected by the proposed quarry operations.	Section 3.4
	The results of the consultation undertaken with those identified stakeholders, including:	Section 3.5
r. 47(2)(b)(i) & TOR003 - 3	the persons consulted;	Section 3.5
r. 47(2)(b)(ii) & TOR003 – 3	any concerns / issues raised; and	Section 3.5
r. 47(2)(b)(iii) & TOR003 - 3	the response and steps (if any) taken or proposed to address those concerns.	Section 3.5
s. 36(1)(c)(ii) & s. 49(1)(c)(ii)	***Management of environmental impacts***	
s. 36(1)(c)(ii)(A) & s. 49(1)(c)(ii)(A)	***Assessment of environmental impacts***	
TOR003 – 4.1.1	***Elements of the environment***	
	Describe the specific elements of the environment (the environment is defined in Section 6(4) of the Mining Act 1971) that may reasonably be expected to be impacted on by the proposed quarry operation during construction, operation, and indefinitely post completion.	Section 4.1
	For each element of the environment identified: provide a summary of any issues or considerations raised by stakeholders, and any relevant legislated or recognised standards in relation to the element of the environment;	Section 4.1
	describe all potential environmental receptors; and	Section 4.1
	undertake an impact assessment of how the element could be potentially impacted by proposed quarry operations (during construction, operation and post completion) through the provision of the information listed in the following clause 4.1.2.	Section 4.1 Table 10
s. 36(1)(c)(ii)(A) & s. 49(1)(c)(ii)(A)	***Potential impact events***	
	Describe potential impact events associated with each phase of the proposed quarry operations (construction, operation and post completion) and relevant to each element of the environment. For the purpose of the impact assessment, a potential impact event is the combination of a source, a pathway and an environmental receptor. The source, pathway and environmental receptor of each potential impact event must be described prior to the implementation of engineering or administrative control measures. For each potential impact event identified in clause 4.1.2, provide:	Section 4.3 Table 11
TOR003 – 4.1.2.1	***Source***	
	A description of the source of the potential impact event, which alone or in combination has the potential to cause harm to an environmental receptor.	Section 4.1 Table 12
TOR003 – 4.1.2.2	***Pathway***	
	A description of the potential pathway (with consideration of any natural barriers) by which an identified environmental receptor can be exposed to, or may reasonably be expected to be impacted by an identified source.	Section 4.1 Table 12
TOR003 – 4.1.2.3	***Environmental receptor***	
	A description of the environmental receptors that may reasonably be expected to be adversely impacted by the source, taking into account the considerations for the element of the environment described under clause 4.1.1	Section 4.1 Table 12
r. 46(7)(c) & TOR003 – 4.1.2.4	***Description of uncertainty***	
	Describe any significant degree of uncertainty pertaining to the evaluation of sources, pathways and environmental receptors, including (but not limited to) lack of site specific information, limitations on modelling and quality of data.	Section 4.1 Table 12
	Describe any assumptions connected with the identified uncertainty.	Section 4.1 Table 12
	So far as is relevant, identify the sensitivity to change of any assumption that has been made, including whether a change in assumption may result in a new environmental impact.	Section 4.1 Table 12
TOR003 –	***Confirmation of potential impact events***	

Framework	Requirement	Included
4.1.2.5		
TOR003 – 4.1.2.5	For each potential impact event provide: an analysis of whether a source, pathway and receptor does exist (and if not, or if it remains uncertain, provide an explanation for the conclusion); and	Section 4.1 Table 12
r. 46(3) & TOR003 – 4.1.2.5	a description of the likely impact from the source on the environmental receptor.	Section 4.1 Table 12
s. 36(1)(c)(ii)(B) & (C) & s. 49(1)(c)(ii)(B) & (C)	***Control measures, uncertainty assessment, statement of environmental outcomes and criteria***	
	For each impact event confirmed in clause 4.1.2.5, the information listed in clauses 4.2.1 – 4.2.3 must be provided:	Section 4.5 Table 13
s. 36(1)(c)(ii)(B) & s. 49(1)(c)(ii)(B)	***Control measures***	
TOR003 – 4.2.1	Include a description of the measures proposed to manage, limit or remedy each impact event;	Section 4.5 Table 13
TOR003 – 4.2.1	Demonstrate that the measures proposed are commensurate with the potential impacts, achieve compliance with other applicable statutory requirements and promote progressive rehabilitation;	Section 4.5 Table 13
r. 46(7)(c) & TOR003 – 4.2.1	Include a description of any significant degree of uncertainty pertaining to the likely effectiveness of proposed control measures, including but not limited to lack of site specific information, limitations on modelling and quality of data	Section 4.5 Table 13
TOR003 – 4.2.1	Include a description of any assumptions connected with the identified uncertainty;	Section 4.5 Table 13
r. 46(7)(d) & TOR003 – 4.2.1	So far as is relevant, identify the sensitivity to change of any assumption that has been made and assess the likelihood of an outcome not being achieved if an assumption is later found to be incorrect.	Section 4.5 Table 13
s. 36(1)(c)(ii)(C) & s. 49(1)(c)(ii)(C) & r. 46(4)	***Statement of proposed environmental outcomes***	
TOR003 – 4.2.2	Provide a statement of the proposed environmental outcome(s) (including completion outcomes assessed on a long term basis) for each impact event confirmed in clause 4.1.2.5;	Section 4.5 Table 13
r. 46(4)	Completion outcomes have been assessed on a long term basis.	Section 4.5 Table 13
r. 46(3) & TOR003 – 4.2.2	Ensure that the statement of environmental outcome(s) describe the likely consequence of the expected impact on the environment by the proposed quarry operations subsequent to the implementation of the control measures described in clause 6.2.1; and	Section 4.5 Table 13
TOR003 – 4.2.2	Provide a statement that demonstrates the environmental outcomes would be able to be achieved taking into consideration the effectiveness of the control measures (clause 4.2.1) and description of uncertainty (clause 4.2.1).	Section 4.5 Table 13
r. 47(2)(a)(i)	Provide evidence that stakeholders have been consulted in the development of outcomes	Section 4.5 Table 13
s. 36(1)(c)(iii) & s. 49(1)(c)(iii) & r. 46(5)	***Draft measurement criteria***	
s. 36(1)(c)(iii) & s. 49(1)(c)(iii) r. 46(5) & TOR003 – 4.2.3	As far as practical comply with the five elements set out in regulation 46(5) of the *Mining Regulations 2020*; What is to be measured and the form of the measurements that are to be used; and The locations where the relevant measurements are to be taken, or how such locations are to be determined; and What is proposed to be taken to constitute to achievement of the relevant outcomes (with consideration being given to any inherent errors of measurement); and The frequency of any measurement or monitoring; and Any background or control data that is to be used, or how any such data is to be acquired.	Section 4.5 Table 13
r. 46(8)	Any draft criteria must, insofar as is reasonably practicable and appropriate, be expressed in quantitative terms (rather than qualitative terms).	Section 4.5 Table 13
TOR003 – 4.2.3	Draft criteria must include demonstration of the successful implementation of the significant environmental benefit (SEB), if native vegetation is proposed to be cleared and an on-ground off- set proposed. (note, the SEB itself need not be demonstrated at the lease application stage)	Section 4.5 Table 13
	Information to accompany the Application ***Effective and efficient mining and outcome achievement statements***	
r. 30(1)(e) & r. 37(b)	Statement that demonstrates: That there is a reasonable prospect that the land in respect of which the lease is sought could be effectively and efficiently mined (Mining Leases only); and That appropriate environmental outcomes will be able to be achieved.	Section 5.1
	Resource Justification	
r. 30(1)(c)	Statement declaring that the mineral resource or ore reserve, or both, has been appropriately identified	Section 5.2

Framework	Requirement	Included
	and estimated	
TOR003 – 1.13	***Exempt land / land access*** Provide a description and map (as per 5.1.1.4) of any applicable exempt land under Section 9 of the *Mining Act 1971*.	Section 5.3
TOR003 – 6	A description of any waivers of exemption obtained, and/or information on the status of waivers of exemption yet to be negotiated/finalised under Section 9AA of the *Mining Act 1971*; and A description of any native title mining agreements obtained under the *Mining Act 197*1 or Indigenous Land Use Agreements (ILUA) under the *Native Act 1993* (Cth).	Section 1.13
	Operator Capability and Resources Statements	
r. 30(1)(d) & r. 37(a)	A statement of the technical, operational and financial capabilities and resources available to the applicant for the purpose of carrying out operations under the mining lease.	Section 5.4
r. 30(1)(f) & r. 37(c)	A statement by the applicant or a related body corporate outlining any contravention of, or failure to comply with, a provision of a corresponding law or designated Act in connection with authorised operations carried out by them within the preceding period of 5 years that resulted in; • The revocation or suspension of an authority to carry out authorised operations; or • A prosecution for an offence; or • The imposition of a penalty by a court; or	Section 5.4
	The issuing of a notice, direction or order that required the suspension or discontinuance of any authorised operations or the rectification of any harm to the environment or the rehabilitation of any land, place or other aspect of the environment.	Section 5.4
	Maps and plans	
TOR003 - 5	All maps and plans must comply with the following requirements relating to the amount of detail or information to be provided: • state and show the relevant datum (Australian Height Datum (AHD) is preferred); • metric units; • title, north arrow, scale bar, text and legend; • date prepared and author; • be of appropriate resolution and scale for represented information; and • be legible in both the hardcopy and electronic versions of the submission.	Appendix B
TOR003 - 5	All cross-sections must conform to the following standards: • state and show the relevant datum (Australian Height Datum (AHD) is preferred); • metric units; • title, scale bar, text and legend; • date prepared and author; • be of appropriate resolution and scale for represented information; and • be legible in both the hardcopy and electronic versions of the submission.	Appendix B
TOR003 - 5.1.1	***Maps required for Description of the Existing Environment***	
TOR003 – 5.1.1.1	Topographic Map showing: • mineral claim boundaries; • existing surface contours; existing vegetation; • location of watercourses, including ephemeral and permanent rivers, creeks, swamps, streams, wetlands and any man-made water management structures; • surface water catchment boundaries; • direction of drainage and discharge from the application area; • location and extent of all previously disturbed areas associated with previous mining; and • location and extent of any adjacent conservation reserves, heritage sites or any other significant areas.	Appendix B
TOR003 – 5.1.1.2	Local Geological Map showing: • mineral claim boundaries;	Appendix B
	• location and dimensions of the deposit; and • topsoil/subsoil variation if there is a variation in soils over the application area.	Appendix B
TOR003 – 5.1.1.3	Groundwater Map showing: • groundwater wells in the surrounding area highlighting those used to determine the groundwater level.	Figure 4
TOR003 – 5.1.1.4	Land Access Map showing: • mineral claim boundaries; • proposed tenement boundary if an area smaller than the mineral claim is proposed; • any exempt land; • location of residences within and near the application area; and • human infrastructure as per clause 1.12.	Appendix B
TOR003 – 5.1.1.5	Caves Map (if relevant) showing: • mineral claim boundaries; • potential cave hosting geology; and • location of the cave(s).	N/A
TOOR006 - 5.1.2	***Map(s) required for Description of the Proposed Quarrying Operations***	

Framework	Requirement	Included
TOR003 – 5.1.2.1	Proposed Site Layout Map showing all components of the proposed quarry operation including, but not limited to: • tenement boundaries; • location of sediment management infrastructure; • if relevant location of process water dams; • location of haul roads; • if relevant location of fixed plant; • location of mobile plant for stage 1 of quarrying; • Location of overburden; and • location and extent of topsoil/subsoil and product stockpiles.	Appendix B
TOR003 – 5.1.2.2	Sequence of Quarrying and Progressive Rehabilitation Map showing: • proposed tenement boundaries; • conceptual staging of each progressive quarrying stage; • proposed native vegetation clearance; and • conceptual staging of each progressive rehabilitation stage.	Appendix B
TOR003 – 5.1.2.3	Access Route Map showing: • proposed access route for heavy vehicles; • proposed exit route for heavy vehicles; and • any road upgrades or new roads to be constructed if relevant.	Appendix B
TOR003 – 5.1.2.4	Quarry Completion Map showing: • final landforms (including rehabilitated and non-disturbed areas); and • proposed topographical contours of the entire site (including rehabilitated and non-disturbed areas).	Appendix B
TOR003 – 5.2.1	***Cross-sections required for description of the existing environment***	
TOR003 – 5.2.1.1	Geological Cross-Section(s) showing: • a representation of the geological profile within the application area; and • depth of the resource and any overlying overburden.	Appendix B
TOR003 – 5.2.1.2	Groundwater Cross-Section(s) showing: • the proposed depth of mining; and • the depth to groundwater.	Appendix B
TOR003 – 5.2.2	***Cross-sections required for description of operations***	
TOR003 – 5.2.2.1	Proposed Quarry Operation Cross-Section(s) showing: • proposed pit depth; and • proposed pit dimensions.	Appendix B
TOR003 – 5.2.2.2	Quarry Completion Cross Section(s) showing: • pre quarrying natural surface; and • proposed final rehabilitated surface.	Appendix B

Appendix B – Drawings

664500E

666000E

667500E

6264000N

6262500N

ALsi

Qha

Qpap

Qpr4

Proposed ML for MC 4574

MC 4564 and Proposed ML

MC 4574

Legend:

Mineral Claims

Proposed ML for MC 4574

Surface Geology:

ALsi ; Granite gneiss; augen gneiss; migmatitic gneis, layered; pegmatite; amphibolite. Upper amphibolite to granulite facies. Crystallisation 2521-2411Ma, metamorphism 1738-1733Ma (U-Pb).

Qha ; Undifferentiated Holocene alluvial/fluvial sediments.

Qpap ; Clay, sand and carbonate earth, silty, with gravel lenses.

Qpr4 ; Pleistocene gravel, clay, silt and sand with soft carbonate, overlying nodular/tabular calcrete.

REV	DESCRIPTION	DATE	BY
1	Added MC 4574 Boundary	25/07/2024	LO

Data
Photography: Google Satellite Imagery Accessed 25 July 2024
Topography:
Cadastre: Data.sa.gov.au,Boundaries are Indicative only, not all boundaries shown
Ecosystem:
Other: SARIG, 2024

N

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Geology Map

GROUNDWORK PART OF SLR
PH +61 3871 0411
WWW.GROUNDWORKPLUS.COM.AU

SCALE: 1:15,000.006765 When Printed On A3
0 70 140 210 280 m

DRAWING NUMBER: 5219.DRG.003

REVISION: 2

DATE: 12-September-2024 DRAWN: LO

PRINTED: 12-September-2024 CHECKED:

DATUM: HORIZONTAL / VERTICAL / EPSG:7853
MGA / AHD / 53

665600E

666400E

6264000N

6263200N

6262400N

DH01

RI-20

RI-19

RI-18

Ri-17

DH02

RI-16

RI-15

RI-14

RI-13

DH04

MC 4564 and proposed ML

RI-12

RI-11

Proposed ML for MC 4574

RI-10

RI-09

DH03

RI-08

RI-07

RI-06

RI-05

RI-04

RI-03

RI-02

RI-01

MC 4574

Legend:

- Mineral Claim (MC) Boundaries
- Extraction Area
- Proposed ML for MC 4574
- Resource Investigation MC 4564
- Resource Investigation MC 4574

REV	DESCRIPTION	DATE	BY

Data Sources:
Photography: Google Satellite Imagery: 31/01/2023; Accessed 09/07/2024
Topography:
Cadastre: Data.sa.gov.au; Boundaries shown are indicative only
Ecosystem:
Other: SARIG, 2024

N

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Resource Investigation Map

GROUNDWORK PART OF SLR
PH +61 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:6,000 When Printed On A3

0 60 120 m

DRAWING NUMBER: 5219.DRG.002

REVISION: 1

DATE: 19-September-2024

DRAWN: EM

PRINTED: 19-September-2024

CHECKED: EM

DATUM: HORIZONTAL / VERTICAL / ZONE: MGA / AHD / 53

EPSG:7853

664800E 665600E 666400E

6264000N

6263200N

6262400N

Salt Creek - Franklin Harbor

Yabmana Creek

Proposed ML for MC 4574

MC 4564 and Proposed ML

Mills Beach

MC 4574

Legend:
- Mapped Vegetation_GDE
- Water Catchment Boundaries
- Waterbodies
- Watercourses
- Mineral Claim (MC) Boundaries
- Proposed ML for MC 4574

REV	DESCRIPTION	DATE	BY

Data Sources:
Photography: Google Satellite Imagery: 31/01/2023; Accessed 09/07/2024 , UAV Survey 20231128
Topography:
Cadastre:
Ecosystem: Data.sa.gov.au; Boundaries shown are indicative only
Other: SARIG, 2024

N

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Topographic Map

GROUNDWORK PART OF SLR
PH +61 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:7,000 When Printed On A3
0 60 120 m

DRAWING NUMBER: 5219.DRG.013

REVISION: 2

DATE: 16-September-2024
PRINTED: 16-September-2024
DRAWN: LO
CHECKED: EM

DATUM: HORIZONTAL / VERTICAL / ZONE: MGA / AHD / 53

EPSG:7853

664800E 665600E 666400E

6264800N 6264000N 6263200N 6262400N

FINGER HILL RD
WILDMAN RD
LINCOLN HWY
PORT GIBBON ROAD
COMMUNE RD
STARR AVE
Proposed ML for MC 4574
MC 4564 and proposed ML
MC 4574

Legend:
- Mineral Claim (MC) Boundaries
- Extraction Area
- Proposed ML for MC 4574
- Site Access Point
- Roads
- Two Way Access Road

REV	DESCRIPTION	DATE	BY

Data Sources:
Photography: Google Satellite Imagery: 31/01/2023; Accessed 09/07/2024
Topography:
Cadastre: Data.sa.gov.au; Boundaries shown are indicative only
Ecosystem:
Other: SARIG, 2024

N

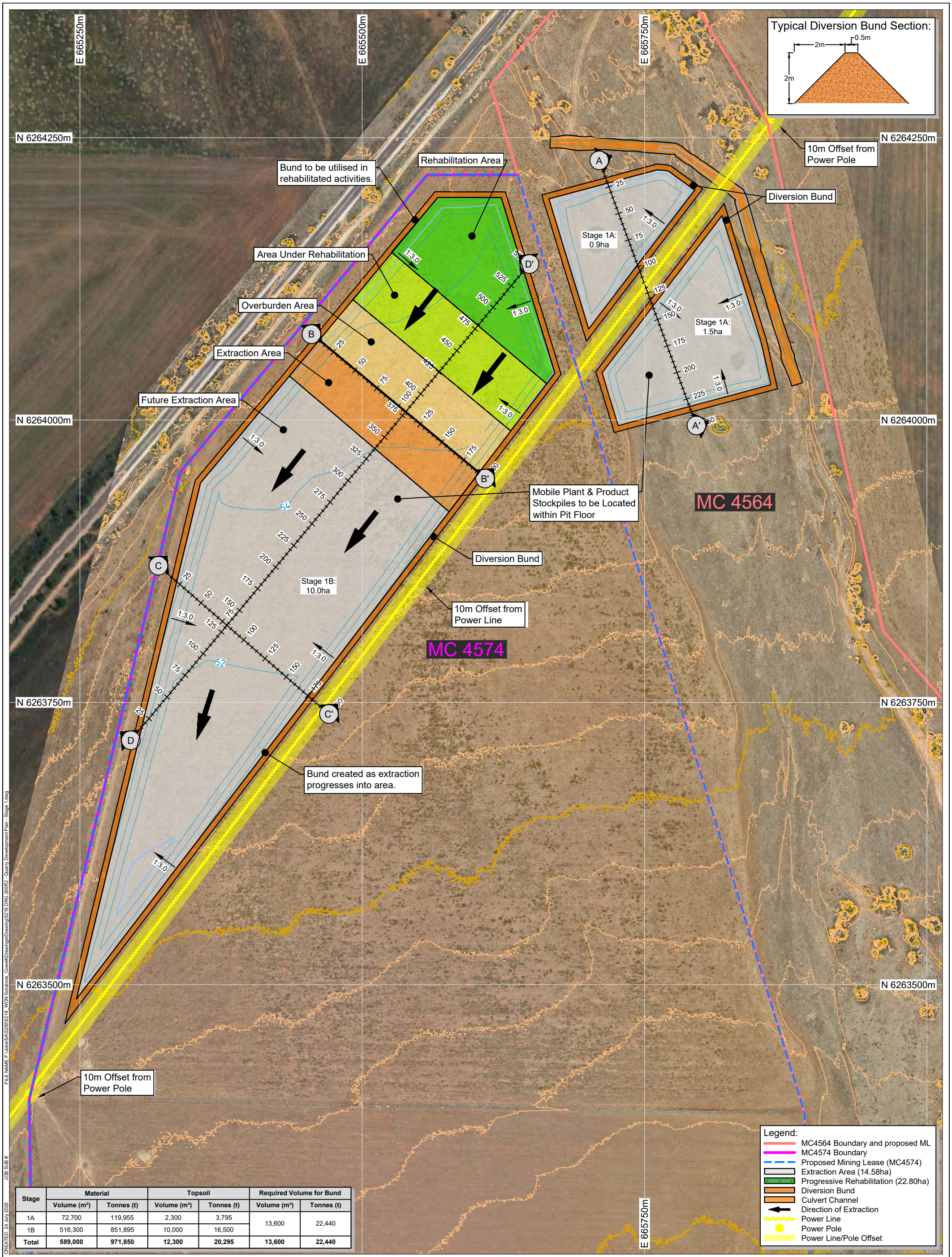
PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Site Access Map

GROUNDWORK PART OF SLR
PH +61 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:10,000 When Printed On A3 (0 90 180 m)
DRAWING NUMBER: 5219.DRG.014
REVISION: 1
DATE: 19-September-2024
DRAWN: EM
PRINTED: 19-September-2024
CHECKED: EM
DATUM: HORIZONTAL / VERTICAL / ZONE: MGA / AHD / 53
EPSG:7853



Stage	Material		Topsoil		Required Volume for Bund	
	Volume (m³)	Tonnes (t)	Volume (m³)	Tonnes (t)	Volume (m³)	Tonnes (t)
1A	72,700	119,955	2,300	3,795	13,600	22,440
1B	516,300	851,895	10,000	16,500		
Total	**589,000**	**971,850**	**12,300**	**20,295**	**13,600**	**22,440**

REV	DESCRIPTION	DATE	BY
1	Updated Pit Designs	2024/09/10	CP
2	Updated Pit Designs	2025/07/25	TR

Data Sources:
Photography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28
Topography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28, DSM 1m
Cadastre:
Ecosystem:
Other: © 2024 Microsoft Corporation; © 2024 Maxar; © CNES (2024) Distribution Airbus DS

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

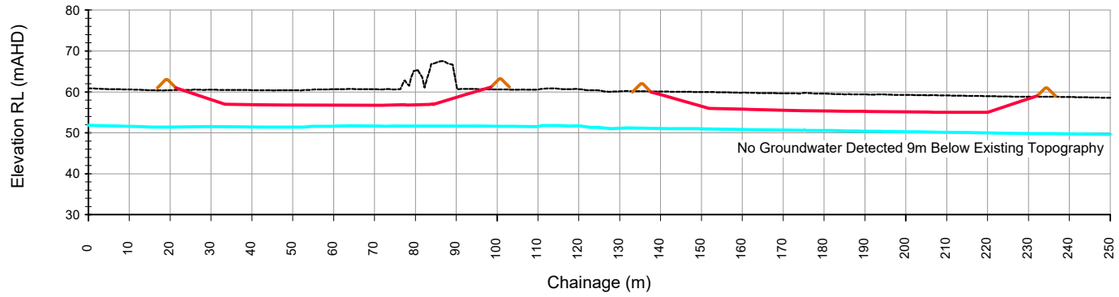
TITLE: Quarry Development Plan - Stage 1

GROUNDWORK PART OF SLR
PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

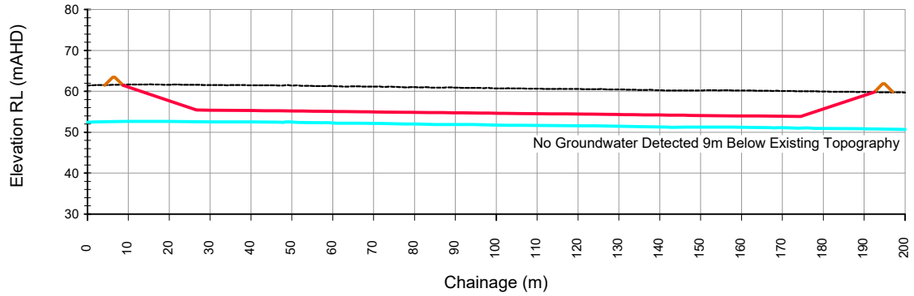
SCALE: 1:3,000 When Printed On A3 (0 – 60m)
DRAWING NUMBER: 5219.DRG.005A
REVISION: 2
DATE: 24 July 2025
PRINTED: 25 July 2025
DRAWN: CP
CHECKED: EP
DATUM: HORIZONTAL / VERTICAL / ZONE GDA94 / MGA / AHD / 53

FILE NAME: F:\Jobs\SA\5200\5219_WON Solutions_Cowell\Drawings\Drawing\5219.DRG.005R2 - Quarry Development Plan - Stage 1.dwg
JOB SUB #:
CREATED: 24 July 2025

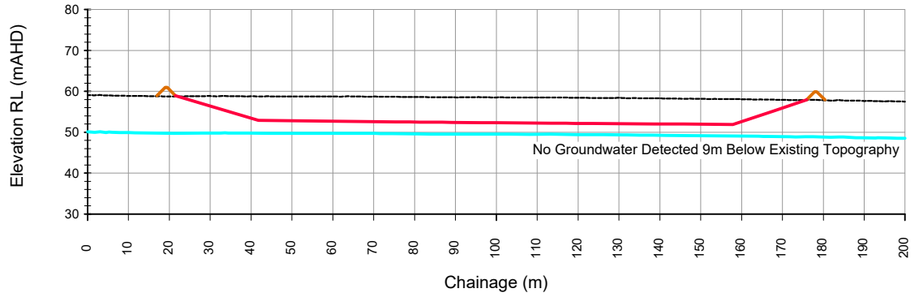
Section A-A'



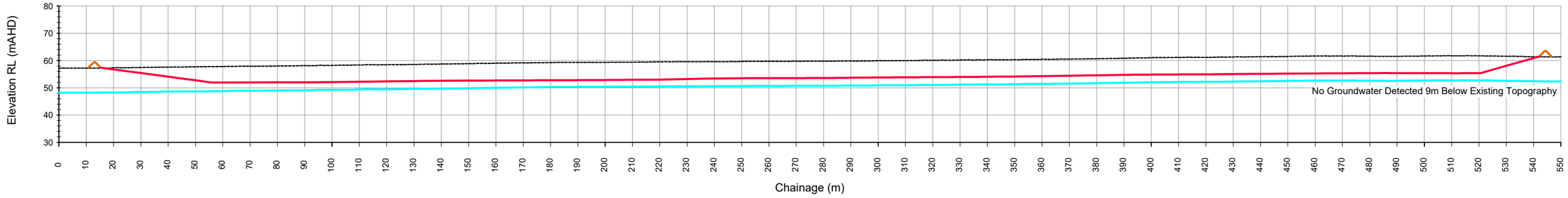
Section B-B'



Section C-C'



Section D-D'



CREATED: 24 July 2025
JOB SUB #:
FILE NAME: F:\Jobs\SA\2025\05219_WON Solutions_Cowell\Drawings\Drawings\5219.DRG.005R2 - Quarry Development Plan - Stage 1.dwg

REV	DESCRIPTION	DATE	BY
1	Updated Pit Designs	2024/09/10	CP
2	Updated Pit Designs	2025/07/25	TR

Data Sources:
Photography:
Topography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28, DSM 1m
Cadastre:
Ecosystem:
Other:

Legend:
- Existing Ground Surface
- Pit Design Surface
- Bund Design Surface

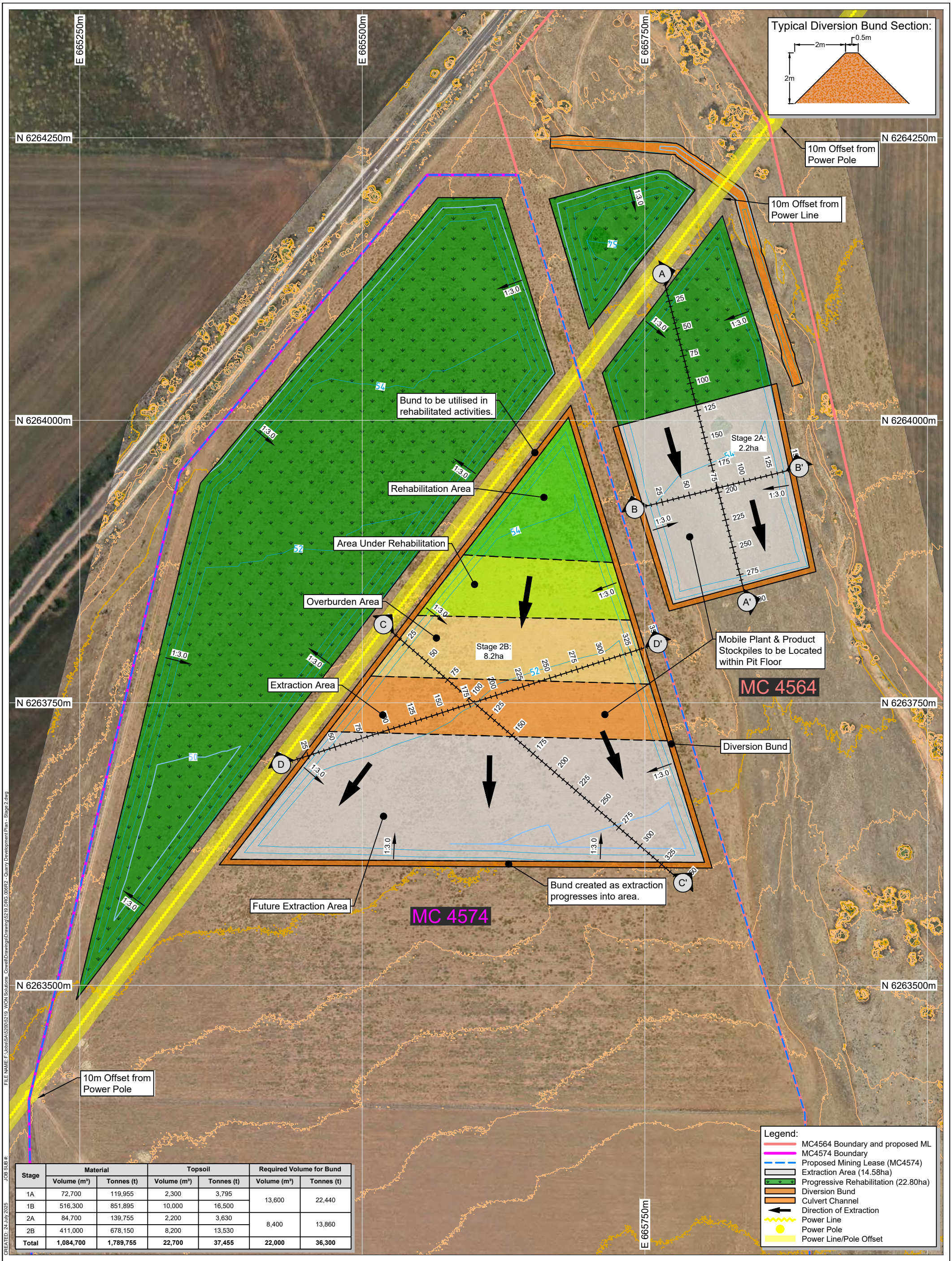
PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Quarry Development Plan - Stage 1
Sections A-A' to D-D'

GROUNDWORK PART OF SLR
PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:1,500 When Printed On A3 — 0 30m
DRAWING NUMBER: 5219.DRG.005B
REVISION: 2
DATE: 24 July 2025 DRAWN: CP
PRINTED: 25 July 2025 CHECKED: EP
DATUM: HORIZONTAL / VERTICAL / ZONE
GDA94 / MGA / AHD / 53



Stage	Material		Topsoil		Required Volume for Bund	
	Volume (m³)	Tonnes (t)	Volume (m³)	Tonnes (t)	Volume (m³)	Tonnes (t)
1A	72,700	119,955	2,300	3,795	13,600	22,440
1B	516,300	851,895	10,000	16,500		
2A	84,700	139,755	2,200	3,630	8,400	13,860
2B	411,000	678,150	8,200	13,530		
Total	**1,084,700**	**1,789,755**	**22,700**	**37,455**	**22,000**	**36,300**

Legend:
- MC4564 Boundary and proposed ML
- MC4574 Boundary
- Proposed Mining Lease (MC4574)
- Extraction Area (14.58ha)
- Progressive Rehabilitation (22.80ha)
- Diversion Bund
- Culvert Channel
- Direction of Extraction
- Power Line
- Power Pole
- Power Line/Pole Offset

REV	DESCRIPTION	DATE	BY
1	Updated Pit Designs	2024/09/10	CP
2	Updated Pit Designs	2025/07/25	TR

Data Sources:
Photography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28
Topography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28, DSM 1m
Cadastre:
Ecosystem:
Other: © 2024 Microsoft Corporation; © 2024 Maxar; © CNES (2024) Distribution Airbus DS

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

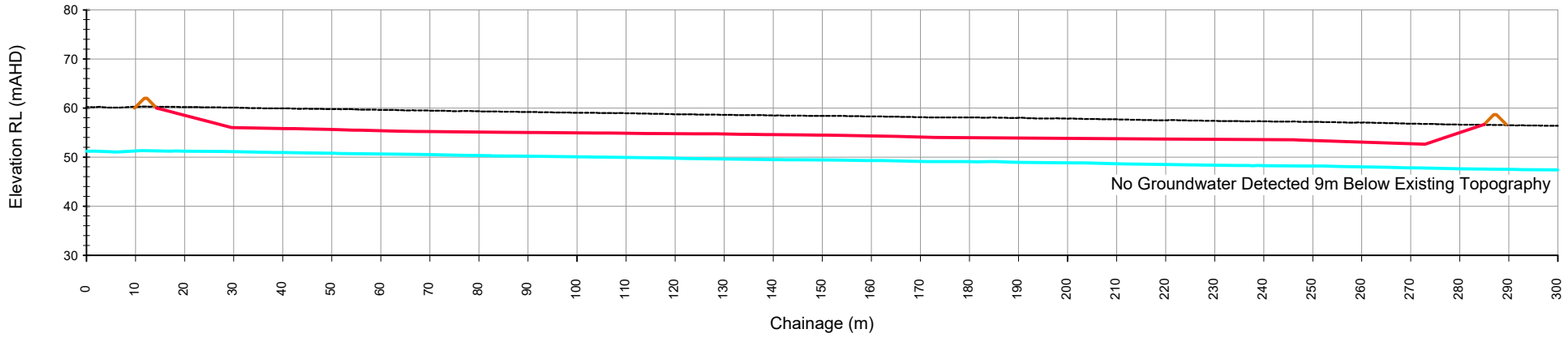
TITLE: Quarry Development Plan - Stage 2

GROUNDWORK PART OF SLR
PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

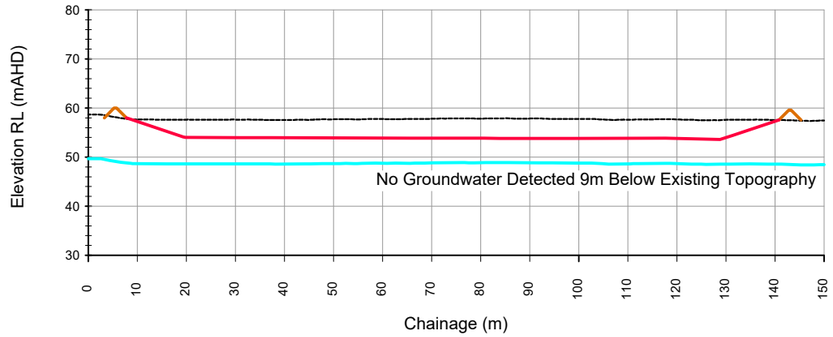
SCALE: 1:3,000 When Printed On A3 — 0 60m
DATE: 24 July 2025 DRAWN: CP
PRINTED: 25 July 2025 CHECKED: EP
DRAWING NUMBER: 5219.DRG.006A REVISION: 2
DATUM: HORIZONTAL / VERTICAL / ZONE GDA94 / MGA / AHD / 53

FILE NAME: F:\Jobs\SA\5220\6219_WON Solutions_Cowell\Drawing\5219.DRG.006R2 - Quarry Development Plan - Stage 2.dwg
JOB SUB #:
CREATED: 24 July 2025

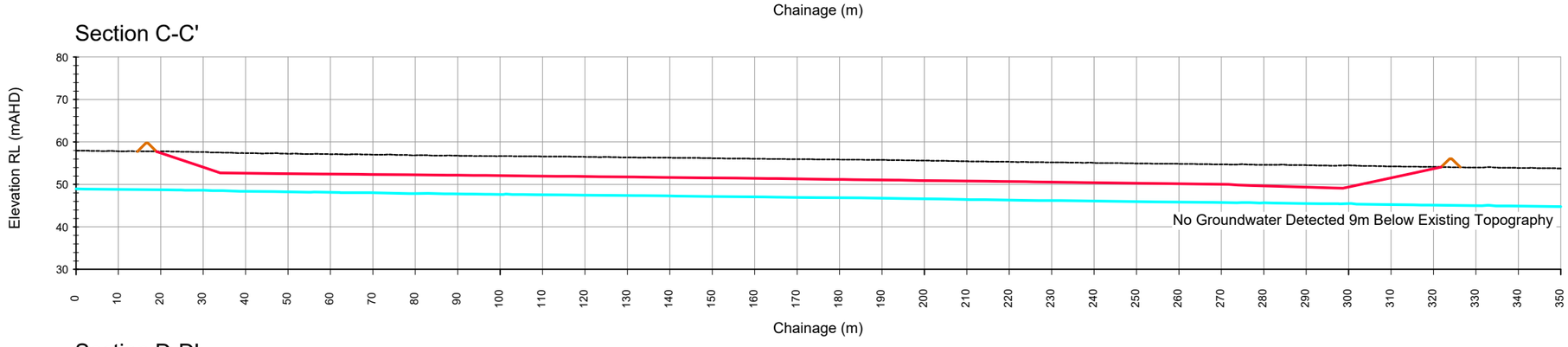
Section A-A'



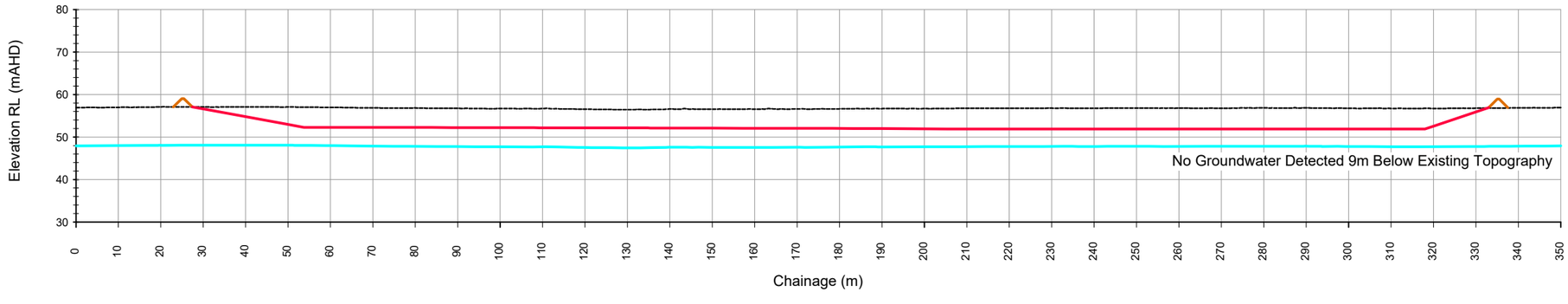
Section B-B'



Section C-C'



Section D-D'



CREATED: 24 July 2025 JOB SUB #: FILE NAME:P:\Jobs\SA\2200\5219_WON Solutions_Cowell\Drawings\Drawing\5219.DRG.006R2 - Quarry Development Plan - Stage 2.dwg

REV	DESCRIPTION	DATE	BY
1	Updated Pit Designs	2024/09/10	CP
2	Updated Pit Designs	2025/07/25	TR

Data Sources:
Photography:
Topography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28, DSM 1m
Cadastre:
Ecosystem:
Other:

Legend:
- Existing Ground Surface
- Pit Design Surface
- Bund Design Surface

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Quarry Development Plan - Stage 2
Sections A-A' to D-D'

GROUNDWORK PART OF SLR
PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:1,250 When Printed On A3 (0 – 25m)
DRAWING NUMBER: 5219.DRG.006B
REVISION: 2
DATE: 24 July 2025
DRAWN: CP
PRINTED: 25 July 2025
CHECKED: EP
DATUM: HORIZONTAL / VERTICAL / ZONE: GDA94 / MGA / AHD / 53

Stage	Material		Topsoil		Required Volume for Bund	
	Volume (m³)	Tonnes (t)	Volume (m³)	Tonnes (t)	Volume (m³)	Tonnes (t)
1A	72,700	119,955	2,300	3,795	13,600	22,440
1B	516,300	851,895	10,000	16,500		
2A	84,700	139,755	2,200	3,630	8,400	13,860
2B	411,000	678,150	8,200	13,530		
3A	94,300	155,595	3,000	4,950	6,300	10,395
3B	524,400	865,260	11,600	19,140		
Total	**1,703,400**	**2,810,610**	**37,300**	**61,545**	**28,300**	**46,695**

REV	DESCRIPTION	DATE	BY
1	Updated Pit Designs	2024/09/10	CP
2	Updated Pit Designs	2025/07/25	TR

Data Sources:
Photography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28
Topography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28, DSM 1m
Cadastre:
Ecosystem:
Other: © 2024 Microsoft Corporation; © 2024 Maxar; © CNES (2024) Distribution Airbus DS

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Quarry Development Plan - Stage 3

GROUNDWORK PART OF SLR
PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:3,000 When Printed On A3 — 0 — 60m

DRAWING NUMBER: 5219.DRG.007A

REVISION: 2

DATE: 25 July 2025 | DRAWN: CP | CHECKED: EP | PRINTED: 29 July 2025

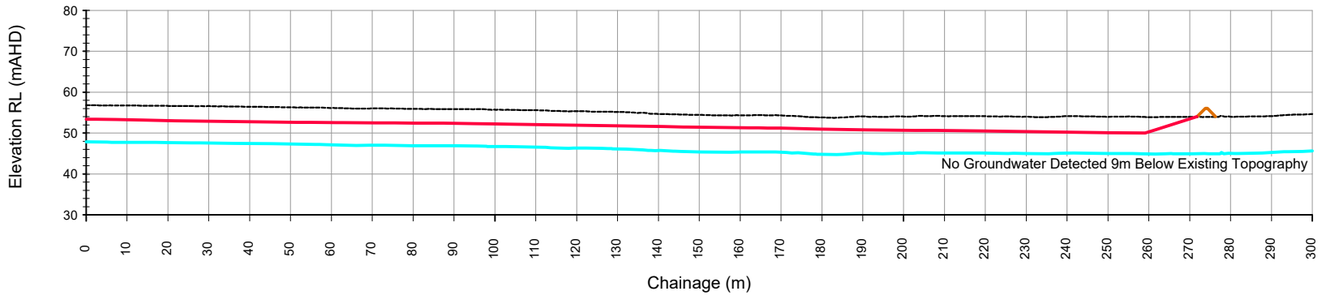
DATUM: HORIZONTAL / VERTICAL / ZONE GDA94 / MGA / AHD / 53

FILE NAME: F:\Jobs\SA\s5200\5219_WON Solutions_Cowell\Drawings\Drawing\5219.DRG.007R2 - Quarry Development Plan - Stage 3.dwg

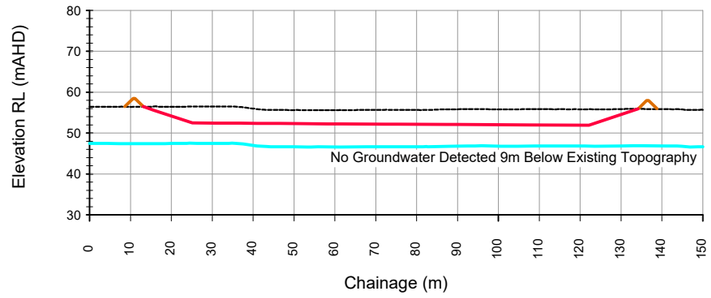
JOB SUB #:

CREATED: 25 July 2025

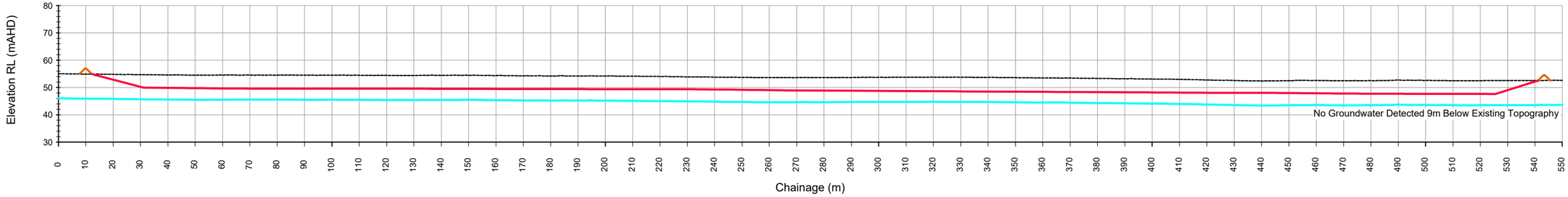
Section A-A'



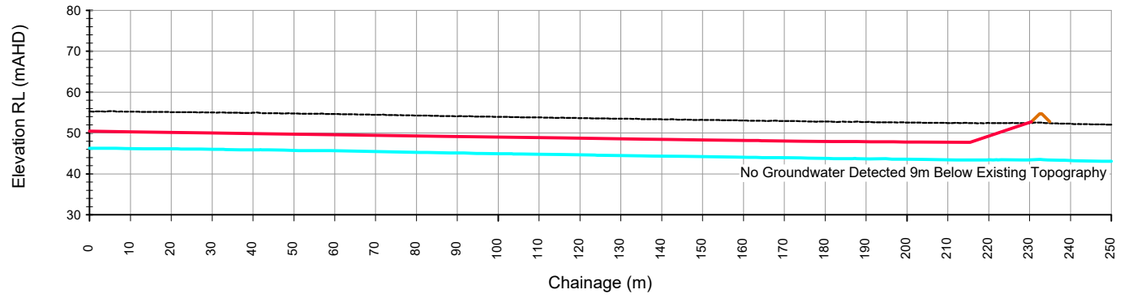
Section B-B'



Section C-C'



Section D-D'



REV	DESCRIPTION	DATE	BY
1	Updated Pit Designs	2024/09/10	CP
2	Updated Pit Designs	2025/07/25	TR

Data Sources:
Photography:
Topography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28, DSM 1m
Cadastre:
Ecosystem:
Other:

Legend:
- Existing Ground Surface
- Pit Design Surface
- Bund Design Surface

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Quarry Development Plan - Stage 3
Sections A-A' to D-D'

GROUNDWORK PART OF SLR
PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:1,500 When Printed On A3 (0 – 30m)
DRAWING NUMBER: 5219.DRG.007B
REVISION: 2
DATE: 24 July 2025
DRAWN: CP
PRINTED: 25 July 2025
CHECKED: EP
DATUM: HORIZONTAL / VERTICAL / ZONE
GDA94 / MGA / AHD / 53

CREATED: 24 July 2025 JOB SUB #: FILE NAME: F:\Jobs\SAS\300\5219 WON Solutions Cowell\Drawings\Drawing\5219.DRG.007R2 - Quarry Development Plan - Stage 3.dwg

FILE NAME: F:\Jobs\SA\6200\6219_WON Solutions_Cowell\Drawings\Drawing\5219.DRG.004R2 - Conceptual Final Landform Plan.dwg
JOB SUB #:
CREATED: 29 July 2025

REV	DESCRIPTION	DATE	BY
1	Updated Pit Designs	2024/09/10	CP
2	Updated Pit Designs	2025/07/29	TR

Data Sources:
Photography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28
Topography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28, DSM 1m
Cadastre:
Ecosystem:
Other: © 2024 Microsoft Corporation; © 2024 Maxar; © CNES (2024) Distribution Airbus DS

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Conceptual Final Landform Plan

GROUNDWORK PART OF SLR
PH: +61 7 3871 0411
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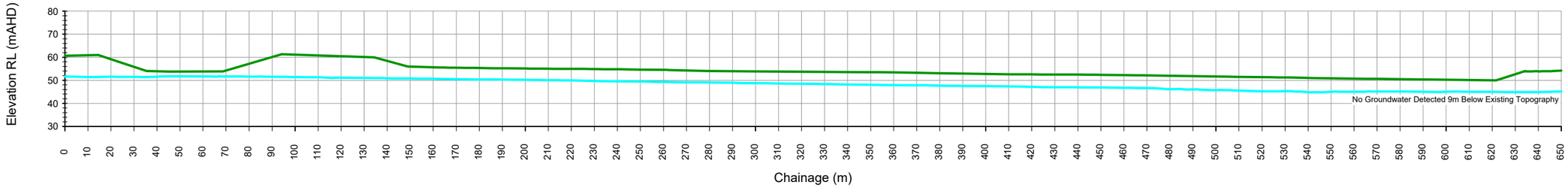
SCALE: 1:3,000 When Printed On A3 — 0 — 60m
DRAWING NUMBER: 5219.DRG.004A
REVISION: 2
DATE: 29 July 2025 | DRAWN: CP
PRINTED: 29 July 2025 | CHECKED: EP
DATUM: HORIZONTAL / VERTICAL / ZONE
GDA94 / MGA / AHD / 53

Section A-A'



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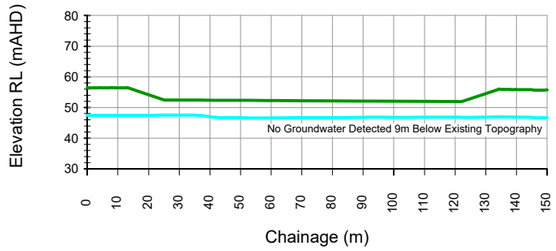

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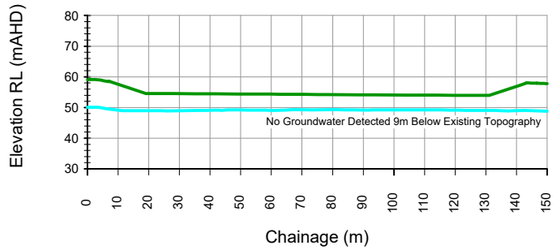
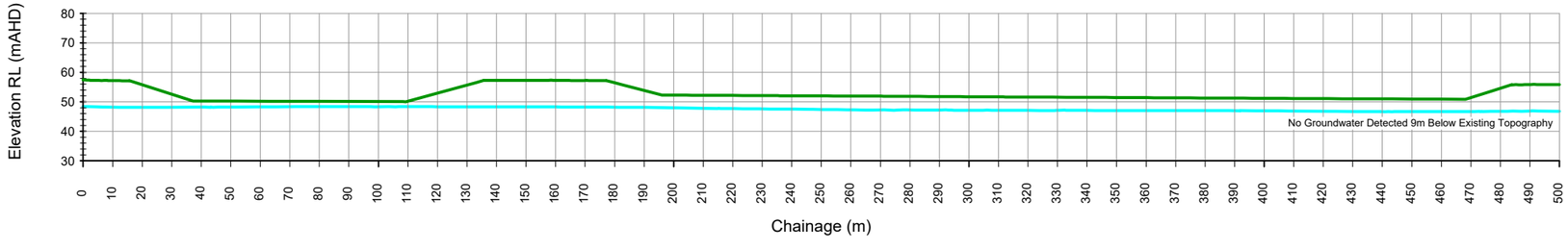


Section D-D'

Section E-E'



REV	DESCRIPTION	DATE	BY
1	Updated Pit Designs	2024/09/10	CP
2	Updated Pit Designs	2025/07/29	TR

Data Sources:
Photography:
Topography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28, DSM 1m
Cadastre:
Ecosystem:
Other:

Legend:
Conceptual Final Landform Surface

PROJECT: Story Sands Quarry

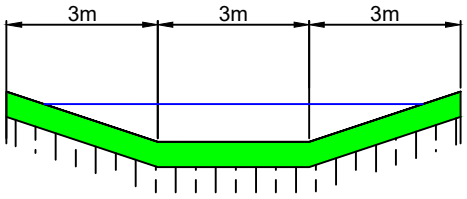
CLIENT: WON Solution Pty Ltd

TITLE: Conceptual Final Landform Plan
Sections A-A' to E-E'

GROUNDWORK PART OF SLR
PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:2,000 When Printed On A3 (0 — 40m)
DRAWING NUMBER: 5219.DRG.004B
REVISION: 2
DATE: 29 July 2025
DRAWN: CP
PRINTED: 29 July 2025
CHECKED: EP
DATUM: HORIZONTAL / VERTICAL / ZONE
GDA94 / MGA / AHD / 53

FILE NAME: F:\Jobs\SA\S25005219 WON Solutions Cowell\Drawings\Drawing\5219.DRG.004R2 - Conceptual Final Landform Plan.dwg
JOB SUB #:
CREATED: 29 July 2025



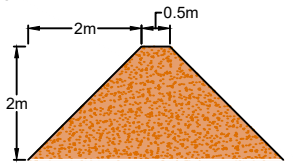
Lincoln Highway Culvert Drainage Line Diversion Details

Design Discharge = 3.46m^3/s
Velocity 0.9m/s
Flow Depth = 750mm; Batters 1 in 3
Plant out channel with grass /vegetation cover

CONCEPTUAL DESIGN

NOT FOR CONSTRUCTION

Typical Diversion Bund Section:



E 665500m

E 665750m

N 6264250m

N 6264000m

N 6263750m

N 6263500m

Culvert Outlet Beneath Lincoln Highway

Divert Lincoln Highway Culvert Drainage Channel to Yabmana Creek Prior to Stage 3 Extraction. Refer Detail

Yabmana Creek Watercourse

Diversion Bund

Northern Catchment: 0.9ha

Eastern Catchment: 1.5ha

Western Catchment: 10.0ha

Diversion Bund

Match Culvert Outlet Channel to Yabmana Creek Watercourse

MC 4564

MC 4574

1:3.0

Western Sediment Basin SB1.
- Depth = 1m
- Volume = 1,130kL
- Batters 1:4

Catchment Zone	Area (ha)
Western Catchment	10.0
Northern Catchment	0.9
Eastern Catchment	1.5

Legend:
- MC4564 Boundary and proposed ML
- MC4574 Boundary
- Proposed Mining Lease for MC4574)
- Extraction Area (14.58ha)
- Progressive Rehabilitation (22.80ha)
- Diversion Bund
- Culvert Channel
- Direction of Flow
- Power Line
- Power Pole
- Power Line/Pole Offset

REV	DESCRIPTION	DATE	BY
1	Updated Pit Designs	2024/09/11	CP
2	Updated Pit Designs	2025/07/29	TR

Data Sources:
Photography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28
Topography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28, DSM 1m
Cadastre:
Ecosystem:
Other: © 2024 Microsoft Corporation; © 2024 Maxar; © CNES (2024) Distribution Airbus DS

PROJECT: Story Sands Quarry

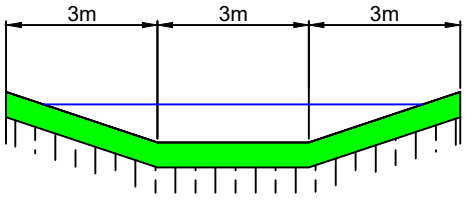
CLIENT: WON Solution Pty Ltd

TITLE: Erosion and Sediment Control Plan - Stage 1

GROUNDWORK PART OF SLR
PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:3,000 When Printed On A3 (0 – 60m)
DRAWING NUMBER: 5219.DRG.009
REVISION: 2
DATE: 29 July 2025
DRAWN: CP
PRINTED: 29 July 2025
CHECKED: EP
DATUM: HORIZONTAL / VERTICAL / ZONE
GDA94 / MGA / AHD / 53

FILE NAME: F:\Jobs\SA\52005219_WON Solutions - Cowell\Drawings\Drawings\5219.DRG.009R2 - Erosion And Sediment Control Plan - Stage 1.dwg
JOB SUB #:
CREATED: 29 July 2025



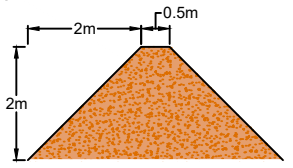
Lincoln Highway Culvert Drainage Line Diversion Details

Design Discharge = 3.46m^3/s
Velocity 0.9m/s
Flow Depth = 750mm; Batters 1 in 3
Plant out channel with grass /vegetation cover

CONCEPTUAL DESIGN

NOT FOR CONSTRUCTION

Typical Diversion Bund Section:



E 665500m

E 665750m

N 6264250m

N 6264000m

N 6263750m

N 6263500m

Culvert Outlet Beneath Lincoln Highway

Divert Lincoln Highway Culvert Drainage Channel to Yabmana Creek Prior to Stage 3 Extraction. Refer Detail

Yabmana Creek Watercourse

Northern Catchment: 0.9ha

Western Catchment: 10.0ha

Eastern Catchment: 3.7ha

Southern Catchment: 8.2ha

Match Culvert Outlet Channel to Yabmana Creek Watercourse

Eastern Sediment Basin SB2.
- Depth = 1m
- Volume = 420kL
- Batters 1:4

Southern Sediment Basin SB3.
- Depth = 1m
- Volume = 920kL
- Batters 1:4

Diversion Bund

MC 4564

MC 4574

1:3.0

Catchment Zone	Area (ha)
Western Catchment	10.0
Northern Catchment	0.9
Eastern Catchment	3.7
Southern Catchment	8.2

Legend:
- MC4564 Boundary and proposed ML
- MC4574 Boundary
- Proposed Mining Lease (MC4574)
- Extraction Area (14.58ha)
- Progressive Rehabilitation (22.80ha)
- Diversion Bund
- Culvert Channel
- Direction of Flow
- Power Line
- Power Pole
- Power Line/Pole Offset

REV	DESCRIPTION	DATE	BY
1	Updated Pit Designs	2024/09/11	CP
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Photography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28
Topography: Groundwork part of SLR, UAV Survey, Captured 2023/11/28, DSM 1m
Cadastre:
Ecosystem:
Other: © 2024 Microsoft Corporation; © 2024 Maxar; © CNES (2024) Distribution Airbus DS

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Erosion and Sediment Control Plan - Stage 2

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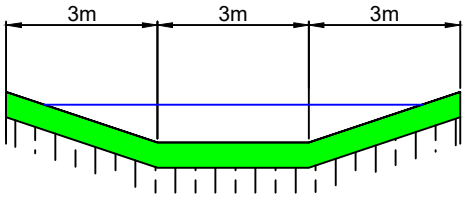
DRAWING NUMBER: 5219.DRG.010
REVISION: 2
DATE: 29 July 2025
DRAWN: CP
PRINTED: 29 July 2025
CHECKED: EP
DATUM: HORIZONTAL / VERTICAL / ZONE GDA94 / MGA / AHD / 53

FILE NAME: F:\Jobs\SA\5200\5219_WON Solutions - Cowell\Drawings\Drawing\5219.DRG.010R2 - Erosion And Sediment Control Plan - Stage 2.dwg
JOB SUB #:
CREATED: 29 July 2025



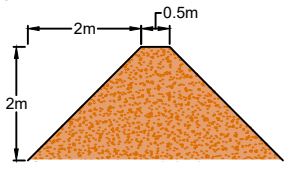
Lincoln Highway Culvert Drainage Line Diversion Details

Design Discharge = 3.46m^3/s
Velocity 0.9m/s
Flow Depth = 750mm; Batters 1 in 3
Plant out channel with grass /vegetation cover

CONCEPTUAL DESIGN

NOT FOR CONSTRUCTION

Typical Diversion Bund Section:



E 665500m

E 665750m

N 6264250m

N 6264000m

N 6263750m

N 6263500m

Culvert Outlet Beneath Lincoln Highway

Divert Lincoln Highway Culvert Drainage Channel to Yabmana Creek Prior to Stage 3 Extraction. Refer Detail

Yabmana Creek Watercourse

Match Culvert Outlet Channel to Yabmana Creek Watercourse

Northern Catchment: 0.9ha

Western Catchment: 10.0ha

Eastern Catchment: 6.7ha

Southern Catchment: 19.8ha

MC 4564

MC 4574

1:3.0

Eastern Sediment Basin SB4.
- Depth = 1m
- Volume = 750kL
- Batters 1:4

Diversion Bund

Southern Sediment Basin SB5.
- Depth = 1m
- Volume = 2,230kL
- Batters 1:4

Catchment Zone	Area (ha)
Western Catchment	10.0
Northern Catchment	0.9
Eastern Catchment	6.7
Southern Catchment	19.8

Legend:
- MC4564 Boundary and proposed ML
- MC4574 Boundary
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JOB SUB #:

CREATED: 29 July 2025

Appendix C – Surface Water Study

Groundwork Plus Resources Environment Planning Laboratories
Email: info@groundwork.com.au
Website: groundwork.com.au
ABN 13 609 422 791

Preliminary Surface Water Assessment

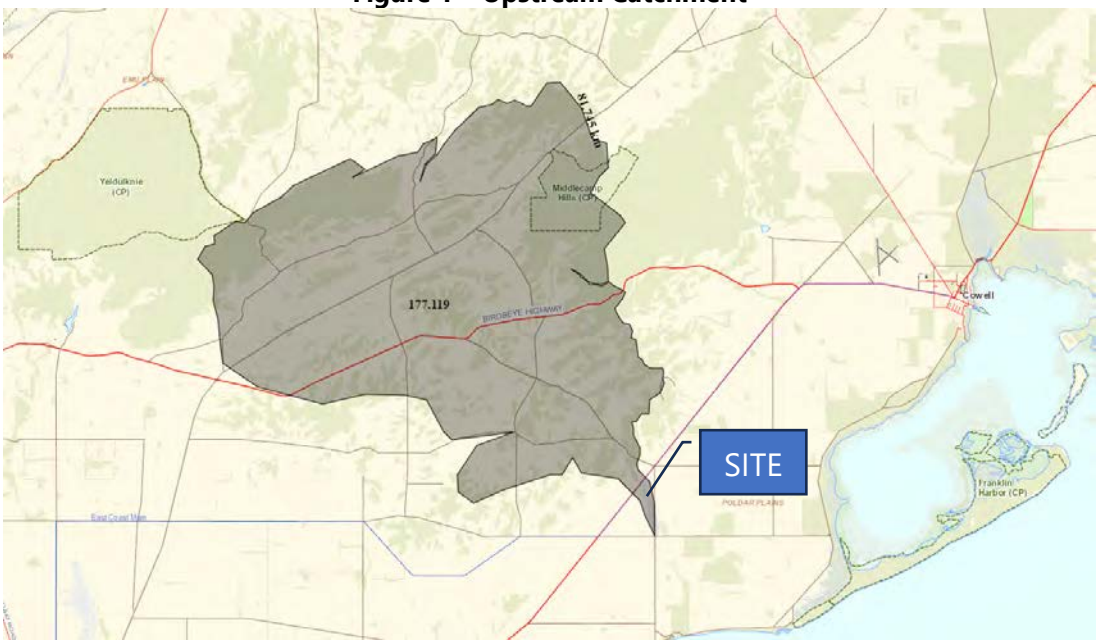
To:	Kelli-Jo Kovac	**From:**	Mark Folker / Emma Manuel
	WON Solution		
	kellijokovac@gmail.com.au	**Email:**	mfolker@groundwork.com.au
		Date:	29/07/2025
		File Ref:	5219_800_002 R4
Re:	Surface Water Assessment (Quantity and Quality)		

Groundwork Plus (SA) Pty Ltd (Groundwork Plus) has undertaken a preliminary surface water assessment for a proposed WON Solution sand mine near Elbow Hill, approximately 15 kilometres (km) south west of Cowell on the Eyre Peninsula (the Site).

Catchment Assessment

As shown in **Figure 1 – Upstream Catchment** there is a significant upstream catchment of approximately 177km^2, which forms the Yabmana Creek catchment (including its tributaries). The Yabmana Creek ultimately passes through the proposed project area.

Figure 1 – Upstream Catchment



QUEENSLAND
6 Mayneview Street, Milton Qld 4064
PO 1779, Milton BC Qld 4064
Phone: +61 7 3871 0411
Fax: +61 7 3367 3317

SOUTH AUSTRALIA
2/3 16 Second St, Nuriootpa SA 5355
PO Box 854, Nuriootpa SA 5355
Phone: +61 8 8562 4158

VICTORIA
PO Box 438, Altona VIC 3018
Phone: 0437 523 282

AGGREGATE TESTING LABORATORY
Unit 78/109 Leitchs Road
Brendale Qld 4500
Phone: 0417 615 217

Surface Water Assessment (Quantity)

Recent extensive rainfall over the Yabmana Creek catchment was recorded with a summary shown in **Table 1 – Yabmana Creek Rainfall** sourced from the Bureau of Meterology (BoM).

Table 1 – Yabmana Creek Rainfall

Location	Date	Rainfall (mm)	Total Rainfall (mm)
Upper Catchment (Narridy Creek)	10/12/2023	58.7	113.1
	11/12/2023	54.4	
Site Location	10/12/2023	57.9	111.5
	11/12/2023	53.6	

As outlined in Table 1, both the upper and lower catchment of the Yabmana Creek received more than 110mm in the days between 10th and 12th of December 2023.

Historic Rainfall Data

The historic daily rainfall data was also downloaded from BoM for all available years at the site, comprising data from the 1st of January 1958 to 9 April 2024. Upon analysis of all daily rainfall data, only 15 days have been recorded with 39mm or higher in a 24 hour period.

Further, only two times has there been two consecutive days of higher than 39mm, being the 23rd and 24th of January 2022, and the 10th and 11th of December 2023. A summary of historical rainfall exceeding 39mm is shown in **Table 2 – Historical Rainfall Data (days above 39mm rainfall)**.

Table 2 – Historical Rainfall Data (days above 39mm rainfall)

Year	Month	Day	Rainfall (mm)
1961	11	17	44.4
1963	10	27	40.3
1964	11	18	47.3
1968	2	20	50.9
1969	2	9	42.3
1971	3	15	47.9
1973	2	6	42.3
1979	2	24	39.4
1983	7	6	53.9
1992	3	1	57.9
1997	2	6	53.6
2022	1	23	44.4
2022	1	24	40.3
2023	12	10	47.3
2023	12	11	50.9

Following the December 2023 rainfall event, a site investigation was carried out to examine the runoff at the site. Refer to **Photo 1 – Site Runoff Lincoln Highway** which shows the Lincoln Highway Culverts immediately upstream of the site on 12th December 2023. No runoff was noted in the subsequent days in the Yabmana Creek within the site project area. This indicates that there is a likely presence of sandy soils (with high infiltration capacity) both in the vicinity of the project area, and also broadly upstream of the site in the upper reaches of the catchment. Additionally, a high rainfall event within the region in January 2022 comprised of a rainfall event where rain fell over much shorter period of time. The event

resulted in quite a lot of flash flooding and damage in the broader region and Site visit undertaken by local Environmental Consultant confirmed that water did not flow in the creek following that event.

Photo 1 – Site Runoff Lincoln Highway

Based on an initial preliminary surface water assessment, it seems highly probable that the site will not encounter significant rainfall runoff during the project development phase. This is based on both a historical rainfall analysis and the ability to conduct a site investigation for the highest rainfall event recorded since records began in 1958 for the area.

It is likely that both the lower and upper reaches of the catchment experience initial surface water losses resulting from direct soil infiltration, accompanied by ongoing continual losses during rainfall events, which represents sandy soil conditions with significant subsoil aquifer recharge capacity volumes.

Surface Water Assessment (Quality)

In accordance with industry best practice (IECA 2008), stormwater runoff from disturbed areas of the site, generated by (up to and including) a 5-day 75th percentile rainfall event is proposed to be captured by a sediment basin system onsite or managed to remove contaminants prior to offsite discharge. Details of sediment basins are shown in the drawings included in **Attachment 1 – Erosion and Sediment Control Plan (Stages 1 – 3).**

The total upper settling storage requirements for sediment basins are estimated based on the following formula (IECA 2008):

Vs = 10 x A *Cv * R ($_{Y\%,\ 5\text{-}day}$), where:
A = Catchment Area (Ha)
Cv = Coefficient of Discharge
R = Rainfall depth (m) from 95th Percentile, 5-day rainfall event

Table 1 –Sediment Basin Storage Requirements details the sediment basin storage requirements, based on a rainfall depth (R) of 14.15 mm, (1 year ARI, 120h intensity source: Bureau of Meteorology).

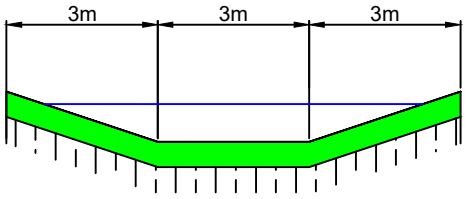
Stage	Basin ID	Location	Catchment Area (Ha)	Upper Settling Volume (ML)	Sediment Storage Volume (ML)	Total Volume (ML)
1A		Northern & Eastern Catchment	2.4ha	Not required	Not required	Not required
1B	SB1	Western Catchment	10	0.75	0.28	1.13
2A	SB2	Eastern Catchment	3.7	0.28	0.14	0.42
2B	SB3	Southern Catchment	8.2	0.62	0.31	0.92
3A	SB4	Eastern Catchment	6.7	0.5	0.25	0.75
3B	SB5	Southern Catchment	19.8	1.49	0.74	2.23

Should you require clarification please feel free to contact us.

Yours faithfully

Mark Folker
Senior Environmental Engineer
Groundwork Plus Pty Ltd

Appendix 1 – Erosion and Sediment Control Plans (Stages 1 – 3)



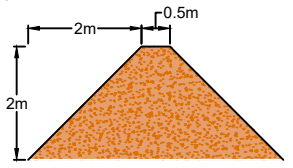
Lincoln Highway Culvert Drainage Line Diversion Details

Design Discharge = 3.46m^3/s
Velocity 0.9m/s
Flow Depth = 750mm; Batters 1 in 3
Plant out channel with grass /vegetation cover

CONCEPTUAL DESIGN

NOT FOR CONSTRUCTION

Typical Diversion Bund Section:



E 665500m

E 665750m

N 6264250m

N 6264000m

N 6263750m

N 6263500m

Culvert Outlet Beneath Lincoln Highway

Divert Lincoln Highway Culvert Drainage Channel to Yabmana Creek Prior to Stage 3 Extraction. Refer Detail

Yabmana Creek Watercourse

Diversion Bund

Northern Catchment: 0.9ha

Eastern Catchment: 1.5ha

Western Catchment: 10.0ha

Diversion Bund

Match Culvert Outlet Channel to Yabmana Creek Watercourse

MC 4564

MC 4574

1:3.0

Western Sediment Basin SB1.
- Depth = 1m
- Volume = 1,130kL
- Batters 1:4

Catchment Zone	Area (ha)
Western Catchment	10.0
Northern Catchment	0.9
Eastern Catchment	1.5

Legend:
- MC4564 Boundary and proposed ML
- MC4574 Boundary
- Proposed Mining Lease for MC4574)
- Extraction Area (14.58ha)
- Progressive Rehabilitation (22.80ha)
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Cadastre:
Ecosystem:
Other: © 2024 Microsoft Corporation; © 2024 Maxar; © CNES (2024) Distribution Airbus DS

PROJECT: Story Sands Quarry

CLIENT: WON Solution Pty Ltd

TITLE: Erosion and Sediment Control Plan - Stage 1

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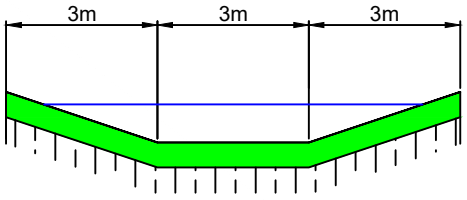
SCALE: 1:3,000 When Printed On A3 (0 – 60m)
DRAWING NUMBER: 5219.DRG.009
REVISION: 2
DATE: 29 July 2025
DRAWN: CP
PRINTED: 29 July 2025
CHECKED: EP
DATUM: HORIZONTAL / VERTICAL / ZONE
GDA94 / MGA / AHD / 53

FILE NAME: F:\Jobs\SA\52005219_WON Solutions - Cowell\Drawings\Drawings\5219.DRG.009R2 - Erosion And Sediment Control Plan - Stage 1.dwg
JOB SUB #:
CREATED: 29 July 2025



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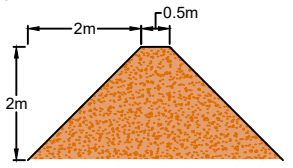

E 665500m

E 665750m

N 6264250m

N 6264000m

N 6263750m

N 6263500m

Culvert Outlet Beneath Lincoln Highway

Divert Lincoln Highway Culvert Drainage Channel to Yabmana Creek Prior to Stage 3 Extraction. Refer Detail

Yabmana Creek Watercourse

Northern Catchment: 0.9ha

Western Catchment: 10.0ha

Eastern Catchment: 3.7ha

Southern Catchment: 8.2ha

Match Culvert Outlet Channel to Yabmana Creek Watercourse

Eastern Sediment Basin SB2.
- Depth = 1m
- Volume = 420kL
- Batters 1:4

Southern Sediment Basin SB3.
- Depth = 1m
- Volume = 920kL
- Batters 1:4

Diversion Bund

MC 4564

MC 4574

1:3.0

Catchment Zone	Area (ha)
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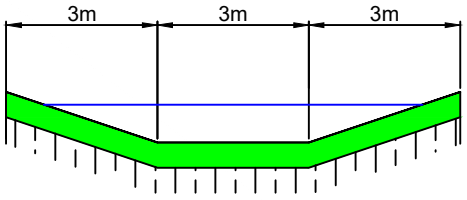

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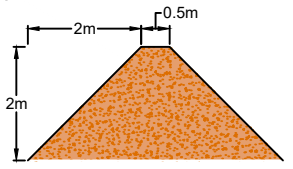

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Eastern Sediment Basin SB4.
- Depth = 1m
- Volume = 750kL
- Batters 1:4

Diversion Bund

Southern Sediment Basin SB5.
- Depth = 1m
- Volume = 2,230kL
- Batters 1:4

Catchment Zone	Area (ha)
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JOB SUB #:

CREATED: 29 July 2025

Appendix D – Flora and fauna database searches

Department of Climate Change, Energy, the Environment and Water

Protected Matters Search Tool

Report Generated - 9:32PM - 11 April 2024

Matters of National Environment Significance	Count
World Heritage Properties	0
National Heritage Places	0
Wetlands of International Importance (Ramsar Wetlands)	0
Great Barrier Reef Marine Park	0
Commonwealth Marine Area	0
Listed Threatened Ecological Communities	1
Listed Threatened Species	49
Listed Migratory Species	37

Other Matters Protected by the EPBC Act	Count
Commonwealth Lands	0
Commonwealth Heritage Places	0
Listed Marine Species	69
Whales and Other Cetaceans	8
Critical Habitats	0
Commonwealth Reserves Terrestrial	0
Australian Marine Parks	0
Habitat Critical to the Survival of Marine Turtles	0

Extra Information	Count
State and Territory Reserves	1
Regional Forest Agreements	0
Nationally Important Wetlands	0
EPBC Act Referrals	4
Key Ecological Features	0
Biologically Important Areas	3
Bioregional Assessments	0
Geological and Bioregional Assessments	0

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 and is accurate at the time of generation.
Please see the caveat for interpretation of information provided here.
Consider carefully the age of information for decision making.

Report Metadata | Caveat

World Heritage Places [Resource Information]

Place ID	Place Name	State	Legal Status	Natural Values	Cultural Values	Website

National Heritage Places [Resource Information]

Place ID	Place Name	State	Heritage Class	Legal Status	Website

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site No.	Ramsar Site Name	Proximity	Website

Great Barrier Reef Marine Park [Resource Information]

Zone ID	Zone Type	State	Permit Description	IUCN

Commonwealth Marine Area [Resource Information]

Feature Name

Listed Threatened Ecological Communities [Resource Information]

				Presence		
Community ID	Community Name	Threatened Category	Website	Rank	Text	Buffer Status
124	Eyre Peninsula Blue	Endangered	Species Profile and	May	Community may occur	In buffer area only

Back to Summary

Listed Threatened Species [Resource Information]

Species ID	Scientific Name	Common Name	Class	Simple Presence	Presence Text	Threatened Category	Migratory Status	Migratory Category	Marine Status	Cetacean Status	Website	Buffer Status	Comment for KJ
69374	*Seriolella brama*	Blue Warehou	Fish	Likely	Species or species	Conservation					Species Profile and	In buffer area only	Not relevent habitat
69402	*Thunnus maccoyii*	Southern Bluefin Tuna	Fish	Likely	Species or species	Conservation					Species Profile and	In buffer area only	Not relevent habitat
906	*Pedionomus torquatus*	Plains-wanderer	Bird	May	Species or species	Critically Endangered					Species Profile and	In feature area	Not relevent habitat
847	*Numenius*	Eastern Curlew, Far Eastern	Bird	May	Species or species	Critically Endangered	Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area	Not relevent habitat
856	*Calidris ferruginea*	Curlew Sandpiper	Bird	May	Species or species	Critically Endangered	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area	Not relevent habitat
77037	*Rostratula australis*	Australian Painted Snipe	Bird	Likely	Species or species	Endangered			Listed - overfly marine		Species Profile and	In feature area	Not relevent habitat
291	*Sminthopsis*	Sandhill Dunnart	Mammal	Likely	Species or species	Endangered					Species Profile and	In feature area	Not relevent habitat
1768	*Dermochelys coriacea*	Leatherback Turtle, Leathery	Reptile	Known	Species or species	Endangered	Migratory	Migratory Marine	Listed		Species Profile and	In buffer area only	Not relevent habitat
832	*Tringa nebularia*	Common Greenshank,	Bird	Likely	Species or species	Endangered	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area	Not relevent habitat
24390	*Caladenia tensa*	Greencomb Spider-orchid, Rigid Spider-orchid	Plant	Likely	Species or species habitat likely to occur within area	Endangered					Species Profile and Threat Database (SPRAT)	In feature area	Not found and not suitable habitat
22	*Neophoca cinerea*	Australian Sea-lion, Australian Sea	Mammal	May	Species or species	Endangered			Listed		Species Profile and	In buffer area only	Not relevent habitat
1060	*Macronectes giganteus*	Southern Giant-Petrel, Southern	Bird	May	Species or species	Endangered	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat
1763	*Caretta caretta*	Loggerhead Turtle	Reptile	Known	Species or species	Endangered	Migratory	Migratory Marine	Listed		Species Profile and	In buffer area only	Not relevent habitat
40	*Eubalaena australis*	Southern Right Whale	Mammal	Known	Breeding known to	Endangered	Migratory (as Balaena	Migratory Marine		Cetacean	Species Profile and	In buffer area only	Not relevent habitat
86380	*Limosa lapponica*	Nunivak Bar-tailed Godwit,	Bird	May	Species or species	Endangered					Species Profile and	In buffer area only	Not relevent habitat
89224	*Thalassarche cauta*	Shy Albatross	Bird	Likely	Foraging, feeding or	Endangered	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat
11282	*Acacia rhetinocarpa*	Neat Wattle, Resin Wattle (SA)	Plant	Likely	Species or species habitat likely to occur within area	Vulnerable					Species Profile and Threat Database (SPRAT)	In feature area	Not found and not suitable habitat
529	*Aphelocephala leucopsis*	Southern Whiteface	Bird	Likely	Species or species habitat likely to occur within area	Vulnerable					Species Profile and Threat Database (SPRAT)	In feature area	More suitable habitat not imapcted and not recorded during assessment. Impact expected to negligible.
64445	*Pachyptila turtur*	Fairy Prion (southern)	Bird	Likely	Species or species	Vulnerable					Species Profile and	In buffer area only	Not relevent habitat
6704	*Limosella granitica*	Granite Mudwort	Plant	May	Species or species	Vulnerable					Species Profile and	In feature area	Not relevent habitat
86228	*Pterostylis mirabilis*	Nodding Rufoushood	Plant	Likely	Species or species	Vulnerable					Species Profile and	In feature area	Not suitable habitat
82950	*Sternula nereis nereis*	Australian Fairy Tern	Bird	Likely	Breeding likely to occur	Vulnerable					Species Profile and	In feature area	Not relevent habitat
64470	*Carcharodon*	White Shark, Great White Shark	Shark	Known	Species or species	Vulnerable	Migratory	Migratory Marine			Species Profile and	In buffer area only	Not relevent habitat
1075	*Phoebetria fusca*	Sooty Albatross	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat
934	*Leipoa ocellata*	Malleefowl	Bird	Likely	Species or species	Vulnerable					Species Profile and	In feature area	Not suitable habitat
929	*Falco hypoleucos*	Grey Falcon	Bird	Likely	Species or species	Vulnerable					Species Profile and	In feature area	Not suitable habitat
1061	*Macronectes halli*	Northern Giant Petrel	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat
59398	*Stagonopleura guttata*	Diamond Firetail	Bird	Likely	Species or species habitat likely to occur within area	Vulnerable					Species Profile and Threat Database (SPRAT)	In feature area	More suitable habitat not imapcted and not recorded during assessment. Impact expected to negligible.
66472	*Thalassarche*	Black-browed Albatross	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat
1765	*Chelonia mydas*	Green Turtle	Reptile	May	Species or species	Vulnerable	Migratory	Migratory Marine	Listed		Species Profile and	In buffer area only	Not relevent habitat
470	*Grantiella picta*	Painted Honeyeater	Bird	May	Species or species habitat may occur within area	Vulnerable					Species Profile and Threat Database (SPRAT)	In feature area	Not relevent habitat. Nrarest record over 300km away
64462	*Thalassarche steadi*	White-capped Albatross	Bird	Known	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat
64464	*Thalassarche carteri*	Indian Yellow-nosed Albatross	Bird	Likely	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat
90381	*Thinornis cucullatus*	Eastern Hooded Plover, Eastern	Bird	Known	Species or species	Vulnerable			Listed - overfly marine		Species Profile and	In buffer area only	Not relevent habitat
877	*Charadrius*	Greater Sand Plover, Large Sand	Bird	Known	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area	Not relevent habitat
874	*Calidris acuminata*	Sharp-tailed Sandpiper	Bird	May	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area	Not relevent habitat
56344	*Swainsona pyrophila*	Yellow Swainson-pea	Plant	May	Species or species habitat may occur within area	Vulnerable					Species Profile and Threat Database (SPRAT)	In feature area	Not suitable habitat
54993	*Caladenia brumalis*	Winter Spider-orchid	Plant	May	Species or species	Vulnerable					Species Profile and	In feature area	Not relevent habitat
82651	*Ardenna grisea*	Sooty Shearwater	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed (as Puffinus		Species Profile and	In buffer area only	Not relevent habitat
89223	*Diomedea exulans*	Wandering Albatross	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat
89221	*Diomedea epomophora*	Southern Royal Albatross	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat
863	*Gallinago hardwickii*	Latham's Snipe, Japanese Snipe	Bird	May	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area	Not relevent habitat
726	*Neophema chrysostoma*	Blue-winged Parrot	Bird	Likely	Species or species habitat likely to occur within area	Vulnerable			Listed - overfly marine area		Species Profile and Threat Database (SPRAT)	In feature area	More suitable habitat not imapcted and not recorded during assessment. Impact expected to negligible.
12348	*Olearia pannosa*	Silver Daisy-bush, Silver-leaved	Plant	Known	Species or species	Vulnerable					Species Profile and	In buffer area only	Not relevent habitat
7997	*Pterostylis xerophila*	Desert Greenhood	Plant	May	Species or species	Vulnerable					Species Profile and	In feature area	Not relevent habitat
855	*Calidris canutus*	Red Knot, Knot	Bird	Known	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area	Not relevent habitat
64454	*Amytornis textilis myall*	Western Grasswren (Gawler	Bird	May	Species or species	Vulnerable					Species Profile and	In feature area	Not relevent habitat
64459	*Thalassarche impavida*	Campbell Albatross, Campbell	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat
64458	*Diomedea antipodensis*	Antipodean Albatross	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only	Not relevent habitat

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Listed Migratory Species [Resource Information]

				Presence								
Species ID	Scientific Name	Common Name	Class	Rank	Text	Threatened Category	Migratory Status	Migratory Category	Marine Status	Cetacean Status	Website	Buffer Status
38	*Megaptera*	Humpback Whale	Mammal	May	Species or species		Migratory	Migratory Marine		Cetacean	Species Profile and	In buffer area only
39	*Caperea marginata*	Pygmy Right Whale	Mammal	May	Species or species		Migratory	Migratory Marine		Cetacean	Species Profile and	In buffer area only
1768	*Dermochelys coriacea*	Leatherback Turtle,	Reptile	Known	Species or species	Endangered	Migratory	Migratory Marine	Listed		Species Profile and	In buffer area only
832	*Tringa nebularia*	Common Greenshank,	Bird	Likely	Species or species	Endangered	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
59309	*Actitis hypoleucos*	Common Sandpiper	Bird	Known	Species or species		Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area
64470	*Carcharodon*	White Shark, Great	Shark	Known	Species or species	Vulnerable	Migratory	Migratory Marine			Species Profile and	In buffer area only
1075	*Phoebetria fusca*	Sooty Albatross	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
678	*Apus pacificus*	Fork-tailed Swift	Bird	Likely	Species or species		Migratory	Migratory Marine Birds	Listed - overfly marine		Species Profile and	In feature area
1061	*Macronectes halli*	Northern Giant Petrel	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
66472	*Thalassarche*	Black-browed Albatross	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
1060	*Macronectes giganteus*	Southern Giant-Petrel,	Bird	May	Species or species	Endangered	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
1765	*Chelonia mydas*	Green Turtle	Reptile	May	Species or species	Vulnerable	Migratory	Migratory Marine	Listed		Species Profile and	In buffer area only
1763	*Caretta caretta*	Loggerhead Turtle	Reptile	Known	Species or species	Endangered	Migratory	Migratory Marine	Listed		Species Profile and	In buffer area only
83288	*Lamna nasus*	Porbeagle, Mackerel	Shark	Likely	Species or species		Migratory	Migratory Marine			Species Profile and	In buffer area only
64462	*Thalassarche steadi*	White-capped Albatross	Bird	Known	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
64464	*Thalassarche carteri*	Indian Yellow-nosed	Bird	Likely	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
43	*Lagenorhynchus*	Dusky Dolphin	Mammal	May	Species or species		Migratory	Migratory Marine		Cetacean	Species Profile and	In buffer area only
877	*Charadrius*	Greater Sand Plover,	Bird	Known	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area
874	*Calidris acuminata*	Sharp-tailed Sandpiper	Bird	May	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area
40	*Eubalaena australis*	Southern Right Whale	Mammal	Known	Breeding known to	Endangered	Migratory (as Balaena	Migratory Marine		Cetacean	Species Profile and	In buffer area only
844	*Limosa lapponica*	Bar-tailed Godwit	Bird	Known	Species or species		Migratory	Migratory Wetlands	Listed		Species Profile and	In buffer area only
82651	*Ardenna grisea*	Sooty Shearwater	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed (as Puffinus		Species Profile and	In buffer area only
89224	*Thalassarche cauta*	Shy Albatross	Bird	Likely	Foraging, feeding or	Endangered	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
89223	*Diomedea exulans*	Wandering Albatross	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
89221	*Diomedea epomophora*	Southern Royal	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
863	*Gallinago hardwickii*	Latham's Snipe,	Bird	May	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
882	*Charadrius veredus*	Oriental Plover, Oriental	Bird	May	Species or species		Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
847	*Numenius*	Eastern Curlew, Far	Bird	May	Species or species	Critically Endangered	Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area
82404	*Ardenna carneipes*	Flesh-footed	Bird	Likely	Foraging, feeding or		Migratory	Migratory Marine Birds	Listed (as Puffinus		Species Profile and	In buffer area only
858	*Calidris melanotos*	Pectoral Sandpiper	Bird	May	Species or species		Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
855	*Calidris canutus*	Red Knot, Knot	Bird	Known	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
856	*Calidris ferruginea*	Curlew Sandpiper	Bird	May	Species or species	Critically Endangered	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
644	*Motacilla flava*	Yellow Wagtail	Bird	May	Species or species		Migratory	Migratory Terrestrial	Listed - overfly marine		Species Profile and	In feature area
35	*Balaenoptera edeni*	Bryde's Whale	Mammal	May	Species or species		Migratory	Migratory Marine		Cetacean	Species Profile and	In buffer area only
642	*Motacilla cinerea*	Grey Wagtail	Bird	May	Species or species		Migratory	Migratory Terrestrial	Listed - overfly marine		Species Profile and	In feature area
64459	*Thalassarche impavida*	Campbell Albatross,	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
64458	*Diomedea antipodensis*	Antipodean Albatross	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only

Commonwealth Lands

[Resource Information]

Commonwealth Land	Commonwealth Land	Agency	State

Commonwealth Heritage Places

[Resource Information]

Place ID	Place Name	State	Heritage Class	Legal Status	Website

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Listed Marine Species [Resource Information]

				Presence								
Species ID	Scientific Name	Common Name	Class	Rank	Text	Threatened Category	Migratory Status	Migratory Category	Marine Status	Cetacean Status	Website	Buffer Status
799	*Sterna striata*	White-fronted Tern	Bird	May	Migration route may				Listed		Species Profile and	In feature area
21	*Arctocephalus pusillus*	Australian Fur-seal,	Mammal	May	Species or species				Listed		Species Profile and	In buffer area only
77037	*Rostratula australis*	Australian Painted Snipe	Bird	Likely	Species or species	Endangered			Listed - overfly marine		Species Profile and	In feature area
20	*Arctocephalus forsteri*	Long-nosed Fur-seal,	Mammal	May	Species or species				Listed		Species Profile and	In buffer area only
1768	*Dermochelys coriacea*	Leatherback Turtle,	Reptile	Known	Species or species	Endangered	Migratory	Migratory Marine	Listed		Species Profile and	In buffer area only
59660	*Phalacrocorax*	Black-faced Cormorant	Bird	Likely	Foraging, feeding or				Listed		Species Profile and	In buffer area only
832	*Tringa nebularia*	Common Greenshank,	Bird	Likely	Species or species	Endangered	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
59309	*Actitis hypoleucos*	Common Sandpiper	Bird	Known	Species or species		Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area
66277	*Stigmatopora nigra*	Widebody Pipefish,	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66276	*Stigmatopora argus*	Spotted Pipefish, Gulf	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
83425	*Chalcites osculans*	Black-eared Cuckoo	Bird	Likely	Species or species				Listed - overfly marine		Species Profile and	In feature area
1075	*Phoebetria fusca*	Sooty Albatross	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
66278	*Stipecampus cristatus*	Ringback Pipefish, Ring-	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66251	*Lissocampus runa*	Javelin Pipefish	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
22	*Neophoca cinerea*	Australian Sea-lion,	Mammal	May	Species or species	Endangered			Listed		Species Profile and	In buffer area only
678	*Apus pacificus*	Fork-tailed Swift	Bird	Likely	Species or species		Migratory	Migratory Marine Birds	Listed - overfly marine		Species Profile and	In feature area
66243	*Histiogamphelus*	Rhino Pipefish,	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
1066	*Pachyptila turtur*	Fairy Prion	Bird	Likely	Species or species				Listed		Species Profile and	In buffer area only
66246	*Kaupus costatus*	Deepbody Pipefish,	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66245	*Hypselognathus*	Knifesnout Pipefish,	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66248	*Leptoichthys fistularius*	Brushtail Pipefish	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
1061	*Macronectes halli*	Northern Giant Petrel	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
66249	*Lissocampus caudalis*	Australian Smooth	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66472	*Thalassarche*	Black-browed Albatross	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
1060	*Macronectes giganteus*	Southern Giant-Petrel,	Bird	May	Species or species	Endangered	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
1765	*Chelonia mydas*	Green Turtle	Reptile	May	Species or species	Vulnerable	Migratory	Migratory Marine	Listed		Species Profile and	In buffer area only
66252	*Maroubra perserrata*	Sawtooth Pipefish	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
1763	*Caretta caretta*	Loggerhead Turtle	Reptile	Known	Species or species	Endangered	Migratory	Migratory Marine	Listed		Species Profile and	In buffer area only
943	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	Bird	Likely	Species or species				Listed		Species Profile and	In feature area
66268	*Phyllopteryx taeniolatus*	Common Seadragon,	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66269	*Pugnaso curtirostris*	Pugnose Pipefish, Pug-	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66267	*Phycodurus eques*	Leafy Seadragon	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66265	*Notiocampus ruber*	Red Pipefish	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
670	*Merops ornatus*	Rainbow Bee-eater	Bird	May	Species or species				Listed - overfly marine		Species Profile and	In feature area
64462	*Thalassarche steadi*	White-capped Albatross	Bird	Known	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
64464	*Thalassarche carteri*	Indian Yellow-nosed	Bird	Likely	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
66217	*Filicampus tigris*	Tiger Pipefish	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
90381	*Thinornis cucullatus*	Eastern Hooded Plover,	Bird	Known	Species or species	Vulnerable			Listed - overfly marine		Species Profile and	In buffer area only
66185	*Acentronura australe*	Southern Pygmy	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66193	*Campichthys tryoni*	Tryon's Pipefish	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
877	*Charadrius*	Greater Sand Plover,	Bird	Known	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area
874	*Calidris acuminata*	Sharp-tailed Sandpiper	Bird	May	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area
844	*Limosa lapponica*	Bar-tailed Godwit	Bird	Known	Species or species		Migratory	Migratory Wetlands	Listed		Species Profile and	In buffer area only
66521	*Bubulcus ibis*	Cattle Egret	Bird	May	Species or species				Listed - overfly marine		Species Profile and	In feature area
82651	*Ardenna grisea*	Sooty Shearwater	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed (as Puffinus		Species Profile and	In buffer area only
89224	*Thalassarche cauta*	Shy Albatross	Bird	Likely	Foraging, feeding or	Endangered	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
89223	*Diomedea exulans*	Wandering Albatross	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
89221	*Diomedea epomophora*	Southern Royal	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
863	*Gallinago hardwickii*	Latham's Snipe,	Bird	May	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
726	*Neophema*	Blue-winged Parrot	Bird	Likely	Species or species	Vulnerable			Listed - overfly marine		Species Profile and	In feature area
882	*Charadrius veredus*	Oriental Plover, Oriental	Bird	May	Species or species		Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
87735	*Thinornis cucullatus*	Hooded Plover, Hooded	Bird	Known	Species or species				Listed - overfly marine		Species Profile and	In buffer area only
66284	*Vanacampus phillipi*	Port Phillip Pipefish	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66285	*Vanacampus*	Longsnout Pipefish,	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66286	*Vanacampus vercoi*	Verco's Pipefish	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66235	*Hippocampus*	Short-head Seahorse,	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
847	*Numenius*	Eastern Curlew, Far	Bird	May	Species or species	Critically Endangered	Migratory	Migratory Wetlands	Listed		Species Profile and	In feature area
82404	*Ardenna carneipes*	Flesh-footed	Bird	Likely	Foraging, feeding or		Migratory	Migratory Marine Birds	Listed (as Puffinus		Species Profile and	In buffer area only
858	*Calidris melanotos*	Pectoral Sandpiper	Bird	May	Species or species		Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
855	*Calidris canutus*	Red Knot, Knot	Bird	Known	Species or species	Vulnerable	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
856	*Calidris ferruginea*	Curlew Sandpiper	Bird	May	Species or species	Critically Endangered	Migratory	Migratory Wetlands	Listed - overfly marine		Species Profile and	In feature area
644	*Motacilla flava*	Yellow Wagtail	Bird	May	Species or species		Migratory	Migratory Terrestrial	Listed - overfly marine		Species Profile and	In feature area
66274	*Solegnathus robustus*	Robust Pipehorse,	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
642	*Motacilla cinerea*	Grey Wagtail	Bird	May	Species or species		Migratory	Migratory Terrestrial	Listed - overfly marine		Species Profile and	In feature area
64459	*Thalassarche impavida*	Campbell Albatross,	Bird	May	Species or species	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only
66227	*Heraldia nocturna*	Upside-down Pipefish,	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66283	*Vanacampus*	Mother-of-pearl Pipefish	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
66282	*Urocampus carinirostris*	Hairy Pipefish	Fish	May	Species or species				Listed		Species Profile and	In buffer area only
64458	*Diomedea antipodensis*	Antipodean Albatross	Bird	Likely	Foraging, feeding or	Vulnerable	Migratory	Migratory Marine Birds	Listed		Species Profile and	In buffer area only

Back to Summary

Whales and Other Cetaceans [Resource Information]

				Presence								
Species ID	**Scientific Name**	**Common Name**	**Class**	**Rank**	**Text**	**Threatened Category**	**Migratory Status**	**Migratory Category**	**Marine Status**	**Cetacean Status**	**Website**	**Buffer Status**
38	*Megaptera*	Humpback Whale	Mammal	May	Species or species		Migratory	Migratory Marine		Cetacean	Species Profile and	In buffer area only
39	*Caperea marginata*	Pygmy Right Whale	Mammal	May	Species or species		Migratory	Migratory Marine		Cetacean	Species Profile and	In buffer area only
68418	*Tursiops aduncus*	Indian Ocean Bottlenose	Mammal	Likely	Species or species					Cetacean	Species Profile and	In buffer area only
43	*Lagenorhynchus*	Dusky Dolphin	Mammal	May	Species or species		Migratory	Migratory Marine		Cetacean	Species Profile and	In buffer area only
40	*Eubalaena australis*	Southern Right Whale	Mammal	Known	Breeding known to	Endangered	Migratory (as Balaena	Migratory Marine		Cetacean	Species Profile and	In buffer area only
60	*Delphinus delphis*	Common Dolphin, Short-	Mammal	May	Species or species					Cetacean	Species Profile and	In buffer area only
35	*Balaenoptera edeni*	Bryde's Whale	Mammal	May	Species or species		Migratory	Migratory Marine		Cetacean	Species Profile and	In buffer area only
68417	*Tursiops truncatus s.*	Bottlenose Dolphin	Mammal	May	Species or species					Cetacean	Species Profile and	In buffer area only

Critical Habitats [Resource Information]

Critical Habitat ID	Critical Habitat Name	Presence	Website

Commonwealth Reserves Terrestrial [Resource Information]

Protected Area ID	Protected Area Name	Reserve Type	State	Jurisdiction	Environment

Australian Marine Parks [Resource Information]

Zone ID	Park Name	Zone & IUCN	Network

Habitat Critical to the Survival of Marine Turtles [Resource Information]

Species ID	Scientific Name	Common Name	Behaviour	Presence	Season	Website

State and Territory Reserves [Resource Information]

Protected Area ID	Protected Area Name	Reserve Type	State	Jurisdiction	Environment	Buffer Status
033	Franklin Harbor	Marine Park	SA	State	Marine	In buffer area only

Regional Forest Agreements [Resource Information]

RFA Region	State	Website

Nationally Important Wetlands [Resource Information]

Reference Code	Wetland Name	State	Website

EPBC Act Referrals [Resource Information]

Reference Number	Title of referral	Jurisdiction	Industry Type	Stage	Stage Description	Referral Outcome	Website	Buffer Status
2017/7996	INDIGO Marine Cable	CM	Telecommunications	Post-Approval	Referral Decision Made	Not Controlled Action	EPBC Referral List	In feature area
2023/09717	Northern Water	SA	Water Management and	Referral Decision	Completed		EPBC Referral List	In feature area
2015/7522	Improving rabbit	NSW	Natural Resources	Completed	Referral Decision Made	Not Controlled Action	EPBC Referral List	In feature area
2017/8127	INDIGO Central	NSW	Telecommunications	Completed	Referral Decision Made	Not Controlled Action	EPBC Referral List	In feature area

Key Ecological Features [Resource Information]

Name	Region	Website

Biologically Important Areas [Resource Information]

Species ID	Scientific Name	Common Name	Species Group	Behaviour	Presence	Website	Buffer Status
82652	Ardenna tenuirostris	Short-tailed Shearwater	Seabirds	Foraging (in high	Likely to occur	Species Profile and	In buffer area only
59660	Phalacrocorax	Black-faced Cormorant	Seabirds	Foraging	Known to occur	Species Profile and	In buffer area only
82949	Sternula nereis	Fairy Tern	Seabirds	Foraging	Known to occur	Species Profile and	In buffer area only

Bioregional Assessments [Resource Information]

SubRegion	BioRegion	Website

Geological and Bioregional Assessments [Resource Information]

Name	State	Website

Report Metadata

Request Type	pmst2_exp
Request Category	jasper studio
Request Parameters	json
Request time	9:32PM
Request date	11 April 2024

Caveat

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation (EPBC) Act 1999. The report provides the mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species, listed threatened ecological communities and other information could be useful as an indicator of potential habitat value. The mapped locations have been collated from a range of data sources at various resolutions as acknowledged at the end of this report.

Not all species listed under the EPBC Act have been mapped (see below) and therefore this report is a general guide only. Where data is available to support mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information to inform a referral may need to consider the qualifications below and may need to seek and consider other information sources.
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery, thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps, thematic spatial data and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived 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 point locations and environmental data layers.

Where very little information is available for species or a large number of maps are required in a short time-frame, maps are derived or supplemented either with 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

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered vagrants
- some recently listed species and ecological communities – as there may be a delay of several days in the mapping being made available for reporting after a listing event
- some terrestrial species that overfly the Commonwealth marine area
- some listed migratory and listed marine species, which are not listed as threatened species
- migratory species that are very widespread, vagrant, or only occur 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, may only have been mapped for recorded breeding sites
- seals which may 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.

Nationally Important Wetlands are not a Matter of National Environmental Significance and do not have protection under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). They may however provide habitat and support other listed species that are protected under the EPBC Act.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Appendix E – Resource Investigation Logs

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SURFACE SOIL BORELOG

DATE:	13/3/24 **JOB NO: Geo2009**	**SAMPLE METHOD:**	Hyd Push Tube/Portable Push Tube/Hand Auger/**Auger** (**AV** or AR)
CLIENT:	Story's Sands	**LOGGED BY:**	IN-DEPTH Drilling
SITE ADDRESS:	**Pt Lincoln Hwy, Cowell**		

HORIZON DEPTH (METRES) BH.1	HORIZON DEPTH (METRES) BH.2	SOIL DESCRIPTION	SOIL COLOUR	UNIFIED SYMBOL (USCS)	MOISTURE CONTENT	CONSISTENCY / DENSITY	PLASTICITY/ REACTIVITY	BEARING CAPACITY	ESTIMATED Ips Value
0-0.2	0-0.25	Gravelly SAND, fine-Med grained, silt fines	Pale grey brown	SP	Dry	Loose/Friable	NP	Low	-----
0.2-1.1	0.25-0.95	SAND, fine Silt. small alluvial gravel (fine-Med)	Pale Brown	SW	Dry	Loose	NP	Med	-----
1.1-3.8	0.95-3.4	SAND, fine-Med grained, 10-20mm	Orange brown	SP/SW	Dry/SM	Dense/Friable	NP	Med	-----
3.8-6.5	3.4-4.7	Sand (med grained) alluvial gravel 10-15mm	Pale orange brown	SP/SW	SM	Dense	NP	Med	-----
	4.7-6.4	Sand (fine grained) 5-10mm	Pale grey brown	SW	SM	Dense	NP	High	-----
6.5-8.5	6.4-7.3	Gravelly SAND 30-40mm	Pale orange brown	GC	SM	Med Dense	NP	Med/High	-----
	7.3-8.1	Clayey SAND, gravels (5-10mm)	Red orange brown	SC	Dry	Dense	Low/med	High	0.012
8.5-10		Clayey SAND, fine alluvial gravels	Orange brown	SC	Dry	Dense	Low	Med/High	0.010
	8.1-9.4	Sandy CLAY, fine gravels (5-10mm)	Dark orange brown	CL	<=PL	Firm	Med	Med/High	0.018

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SURFACE SOIL BORELOG

DATE:	13/3/24 **JOB NO: Geo2009**	**SAMPLE METHOD:**	Hyd Push Tube/Portable Push Tube/Hand Auger/**Auger** (**AV** or AR)
CLIENT:	Story's Sands	**LOGGED BY:**	IN-DEPTH Drilling
SITE ADDRESS:	**Pt Lincoln Hwy, Cowell**		

HORIZON DEPTH (METRES) BH.3	HORIZON DEPTH (METRES) BH.4	SOIL DESCRIPTION	SOIL COLOUR	UNIFIED SYMBOL (USCS)	MOISTURE CONTENT	CONSISTENCY / DENSITY	PLASTICITY/ REACTIVITY	BEARING CAPACITY	ESTIMATED Ips Value
0-0.3	0-0.25	Gravelly SAND, fine-Med grained, silt fines	Pale grey brown	SP	Dry	Loose/Friable	NP	Low	-----
0.3-1.1	0.25-1.0	SAND, fine Silt. small alluvial gravel (fine-Med)	Pale Brown	SW	Dry	Loose	NP	Med	-----
1.1-3.2	1.0-2.7	SAND, fine-Med grained, 10-20mm	Orange brown	SP/SW	Dry/SM	Dense/Friable	NP	Med	-----
3.2-3.7	2.7-3.2	Clayey SAND, gravels (5-10mm)	Red orange brown	SC	Dry	Dense	Low/med	High	0.012
3.7-4.2		Clayey SAND, fine alluvial gravels	Orange brown	SC	Dry	Dense	Low	Med/High	0.010
4.2-6.0		Sandy CLAY, fine gravels (5-10mm)	Dark orange brown	CL	<=PL	Firm	Med	Med/High	0.018