Extractive Minerals Lease Proposal for Mineral Claim 4537

Butcher's Sand Pit

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14 January 2022
Ref: 20192018R003

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Building exceptional outcomes together

Document History and Status

Rev	Description	Author	Reviewed	Approved	Date
A	Draft for internal revision	AMT	MRS		28/06/2021
B	Draft for client review	AMT	MRS	JV	08/07/2021
0	For client issue	AMT	MRS	JV	09/07/2021
1	For client issue	AMT	MRS	JV	12/07/2021
C	Draft for discussion with DEM	AMT	MRS		12/11/2021
D	Draft updated with DEM Comments	AMT	MRS		22/12/2021
2	For client issue	AMT	MRS	JV	14/01/2021

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Client: Sandyridge Holdings Pty Ltd
Ref: 20192018R003

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1 Introduction

This Mining Proposal (MP) has been prepared following the registration of Mineral Claim (MC) 4537. MC 4597 is contained within former Section 381 (now Allotment 22, Deposited Plan 1608 in the Hundred of Blanche (Certificate of Title: Vol. 5104 Fol. 614; Appendix A). The site (331 Cafpirco Rd, Compton 5291) contains two existing mining tenements (Private Mine 310 and Extractive Mineral Lease 5990) held and operated by the current landowners – Sandyridge Holdings Pty Ltd. Locally the site is known as Butcher's Sand Pit and is located approximately 6 km west of Mount Gambier, with site access gained via Cafpirco Road. The site is surrounded by several small farm holdings.

The commodity being mined at the site is sand and limestone. PM 310 was gazetted on 8 July 1976 and sand extraction was commenced sometime after that by Gambier Earth Movers (GEM). In November 1984, in conjunction with the existing sand extraction operations, GEM obtained Council approval to operate a solid waste landfill at the site. Prior application had been made to the Department of Mines and Energy SA, who recommended the site suitable for the disposal of non-organic and non-chemical refuse on 17 July 1984. J.E. Butcher purchased the site in 1997 and extended the sand extraction area within the site with the granting of Extractive Minerals Lease 5990, resulting in the site name of Butcher's Sand Pit. A further change of ownership occurred in 2005 when the site was purchased by A.P. and J.A. Verhoeven. On 12 January 2018 Sandyridge Holdings Pty Ltd purchased the site including the mining and landfill operations. Sandyridge Holdings Pty Ltd are the registered freehold landowners of the property.

Existing tenement approval is contained in Approved Development Programme (ADP No. 42/97) dated 2 October 1997. Mining development within PM 310 and EML 5990 has been concentrated in the south eastern corner of the tenements. As a result of mining activity by the previous owners, some quarry development has occurred beyond the southern boundary of the existing tenements. The workings outside of the tenement boundary are not more than 3 metres deep and are contained within the boundary of the landowner's property (Allotment 22).

Once aware of this irregularity, the Department for Energy and Mining (DEM) was consulted, and it was agreed that a new Mineral Claim should be pegged over the small existing EML 5990 for the purpose of incorporating current workings and stockpiles outside of the tenement boundaries. It was further agreed that the new Mineral Claim should also extend to include a small area north of existing EML 5990 for additional resource extraction (Figure 1).

Current annual production is around 13,000 tonnes per annum (TPA). Reserves within the current mining tenements are diminishing, and proposed MC 4537 will provide an increased area for extraction that is estimated to provide sufficient material and landfill capacity for at least another 100 years.

Excavated areas will be progressively rehabilitated with terminal faces backfilled with clean solid fill waste (EPA licensed activity), battered down and compacted to form a stable final slope angle of 1 in 3 or less. Going forward, future terminal faces will be progressively rehabilitated in a similar manner, working towards an end use that returns the site to its pre-mining, cropping and grazing land use.

This Mining Proposal describes the proposed development within MC 4537 which is part of the Butcher's Sand Pit.

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Job Number: 20192018
Revision: C
Date: 12.11.21
Drawn: AMT

Data Acknowledgement:
Aerial from MetroMaps, Accessed 21.04.21
Elevation from NASA JPL, 2013. NASA Shuttle Radar Topography Mission Global 1 arc second. NASA EOSDIS Land Processes DAAC. Accessed 21.04.21 from https://doi.org/10.5067/MEaSUREs/SRTM/SRTMGL1.003

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Sandyridge EMLA MC 4537
Site Layout and Completion Map
1:5000

EPSG:28354

2 Declaration of Accuracy

I, Anthony Weinberg, on behalf of Sandyridge Holdings Pty Ltd, the applicant, have taken the following steps to review the information in this application to ensure its accuracy:

- Engaged a reputable consultant with experience in environmental assessment
- Contributed to operational aspects of the document
- Reviewed the document as endorsed by senior management.

Applicant Name: ANTHONY WEINBERG

Position: MANAGER

Date: 14/1/22

Signature:

3 Description of the Environment

3.1 Topography and Landscape

The landscape is described as the Mount Gambier Southern Volcanic Plain (SVP02) IBRA subregion, which comprises "swampy coastal plain with clayey lagoon deposits. Swampy plain overlain in large areas by gentle dunes and sheets of white arid sand. Adjacent to the coast indurated dunes of calcareous sand and dunes of orange sand" (NatureMaps, 2021). MC 4537 is located on the lower south-eastern side of an undulating dune that rises to an elevation of ~ 65 mAHD (Australian Height Datum). The site is located on a topographic high and falls from an elevation of ~ 53 to 45 mAHD. The surrounding landscape is predominantly comprised of pastures used for stock grazing.

The current irregular shaped pit is situated across the south-eastern portion of PM 310 and the southern portion of EML 5990 (Figure 1). The pit footprint is ~ 155 m (east-west) by 125 m (north-south) with an average depth below ground level of ~ 5 m (i.e. 38-42 mAHD). The deepest part of the current pit development is located in the south-eastern corner of PM 310 at approx. 35 m AHD. The existing pit forms a depression in the landscape generally screening views from surrounding properties. The proposed development of MC 4537 will extend the current pit within existing EML 5990 firstly in a northerly direction and abutting the eastern boundary of PM 310, before being developed southwards.

3.2 Climate

The site is situated in a mild temperate zone[1] characterised by distinct dry and warm summers and cool winters. The nearest Bureau of Meteorology (BOM) meteorological station is located at Mount Gambier Airport (Mount Gambier Aero - Station 026021), 11. 2km northeast of the site. Key monthly climate statistics from 1942 to 2011 (where available) for this station are shown in Figure 2 and can be summarised as follows:

- Mean annual rainfall is 713 mm
- Mean number of rain days > 1 mm occur 119 days per year.
- Average temperatures are generally highest during January and February with a mean maximum daily temperature of around 25 °C. The maximum summer temperature recorded is 42°C. Winters are generally cold and wet with a mean minimum daily temperature of 5.2°C recorded in July.
- Mean 3 pm wind speeds (range: 16.9-24.3 km/h) are consistently greater than mean 9 am wind speeds (range: 12.4-19.4 km/h). Local trends in wind direction were assessed using the BOM wind rose diagrams from Mount Gambier Aero (Appendix B). During summer, southerly winds tend to dominate in the morning and afternoon. During the winter, northerly winds tend to dominate during the morning and afternoon (with westerly winds intensifying in the winter afternoons).

[1] Australian Building Codes Board, 2019. Australia Climate Zone Map (Ver. 31.3). https://www.abcb.gov.au/Resources/Tools-Calculators/Climate-Zone-Map-Australia-Wide

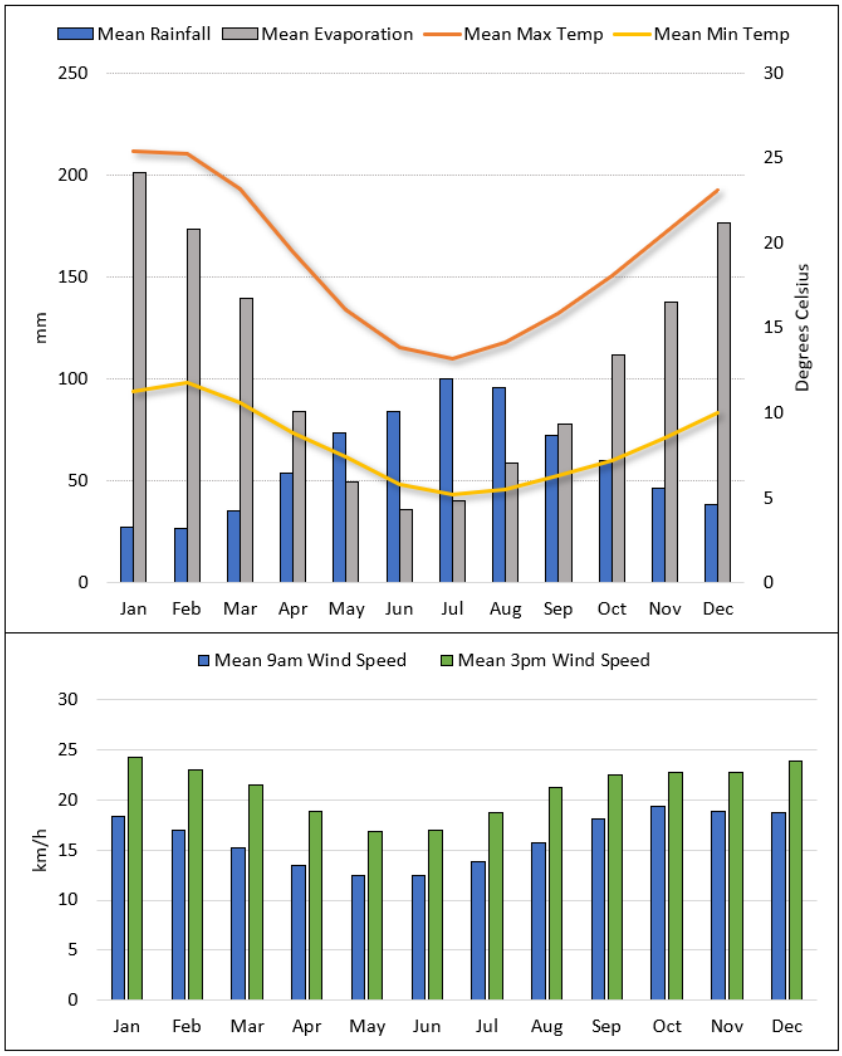

Figure 2 Key Monthly Climate Statistics for Mount Gambier Aero Weather Station.

3.3 Topsoil and Subsoil

The site is located in the Caroline Land System[2]: an ancient dune field characterised by low dunes and sand plains featuring deep leached siliceous sands and rises featuring shallow soils over calcreted calcarenite. The soil is less than 100-200 cm thick and comprises a well-drained, brown to red weakly structured sandy soil overlying dune sand of varying depth up to ~ 11 metres with underlying limestone rock.

The main soil types are Sandy Bleached Tenosol (H3- bleached siliceous sand) and Aeric Podosol (I1 – high leached sand)[2]. The soil is characterised by deep to moderately deep sand with a dark grey to brown sandy surface underlain by a bleached white to pinkish grey, strongly acidic sand and then a light brown to yellow sandy subsoil, which may be strongly acidic. The topsoil is typically non-calcareous with very low fertility and may be acidic. The sandy topsoil is likely to be easily eroded by wind but the high permeability limits the potential for water erosion. The high permeability and low buffering

[2] DWLBC. 2007. Regional Land Resource Information for Southern South Australia. Department of Land Water and Biodiversity Conservation.

capacity tend to result in acidification due to the low buffering capacity. The soil relies on the accumulation of organic matter to improve fertility in the topsoil.

The upper 0.5-1 m (nominal) is overburden and extracted from existing mineral leases is stockpiled above the northern, western and southern faces of the pit. The deeper sand is one of the materials quarried so a deficit of soil profile is available for rehabilitation. The crushing of inert wastes (concrete, bricks, etc.) and acceptance of clean fill provides a backfill material. The crushed inert waste would have a sandy texture. Its use as backfill is likely to provide a similar growing medium as the indigenous siliceous sands.

The potential for water repellence and Acid Sulfate Soil (ASS) at Butcher's Sandpit was assessed using the *Soil Water Repellence*[3] and *Acid Sulfate Soil Potential*[4] datasets developed by the Department for Environment and Water (DEW) and made available for public access through the South Australian Government Data Directory (Data SA). MC 4537 is located on the boundary of two soil mapping units: CROLFC and CRLOMD. Both these units are classed as *Repellent* (water takes longer than 10 seconds to be absorbed), and *Negligible* in terms of the potential for the development of ASS. Despite the likelihood of water repellent soils, typical signs associated with water repellent soils (e.g. surface erosion, and patchy pasture growth) do not appear to be present on the property.

3.4 Geological Environment

The dominant stratigraphic units in the area are the Bridgewater Formation and the Gambier Limestone (Figure 3), which are described in detail by Grimes (1994)[5] and a summary provided in Table 3.1. The Bridgewater Formation are stranded dunes, primarily characterised by poorly consolidated, calcareous sand derived from an ancient coastal dune system (~0.78-0.01 Ma). The underlying Gambier Limestone is characterised by fossiliferous limestone (massive to well-bedded) derived from an open marine shelf (~ 33.9-15.9 Ma). As discussed in Section 3.10, karstic features (e.g. caves, dolines/sinkhole, cenotes, and uvalas) are very common throughout the Limestone Coast region; but have not been encountered on site. The Gambier Limestone is up to 400 m thick offshore and relatively shallow (< 100 m) around the Gambier region (due to the volcanogenic Tarpeena-Dartmoor Upwarp), where it is underlain by members of the Dilwyn Formation such as the Burrungule Member (Grimes, 1994). The Burrungule member (~56-41 Ma) is characterised by carbonaceous clay with occasional silt and coarse sand interbeds[6].

No geological drilling has been conducted to determine the thickness and distribution of the sand and limestone layers across MC 4537. The driller's log from the groundwater well (7022-10925) – installed by the DEW – within MC 4537 can be used to infer the thickness of these layers. The sand layer was found to occur between 1-12 mbgl (~ 44-33 mAHD), while the limestone was present from 12 mbgl to the bottom of the well at 38 mbgl (33-7 mAHD) (Figure 4). The lower boundary of the limestone is anticipated to be deeper than 7 mAHD but cannot be confirmed without further investigation.

[3] Department for Environment and Water, 2018. Soil Water Repellence. https://data.sa.gov.au/data/dataset/98bd930a-9a46-4f72-a15d-e52bd748a4a0

[4] Department for Environment and Water, 2018. Acid Sulfate Soil Potential. https://data.sa.gov.au/data/dataset/b858a5ba-e4e3-4daf-baff-40a9070092b0

[5] Grimes, K.G., 1994. The South-east Karst province of South Australia. *Environmental Geology*, 23(2).

[6] Australian Stratigraphic Units Database, 2021. Gambier Limestone. https://asud.ga.gov.au/search-stratigraphic-units/results/6976

Legend

- Land Parcel
- MC 4537
- EML 5990
- PM 310

Geological Unit

- Bridgewater Formation
- Gambier Limestone

0 100 200 300 m

N

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Job Number: 20192018
Revision: C
Date: 12.11.21
Drawn: AMT

Data Acknowledgement:
Aerial from MetroMaps, Accessed 21.04.21
Geology from The Department for Energy and Mining, the Government of South Australia, 100K Geology - Surface Geology, Accessed on 23.04.21, https://catalog.sarig.sa.gov.au/geonetwork/srv/eng/catalog.search#/metadata/e27f9a25-b749-4dba-bfb3-ca90baf04d79

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Sandyridge EMLA MC 4537
Local Geological Map
1:5000

EPSG:28354

Table 3.1 Key Stratigraphic Units at the Site

Stratigraphic Unit	Description
Bridgewater Formation[7]	Age: Late Pleistocene (~0.78-0.01 Ma) Description: Poorly consolidated yellow pinkish-brown fine to coarse fossiliferous calcareous sand, calcarenite. Locally capped by calcrete. As coastal beach and associated aeolian dune. Forms stranded series of elongated beach ridges, subparallel to present coast. Members: Albert Park Aeolinite, Armstrong Sand, Bats Ridge, Descartes Bay, Duquesne, Moyne Alluvium, Port Fairy Calcarenite, Sunnyside Sand, and Warrnambool Aeolinite.
Gambier Limestone[8]	Age: Oligocene to Early Miocene (~ 33.9-15.9 Ma) Description: fossiliferous limestone derived from an open marine shelf. Members: Camelback, Green Point, Greenways and Naracoorte Limestone.

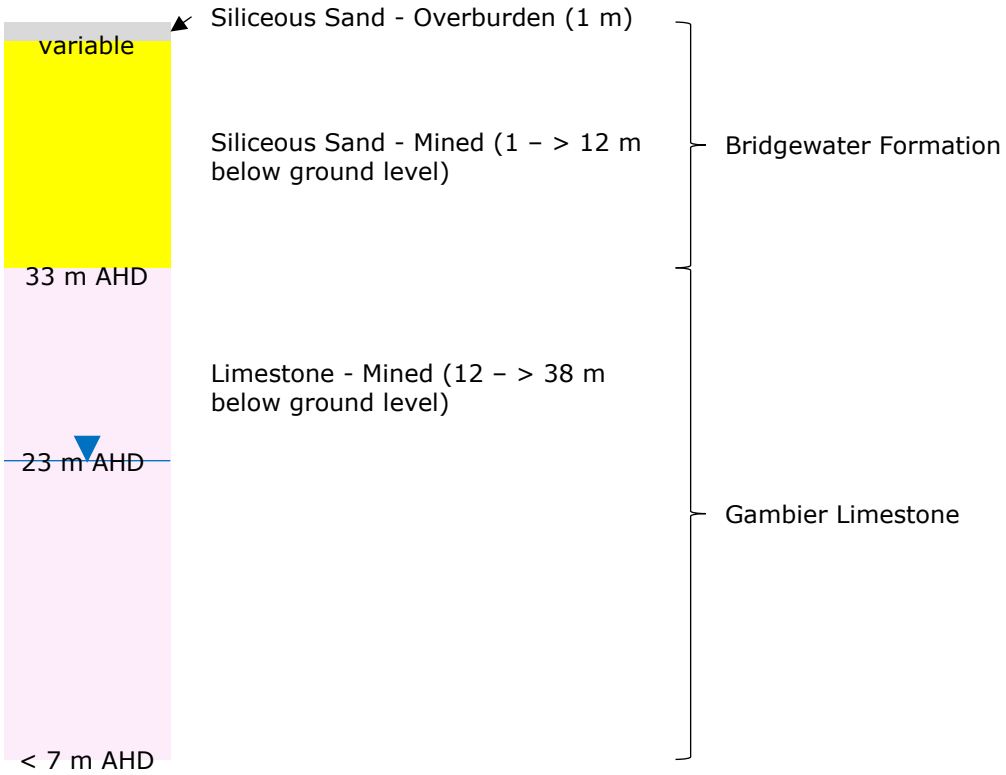

Figure 4 Representative Cross-section through Underlying Geology

[7] Australian Stratigraphic Units Database, 2021. Bridgewater Formation. Geoscience Australia, https://asud.ga.gov.au/search-stratigraphic-units/results/2543

[8] Australian Stratigraphic Units Database, 2019. Burrungule Member. Geoscience Australia, https://asud.ga.gov.au/search-stratigraphic-units/results/3162

3.5 Geohazards

3.5.1 Earthquakes and Faults

The Neotectonic Feature Database[9] shows the nearest major fault (Kanawinka Fault) is located approximately 60 km northeast. The metadata notes that The Kanawinka Fault is assumed to be active, but recent activity has not been confirmed. The west-northwest trending Tartwaup Fault (inactive) is located ~ 4.5 km north of the Mount Gambier city centre (Grimes, 1994).

The earthquake hazard potential was assessed using the *10% in 50 Year Seismic Hazard Map*[10] produced as part of the National Seismic Hazard Assessment (NSHA18). The site is located within the 0.02-0.03 g isotherm, indicating a 10% likelihood of peak ground acceleration increasing by 2-3% mean gravitational acceleration by 2068. Qualitative seismic risk brackets may be defined as follows: < 0.05 g (low); 0.05-0.1 g (moderate); 0.1-0.15 g (high); and >0.15 g (very high). Therefore, the overall risk of seismic hazards at the site is anticipated to be low.

3.5.2 Landslides

The primary factors affecting slope stability or landslide susceptibility are the number and size of faults/ joints, substrate shear strength and slope gradient. No known geotechnical investigations have been conducted at the site; however, the geological stability in unexplored areas can be roughly inferred from existing quarry pits. A steep pit face – approximately 20 tall – is located in PM 310, and demonstrates that the sand and limestone layers are highly coherent. Additionally, the sand and limestone appear massive with no observable jointing or bedding planes. Grimes (1994) indicates that bedding in the region is near-horizontal to gently-dipping. As such, the overall likelihood of landslides is anticipated to be low; however, quarry walls within MC 4537 will be maintained at a 1:3 gradient.

3.5.3 Subsidence

Subsidence is typically associated with silt- and/or clay-rich aquifers, which may greatly contract/ consolidate upon drying (e.g. due to excessive groundwater extraction) or during an earthquake. The compressibility of the sand and limestone layers is anticipated to be relatively low. Additionally, the water table is deep (~ 20-30 mbgl on site). Consequently, the likelihood of subsidence due to groundwater depletion is very unlikely. However, subsidence due to the collapse of karstic features is plausible given the high frequency of karstic features in the Mount Gambier region. Although no caves or other karstic features have been discovered on site, undiscovered subterranean voids may be present, and could collapse during an earthquake (or potentially during routine excavation). However, the majority of caves in the region tend to be thin (e.g. vertical height < 1m), narrow and long (occasionally > 100 m). Consequently, although sudden subsidence (e.g. sinkhole formation) could occur onsite, it is unlikely to occur at a scale capable of causing major damage to mining equipment or workers.

3.5.4 Liquefaction

Geologically young sands and silts, and poorly compacted fills are highly susceptible to liquefaction. Due to their high sand content, the soil and substrate on site may be susceptible to liquefaction; however, the soil and substrate are well-drained and unlikely to become saturated under normal conditions or during an earthquake. The overall likelihood of liquefaction occurring on site is negligible.

[9] Clark, D., 2012. Neotectonic Features Database. http://pid.geoscience.gov.au/dataset/ga/74056.
[10] Geoscience Australia, 2018. 10% in 50 year seismic hazard map. http://pid.geoscience.gov.au/dataset/ga/123132.

3.5.5 Hazardous Geologic Material and Acid Rock Drainage

The mineral resources (sand, limestone) and overburden (sandy soil) are noted as being highly leached. Trace amounts of metals and metalloids such as lead, arsenic and cadmium may be present but are not in concentrations likely to pose a toxicity hazard to human health and the environment. Similarly, the local and regional geology is not anticipated to contain sources of respirable crystalline silica (e.g. asbestos), radioactive minerals (e.g. uraninite) or acid-generating minerals (e.g. pyrite and alunite/jarosite). No staining or other potential indicators, such as vegetation death, corrosion, etc. have been reported on site, therefore, the potential for encountering geologic material and acid rock drainage is very low.

3.6 Hydrology

MC 4537 is not within the prescribed distance of any water resource area as defined under the *Landscape South Australia Act 2019.* Additionally, there are no naturally occurring creeks or watercourses in the vicinity of the, including the MC 4537 area. The Lower South East Wetland Inventory[11] shows two small wetland areas within a 5 km radius of MC 4537: Jangarie (1.6 km northwest), Pine Ridge (2.2 km southwest), which are more likely connected to groundwater.

Despite having an average annual rainfall of more than 700 mm, there is no discernible surface drainage pattern evident on or around Butcher's Sand Pit, including the MC 4537 area, as the high permeability of the sand results in infiltration with no runoff. If surface runoff were to form (e.g. during an extreme rainfall event), all runoff is directed toward the pit, which is the lowest elevation on site.

3.7 Groundwater

The Butcher's Sand Pit site, including MC 4537, is located within the Lower Limestone Coast Prescribed Wells Area (Amended 20 November 2015), but is not within a prescribed surface water area. Typically, an unconfined limestone aquifer is the main source of water for the region and is used for irrigation, stock and domestic and industrial purposes. The depth of the unconfined aquifer varies up to 20 m. South of Mount Gambier the thickness of the aquifer can be up to 300 m deep.

Two groundwater wells are located on site (Figure 5). Information regarding the water level and quality in these well was accessed through WaterConnect. The first well (7022-7351) was installed in 1993 and is located next to the equipment shed and noted to be used for Stock watering. The second well (7022-10925) was installed in 2013 downgradient from the oldest section of the landfill to monitor groundwater quality. Groundwater elevation records from the two well are provided in Table 3.2. The average Reduced Standing Water Levels (RSWL) at the first and second wells are 9.15 and 23.5 mAHD, respectively. Both are likely to be within the unconfined tertiary aquifer in the limestone, but the steep gradient between the wells is not able to be explained as bore logs are not available and recent data have not been collected to better understand these differences. The groundwater is non-saline (EC < 2000 µS/cm) and circumneutral (pH 6-8). Groundwater is not extracted for quarrying purposes from these wells.

[11] Taylor, B., 2006. Wetland Inventory for the Lower South East, South Australia. Department for Environment and Heritage: Mount Gambier, South Australia.

10.59
9.38
13.99
9.47
14.88
9.19
11.09
9.67
9.51
10.05
9.03
14.73
20.99
9.81
9.35
9.18
9.7
22.84
8.98
9.35
9.94
10.32
9.06
15.16

Legend

- Land Parcel
- MC 4537
- EML 5990
- PM 310
- Groundwater Wells RSWL (mAHD)

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0 100 200 300 m

N

Job Number: 20192018
Revision: C
Date: 12.11.21
Drawn: AMT

Data Acknowledgement:
Aerial from MetroMaps, Accessed 21.04.21
Well Locations and RSWL from WaterConnect, Accessed 02.07.21,
https://www.waterconnect.sa.gov.au/Systems/GD/Pages/Default.aspx

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Sandyridge EMLA MC 4537
Groundwater Map
1:5000

EPSG:28354

Table 3.2 Available Groundwater Elevation and Quality Records

Water Well	Observation Date	Ground Elevation (m AHD)	RSWL (mAHD)	pH	EC (µS/cm)
7022-7351	30.04.93	48.58	NA	7.3	805
7022-7351	21.06.02		NA	6.9	840
7022-7351	24.05.06		9.32	NA	860
7022-7351	08.05.07		NA	NA	850
7022-7351	17.06.08		NA	NA	830
7022-7351	29.06.09		NA	7.6	875
7022-7351	07.09.12		8.98	NA	NA
7022-10925	05.04.13	53.06	24.06	NA	NA
7022-10925	02.07.14		22.84	6.55	1280

Groundwater well records accessed via WaterConnect show groundwater elevation in an 800 m radius of MC 4537 typically range between 8 and 15 mAHD. Locally, groundwater is expected to move in a southern or south-easterly direction following the downward gradient from groundwater well 7022-10925 to 7022-7351. This is consistent with regional groundwater level interpolations, which suggest groundwater in the Mt Gambier region is expected to flow south towards the coast[12].

3.8 Vegetation, weeds and plant pathogens

3.8.1 Native Vegetation

Original vegetation covering the mining tenements and surrounding properties was Eucalyptus woodland with a shrubby understorey but has been cleared and sown to pasture with introduced grasses for stock grazing. Visual screening vegetation along the northern, southern and most of the eastern boundaries of the property and are a component of final site rehabilitation.

SA NatureMaps was used to search for sightings of State and Nationally rated threatened flora within a 5 km radius of MC 4537. The search returned no sightings of Sate or Nationally listed plant species. Considering the historical extensive land clearing and lack of recorded sightings in the area, the likelihood of damaging native vegetation is anticipated to be negligible.

3.8.2 Regulated and Significant Trees

There are four trees along the southern boundary of the stockpile yard that may need to be removed to facilitate mining in the southeast section of MC 4537. These trees were planted after the land was originally cleared but are likely to be regulated, with an estimated trunk circumference of ≥ 2 m. Based on estimated mineral resource supply and extraction rates (Table 4.2), the removal of these trees is not required for at least another 60 years; however, assuming the trees are still living, an appropriately qualified consultant (e.g. arborist) will be engaged to prepare the application for the removal of

[12] Department for Water, 2010. Lower Limestone Coast PWA: Groundwater Level and Salinity Status Report 2009-10. https://www.waterconnect.sa.gov.au/Content/Publications/DEW/Lower_Limestone_Coast_PWA_2009-10.pdf

regulated/ significant trees and determine the required significant Environmental Benefit offset, which include planting of additional vegetation or payment into the Native Vegetation Fund.

3.8.3 Declared Plants (Weeds)

SA NatureMaps was used to search for sightings of introduced flora within a 2 km radius of MC 4537 (Table 3.3). The only declared plant to have been recorded in the area was three-cornered garlic. Three-corned garlic typically grows along creek banks and other poorly drained areas. Consequently, there is a low likelihood of three-cornered garlic establishing on site. The surrounding pasture is likely to contain some pasture weed species; however, they are not considered an environmental threat as part of the existing land use and are adequately managed by the landholder/operators.

Table 3.3 Introduced Plant Species Recorded Within 2 km of MC 4537

Common Name	Latin Name	Status*	Likelihood of Occurrence**
Three-cornered Garlic	*Allium triquetrum*	D	Low
Cape Weed	*Arctotheca calendula*	ND	N/A
Oat	*Avena sp.*	ND	N/A
Couch	*Cynodon dactylon*	ND	N/A
Cocksfoot	*Dactylis glomerata*	ND	N/A
White-flower Fumitory	*Fumaria capreolata*	ND	N/A
Yorkshire Fog	*Holcus lanatus*	ND	N/A
Blue Barley-grass	*Hordeum glaucum*	ND	N/A
Phalaris	*Phalaris aquatica*	ND	N/A
Ribwort	*Plantago lanceolata*	ND	N/A
Winter Grass	*Poa annua*	ND	N/A
Wild Sage	*Salvia verbenaca*	ND	N/A
Dandelion	*Taraxacum officinale*	ND	N/A
Suckling Clover	*Trifolium dubium*	ND	N/A
Clover	*Trifolium sp.*	ND	N/A
Subterranean Clover	*Trifolium subterraneum*	ND	N/A

*D = declared, ND = not declared

** likelihood of a declared plant occurring at Sandyridge during mining operation

3.8.4 Phytophthora

The *Locations of Phytophthora Infestations* dataset[13] confirmed no cases of *Phytophthora cinnamomi* (Phytophthora) within 10 km of the project area. The *Phytophthora Control Guidelines*[14] states the risk

[13] Department for Environment and Water, 2021. Locations of Phytophthora Infestations. https://data.sa.gov.au/data/dataset/83fd7d39-c4b1-4ba1-a74d-eb6e58b57b0a

[14] Doyle, B., Hall, B., Keskula, E., Phillips, C. Ranford, T., Reynolds, T., and Velzeboer. 2006. Phytophthora Management Guidelines (2nd Ed.). Phytophthora Technical Group.

of Phytophthora becoming established is higher in areas with: > 400 mm annual rainfall; warm and humid climate (15-30℃); neutral to acidic and poorly drained soils; plants susceptible to infection (e.g. drooping sheoak, common heath, bush-pea, myrtle wattle, stringybark, banksia and grass-tree). Although the area receives > 400 mm annual rainfall, Phytophthora is unlikely to become established at the site due to the non-conducive soil type (neutral-alkaline, well drained sandy soil) and lack of susceptible vegetation.

3.9 Fauna

3.9.1 Native Fauna

The Butcher's Sand Pit site has little natural habitat remaining being located on previously cleared grazing land. Boundary plantings of native trees provide some attraction to local bird species but not in significant numbers. SA NatureMaps (environment.sa.gov.au) was used to search for sightings of State and Nationally rated threatened fauna within a 5 km radius of MC 4537. The search registered two sightings: (1) a southern bent-winged bat (*Miniopterus orianae bassanii*) (critically endangered) ~ 700 m south of MC 4537 (-37.8343, 140.70478); (2) a sugar glider (*Petaurus breviceps*, least concern) at 4 Alie Drive (~ 470 m northwest of MC 4537).

The southern bent-winged bat primarily roosts in caves and rock crevices. Consequently, there is a possibility that bent-winged bats may inhabit or visit site infrastructure, particularly sheds. Similarly, the sugar glider is arboreal (tree-dwelling) and primarily attracted to contiguous areas of Eucalypt and Acacia species. The visual amenity screen links to other boundary plantings of neighbours and to the pine plantation but does not provide a contiguous area of Eucalypt and Acacia. There is a low possibility that sugar gliders may inhabit or visit trees on or surrounding the site.

Currently, animals found on site will be reported to wildlife care groups such as Fauna Rescue SA (08 8289 0896) or a person holding the relevant permit in wildlife rescue or care. Staff will be encouraged to call the Wildlife Hotline (08 8289 0896), Bat Rescue Hotline (08 8486 1139), or Koala Rescue Hotline (1300 562 527) if native wildlife are encountered on site; however, the noise and general motion of workers and vehicles is likely to deter wildlife from settling on site.

3.9.2 Declared Animals (Pests)

SA NatureMaps was used to search for sightings of introduced fauna within a 5 km radius of MC 4537. The search returned no results. Although, there have been no recorded sightings or other anecdotal evidence, it is reasonable to expect common pests (e.g. rabbits and foxes) are present in the area. Any sightings of pest animals will be reported to the local council and Limestone Coast landscape board.

3.10 Caves

Although the site is located in the Gambier Karstic Province (Grimes, 1994), existing workings at the site have not exposed any indication of caves on site or neighbouring properties. The closest known cave system is the Engelbrecht Caves, located ~ 6 km east in the Mount Gambier CBD. Although karstic features have not been discovered on site, their presence should not be discounted, as the local geology (i.e. Bridgewater Formation and Gambier Limestone) and hydrogeology (steep hydraulic gradient) are conducive to the formation of karstic features (Grimes, 1994).

3.11 Land Use

The site of the existing Butcher's Sand Pit and MC 4537 were previously used for cropping and stock grazing. Quarrying commenced on the site around 1976 and hence is a pre-existing use. There are

three active tenements overlapping the mineral claim area: Private Mine 510 held by Sandyridge; Extractive Mineral Lease 5990 held by Sandyridge; Gas Storage Exploration Licence 672 held by Vintage Energy Ltd (Vintage Energy). Sandyridge and Vintage Energy entered into a land use agreement on 30 September 2021. There is an active Private Mine (PM 253) immediately adjacent to MC4537 on Parcel Plan F193395AL403 (51 Bells Lane, Compton). Adjoining land to the east of the pit is used for stock grazing.

The Butcher's Sand Pit site, including MC 4537, is located within a Rural Zone (Planning and Design Code 2020), which reflects the surrounding rural land use – predominantly comprising of pastures for grazing stock, some smaller cereal feed crops and pine plantations. It is understood that there are no planned changes to the current local government development plan likely to affect extractive activities.

Resource extraction activities are permitted in Rural Zones under the General Development Policies and must comply with the following desired outcomes (DO) and performance outcomes (PO):

- DO1: Resource extraction activities are developed in a manner that minimises human and environmental impacts.
- PO1: Resource extraction activities minimise landscape damage outside of those areas unavoidably disturbed to access and exploit a resource and provide for the progressive reclamation and betterment of disturbed areas.
- PO2: Resource extraction activities avoid damage to cultural sites or artefacts.

As a result, the use of the site for quarrying is not a variance with the permitted use in this land use zone.

3.12 Proximity to Infrastructure and Housing

The Butcher's Sand Pit site, including MC 4537, abuts the southern side of Cafpirco Road, a sealed road, with the site entrance located in the northeast corner of the property. There are no overhead electricity power lines located within the property. An electricity power pole is situated on the western side of the site entrance on Cafpirco Road. There are two large sheds on site used for equipment storage and to sort EPA-approved waste. Additionally, a small disused shed is located to the west of the access road, just past the site entrance. A disused windmill/ groundwater well is located near the large waste sorting shed. Another groundwater well (7022-10925) is located ~ 150 m northeast of the sorting shed.

The Land Access Map (Figure 6) shows the location of the residential dwellings and infrastructure (e.g. sheds, groundwater wells, water mains, overhead and underground power cables) within 600 m of MC 4537. The street address and zoning of houses within 600 m of MC 4537 are listed in Table 3.4. A distance of 600 m was selected as is it the maximum prescribed distance associated with exempt land, as defined by the *Mining Act 1971*. 295 and 365 Cafpirco Rd, 51 Bells Ln, and 10 Alie Dr are zoned as Rural, while the other properties listed in Table 3.4 are zoned as Rural Living.

Table 3.4 Residential Buildings Within 600 m of MC 4537

Exempt Land			Stakeholders		
Street Address	Distance (m) to MC 4537	Zone	Street Address	Distance (m) to MC 4537	Zone
7 Alie Dr	199	Rural Living	373 Cafpirco Rd	404	Rural Living
51 Bells Ln	320	Rural	340 Cafpirco Rd	415	Rural Living
332 Cafpirco Rd	338	Rural Living	364 Cafpirco Rd	416	Rural Living
10 Alie Dr	347	Rural	322 Cafpirco Rd	427	Rural Living

Exempt Land			Stakeholders		
Street Address	Distance (m) to MC 4537	Zone	Street Address	Distance (m) to MC 4537	Zone
5 Alie Dr	358	Rural Living	295 Cafpirco Rd	430	Rural
346 Cafpirco Rd	360	Rural Living	4 Alie Dr	460	Rural Living
365 Cafpirco Rd	372	Rural	6 Alie Dr	485	Rural Living
8 Alie Dr	377	Rural Living	7 John Fallas Dr	487	Rural Living
			316 Cafpirco Rd	493	Rural Living
			280 Cafpirco Rd	506	Rural Living
			5 John Fallas Dr	512	Rural Living
			376 Cafpirco Rd	513	Rural Living
			1 Alie Dr	528	Rural Living
			300 Cafpirco Rd	536	Rural Living

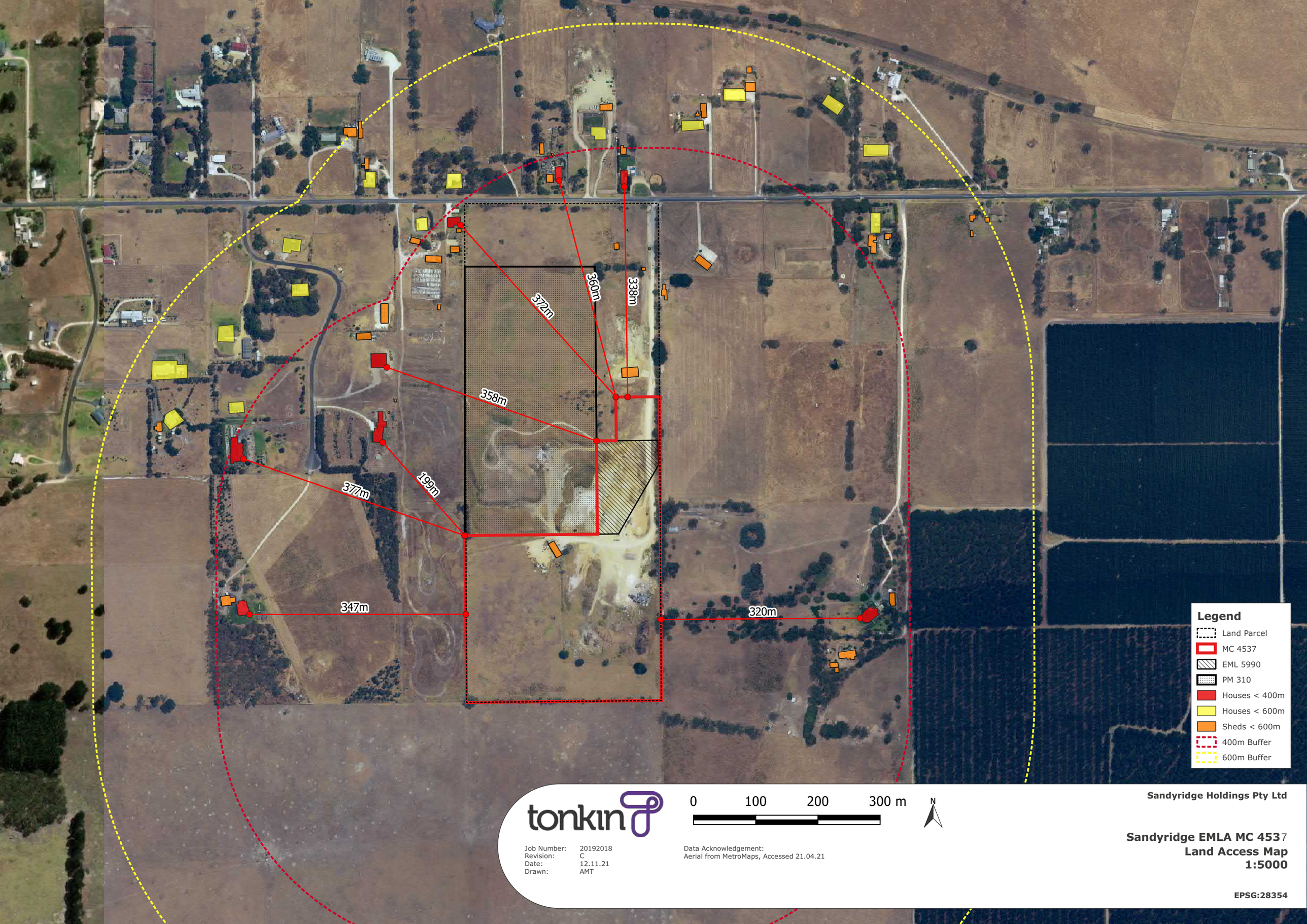
3.13 Exempt Land

The proposed operations include the recovery of extractive minerals. As such, a prescribed distance of 400 m was used the purpose of identifying exempt land. Residential buildings within 600 m of the MC 4537 boundary are shown in Figure 6. Additionally, the street addresses of these properties are listed in Table 3.4. Eight properties contained residential buildings within 400 m of MC 4537. The owners of the land on which these buildings are situated have the benefit of an exemption under Section 9 of the *Mining Act 1971* and will be requested to enter into an agreement with Sandyridge to waive that benefit. Consequently, no mining operations can be undertaken until the relevant Waiver of Exemption form has been completed for each of these properties and has been lodged and approved by the DEM.

3.14 Amenity

Sand extraction operations within the existing mining tenements, PM 310 and EML 5990 has seen excavation develop below natural surface level. Due to the intervening elevated topography PM 310, EML 5590 and MC 4537, are located approximately 400 metres south of the property entrance and cannot be seen from Cafpirco Road. Consequently, current and proposed extraction operations do not adversely affect the scenic or aesthetic values from this direction.

The Butcher's Sand Pit site, including MC 4537, has established tree plantings along most of its eastern boundary extending from the Cafpirco Road site entrance. The western side of Allotment 22 rises above the surrounding landscape and therefore obscures views from the west. It may be possible to see Butcher's Sand Pit from 10 Alie Drive (approx. 370 m west southwest). To mitigate visual amenity impacts, a double-planted tree belt was planted along the entire southern and western boundaries of Allotment 22 in June 2021. This tree belt is anticipated to completely block views from the west and south of MC 4537 within 10-20 years.



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Job Number: 20192018
Revision: C
Date: 12.11.21
Drawn: AMT

Data Acknowledgement:
Aerial from MetroMaps, Accessed 21.04.21

Sandyridge Holdings Pty Ltd

Sandyridge EMLA MC 4537
Land Access Map
1:5000

EPSG:28354

3.15 Air Quality

Nearby sensitive receptors to air pollution include the residents of the properties listed in Table 3.4 and neighbouring domestic animals (primarily cows and alpacas). Particulate matter (dust) is anticipated to be the primary air pollutant produced on site. Current activities which have the potential to generate dust at the site include:

- Topsoil stripping, carting, and stockpiling
- Excavation of sand and limestone by excavator
- Crushing and stockpiling of limestone rubble
- Mobile jaw crusher
- Carting and stockpiling of materials (e.g. clean waste, concrete) brought to site
- Loading products with front-end loader
- Truck movements within pit and on-site access track
- Backfilling and spreading of overburden and topsoil used in pit rehabilitation

Dust is primarily generated during the excavation and crushing/ screening of sand and limestone. Fugitive dust generated by vehicle traffic is relatively low as the wetting and compaction of limestone dust and fragments on the roads and other high traffic areas have produced a cemented crust. Similarly, crusts also tend to from over the surface of exposed pit faces and stockpiles, helping to mitigate dust emissions.

Sandyridge currently manages dust at the site using water-spray tanker. The tanker is retained on site to mitigate dust emissions. Roads and other operational areas are sprayed down twice a day (beginning at 9 am and 2 pm) during summer, and 1-2 times per day on days where temperature and wind speeds exceed 30°C and 25 km/h. Crushing is not undertaken on windy days.

3.16 Noise

Since the commencement of sand extraction operations at the site, trucks entering and exiting together with earthmoving equipment and the small mobile crushing and screening plant have created noise. In the normal course of events this noise is mostly generated within the confines of the pit, which is up to 18 m below the natural surface level of the surrounding topography, and during standard working hours. Proposed extension of the pit development within MC 4537 is not anticipated to increase the generation of noise at the site and progressively moves operations further from most residents, with the exception of 51 Bells Lane(320 m east of boundary) and 10 Alie Drive (347 m west of boundary).

The nearest potential noise-affected receptors are the neighbouring residents listed in Table 3.4. These properties are zoned as rural or rural residential. Subclause (1)(b) of the *Environment Protection (Noise) Policy 2007* lists the *indicative noise factor* (INF) for different land use categories. Day (7am to 10pm) and night (10pm to 7am) INFs for residential land use are 52 and 45 dB(A), respectively. The typical machinery on site will generate noise levels above these limits during operation at the closest receptor (approximately 200 m away) (Table 3.5). Noise attenuation is provided by the location of the plant within the quarry void and the screening vegetation. As an indication of likely reductions, a 1.5 m noise barrier can reduce these levels by 15 dB(A) [15].

[15] DPTI. 2017. *Management of Noise and Vibration: Construction and Maintenance Activities Environmental Instruction 21.7*. Department of Planning Transport and Infrastructure.

Table 3.5 Typical Noise Levels from Construction Activities[15]

Equipment	Sound level pressure ($L_{eq\ (15\ mins)}$ dB(A)) with no attenuation at Distance (m)	
	20 m	200 m
Batch plant*	91	62
Front End Loader	79	59
Generator	69	49
Road Truck	83	54
Tracked excavator (45 t)	74	54
Tub grinder/mulcher	91	62
* Included as indicative of a crusher		

Current on-site practices to mitigate the impact on neighbours from on-site noise, include:

- Undertaking noisy activities (such as crushing) after 9.00 am and not on weekends, where possible.
- Locating noisy equipment within the quarry void.
- Shutting or throttling equipment down whenever it is not in actual use
- Ensuring that noise reduction devices such as mufflers are fitted and operating effectively
- Operating equipment and handling materials to minimise impact noise, e.g. reducing the drop level for noisy materials;
- Establishing tree screens along boundaries.

3.17 Heritage (Aboriginal, European, Geological)

The term *Aboriginal heritage item* is used here to mean Aboriginal object, site or remains as defined by the *Aboriginal Heritage Act 1998*. The term *heritage item* is used here to mean any place or object of heritage significance as defined in section 16 of the *Heritage Places Act 1993*. The term *geoheritage item* is used here to mean any place or item or geological, paleontological or speleological significance.

A search of the Department of the Premier and Cabinet – Aboriginal Affairs and Reconciliation (DPC-AAR) Taa Wika Register aboriginal sites and objects did not reveal any known indigenous heritage items within 600 m of the land parcel.

MC 4537 is located within the First Nations of the Southeast #1 title claim. There are no existing Native Title Determinations in the area; however, the First Nations of the South East will be notified of the proposed mining activities associated with MC 4537.

Proximity to heritage was assessed using the Australian Heritage Database, the SA Heritage Places Database, and SA NatureMaps. These databases show that there are no listed sites of Aboriginal or Non-Aboriginal heritage significance within the mining tenements at Butcher's Sand Pit. Similarly, there are no listed geoheritage items of significance at this site. Rather, the closest listed Heritage sites over 4 km west of the site in Mount Gambier and the Mount Gambier Volcanic Complex (> 3 km east of the site).

Current practices undertaken on-site in the event of an unexpected discovery includes:

- Ceasing any activity likely to disturb the place where the suspected heritage item has been discovered;
- Notifying DPC-AAR (phone number 08 8226 8900) of Aboriginal Heritage Item or SA Heritage Council (phone (08) 8226 2127) of heritage item.
- If any human remains are discovered, contact the Police for guidance.

To date, Sandyridge has not identified any suspected heritage items during quarrying.

3.18 Proximity to Conservation Areas

The Conservation Reserves dataset[16] was used to determine the proximity of MC 4537 to reserves dedicated under the *National Parks and Wildlife Act 1972*, *Wilderness Protection Act 1992* and reserves for conservation purposes under the *Crown Land Management Act 2009* in South Australia. The location of these conservation areas in relation to MC 4537 are shown in Figure 7. The following conservation areas are located within 25 km of MC 4537: Telford Scrub (15 km NE), Gower (20 km NW), Tantanoola Caves (21 km NW), Penambol (21 km SE), Nene Valley (22 km SW) Ewens Ponds (23 km SE), Dingley Dell (24 km S), and Douglas Point (24 km SW).

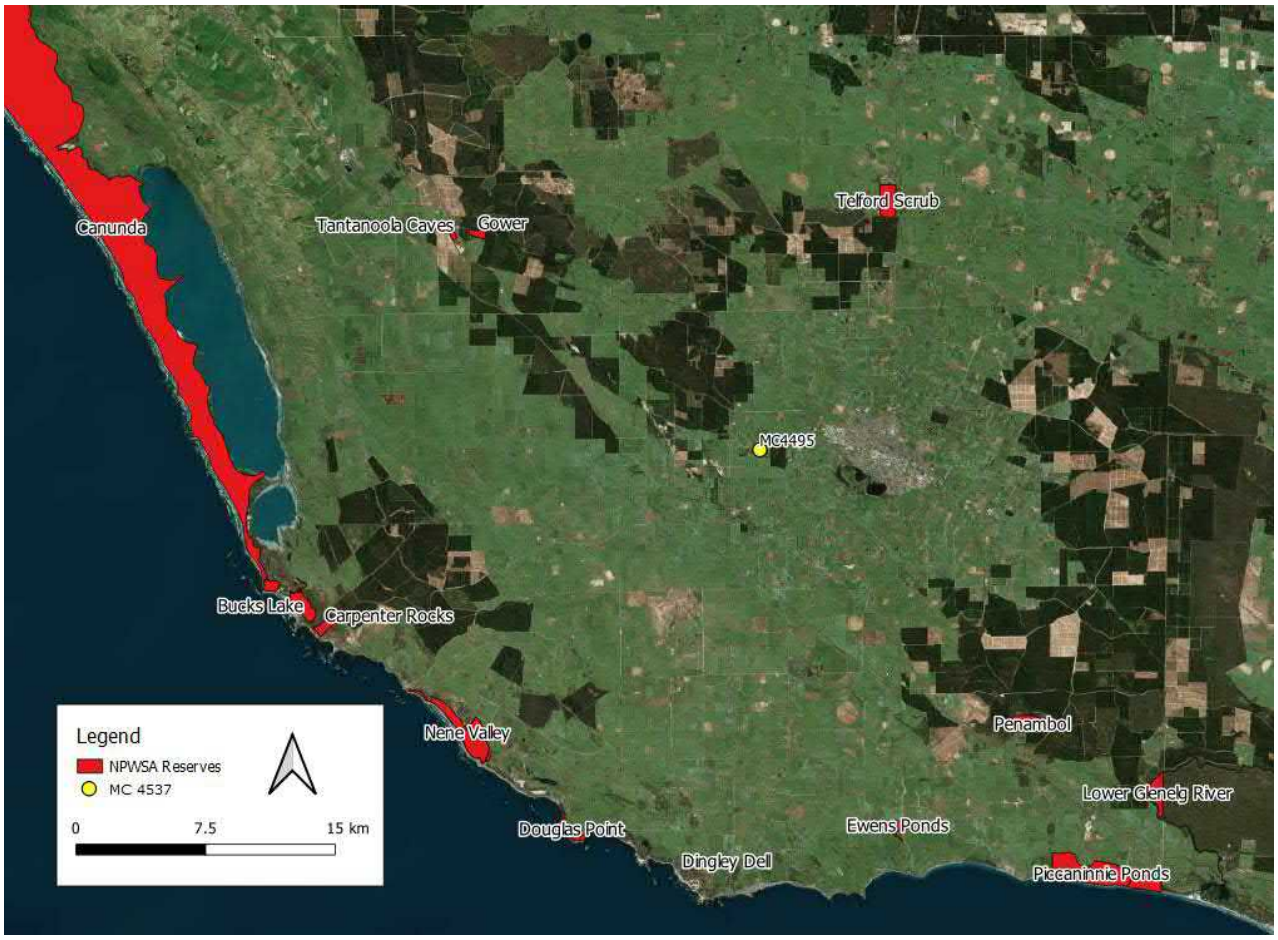


Figure 7 Conservation areas relative to MC 4537.

[16] Department for Environment and Water, 2020. Conservation Reserves Boundary. https://data.sa.gov.au/data/dataset/7002bf38-6f74-4b6f-a01a-620dd065511a

3.19 Pre-existing Site Contamination and Previous Disturbance

The SA EPA Site Contamination Index shows no records suggestive of site contamination on or immediately adjacent to the property. S83A Notifications are recorded for 8 and 20 Mulwala Road, Compton, approx. 1 km northeast of the MC4537 boundary; however, it is unlikely that any potentially contaminating activities (PCAs) at these addresses pose any risk to human health or environmental quality at Butcher's Sandpit. It is noted that an EPA licence exists over part of the site and allows the receival of a number waste types and the placement of inert waste in the adjacent former quarry void as waste derived fill. The receival of waste is to a dedicated shed with a concrete floor which is adjacent to MC 4537 and unlikely to result in contamination of any on-site materials.

Quarrying has been conducted on the site for over 45 years and currently has disturbed a footprint of approximately 8 ha of the 24-ha site. Inert waste was approved by District Council of Grant in 1984 to be accepted as backfill for the quarry void. It is intended to continue to use inert waste as backfill to facilitate rehabilitation of the site. This material is sourced locally from skip bins and domestic trailers of construction and demolition and commercial and industrial waste. No hazardous waste or asbestos is accepted. All skip bins a visually inspected and sorted by hand to ensure only inert waste is used as backfill. All non-inert materials are removed from site for reprocessing, recycling or disposal.

4 Description of the Proposed Mining Operations

4.1 General Description and Maps/Plans of Operations

A summary of each element of the proposed operations is set out in Table 4.1.

Table 4.1 Summary of the Elements of the Proposed Operation

Element	Description
Resource Type	Sand and limestone
Resource Supply	Approximately 1.58 and 2.18 million tonnes of sand and limestone, respectively.
Production Rate	Approximately 13,000 tonnes per annum (based on historic rates).
Production Product	Sand and limestone are principally used for road base rubble and general fill material.
Quarry Lifespan	Maximum lifespan of 167 years.
Quarrying Method	Overburden and resources extracted using an excavator, transported by a front-end loader to a mobile jaw crushing plant, stockpiled on site for sale, and loaded onto road trucks by a front-end loader for dispatch to customers.
Pit Dimensions	Tenement length and width = 488 x 313 m. Tenement area = 10.45 ha. Area of extractable resources ~ 7.85 ha. Maximum excavation depth ~ 25 m. Typical excavation depth = 15 m.
Quarry Staging	Ten staging areas, each between 0.25 and 1 ha, and an average lifespan of 17 years.
Progressive Rehabilitation	Excavated areas will be backfilled with inert waste and capped with native or imported topsoil. The backfilling rate is anticipated to be half the excavation rate. Therefore, 33 years should be required on average to backfill each pit. No more than three pits will be open at a time. Filled and capped pits will be sown to pasture (native/mixed pasture). Temporary infrastructure (i.e. sheds) will be dismantled if required before the land is sold or otherwise relinquished.
Soil Stockpiles	Small strips of topsoil (typically < 20 m wide, 1 m deep) are removed along the advancing pit face and placed ~ 5-10 m back from a static pit face in stockpiles typically < 2 m high, 2 m deep and 5 m long.
Product Stockpiles	Extracted material is typically sorted into the following stockpiles: unprocessed, large rock and limestone blocks, crushed limestone, 20-30 mm ballast, and road base. Stockpiles are located on the pit floor (e.g. for unprocessed and recently crushed materials), and in the stockpile yard (immediately south the current excavation area).
Explosives	Explosives are not required and will not be used at any stage of the operation.
Operating Hours	7am – 4pm Monday-Friday. 8am – 12pm Saturday. Closed Sundays and Public Holidays.
Fixed/ Mobile Plants	Extraction and processing conducted using one excavator, two front end loaders, and a mobile crusher/ screener.

Element	Description
Processing Wastes	None
Industrial/ Domestic Wastes	Kitchen waste disposed of using municipal waste bins. Hard rubbish sorted and stored on site. Motor oil disposed of at Mount Gambier Waste Transfer Station.
Access and Roads	Access via entrance directly off Cafpirco road. Roads on site sealed with bitumen or crush and compacted sand and limestone.
Accommodation and Offices	No accommodation. Site office comprised of a caravan.
Public Services	Site not connected to water, electricity or telecommunication infrastructure. Electricity provided by diesel generators. Water provided by a rainwater tank. If required, water is also available from the groundwater well. Communication via UHF radios and mobile phones.
Visual Screening	Existing tree screen partially encloses property boundaries. Recently planted tree screen anticipated to completely screen onsite operations in 5-10 years.
Fuel and chemical storage	No fuels or chemicals stored on site.
Site security	Site completely enclosed by fence. Front gate locked when site is unoccupied.
Erosion, sediment/ silt control	Surface runoff and thus erosion potential is low due to high water infiltration rates. Dust controlled by water spraying. Limestone cements upon wetting to form crust that mitigates dust emissions from roads, exposed pit surfaces and stockpiles.
Vegetation Clearance	Land previously cleared for agriculture. Four trees planted since initial land clearing may need to be cleared in ~ 60+ years.
Site Water Management	No water required for processing. No stormwater management infrastructure required due to negligible surface runoff.
Site at Completion	Quarried areas to be backfilled, capped with topsoil and sown to pasture. Rehabilitation activities undertaken progressively and anticipated to be completed in ~ 136 years after operations begin.
Workforce and Local Procurement	Two full-time positions are currently filled at the site by local residents. Further positions are subject to product demand; but are not anticipated to be required, as mining operations are not anticipated to intensify in the near future.

4.2 Resource and Products

4.2.1 Resource

The types of material extracted from Butcher's Sand Pit are dune sand and limestone (Gambier Limestone), which are crushed and screened for use as road rubble and as a general fill material. Resources located in unexplored areas of MC 4537 are inferred to be of a similar grade as those in previously explored/ mined areas. Additionally, given the history of mining at the site and the existing

customer base, it is anticipated that the majority of the mineral resource base within MC4537 is economically extractable under stable socioeconomic conditions.

The estimated amount of extractable mineral resource in MC 4537 (Table 4.2) is based on the north-south (Figure 8) and east-west cross-sections (Figure 9) which show the geological units and approximate extraction depths and assuming a constant thickness of soil, sand and limestone layers. The notes for groundwater well 7022-10925 report thickness of 1 m soil, 11 m sand and ≥ 26 m limestone. The lower depth of mineable limestone is restricted by groundwater elevation, which has been recorded at a maximum height on site of 24.1 mAHD in 2013. Although the groundwater elevation fluctuates over time it is unlikely to exceed 30 mAHD, which is the proposed final quarry floor elevation. The natural ground elevation in MC 4537 varies between ~ 55 and 45 mAHD resulting in a mineable thickness of the limestone of 3-13 m thick. By adopting a maximum floor depth of 30 m AHD, this also means the proposed operation will not intersect groundwater.

Although the area of MC 4537 is 10.5 ha, exclusions zones have been placed around the property boundary around the sorting shed. Additionally, areas within MC 4537 have already been excavated. As such, the area mineable area within MC4537 is estimated to be 7.85 ha. Based on the estimated area and thickness of mineable resources, the mine is expected to produce a maximum of 1.58 million tonnes (MT) of sand and 2.18 MT of limestone over the life of the mine.

Overburden at the site consists of sandy soil. Assuming a constant overburden depth of 1 m across the site, a total area of 7.85 ha, and a bulk density of 1.6 tonnes/m^3, an estimated 125,600 tonnes of overburden would be produced from MC 4537. Rehabilitation using this overburden will be undertaken progressively once the backfilled inert waste is within 1 m of the pre-quarrying site contours.

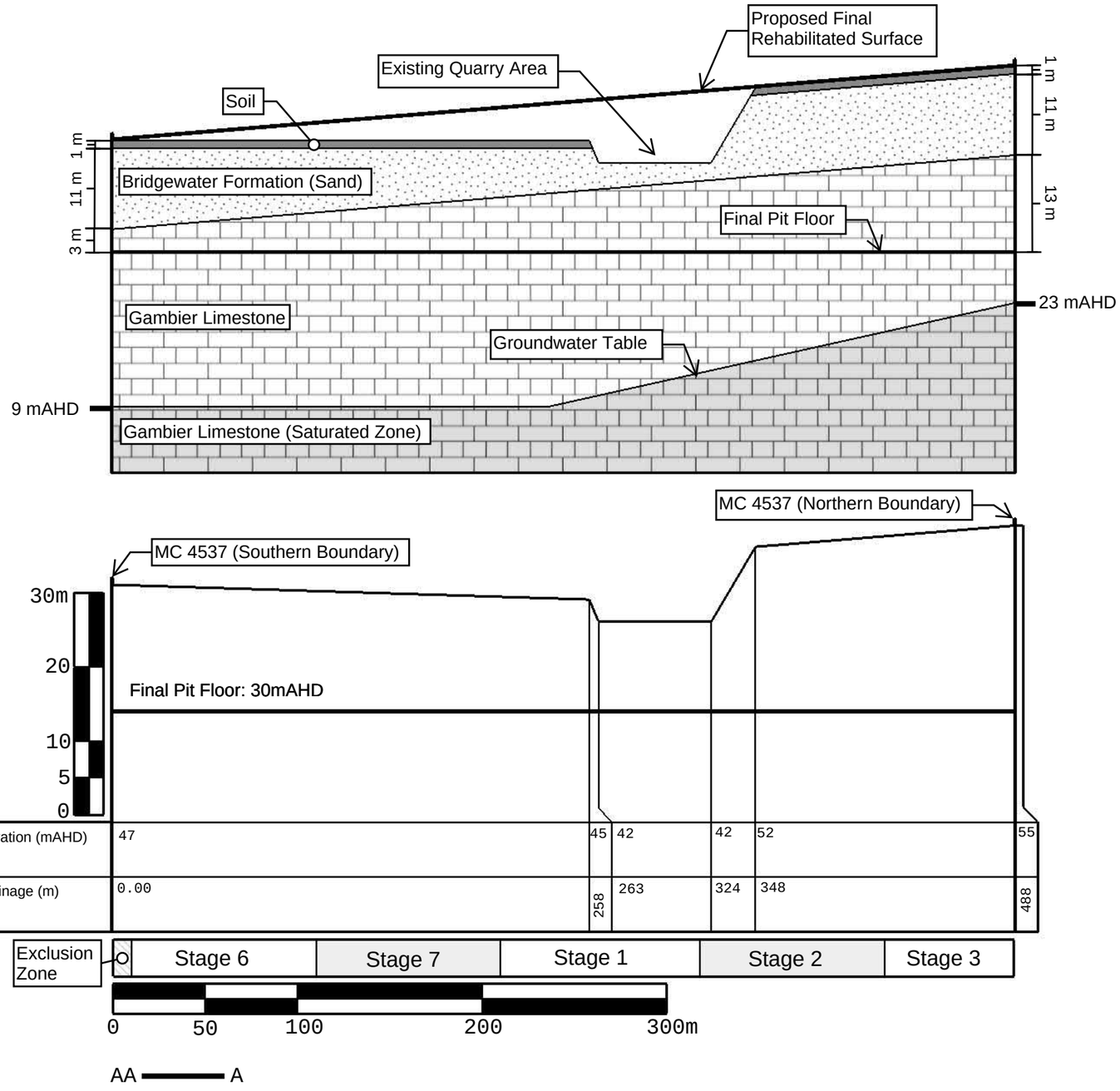
4.2.2 Production Rate and Products

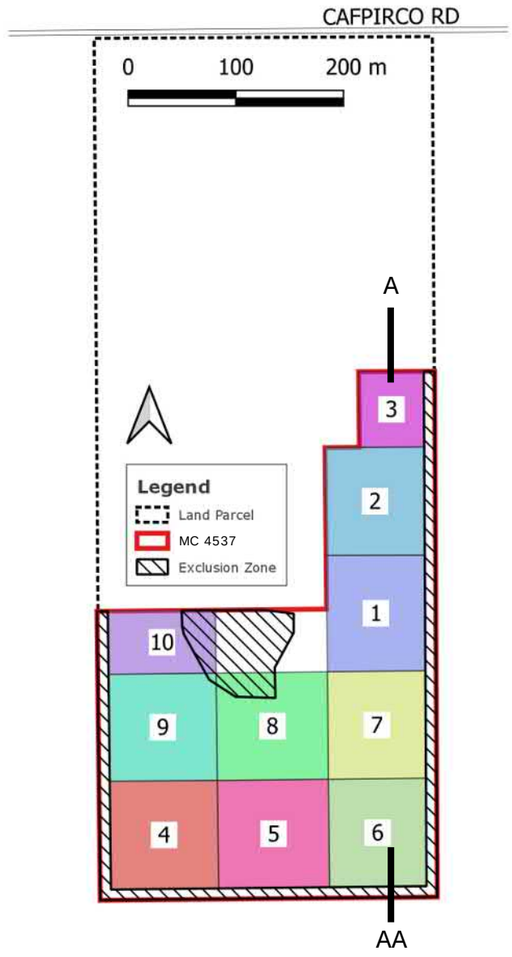
Sand and limestone are quarried using an excavator and crushed by a mobile crushing plant set up in the pit floor. Gambier Limestone is used extensively throughout the district for road construction purposes. Annual quarry production has been around 13,000 TPA. The current downturn in construction industry activity across SA has seen some reduction in sales volumes, but it is anticipated that sales are likely to increase although this is dependent upon improved private, local and State government spending on construction projects. Based upon the estimated reserves calculated in Section 4.2.1 – Resource, MC 4537 has an estimated lifespan of 172 years (dependent upon local market demand for its products).

4.3 Quarrying Activities

4.3.1 Type of Proposed Quarry Operation

Mining of the resource within MC 4537 will be a continuation of the existing type of mining at the site, which is comprised of an open cut operation that is worked on an as-needs basis subject to local market demand. Material will be won using an excavator to strip overburden, sand and limestone - overburden is stockpiled on the natural ground for use in rehabilitation; sand is stockpiled within the quarry void until required; limestone is loaded by front end loader into the mobile crushing plant or stockpiled for future processing. No blasting is required. A mobile jaw crusher located in the pit floor will crush limestone to the selected size ready for sale. Quarried materials are loaded using a front-end loader into road trucks for dispatch and delivery to customers as ordered.





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Job Number: 20192018
Revision: A
Date: 06.07.21
Drawn: AMT

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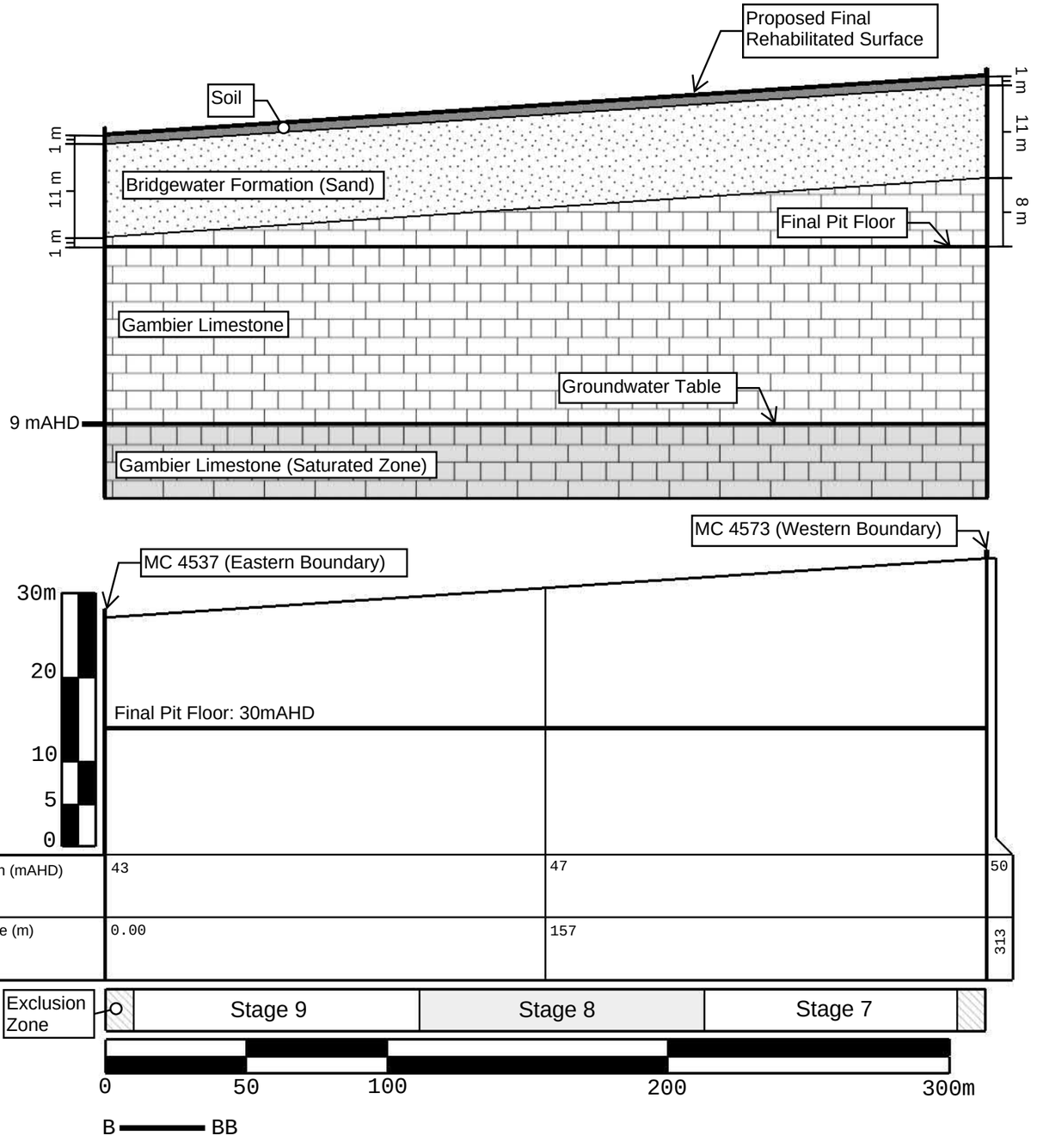
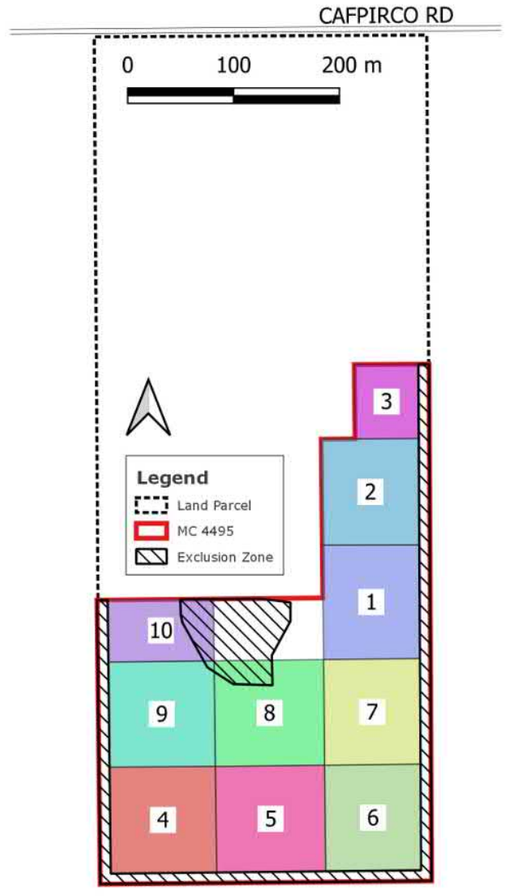
Sandyridge EMLA MC 4537
Cross Section
North-South (A-AA)





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Sandyridge Holdings Ltd

Sandyridge EMLA MC 4495
Cross Section

Job Number: 20192018
Revision: A
Date: 06.07.21
Drawn: AMT

Table 4.2 Estimated Mineral Resource Supply

Stage	Area	Ground Level Elev.	Thickness - Total	Volume – Total	Thickness - Sand	Weight – Sand**	Thickness - Limestone	Weight – Limestone**	Weight - Total	Lifespan – Total***
	m^2	mAHD	m	m^3	m	tonnes	m	tonnes	tonnes	years
1	9,000	42	12	108,000	4*	64,800	7	157,500	222,300	17
2	7,500	45	15	112,500	11	148,500	3	56,250	204,750	16
3	2,500	55	25	62,500	11	49,500	13	81,250	130,750	10
4	10,000	45	15	150,000	11	198,000	3	75,000	273,000	21
5	10,000	45	15	150,000	11	198,000	3	75,000	273,000	21
6	9,000	45	15	135,000	11	178,200	3	67,500	245,700	19
7	9,000	45	15	135,000	11	178,200	3	67,500	245,700	19
8	7,700	45	15	115,500	11	152,460	3	57,750	210,210	16
9	9,900	45	15	148,500	11	196,020	3	74,250	270,270	21
10	3,900	50	20	78,000	11	77,220	8	78,000	155,220	12
TOTAL	**78,500**			**1,195,000**	**103**	**1,440,900**		**790,000**	**2,230,900**	**172**

*A large fraction of mineral resources has already been extracted from the stage 1 area. The natural elevation in this area before quarrying is estimated to be 50 mAHD, while the current pit floor is situated at ~ 42 mAHD. Consequently, it was assumed that 1 m of soil and 7 m of sand has already been extracted in this area, leaving 4 m of sand and at least 7 m of limestone.

**Weight was estimated using an assumed bulk density of 1.8 and 2.5 tonnes/m^3 for sand and limestone, respectively.

***Mineral resource lifespan was estimated assuming an assumed extraction rate of 13,000 tonnes/year.

4.3.2 Sequence of Quarrying and Progressive Rehabilitation

Development of MC 4537 will be undertaken in ten stages. The staging plan is provided in Figure 10 and the area and estimated lifespan of each stage is provided in Table 4.2. Each stage is between 0.25 ha and 1 ha with an average lifespan of 17 years. A new stage will be developed as the operating stage nears completion.

Terminal mining faces will be backfilled with inert waste. Backfilling will commence in a stage once:

- the new stage has been developed;
- the resource within the stage has been depleted;
- the previous stage/s have been backfilled.

Inert waste will be placed in horizontal lifts to facilitate compaction and finished with a 1:3 (V:H) batter or less steep. Once backfilled with inert waste, the upper surface of the stage (excluding the batters) will be capped with locally-sourced waste fill, if available, and stored topsoil. Filled and capped stages will be sown to pasture, likely to be a mixture of native grasses, improved pastures, and legumes (e.g. clover).

The backfilling rate is anticipated to be half the excavation rate, resulting in an average time from completion of quarrying to completion of rehabilitation of 33 years and a total site life of around 172 years. If required, on-site infrastructure (i.e. sheds) will be dismantled before the land is sold and returned to rural land uses.

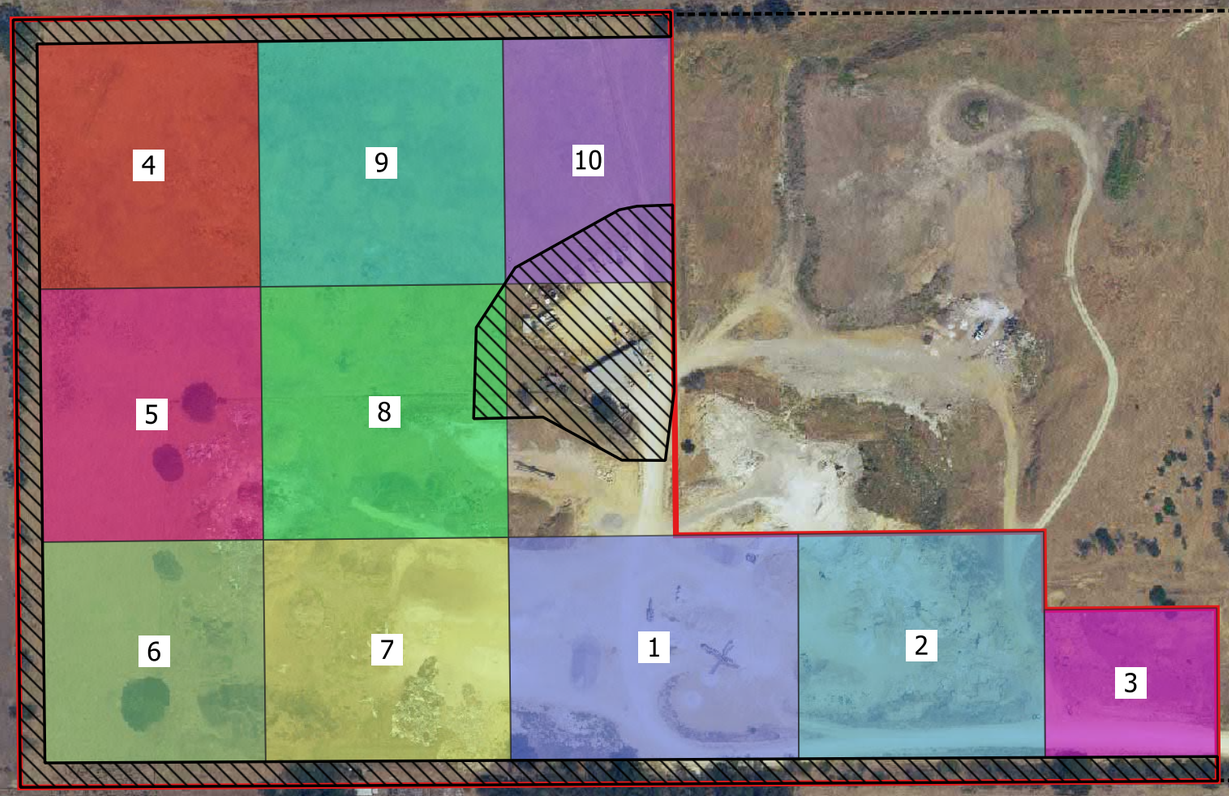
After extracting the remaining material in the current quarry area (Stage 1), excavations will proceed north through Stage 2 and then Stage 3. This is estimated to take ~ 40 years. Excavations will then proceed along the southern boundary of MC 4537, beginning in the southwest corner (Stage 4) and moving east through Stages 5 and 6 over the course of ~ 60 years. The Stage 7 area is currently used as a stockpile yard. There are no plans currently to relocate the stockpile yards. Consequently, after Stage 6 is cleared, excavations will proceed west from Stages 8 to 9 (over ~ 35 years), then north to Stage 10 (~ 12 years). By the time Stage 10 is cleared, the majority of Stage 8 should be rehabilitated. At least another 45 years will be required to backfill the Stage 9 and 10 pits. An additional year has been added to finalise rehabilitation activities. The final rehabilitation work at the site is anticipated to be completed approximately 137 after initiating excavations in Stage 1.

4.3.3 Stockpiles

4.3.3.1 Overburden stockpiles

The overburden (typically < 1 m thickness) is stripped, carted and placed in stockpiles above the northern and western faces of the pit. Additional soil is also imported into the site as clean waste fill, under EPA licence and stockpiled with the overburden. This ensures an adequate supply of readily available soil for the progressive rehabilitation of terminal pit faces once backfilled with overburden. The deeper subsoil is part of the quarried product, so backfill is sourced from selected inert waste which is crushed on-site and then placed directly into the quarry void to within 1 m of pre-mining natural contours. Crushing of the inert waste is imperative to improve compaction and minimize subsidence and loss of overburden soil through washing into void spaces. Overburden is spread over the surface and planted to mixed pasture species.

The location of the overburden stockpiles will change over time but approximate locations for each stage area indicated in Figure 10. The Stage 1-3 soil stockpile area is located over backfilled quarry void, whilst soil for Stages 4-6 will be stored on future Stage 9 and soil for stages 8-10 will stored adjacent to Stage 10. Soil stockpiles may also be created on areas of Stages which have been backfilled and capped prior to revegetation to reduce handling and facilitate faster rehabilitation, as available. All stockpile areas will be placed or have silt fences or bunds installed to ensure runoff is directed toward the mined Stages.



Legend

- Land Parcel
- MC 4537
- Exclusion Zone

0 100 200 m

tonkin

Job Number:	20192018
Revision:	B
Date:	12.11.21
Drawn:	AMT/MRS

Data Acknowledgement:
Local Aerial from MetroMaps, Accessed 21.04.21

Sandyridge Holdings Pty Ltd

Sandyridge EMLA MC 4537
Staging Plan
1:2500

EPSG:28354

4.3.3.2 Acceptance of Inert Waste

The acceptance of waste at the site is undertaken in accordance with EPA Licence 50456 and the EPA approved Landfill Environment Management Plan (LEMP). The licence permits the disposal of several different waste sources, as summarised in Table 4.3 below.

Table 4.3 Wastes Permitted to be Disposed On-site by EPA Licence 50456

Waste Type	Receipt Permitted	On-site Disposal Permitted
Commercial and Industrial Waste (general)	✓	×
Construction and Demolition Waste (Inert)	✓	✓
Construction and Demolition Waste (Mixed)	✓	×
Green Waste	✓	×
Inert Waste	✓	✓
Municipal Solid Waste – Domestic Sources	✓	×
Waste Fill	✓	✓
Scrap Metal	✓	×

The following is an extract from the LEMP which describes the waste acceptance procedure implemented at the site.

Waste Screening

Wastes entering the site are inspected by trained site personnel and directed to the waste processing shed (Mixed C&D waste, mixed C&I waste, MSW), the quarry void (waste fill soil) or the stockpile area to the east/south east of the shed if the incoming waste contains only a single type (e.g. green waste, steel, masonry/concrete). All materials to be disposed or processed at the site shall be inspected and identified at the site entrance office by Sandyridge personnel. All staff members that monitor the site entrance office shall be trained in the identification and classification of waste. Vehicles with unacceptable loads of waste will be refused entry to the site.

Sandyridge shall implement a waste screening program to ensure that only permitted wastes are accepted for disposal or processing at the site. The program shall comprise the following:

- Installing prominent signage at the entrance to the landfill defining acceptable wastes and directing users to contact site staff for information regarding disposal of other wastes;
- Inspecting vehicles entering the landfill. Sandyridge shall inspect loads and, where required, collect appropriate evidence from the driver of the vehicle as verification that the waste is acceptable, e.g. test certificates, approvals, etc.;
- Directing vehicles with unacceptable wastes to an appropriate disposal facility;
- Random monitoring and inspection of wastes as they are discharged from vehicles at the waste disposal areas by Sandyridge personnel. All waste suspected of being unacceptable will be segregated and checked as to its acceptability, e.g. by detailed inspection and/or testing, as deemed appropriate by Sandyridge;
- Monitoring of the deposited waste during spreading, compaction and covering at the landfill or during stockpiling. All waste suspected of being unacceptable will be segregated and checked to determine its acceptability e.g. by detailed inspection and/or testing, as deemed appropriate by Sandyridge; and

- Recording of all incidences of identification of unacceptable wastes in the site's daily log. The record will include:
  - Details of the waste including type and a description;
  - Source of the waste including vehicle identification, driver identification and generator of the waste;
  - Recommended waste management facility(s);
  - Result(s) of contacting the waste management facility; and
  - Date contacted EPA.

Waste Fill

Waste fill accepted for landfilling at the site shall meet the requirement of the EPA Standard for Production and Use of Waste Derived Fill (EPA Standard). Testing of WDF, as required, shall be undertaken in accordance with the EPA Standard by the processor prior to receipt on site. Incoming waste fill shall be:

- Stockpiled and landfilled on site if it meets the requirements set forth in the EPA Standard, i.e. it comprises soil, clay, rock, sand or other natural mineralogical matter and must not contain other wastes, with the exception of minor inclusions of naturally occurring materials, such as wood or other vegetative matter;
  - Where waste fill from a single site is greater than 100 tonnes, it will only be accepted if accompanied by a written, signed and dated declaration from a suitable qualified consultant, site contamination consultant or site contamination auditor statin that the waste complies with the definition of Waste Fill unless otherwise approved by EPA in writing. These records must be maintained for at least 12 months.
- Transported to a to a facility licensed by the EPA to treat or dispose of that waste with an accompanying waste transfer certificate in accordance with the site license if it does not meet the chemical and physical criteria set forth in the EPA Standard.
- Managed as unacceptable waste in accordance with Section 0 if received on site uncharacterised and untested.

Unacceptable Waste Procedure

In the event that unacceptable waste is identified in an incoming vehicle, the vehicle will be refused entry, re-directed, and details of the incident recorded as described above. Sandyridge personnel will advise the driver of the vehicle of appropriate waste management facilities, or to contact the EPA for advice on appropriate management of the unacceptable waste.

In the event that unacceptable waste is identified during deposition by a vehicle, Sandyridge will immediately segregate and contain the waste away from the active tipping face or processing area. Sandyridge personnel will record the details of the waste, such as type, the source, and the vehicle and driver identification. Sandyridge personnel will advise the driver of the vehicle that the waste is not acceptable and may load the waste back onto the vehicle where practical and safe to do so. The vehicle will then be escorted from the landfill by Sandyridge personnel. Sandyridge personnel will advise the driver of the vehicle to contact the EPA for advice on the appropriate management of the unacceptable waste. In the event that unacceptable waste is identified during the spreading and compaction of deposited waste or stockpiling, Sandyridge personnel will segregate and contain the waste away from the active waste disposal or processing areas. Sandyridge personnel will make all practical efforts to identify the source of the waste, including:

- Inspecting the waste for possible identification labels on containers; and
- Identifying the type of waste and consequently the possible sources.

Sandyridge personnel will contact the EPA to confirm appropriate management options and will document the final disposition of the unacceptable waste in accordance with the EPA's requirements.

4.3.3.3 Product stockpile

Extracted materials are typically sorted into the following stockpiles: unprocessed, large rock and limestone blocks, crushed limestone, 20-30 mm ballast, and road base. Unprocessed material is stored on the pit floor near the mobile jaw crusher. Processed materials are stored on the pit floor and in the stockpile yard located in future Stage 7 (Figure 11).

Stockpiles of crushed and screened materials are placed at a height of ≤5 m and a length of 5-10 m.

4.3.4 Use of Explosives

No blasting is required at this site due to the raw materials being able to be won using an excavator.

4.3.5 Modes and Hours of Operation

Materials are currently trucked to and from the site via Cafpirco Road using a variety of different size trucks, tandem trucks, and truck and trailer combinations. Generally, a maximum of 3 or 4 trucks per hour enter or exit the site which equates to a maximum of 32 vehicles per weekday day.

Crushing of materials is not continuous and is dependent on market demand for product. The current annual production rate is around 13,000 tonnes per annum and crushing occurs during normal operating hours.

The pit is operated continuously throughout the year and the normal pit operating hours are from 7:00 am to 4:00 pm on weekdays, and 8:00 am to 12:00 pm on Saturday. The site is closed on Sundays and public holidays.

4.4 Crushing, Processing and Product Transport

4.4.1 Fixed Plant

Mineral resources are extracted by an excavator and transported by front a front-end loader to a Sandvik 340 mobile crushing/ screening plant comprised of a feed bin, primary jaw crusher and screening section. No water is used for screening. A water tanker is retained on site to spray down the roads and stockpiles on dry and windy days. A fuel tanker truck is brought on site to refuel the plants.

4.4.2 Hours of Operation

The pit is operated continuously throughout the year and the normal pit operating hours are from 7.00 am to 4.00 pm on weekdays and 8:00 am to 12:00 pm on Saturday. The site is closed on Sundays and public holidays. The crusher is operated on an as-needed basis (dependent on market demand for crushed materials) during normal weekday operating hours.

4.4.3 Processing Wastes

No processing wastes are generated from sand and limestone extraction or processing activities at the site. There is no waste processing water or chemicals used or disposed of at the site.

4.4.4 Industrial and Domestic Wastes

Domestic waste produced on site is disposed of in a municipal waste bin and is removed weekly via the kerbside collection service provided by the District Council of Grant. Hard rubbish (e.g. scrap wood, bricks, masonry, metal, etc.) is processed on site under the EPA Licence 50456. Used motor/ hydraulic oil and oil filters are disposed of at the Mount Gambier Waste Transfer Station (~ 9 km southeast of site). The site is not currently connected to municipal sewage and does not have any septic infrastructure. A disused long drop toilet is located on-site.

CAFPIRCO RD

Mobile Plant

Site Office

Stockpile Yard

PRINCES HWY

CAFPIRCO RD

MITCHELL RD

MULWALA RD

CARPENTIER ROCKS RD

JUBILEE HWY WEST

WHITE AV

MOUNT GAMBIER

PENOLA RD

BAY RD

BAY RD BAY RD

Legend

- MC 4537
- Mobile Plant
- Site Office
- Stockpile Yard
- Main Roads
- Haul Roads

tonkin

Job Number: 20192018
Revision: B
Date: 12.11.21
Drawn: AMT

0 200 400 m

0 2 4 km

Data Acknowledgement:
Local Aerial from MetroMaps, Accessed 21.04.21
Regional Area from ESRI Maps, Accessed 06.07.21

Sandyridge Holdings Pty Ltd

Sandyridge EMLA MC 4537 Site Layout Map

EPSG:28354

4.5 Supporting Surface Infrastructure

4.5.1 Access and Roads

Site access is gained directly from Cafpirco Road (sealed) via a private access road running along the eastern boundary of the property (Figure 12). Cafpirco Road carries only light volumes of local traffic and the intersection with the Jubilee Highway has good sight lines in both directions. Within the site, the first 100 metres of the pit access road is sealed to minimise the generation of fugitive dust. Beyond this point the access road is compacted and unsealed with regular maintenance by the landowner/operator. As new access roads are developed for subsequent stages, these will be constructed from compacted limestone and maintained to minimise dust. Speeds on these roads will be limited to <40 km/hr with speeds reducing closer to operational areas.

4.5.2 Accommodation and Offices

Staff employed on site live in the local area and no permanent or temporary buildings are located on site for accommodation. The site office consists of a caravan, which is located within the sorting shed. Parking areas are available around the rear of the sorting shed (Figure 11).

4.5.3 Public Services and Utilities Used by the Operation

The site is not connected to municipal water/sewerage, electricity, or telecommunication infrastructure. The mobile jaw crusher has its own diesel generator and a separate small diesel generator provides power to the shed/office. Potable water is available from a rainwater tank adjacent to the site office. If required, water is available from the groundwater well on site; however this is not currently connected. UHF radio is used to communicate between the site office and the front-end loader and in-pit trucks. Mobile phone coverage is available, but typically poor.

4.5.4 Visual Screening

there is no impact on the visual amenity from this aspect. Similarly, view of the site from the west is primarily obscured by elevated terrain. It may be possible to see operations occurring within MC 4537 from the south and southwest of the property. Visual screening has previously been planted with tree plantings along the northern, southern and most of the eastern site boundaries. The northern and eastern boundaries are well-established with more recent plantings along the southern and western boundaries expected to be well established within 5-10 years.

The prompt, progressive backfilling and rehabilitation of completed landfill cells and terminal pit faces will reduce the visual impact of the sand pit from any distant views of the site.

4.5.5 Fuel and Chemical Storage

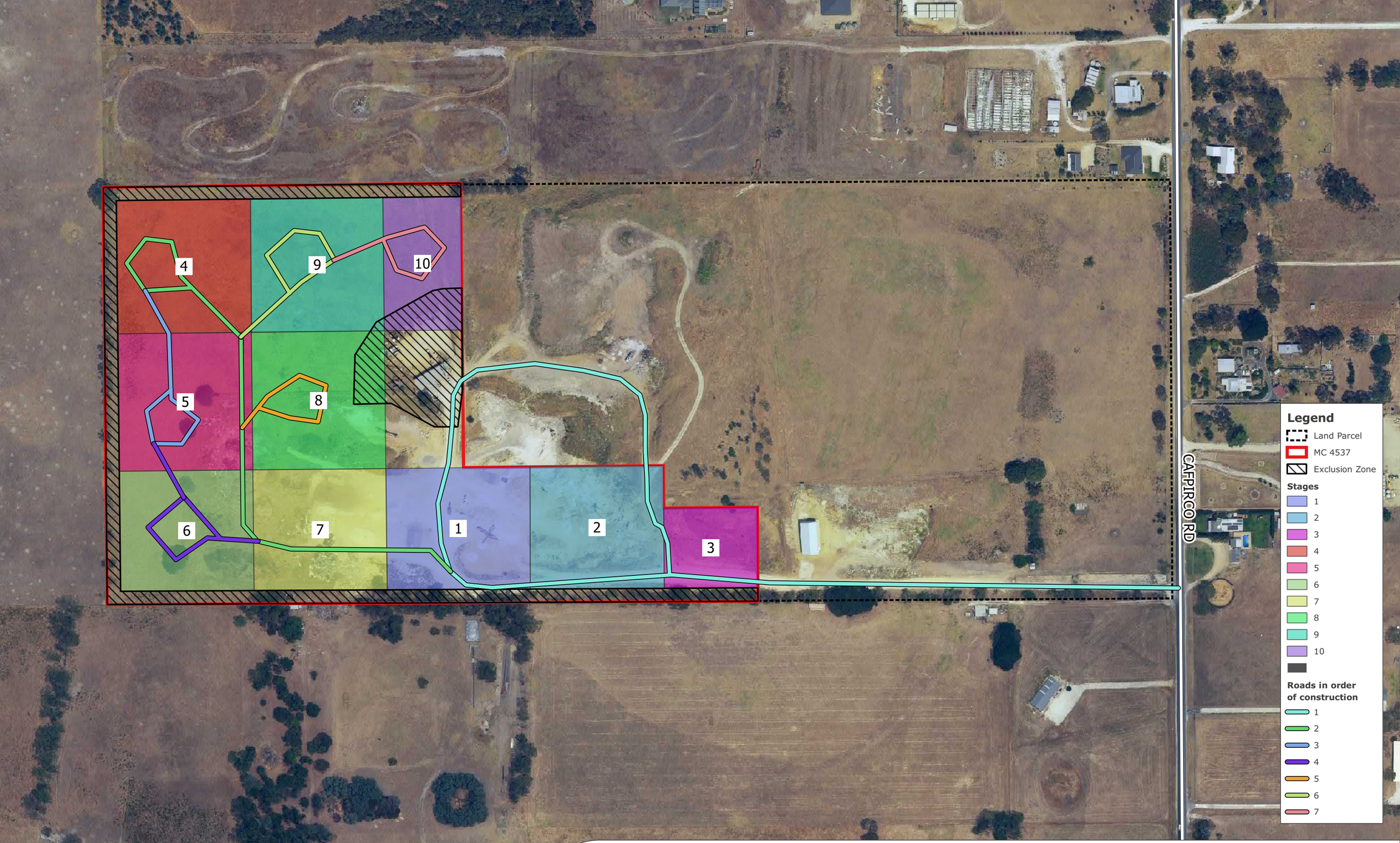
No fuel or chemicals are stored within the quarry site.

4.5.6 Site Security

The site is fully fenced and the site entrance gate is kept closed and locked when the site is unoccupied.

4.5.7 Erosion, Sediment and Silt Control

There are no visual signs of surface erosion at the site. There are no creeks or watercourses in the area and although the rainfall is > 700 mm, the rain rapidly soaks away into the soil. Due to the high infiltration rate and negligible quantities of surface runoff, the storage, diversion and release of clean water is not required



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Job Number: 20192018
Revision: B
Date: 12.11.21
Drawn: AMT

Data Acknowledgement:
Local Aerial from MetroMaps, Accessed 21.04.21

Sandyridge Holdings Pty Ltd

Sandyridge EMLA MC 4537
Access Route Map
1:2500

EPSG:28354

The quarry pit, having been excavated below the surrounding plain and any site runoff is directed into the pit. Runoff is captured and contained within the pit floor, where it can infiltrate into the permeable sand. The sand and limestone quarried from the site does not need washing, and no water storage dams are required. There are no silt retention dams or silt produced at the site as there is no watering process.

Overburden stockpile areas will be placed so that runoff is directed into the pit either by natural surface grades or by the installation of sediment controls, such as silt fences, berms or cutoff drains. Stockpiles will be vegetated with pasture grass to reduce dust generation and limit weed invasion during storage.

4.6 Vegetation Clearance

There is no remnant native vegetation at the site as all original vegetation covering the mining tenements and surrounding properties was previously cleared and sown to pasture with introduced grasses for stock grazing. Four trees planted since the site was originally cleared have an estimated circumference size of ≥ 2 m and are therefore regulated trees under the *Planning, Development and Infrastructure Act 2016*. These four trees are located along the southern boundary of the stockpile yard and will need to be removed in the future to allow for excavation in the southeast area of MC 4537. Based on estimated quarrying rates (Table 4.2), these trees are not likely to be removed for at least another 60 years. The District Council of Grant will be consulted prior to the development of this stage and before the trees are removed to determine if approval is required. Note that dead trees and tree species listed under section 3F(4) of the PDI General Regulations are exempt from the regulations associated with regulated and significant trees. If required, an application for the removal of a regulated/significant tree will be submitted to the Native Vegetation Council; and the prescribed offset will be planted or payment made to the Native Vegetation Fund will be made as a form of Significant Environmental Benefit.

4.7 Site Water Management

No water is used, or will be used, on site for processing operations, with the exception of the limited water use for dust suppression. In this instance, water is available from the groundwater well on site.

Surface runoff is rare due to the high permeability of the soil, sand, and limestone. As such, there is no stormwater transport or detention infrastructure on site.

4.8 Quarry Site at Completion

Following mine closure and final rehabilitation, the proposed end use of the company owned site is to return it to its pre-mining grazing land use. Mine closure is not considered imminent.

Completion of the sequence of quarrying Stages 3 to 10 represents the final stage of pit rehabilitation. A gently contoured landform similar to pre-quarrying contours (Figure 1) will remain following the completion of mining. No Conceptual Mine Closure Plan has been prepared as the progressive backfilling and rehabilitation of completed cells within areas of terminal quarry development, using waste derived fill, provides a final pre-mining surface level suitable for the establishment of pasture grasses for cropping and grazing land use.

The sorting and equipment sheds will be dismantled after excavated areas have been completely backfilled. Consequently, it is anticipated that no infrastructure will remain on site after closure and become the responsibility of the landowner.

As described in Section 3.7, the generation of surface water in the application area and surrounding region is negligible due to high infiltration rates. The proposed mining and rehabilitation activities are not anticipated to significantly increase surface water generation and establishment of a pasture surface will minimise erosion. As a result, surface water infrastructure (e.g. ponds and diversions) will not be established within the application area upon quarry completion.

4.9 Workforce and Local Procurement

Two full-time positions are currently filled at the site by local residents. Further positions are subject to product demand. The proposed expansion of mining operations into MC 5594 is to gain surety of supply and is not in response to increased demand. There are no specific programs to target and assist Indigenous or local employment as the current site operations are to remain unchanged. Future increases to workforce will consider indigenous and local employment. Training, subsidy payments or refunds will be available for employees wishing to upgrade certain qualifications (e.g. plant and machinery tickets) and to assist local employment as required.

Where it is reasonable and practical to do so, Sandyridge will obtain goods (e.g. hardware) and services (e.g. landscaping, machinery maintenance/repair) locally. Mineral resources extracted by Sandyridge are used in local developments by local builders and construction companies.

5 Reasonable prospect of access to land

The quarry site is owned under freehold title by Sandyridge Holdings Pty Ltd.

As discussed in Section 3.13, the land owners of eight properties have the benefit of an exemption under Section 9 of the *Mining Act 1971* and will be requested to enter into an agreement with Sandyridge to waive that benefit. The relevant land owners have not yet been approached in relation to waiving their benefit. The community consultation (reported in Section 7) did not suggest any community opposition to the expansion of mining operations within MC 4537. As such, it is anticipated that agreements can be successfully arranged with the relevant land owners.

As noted in Section 3.17, MC 4537 is not situated within a Native Title Determination. Consequently, there are no Indigenous Land Use Agreements that would prohibit authorised mining operations on site.

As a result, it is expected that there is a reasonable prospect that the land within MC 4537 could be effectively and efficiently mined.

6 Contributions to the Economy

The principal economic contributions facilitated by mining operations at the Butcher's Sandpit include: royalty payments; full time employment and training opportunities; local sponsorship programs; extraction of products used to support local construction developments.

Sandyridge has paid an estimated $30,000 in royalty payments and other direct Stage government taxes since 2019.

Two full time workers are currently employed. Annual wages range from $50,000 to $90,000. Additionally, employees receive the following leave: 4 weeks paid annual leave per year, 10 days personal leave per year, 10 days parental leave per year, 90 days of long service leave per 15 years, and community leave. Sandyridge offers subsidy payments or refunds to employees wishing to obtain or upgrade certain qualifications (e.g. plant and machinery tickets).

Sandyridge annually sponsors the following local sporting clubs: East Gambier Football Netball Club, West Gambier Football Netball Club, Kongorong Football Netball Club, and Centrals Soccer Club. These clubs have received an approximate total of $5,000 in sponsorship since 2019.

Products produced by Sandyridge from the Butcher's Sandpit are primarily used for local road and building developments. As such, Sandyridge plays a key role in the development of local infrastructure.

7 Consultation

Tonkin was engaged by Sandyridge to assist with community consultation. In accordance with the International Association for Public Participation (IAP2) Spectrum for Public Participation, Tonkin developed a Stakeholder Engagement Plan to establish a framework for identifying and engaging with relevant stakeholder in relation to the proposed mining operations associated with MC 4537.

A summary of the key stakeholders and the mode of stakeholder engagement is provided in Table 7.1. A community newsletter (Appendix C) was distributed to the 22 houses listed in Table 3.4 (i.e. houses within 600 m of MC 4537) via letterbox drop on 28 May 2021 and to District Council of Grant and SA EPA via email. The newsletter describes current activities and proposed mining activities at the site and requested recipients to raise concerns or provide feedback via email or post with Sandyridge within a 4-week period. No stakeholders identified during the community consultation process were not able to be consulted. Sandyridge has received no feedback from any stakeholders with respect to the proposed mining expansion from distribution of the newsletter.

Table 7.1 Key Stakeholders and Engagement Information.

Stakeholder	Level of Engagement	Name and Title	Contact Method
District Council of Grant	Inform	Darryl Whicker, CEO	Email
SA EPA	Inform	Naomi Grey, Manager South East and Campaigns	Email
First Nations of the South East/ South Australia Native Title Services	Inform	Andrew Jantke, Contact Officer	Email
22 residents < 600m from MC 4537.	Consult	Refer to Table 3.4	Hand delivered to letterbox
Green Triangle Forest Products Ltd	Consult	Jacqui Doloughan, Administration & Systems	Email on 7/07/21 as contact

Previous community engagement undertaken by Sandyridge in relation to a development application and licence amendment to allow the sorting and processing of inert waste on-site. Concerns raised during this processed and corresponding actions taken by Sandyridge are summarised in Table 7.2.

A request was made for interested parties to form a consultative group, but no expressions of interest were received to enable this consultation to occur. As such, the proposed environmental outcomes in Section 8 were designed in line with best practice to return the land to uses consistent with rural zoning and to meet relevant statutory requirements.

Table 7.2 Summary Community Responses from Previous Consultation and Proposed Actions

Aspect	Concern	Sandyridge Actions
Air quality	Off-site dust impacts – suggested planting a native tree screen along the property boundary	A native tree screen has been planted along the western and southern boundary in response to this request. This proposal has been modified as follows to further address these concerns: Reduce the height of overburden stockpiles to ≤2 m and stabilise with pasture grass during storage
Air quality and visual amenity	Litter and odour from putrescible wastes – suggested planting a native tree screen along the property boundary	Current operations under the EPA Licence comprise receipt of loads of mixed construction and demolition waste and commercial and industrial waste at the waste receival shed. Kerbside collections are not accepted and only small quantities of putrescible waste is comingled with the waste received. Waste is sorted to produce a clean, inert waste stream which is free from recyclables (including plastic) and putrescible waste. Segregated waste materials (such as light film plastics and putrescible wastes) are retained in covered hooklift storage bins for transport and disposal off-site to Caroline Landfill approximately every two days. Covering bins and reducing time retain on-site prevents the development of odour. In response to the concerns raised, Sandyridge has: • Planted a vegetation screen to limit litter leaving the site; • Implemented daily inspections for litter with litter will be immediately collected and disposed of appropriately to covered bins for removal off-site.
Noise	Concern over increased traffic and noise levels.	Noise arising from the landfill operations on all surrounding residential areas is minimised by implementing the following control measures: • Maintaining all landfill plant and machinery in proper working order; • Ensuring all vehicles accessing the site use the designated access roadways; • Operating plant and equipment within specified working hours; • Hand sorting mixed C&D and general C&I waste; • Undertake sorting within a shed; • Operating crushing equipment within the quarry void In response to the concerns raised, Sandyridge has: • Instructed staff to minimise drop heights for skip bins; • Planted a dense native vegetation tree screen which, combined with the topography, screens operations along the northern and western boundaries.

Aspect	Concern	Sandyridge Actions
Noise	Uncertainty around changes to the hours of operation.	Hours of operation are to remain as current, being: Monday to Friday: 7:00 am – 6:00 pm Saturday: 8:00 am – 4:00 pm Sunday: Closed. Open by prior appointment Public Holidays: Closed
Groundwater	Concerns over potential impacts to groundwater and drinking water.	Inert materials permitted for disposal into the landfill will at very most contain trace contaminant concentrations. Soil/fill materials permitted for disposal to landfill must comply with A Waste Fill classification in accordance with the EPA Standard (see response to Representation No. 3). Waste Fill materials are considered safe for reuse in residential properties and are not seen as a potential source of groundwater contamination. Based on the characteristics of the permitted landfill materials discussed above, potential risks to groundwater associated with the leaching of contaminants form these materials is considered negligible (i.e. essentially non-existent). Reticulated water and rainwater that may be used for drinking water purposes are not subject to any tangible impacts due to activities on the landfill site.
Waste	Concern that the DA represents a change from current operations, including: • the possibility that other non-inert or hazardous materials will be accepted for disposal • increased volumes or material will be accepted for disposal or processing (sorting) • new buildings and machinery will be constructed or installed	All mixed waste received on site is directed to the waste receival shed which is administered by an EPA Licence. Only clean loads of soil, bricks, concrete or other inert wastes are directed to the quarry void or stockpile areas. The waste control program is detailed in the Landfill Environmental Management Plan, approved by the EPA, and comprises: • Prominent signage at the entrance to the landfill defining acceptable wastes and directing users to contact site staff for information regarding disposal of other wastes; • Inspection of vehicles entering the landfill. All vehicles suspected of containing unacceptable waste are refused permission to deposit waste until the waste is verified as being acceptable; • Directing vehicles with unacceptable wastes to an appropriate disposal facility; • Random monitoring and inspection of wastes as they are discharged from vehicles at the waste disposal areas by Applicant personnel. All waste suspected of being unacceptable will be segregated and checked as to its acceptability, e.g. by detailed inspection and/or testing, as deemed appropriate by the Applicant • Monitoring of the deposited waste during spreading, compaction and covering at the landfill or during stockpiling. All waste suspected of being unacceptable will be segregated and checked to determine its acceptability e.g. by detailed inspection and/or testing, as deemed appropriate by the applicant; and • Recording of all incidences of identification of unacceptable wastes in the site's daily log. The record includes:

Aspect	Concern	Sandyridge Actions
	• the site will become a ""full blown"" waste recycling facility."	- Details of the waste including type and a description - Source of the waste including vehicle identification, driver identification and waste generator - Recommended waste management facility(s) - Result(s) of contacting the waste management facility; and - Date contacted EPA. "
Waste	Residents seeking written, possibly signed, assurances that asbestos or other hazardous materials will 'never' be received at the site.	The applicant withdrew this application when it became aware that it was still active. This DA is solely about continuing the current operations on the site and in no way allows the applicant to receive other waste or expand their operation. Any change to wastes received would require development approval and the applicant understands that asbestos receival is not acceptable to the community so there is no point in applying for this change.
Waste	Concern that plastic waste will be accepted for disposal into the landfill.	As per the response to Representation No. 3, the EPA licence for the landfill restricts disposal to permitted wastes. Although plastic can be received onto the site, plastic waste is not a permitted waste for disposal and must be removed for appropriate disposal off-site.
Waste	Insufficient information on proposed landfill operations available to local residents.	The EPA licence is publicly available and can be accessed on the EPA website, it provides details wastes permitted for receipt and disposal and required management measures.
Land use	Concerns over site use in residential context ("residents are entitled to a 'country style' living without Industrial operations in close vicinity.").	Since 1980 the subject site as has been operating as a quarry and from 1984 the site has been operating as both a quarry and a solid waste landfill. As previously noted, the DA does not represent a change in current use. Sandyridge has responded to these comments by planting a dense native tree screen as requested by residents to assist in maintaining a "country style" living.
Engagement	Limited engagement with local community by the Applicant - written correspondence, meetings.	Sandyridge has consulted with the community and attempted to establish a community consultation group but received no interest from the community

Aspect	Concern	Sandyridge Actions
General	Concern over future development of the quarry (especially where operations occur closer to existing residential properties).	The proposal will move operations south from the existing void and further from the majority of residents to the north located along Cafpirco Road (Figure 6). Operations will move closer to four residents located to the south-east and south-west. The planted screen will assist in minimising potential impacts to these resident Although this concern was raised, no response to the community consultation was received.

8 Management of Environmental Impacts

8.1 Elements of the Environment

TOR003 – 4.1.1 requires a description of elements of the environments that may reasonably be expected to be impacted on by the proposed quarry operation during construction, operation and indefinitely post completion. The definition of *environment* under Section 6(4) of the Act incorporates features of the natural environment (e.g. land, water, organisms and ecosystems) as well as infrastructure, land use, public health, safety and amenity, geological heritage values and aesthetic or cultural values of an area. Table 8.1 provides a description of the elements of the environment considered for this application.

Table 8.1 Summary of Elements of the Environment

Environmental Element	Interpretation/Description
Flora	Potential impacts are considered in relation to three aspects of flora: 1. Native and Protected Flora – meaning plant species protected under the *National Parks and Wildlife Act 1972*, *Native Vegetation Act 1991* and the *Environment Protection and Biodiversity Conservation Act 1999*. 2. Pest Flora – meaning plant species declared to be a pest under the *Landscape South Australia Act 2019* or considered to be a pest by the administering Regional Landscape Board. 3. Plant Disease – meaning a disease, organism or condition declared to be a pest under the *Plant Health Act 2009*.
Fauna	Potential impacts are considered in relation to two aspects of fauna: 1. Native and Protected Fauna – meaning animal species protected under the *National Parks and Wildlife Act 1972* and the *Environment Protection and Biodiversity Conservation Act 1999*. 2. Pest Fauna – meaning plant species declared to be a pest under the *Landscape South Australia Act 2019* or considered to be considered to be a pest by the administering Regional Landscape Board.
Soil	The topsoil (i.e. the first 0.5-1 m of soil) will be removed as overburden, while the underlying subsoil (sand) will be extracted as a product. As such, soil is taken to mean: (1) undisturbed topsoil, (2) topsoil removed as overburden, and (3) any soil material imported to the site for site rehabilitation. Potential impacts to soil quality are considered within the context of the *Environment Protection Act 1993*. Potential soil erosion impacts are considered within the context of IECA (2008).[17]
Surface Water	Surface water is considered to be any perennial or ephemeral body of water that extends above land surface level (e.g. rivers/creeks, lakes, billabongs/ponds, soaks/seeps, dams, and wastewater lagoons). Surface runoff (in the sense of infiltration/saturation excess overland flow) is addressed separately. Potential impacts to surface water quality are considered within the context of the *Environment Protection Act 1993* and the *Environment Protection (Water Quality) Policy 2015*.

[17] International Erosion Control Association (IECA), 2008. Best Practice Erosion & Sediment Control. IECA (Australasia), Picton NSW.

Environmental Element	Interpretation/Description
Groundwater	Groundwater is considered to be any perennial or ephemeral body of water that is present below land surface level. This includes water that accumulates in the upper profile of imperfectly and poorly-drained soils during periods of high rainfall. Potential impacts to ground water quality are considered within the context of the *Environment Protection Act 1993* and the *Environment Protection (Water Quality) Policy 2015*.
Surface runoff	Surface runoff is taken to mean infiltration excess overland flow, namely an overland flow of water occurring when water applied to the land or structures on land (e.g. precipitation, irrigation or for dust suppression) exceeds the rate of water infiltration in the soil/ground. Potential impacts are considered in relation to three aspects of surface water: (1) the quality of the surface runoff, (2) the amount of surface runoff potentially generated, and (3) the distribution or movement of surface runoff. The quality of surface runoff is considered within the context of the *Environment Protection Act 1993* and the *Environment Protection (Water Quality) Policy 2015*. The amount and distribution of surface runoff is considered in relation to IECA (2008).
Air Quality	The generation of dust was identified as a key concern during community consultation. Potential impacts to air quality are considered within the context of the *Environment Protection Act 1993* and the *Environment Protection (Air Quality) Policy 2016*.
Visual Amenity	The amenity value is defined under the *Environmental Protection Act 1993* as any quality or condition of an area that conduces to its enjoyment. As such, visual amenity is taken to mean any aspect of the visual appearance of an area that conduces to its enjoyment. Potential impacts to visual amenity are considered in relation to the *Environment Protection Act 1993*.
Noise	Noise is considered a *pollutant* under the *Environment Protection Act 1993*. The generation of noise was identified as a key concern during community consultation. Potential impacts related to noise generation are considered within the context of the *Environment Protection Act 1993* and the *Environment Protection (Noise) Policy 2007*.
Heritage	Potential impacts are considered in relation to three aspects of and heritage: 1. Aboriginal Heritage – meaning an Aboriginal object, site or remains, as defined under the *Aboriginal Heritage Act 1988*. 2. Non-Aboriginal Heritage – meaning State, national and world heritage items as defined under the *Heritage Places Act 1993* and the *Environment Protection and Biodiversity Conservation Act 1999*. 3. Geoheritage – meaning places or objects of geological, paleontological and speleological significance under Part 5 of the *Heritage Places Act 1993*.

Environmental Element	Interpretation/Description
Public Health	Public health is interpreted here as it is defined under *South Australian Public Health Act 2011*, namely "the health of individuals in the context of the wider health of the community". Under Part 6 of *South Australian Public Health Act 2011*, Sandyridge has a general duty to take all reasonable steps to prevent or minimise any harm to public health caused by, or likely to be caused by, anything done or omitted to be done by Sandyridge. Injury, damage or loss attributable to the dangerous state or condition of the premises is considered in accordance with the principles of the law of negligence under the *Civil Liability Act 1936*. Note that matters related to work health and safety (WHS) are not considered here, as they should be separately addressed as part of the Safety Management System under the *Work Health and Safety Act 2012*.
Infrastructure	Infrastructure is taken to mean any permanent or temporary built structure, including: houses, sheds, luminaires, retention walls, groundwater bores, overhead and underground power and telecommunication cables, public roads, stormwater pipes and drains, and sewerage/ septic systems. Intentional and accidental potential impacts to infrastructure are considered within the context of the *Criminal Consolidation Act 1935* and the *Civil Liability Act 1936*, respectively.
Traffic	Potential impacts are considered in relation to two aspects of traffic: 1. Workplace traffic – meaning vehicle/plant and pedestrian traffic within at the work site. 2. Local traffic – meaning vehicle and pedestrian traffic on public roads that can reasonably be expected to be affected by activities associated with the proposed operations (e.g. the use of Cafpirco Road for the collection and dispatch of minerals extracted from the tenement area). Potential impacts and control measures workplace traffic were considered using Safe Work Australia's *Workplace traffic management* (April 2021). Potential impacts and control measures related to local traffic were considered using Austroads' *Guide to Road Design*, *Guide to Road Safety*, and *Guide to Traffic Management*.
Waste Management	Two forms of waste are considered: (1) Waste produced as part of the mining operations (e.g. kitchen waste and motor oil); (2) EPA-approved waste-derived fill brought onto site for rehabilitation. Potential impacts associated with waste brought onto the site for processing under EPA Licence 50456 are not considered here as they are separately addressed in Sandridge's Landfill Environmental Management Plan.
Land Use	Potential impacts are considered in relation to three aspects of Land Use: 1. Indigenous Land Use Agreements (ILUAs) under the *Native Title Act 1993*. 2. Pre-existing overlapping and adjacent mining and exploration tenements. 3. Land use and development policies and rules set out by the Planning and Design Code (P&D Code) under the *Planning, Development and Infrastructure Act 2016.*

Table 8.2 describes elements of the environment that may and may not reasonably be expected to be impacted on by the proposed authorised operations during construction and operation and following mine completion. Note that a construction phase is not required to establish mining operations in MC 4537. Therefore, potential environmental impacts are not considered in relation to construction, only in relation to mine operation and post mine completion.

Table 8.2 Elements of the Environment Potentially at Risk Due to Mining Activities

Mining Phase	Elements of the Environment	Applicable (Y/N)	Comment
Construction	Not Applicable – no construction is required to establish mining operations.		
Operation	Flora	Y	
	Fauna	Y	
	Soil	Y	
	Surface Water	N	Surface water is not present on or within 1 km of the site. There are no plans to construct lagoons or other infrastructure resulting in the accumulation of surface water. It is not plausible to expect surface water to be impacted by the proposed operations.
	Groundwater	Y	
	Surface Runoff	Y	
	Air Quality	Y	
	Amenity	Y	
	Heritage	Y	
	Public Health	Y	
	Infrastructure	Y	
	Traffic	Y	
	Waste Management	Y	
	Land Use	Y	
Post Mine Completion	Flora	Y	
	Fauna	Y	
	Soil	Y	
	Surface Water	N	Surface water is not present on or within 1 km of the tenement area. It is not plausible to expect surface water to be impacted by the proposed operations.
	Groundwater	Y	
	Surface Runoff	Y	
	Air Quality	N	Following mine closure and rehabilitation, there will be no pollutants capable of posing a risk to air quality.

Mining Phase	Elements of the Environment	Applicable (Y/N)	Comment
	Visual Amenity	Y	
	Heritage	N	Following mine closure and rehabilitation, there will be no disturbing activities capable of posing a risk to heritage.
	Public Health and Safety	Y	
	Infrastructure	Y	
	Traffic	N	Following mine closure and rehabilitation, there will be no traffic to and from the site for the purpose of carrying out authorised operations.
	Waste Management	N	Following mine closure and rehabilitation, waste will not be generated onsite or brought to the site for the purpose of carrying out authorised operations.
	Land Use	N	There are no ILUAs on or near the tenement area. It is not plausible to expect any ILUA to be impacted by the proposed operations during the post mine completion phase. The land use is expected to return to agricultural uses such as grazing which is an acceptable use within this land use zone.

8.2 Potential Impact Events and Control Measures

The assessment of environmental impacts has been based on establishing the source, pathway and receptor for any potential impacts. The risk register is provided in Appendix D and is based on *ISO31010:2020 Risk Management – Risk Assessment Techniques* to assess potential risks related to the elements of the environment identified in Table 8.2.

The complete environmental risk register (Appendix D) includes a description of the source, pathway and receptor. A summary of the potential impact events and control measures is provided in Table 8.3 and Table 8.4. Note that no construction phase is required to establish mining operations in MC 4537 as the site is currently used for mining and relevant infrastructure is already established. The proposed control measures described in Table 8.3 and in the Risk Register (Appendix D) are anticipated to achieve compliance with applicable statutory requirements and promote progressive rehabilitation.

Table 8.3 Summary of Potential Impact Events and Control Measures – Operation Phase

Environmental Element	ID	Potential Impact Event	Uncertainty [a]	Impact Event(s) Viable? [b]	Risk Rating [c]	Control Measures	Uncertainty [d]	Residual Risk Rating [e]
Flora (Native/ Protected)	FL1	Damage of native/protected flora.	Low	Yes	M - 16	Staff training to include summary of local vegetation as outlined in Useful Indigenous Plants of the South East (City of Mount Gambier, 2018). Young plants suspected of being native vegetation will not be disturbed without seeking advice from an appropriately qualified person (e.g. ecologist, arborist, Landscape Officer).	Low	L - 23
Flora (Pest)	Fl2	Proliferation of pest plants resulting in non-trivial environmental harm.	Low	Yes	M - 16	Regular site maintenance. Staff training to include summary of priority weeds in the Limestone Coast. Advice regarding local weed outbreaks and control measures should be obtained from the relevant Limestone Coast Landscape Officer.	Low	L - 23
Flora (Disease)	FL3	Proliferation of plant diseases resulting in non-trivial environmental harm.	Low	Yes	L - 21	Regular site maintenance. Advice regarding local plant pest issues and control measures in the local area should be obtained from the local Limestone Coast Landscape Officer	Low	L - 21
Fauna (Native/ Protected)	F1	Damage of native/protected fauna.	Low	Yes	L - 21	Work sites and vehicles/ machinery should be checked for animals each time before work occurs. Local wildlife care groups should be consulted if native wildlife is discovered on site. Confined spaces should be closed off to prevent animals becoming trapped where practical.	Low	L - 21
Fauna (Pest)	F2	Proliferation of pest animals resulting in non-trivial environmental harm.	Low	Yes	L - 21	Pest control measures typically include regular site maintenance and pest baits and traps. Additional measures include pest fences and guardian animals. Advice regarding local pest issues and control measures should be obtained from the relevant Limestone Coast Landscape Officer.	Low	L - 21
Soil	S1	Pollution of soil caused by leaks/spills resulting in site contamination[f].	Low	Yes	L - 21	Ensure vehicles/ machinery are used and maintained according to the manufacturer's instructions for use. Conduct any inspections, maintenance or refuelling on hardstand areas and ensure a spill kit is available on hand.	Low	L - 21
	S2	Wind erosion of overburden stockpiles reduces soil quality for rehabilitation.	Low	Yes	M - 17	Place overburden stockpiles at < 2 m high and in north-south orientation as far as practical. For stockpiles to be retained for > 3 months, ensure that surface is stabilised, preferably with vegetation. Where volunteer pasture does not grow, seed stockpiles to ensure adequate coverage. Soils suspected of being highly hydrophobic/non-wetting or dispersive may require additional control measures (e.g. mulching) to mitigate erosion.	Low	L - 21
Surface Water	SW1	Pollution of surface water due to leaks/spills.	Low	No	NA	NA	NA	NA
	SW2	Pollution of surface water by particulate matter generated onsite.	Low	No	NA	NA	NA	NA
Groundwater	GW1	Pollution of groundwater caused by leaks/spills.	Moderate	Yes	L - 24	Ensure vehicles/ machinery are used and maintained according to the manufacturer's instructions for use. Conduct any inspections, maintenance or refuelling on hardstand areas and ensure a spill kit is available on hand.	Moderate	L - 25
	GW2	Pollution of groundwater caused by leaching of contaminated backfill.	Moderate	Yes	L - 21	Training of staff to conduct general inspection of waste derived fill for evidence of contamination.	Moderate	L - 25
Surface Runoff	SR1	Activities/events that: (1) result in the generation of contaminated surface runoff, (2) significantly alter the amount of surface runoff relative to pre-mining conditions, and/or (3)	Low	Yes	L - 25	Routine visual inspection for evidence of surface runoff. Ensure final land capping material is not hydrophobic and not over-compacted. Implementation of storm water control measures (e.g. bunds/berms, silt	Low	L - 25

Environmental Element	ID	Potential Impact Event	Uncertainty [a]	Impact Event(s) Viable? [b]	Risk Rating [c]	Control Measures	Uncertainty [d]	Residual Risk Rating [e]
		cause surface runoff to escape the tenement area and adversely impact adjacent land. Plausible examples include the use of hydrophobic/non-wetting soils for rehabilitation and over-compacting topsoil during rehabilitation.				fences and socks) where surface runoff (if generated) could emigrate to neighbouring land. If significant quantities of runoff are found to pool for > 1 week after rain/irrigation/water spraying, collect samples for contamination assessment.		
Air Quality	AQ1	Pollution of air – caused by dust generated onsite by mining activities – resulting in harm to (i) human health and safety, and/or (ii) the environment that is not trivial.	Low	Yes	M - 17	Water cart is currently available onsite to suppress dust. Dust generating activities limited to days or gentle breezes. Progressively clear areas as required. Increase the frequency of water spraying during drier months and on dry and windy days. Cover stockpiles where possible.	Low	L - 21
	AQ2	Pollution of air – caused by pollutant other than dust – resulting in harm to (i) human health and safety, and/or (ii) the environment that is not trivial.	Low	Yes	L - 23	Idle down machinery when not in use. Ensure vehicles/ machinery are used and maintained according to the manufacturer's instructions for use.	Low	L - 25
Visual Amenity	VA1	Loss of visual screen resulting in significant decrease in visual amenity.	Low	Yes	M - 17	Existing tree screens are in place. Additional vegetation has been planted to screen this property from the mine operations but will require 5-10 years to establish. Residents are aware of the plantings. Routine monitoring of vegetation health and replacement of trees as required.	Low	L - 21
Noise	N1	Noise generated by authorised operations resulting in environmental nuisance (i.e. significant decrease in amenity).	Low	Yes	M - 17	Existing tree screens are in place. Additional vegetation has been planted to screen this property from the mine operations but will require 5-10 years to establish. Residents are aware of the plantings. Ensure vehicles/ machinery are used and maintained according to the manufacturer's instructions for use. Crushing (likely to generate highest noise) is not continuous and confined to after 9 am. Drop heights are minimised to reduce noise. Noisy activities are undertaken within quarry void as far as practically possible.	Low	L - 21
Heritage (Aboriginal)	H1	Damage/ disturbance of Aboriginal heritage items.	Low	Yes	L - 20	Adopt accidental finds procedure. Training of staff to include description of common Aboriginal heritage items (e.g. stone tools, camp sites, tree scarring).	Low	L - 20
Heritage (Non-Aboriginal)	H2	Damage/ disturbance of Non-Aboriginal heritage items.	Low	Yes	L - 20	Adopt accidental finds procedure. Training of staff to include description of common colonial heritage items (e.g. stone road and building foundations).	Low	L - 20
Heritage (Geoheritage)	H3	Damage/ disturbance of geoheritage items.	Low	Yes	L - 21	Final pit floor to be > 5 m above the groundwater level to minimise likelihood of impacting undiscovered karstic features (typically located around water table). Adopt accidental finds procedure. Training of staff to include description of local heritage items (e.g. caves and other karstic features).	Low	L - 20
Public Health	PH1	Anything done or omitted to be done resulting in loss of human life.	Low	Yes	H - 10	Hazards will be highlighted onsite using the appropriate hazard signage. All security infrastructure and devices (e.g. fences, gate, locks) will be maintained and regularly inspected for faults and significant wear. Batter slopes maintained at 1:3 (V:H or less steep. Site will be regularly inspected for safety hazards and evidence of trespassing. Public liability insurance will be maintained to ensure third-parties can be appropriately compensated if	Low	H - 10

Environmental Element	ID	Potential Impact Event	Uncertainty [a]	Impact Event(s) Viable? [b]	Risk Rating [c]	Control Measures	Uncertainty [d]	Residual Risk Rating [e]
						harmed on site or due to activities associated with authorised operations on the site.		
	PH2	Anything done or omitted to be done resulting in harm to public health, including loss of life, personal injury, damage to property, and economic loss.	Low	Yes	M – 16	See PH1.	Low	L - 21
Infrastructure	I1	Damage (intentional and accidental) to third-party infrastructure.	Low	Yes	L - 21	Site inspection (especially in areas of high traffic) to assess condition of and potential impacts to infrastructure. Safety signage will be used to highlight vulnerable infrastructure. Record of incidents involving damage to infrastructure will be maintained. Public liability insurance will be maintained to ensure third-parties can be appropriately compensated if their property is damaged.	Low	L - 21
Traffic	T1	Increased traffic to and from the site causing unsafe workplace traffic conditions.	Low	Yes	L - 21	Vehicle speed restrictions on site will be clearly marked by signs. Appropriate traffic signs and road markers to be installed as haul roads expand. All staff and visitors to wear high visibility clothing. Any incidents involving workplace traffic will be recorded and investigated.	Low	L - 21
	T2	Increased traffic to and from the site causing significant detriment to the safety, efficiency and/or physical integrity of the local road network.	Low	Yes	L - 21	Cafpirco Road will be regularly inspected at the site entrance for evidence of damage of significant wear (e.g. potholes, subsidence, rutting, cracking/crazing). The local government will be contacted to discuss potential damage/wear to road caused by site traffic. Any traffic incident involving Sandyridge staff or contractors will be recorded. Any community complaint regarding traffic to and from the site will be recorded.	Low	L - 21
Waste Management	WM1	Improper handling, use, or disposal of waste resulting in environmental harm that is not trivial.	Low	Yes	L - 24	Any waste produced as part of the normal operation of the quarry will be temporarily stored in appropriate containers, and appropriately disposed of with approved facilities. Excavating equipment is available onsite to rapidly respond to spills.	Low	L - 24
	WM2	Place of contaminated inert waste in the quarry void resulting in site contamination.	Low	Yes	M - 17	EPA-approved waste derived fill will be managed in accordance with the EPA *Standard for the production and use of Waste Derived Fill*.	Low	L - 21
Land Use	LU1	Activities/events that: (1) adversely impact pre-existing adjacent mining/exploration tenements, and/or (2) are non-complaint with rural zone policies and rules. Plausible events include site contamination, mining outside the tenement area, the use of non-complying building products.	Low	Yes	L - 20	Regarding site contamination: control measures include those described for S1, GW1 and GW2. Additionally, a protocol should be established for the discovery of contaminated material. Regarding mining outside the tenement area: control measures include clearly delineating the tenement boundaries and training staff. Regarding the use of non-complying building products: control measures include engaging a suitably qualified person for any construction work that is required. Note that no construction work is currently anticipated.	Low	L - 21

Table 8.4 Summary of Potential Impact Events and Control Measures – Post Mine Completion Phase

Environmental Element	ID	Potential Impact Event	Uncertainty [a]	Impact Event(s) Viable? [b]	Risk Rating [c]	Control Measures	Uncertainty [d]	Residual Risk Rating [e]
Flora (Native/ Protected)	FL4	Land is left in a condition that results in the damage of Native/Protected flora or prevents or significantly hinders the use of the land for the establishment of native/protected flora.	Low	Yes	L - 23	Final site inspection to include an assessment of: (i) any native/protected flora planted for amenity/landscaping purposes, and (ii) potential contamination.	Low	L - 25
Flora (Pest)	FL5	Land is left in a condition that promotes the proliferation of pest plants.	Low	Yes	L - 21	Final site inspection to include an assessment of pest plants and areas that may require landscaping to mitigate potential proliferation of pest plants.	Low	L - 23
Flora (Disease)	FL6	Land is left in a condition that promotes the proliferation of plant disease.	Low	Yes	L - 21	Final site inspection to include an assessment of vegetation for evidence of plant disease.	Low	L - 21
Fauna (Native/ Protected)	F3	Land is left in a condition that results in the damage of Native/Protected fauna.	Low	Yes	L - 23	Final site inspection to include an assessment of amenity plantings and landscaping within the context of suitability for and potential risks to native fauna.	Low	L - 23
Fauna (Pest)	F4	Land is left in a condition that promotes the proliferation of pest animals.	Low	Yes	L - 21	Final site inspection to include an assessment of pest animals and areas that may require landscaping to mitigate potential proliferation of pest animals.	Low	L - 21
Soil	S1	Erosion of soil onsite resulting in non-trivial environmental harm.	Low	Yes	L - 21	Final site inspection to include an assessment of ground cover quality and distribution. Areas showing exposed soil or unhealthy groundcover to be rehabilitated.	Low	L - 24
Groundwater	GW3	Land is left in a condition that results in the pollution of groundwater and site contamination.	Low	Yes	L - 21	Final site inspection to include a detailed assessment of potential groundwater contamination.	Low	L - 21
Surface Runoff	SR2	Land is left in a condition that: (1) generates contaminated surface runoff, (2) significantly alters the amount of surface runoff relative to pre-mining conditions, and/or (3) causes surface runoff to escape the tenement area and adversely impact adjacent land.	Low	Yes	L - 21	Ensure final land capping material is not hydrophobic and not over-compacted. Final site inspection to include assessment of surface runoff generation potential and potential contamination. If surface runoff is known to form in certain areas, measures (earthen bunding) should be taken to ensure runoff does not emigrate to surrounding properties.	Low	L - 21
Visual Amenity	VA2	Significant reduction of visual amenity due to poor rehabilitation.	Low	Yes	L - 25	Final site inspection to include an assessment of: (i) the health of the visual screen, (ii) line-of-sight with adjacent houses. A suitably qualified person (e.g. landscaper, arborist) must be engaged to remedy significant faults with the amenity screen.	Low	L - 25
Public Health	PH3	Land is left in a condition that results in loss of human life.	Low	Yes	H - 10	Site rehabilitated to natural surface contours. Final site inspection to include an assessment of public health hazards such as significant depressions and voids, unstable infrastructure (if present), and damaged/dead trees.	Low	H - 10
	PH4	Land is left in a condition that results in harm to public health, including personal injury, damage to property, economic loss and loss of any other kind.	Low	Yes	L - 20		Low	L - 20
Infrastructure	I2	Land is left in a condition that: (1) prevents or significantly hinders the establishment of infrastructure, (2) causes damage to infrastructure established onsite following mine completion and rehabilitation.	Low	Yes	L - 23	Final site inspection to include an assessment of: (i) of the condition of any infrastructure to remain onsite, and (ii) potential contamination.	Low	L - 23
Land Use	LU2	Land is left in a condition that: (1) adversely impacts pre-existing adjacent mining/exploration tenements, and/or (2) is non-complaint with rural zone policies and rules.	Low	Yes	L - 25	Final inspection to include and assessment of: (i) of potential contamination, (ii) compliance of any infrastructure the P&D Code.	Low	L - 25

8.3 Environmental Outcomes and Draft Measurement Criteria

The environmental outcomes and draft measurement criteria are shown in Table 8.5. The environmental impact of the proposed impact events, subsequent to the implementation of the proposed control measures, is expected to be negligible. Consequently, the environmental outcomes for all environmental elements are anticipated to be achievable.

Table 8.5 Environmental Outcomes and Draft Measurement Criteria

Environmental Element	Outcomes	Draft Measurement Criteria				
		Type	Location	Frequency	Control Data	Outcome achievement trigger
Flora	The tenement holder must, during operation, 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. • No introduction of new species of pest plants or plant pathogens, nor sustained increase in abundance of existing pest plants or plant pathogen communities.	Quantitative measurement of flora-related impacts is not reasonable or practical given the low level of risk. Site inspection records is proposed as the principal measure of flora-related impacts. Site inspection – Sandyridge or contracted gardener/landscaper to inspect: • the health of any native vegetation planted as a visual screen or for other landscaping/amenity purposes, • the health/success of pasture (or any other plant cover) established for rehabilitation, • the presence of pest plants, • the presence of plant disease.	Whole site	Six monthly	Control data are not necessary to determine the success of amenity plantings and rehabilitation activities, and to assess flora-related impacts.	• No signs that the mining activities have compromised the health of the visual screen or any other native vegetation planted for landscaping/amenity purposes; • Pasture (or any other plant cover planted for final rehabilitation) is healthy and fit for purpose; • No non-trivial pest plant outbreaks or areas highly conducive to pest plant proliferation; • No non-trivial outbreaks of plant disease or areas highly conducive to plant disease proliferation.
Fauna	The tenement holder must, during operation, ensure: • No native fauna injuries or deaths due to mining operations that could have been reasonably prevented. • No introduction of new species of pest animals, nor sustained increase in abundance of existing pest animal communities.	Quantitative measurement of fauna-related impacts is not reasonable or practical given the low level of risk. Ongoing observations and site inspection records is proposed as the principal measure of fauna-related impacts. 1. Ongoing observation –record any animal sightings or evidence of animal activity (e.g. animal droppings, burrows, claw marks on eucalypts). 2. Site Inspection –inspect grounds for animals or evidence of animal activity.	Whole site	Observations: daily Inspections: six monthly	Control data are not required to assess fauna-related impacts.	• No evidence that the mining activities have significantly compromised the health of any native/protected animals present onsite; • Nothing on site that could considered to pose a significant hazard to native/protected animals; • No non-trivial pest animal communities or areas highly conducive to pest animal proliferation.
Soil	The tenement holder must, during operation, ensure: • No contamination or erosion of land and soils either on or off the land as a result of mining operations. • No contamination or erosion of land and soils either on or off the land post completion as a result of mining operations	1. Site inspection – Sandyridge to regularly inspect site for any evidence of soil contamination and erosion. Quantitative assessment of soil erosion is not practical and hence not proposed. Consequently, site inspection records will constitute the principal measure of soil erosion. 2. Soil testing – Sandyridge to sample waste soil in accordance with the requirements of the *Standard for Use and Production of Waste Derived Fill* (EPA, 2010).	Whole site As required	Six monthly As required	N/A Comparison with Waste Soil criteria	• No observed erosion • No evidence of site contamination
Surface water	No environmental outcomes or draft measurement criteria are proposed as there is no surface water on-site					or within 1 km of the tenement area
Groundwater	The tenement holder must, during operation, ensure: • no adverse impact to the quality or quantity of groundwater caused by mining operations.	Potential groundwater contamination will be assessed in line with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* measuring standing water level, pH, TDS, anions/cations, metals, hydrocarbons, PAHs.	Wells 7022-7351 and 7022-10925 (located onsite).	6-yearly, based on low likelihood of contamination	Well 7022-10925, assessment by DEW in July 2014 and regional data	• Final site investigation provides no indication of site contamination.

Environmental Element	Outcomes	Draft Measurement Criteria				
		Type	Location	Frequency	Control Data	Outcome achievement trigger
Surface runoff	The tenement holder must, during construction and operation, ensure there is: • No generation of contaminated surface runoff; • No significant alteration of the amount of surface runoff relative to pre-mining conditions; and • No escape of surface runoff from the tenement area which adversely impacts adjacent land.	Routine inspection of the site for surface runoff or evidence of surface runoff (e.g. fluting). Photographs of surface runoff or evidence thereof to be taken and stored with observation records.	Whole site	Following significant rainfall events	Existing site condition has no erosion or runoff onto adjacent land	• Final site investigation provides no indication of changes to surface runoff (relative to pre-mining conditions) or site contamination.
Air quality	The tenement holder must, during operation, ensure: • No public health and/or nuisance impacts from dust generated by mining operations.	Quantitative assessment is not reasonable or practical given low level of risk. Visual observation of dust during dry, windy weather from traffic and operations A community complaint register is maintained as the principal measure of air quality / dust impacts. If ≥ 5 separate complaints are received in one year in relation to air quality, a suitably qualified person will be engaged to measure air quality in a quantitative fashion in line with the *Environment Protection (Air Quality) Policy 2016* by measuring concentration of particulate matter in the air near sensitive receptors.	Whole site, particularly at boundaries	On-going Quantitative data will be compared with acceptable limits for dust related to human health and amenity	Not required	• The average number of annual community complaints related to air quality (e.g. dust impacts) is less than 1; • All complaints are investigated and resolved; • If required, dust monitoring demonstrates no adverse health or amenity impact from operations.
Visual amenity	The tenement holder must, during operation, ensure: • The form, contrasting aspects and reflective aspects of mining operations are visually softened to blend in with the surrounding landscape. • All rehabilitated landforms integrate and harmonise with the surrounding landscape.	Quantitative assessment is not reasonable or practical given low level of risk. A community complaint register is proposed as the principal measure of visual amenity	N/A	On-going	Not required	• The average number of annual community complaints related to visual amenity is less than 1; • All complaints investigated and resolved
Noise	The tenement holder must, during operation, ensure: • No public nuisance impacts from noise as a result of mining operations.	Quantitative assessment is not reasonable or practical given low level of risk. A community complaint register is proposed as the principal measure of noise impacts. If ≥ 5 complaints are received within one year in relation to noise generated onsite, a suitably qualified person (e.g. acoustic engineer) will be engaged to assess noise impacts in line with the *Environment Protection (Noise) Policy 2007*, including measuring the sound pressure/power Levels onsite and at boundaries or near sensitive receptors.	At boundaries and noise sensitive receptors	Ongoing	If required, noise data will be compared with acceptable noise limits for this land use zone.	• The average number of annual community complaints related to air quality (e.g. dust impacts) is less than 1; • All complaints are investigated and resolved; • If required, noise monitoring demonstrates no adverse health or amenity impact from operations.
Heritage	The tenement holder must, during operation, ensure: • No damage, disturbance or interference to Aboriginal and non-Aboriginal heritage sites, objects or remains as a result of mining operations unless it is authorised under the relevant legislation.	Quantitative assessment of is not reasonable or practical given low level of risk. An Incident Register is proposed as the principal measure of heritage impacts.	Whole site	On going	N/A	• No damage or loss of any heritage objects
Public health	The tenement holder must, during operation, ensure:	A site inspection record and incident register are proposed as the principal measures of public health impacts.	Whole site	Six monthly	N/A	• Fences and signage serviceable

Environmental Element	Outcomes	Draft Measurement Criteria Type	Location	Frequency	Control Data	Outcome achievement trigger
	• No unauthorised entry to the land occurs that results in public injuries and/or deaths that could have been reasonably prevented. • At post completion, the risks to the health and safety of the public so far as they may be affected by mining operations can be demonstrated to be as low as reasonably practicable.	1. Site inspection: quality/integrity of control measures (e.g. fences, locks and safety signage); evidence of trespassing (e.g. empty bottles and vandalism); new/unaddressed public health hazards (e.g. fallen/unstable tree limbs after storm). 2. Incident record –Maintain record of any incidents involving potential or actual risk to public health (e.g. injury of visitors, evidence of trespassing).				• Batter slopes no steeper than 1:3 (V:H) • No potential hazards remain unaddressed or documented • No injuries requiring medical treatment (excluding first aid) to public
Infrastructure	The tenement holder must, during operation, ensure • No adverse impacts to third-party land use or property on or off the Land as a result of mining operations.	A site inspection record and incident register are proposed as the principal measures of public health impacts. 1. Site inspection: infrastructure on and near the site (e.g. road and powerlines around the site entrance) for evidence of damage or significant wear. 2. Incident record –Maintain record of any incidents involving damage to infrastructure which is not trivial	External roads and powerlines	Six monthly	N/A	• No damage to infrastructure • Sie entrance maintained to keep sight distances on exit and minimise potential for damage to roads
Traffic	The tenement holder must, during operation, ensure • No traffic accidents involving members of the public and mine–related traffic occur that could have been reasonably prevented by the tenement holder. • No traffic accidents involving the public at mine access points occur that could have been reasonably prevented by the tenement holder. • No public safety or nuisance impacts off the Land are caused by drag-out of dirt, mud or other material onto roads associated with mine-related traffic.	A site inspection record and incident register are proposed as the principal measures of traffic impacts. 1. Site Inspection –condition of haul roads on site and potential workplace traffic safety hazards; condition of Cafpirco Road for signs of damage or significant wear (e.g. potholes, rutting, subsidence, cracking) around the site entrance. 2. Incident Record traffic incidents involving vehicles employed for the purpose of conducting authorised operations (e.g. visiting the site to collect and dispatch product); 3. Complaints Register: regarding traffic associated with onsite operations.	Intersection with Cafpirco Road, site entrance, haul roads and other high traffic areas.	Six monthly	Current number of traffic accidents reported due to site entrance	• No traffic accidents due to maintenance of access way • No accidents resulting in medical attention • Sight lines maintained and entrance pavement in good condition
Waste Management	The tenement holder must, during operation, ensure • No adverse impacts to the environment from commercial or industrial waste produced as a result of mining operations. • No adverse impacts to the environment from waste-derived fill brought onto the Land as a result of mining operations unless otherwise authorised through the relevant legislation.	Records of waste receival and random inspections during tipping Testing when required in accordance with *Standard for the production and use of Waste Derived Fill* or *Waste Classification Guidelines*	Waste sorting shed and stockpile areas	On-going	Meets Waste definitions accepted at site	• No placement of unacceptance waste types • No contamination observed on-site
Land Use	The tenement holder must ensure: • No adverse impacts to pre-existing adjacent mining/exploration tenements. • Land is left in condition that is complaint with rural zone policies and rules.	N/A	Whole site	At mine completion	N/A	• No evidence of contamination • Stages rehabilitated and returned to grazing pasture

9 Conclusions

Sandyridge Holdings has been operating the existing quarry at the Butcher's Sand Pit. This extension (Mineral Claim (MC) 4537) moves the mining operations to the east and south of the existing quarry void. The operations are proposed to continue as open pit mining to extract sand and limestone to supply the local construction industry.

The site is located in a rural zone and has been extensively cleared of vegetation. The mild temperate climate is characterised by distinct dry and warm summers and cool winters cool, temperate climate and the strongest winds most likely to occur from the south on summer afternoons. The Bridgewater Formation of dune sand is comprised of the overburden of highly permeable, low fertility sand to approximately 1 m and the underlying sand resource of approximately 11 m thick. The high permeability of the Bridgewater Formation sand has resulted in limited runoff and no surface water near the site. Underlying the Bridgewater Formation is the Gambier Limestone, also part of the quarried materials, which contains the unconfined aquifer at 24 m AHD or lower. The closest residence is 200 m from the boundary of MC4454 and no responses were received from these residents during a 4-week community consultation period. At the end of quarrying, the void will be backfilled with inert waste (crushed as required to maximum compaction) to approximately 1 m below pre-mining contours, and then covered with overburden and clean waste fill from local developments. The site will be planted to pasture and returned to uses consistent with its rural zoning, most likely grazing.

The main potential impacts from this development are during operations with no construction phase, due to the infrastructure already available from the existing operations. Post-mining impacts are expected to have a low risk. During the operations phase, some elements are predicted to have a moderate risk of impact and require further controls to be embodied within the PEPR. These aspects are:

- Native flora: Four planted native trees are likely to be regulated trees and are located within the Stage 7 footprint. Approval is required prior to removal but given that it is likely to be 60 years before development of this stage, it is proposed to delay removal. The potential risk is that approval is not sought before removal and hence it is proposed that this be embodied in the PEPR to ensure it is undertaken;
- Planted tree screens: The tree screens planted around the property boundary are integral in air quality, noise and visual amenity impacts of the proposed development. There is potential for these trees to harbour disease and potentially die-back. Regular monitoring of the health of the tree screens is required to reduce a number of potential impacts;
- Soil: Overburden stockpiles have a high potential for wind erosion and hence stockpiles must be kept to < 5 m high and where retained for > 3 months must be stabilised, preferably with suitable pasture species;
- Dust and Noise: Dust and noise are generated from on-site operations. By ensuring crushing and screening is undertaken within the quarry void (along with maintenance of the tree screens) and works are undertaken with constant supervision during standard working hours and on low wind days, the risk of impacts related to noise and dust will be reduced. A complaints register is present on-site to ensure all complaints are registered, investigated and appropriate actions undertaken;
- Public health: Active and inadequately rehabilitated mine sites can pose public safety hazards from heavy machinery and open quarry pits. The most plausible impact event is the harm or death of a person trespassing on the site and falling into an open quarry pit. This risk will be primarily managed with security infrastructure (e.g. security fencing), batter slopes no steeper than 1:3 (V:H) and safety signage.

The risk assessment has demonstrated that the risks are able to be managed by on-site practices and monitoring. The moderate risks are able to be managed to a lower risk status by including monitoring within the PEPR to ensure the causal event does not occur is remediated to minimise any impact.

Appendix A – Certificate of Title

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 5104 Folio 614

Parent Title(s) CT 4037/173

Creating Dealing(s) CONVERTED TITLE

Title Issued 20/01/1993 **Edition** 7 **Edition Issued** 30/01/2018

Estate Type

FEE SIMPLE

Registered Proprietor

SANDYRIDGE HOLDINGS PTY. LTD. (ACN: 622 747 102)
OF 3 HAMMOND PLACE WARRNAMBOOL VIC 3280

Description of Land

ALLOTMENT 22 DEPOSITED PLAN 1608
IN THE AREA NAMED COMPTON
HUNDRED OF BLANCHE

Easements

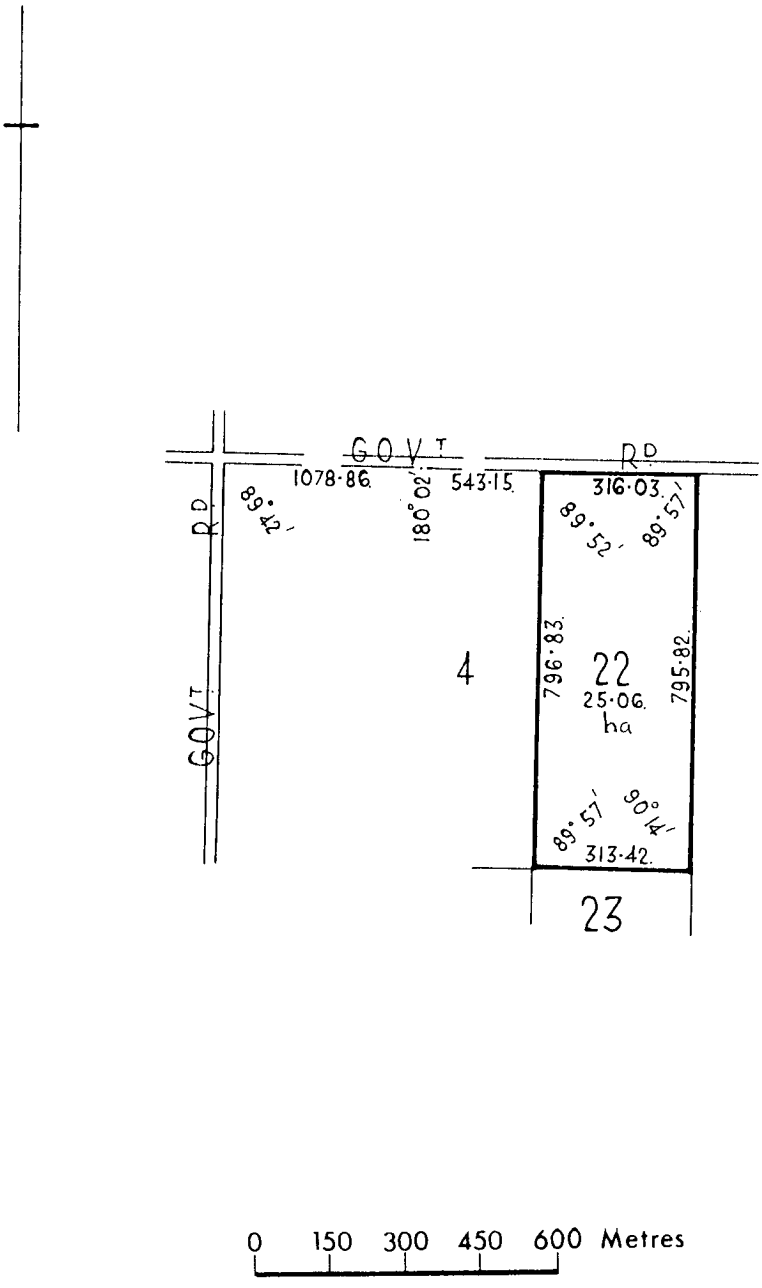
NIL

Schedule of Dealings

NIL

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL



Appendix B – Wind Rose Diagrams

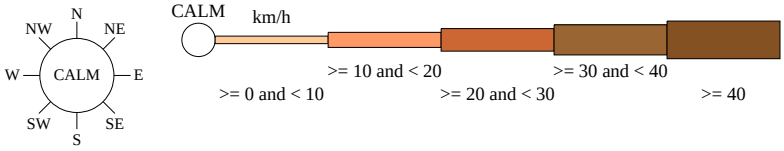
Rose of Wind direction versus Wind speed in km/h (12 Mar 1943 to 12 Aug 2020)

Custom times selected, refer to attached note for details

MOUNT GAMBIER AERO

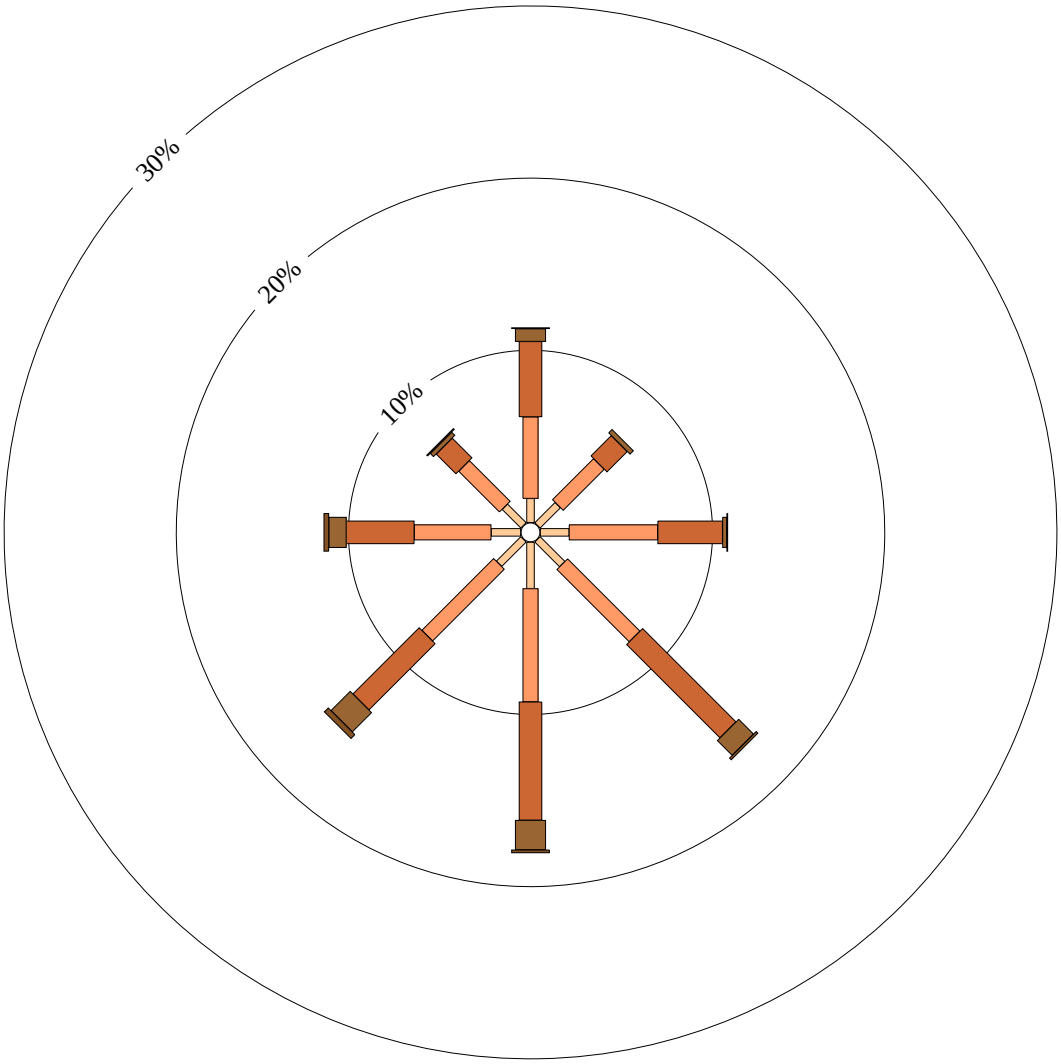
Site No: 026021 • Opened Jan 1941 • Still Open • Latitude: -37.7473° • Longitude: 140.7739° • Elevation 63m

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



9 am Jan
2201 Total Observations

Calm 3%



Rose of Wind direction versus Wind speed in km/h (12 Mar 1943 to 12 Aug 2020)

Custom times selected, refer to attached note for details

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Site No: 026021 • Opened Jan 1941 • Still Open • Latitude: -37.7473° • Longitude: 140.7739° • Elevation 63m

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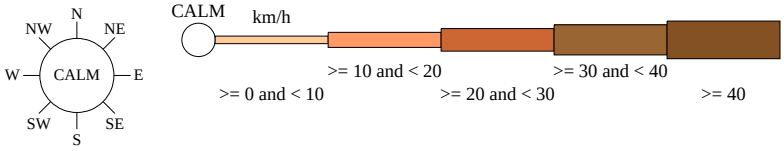
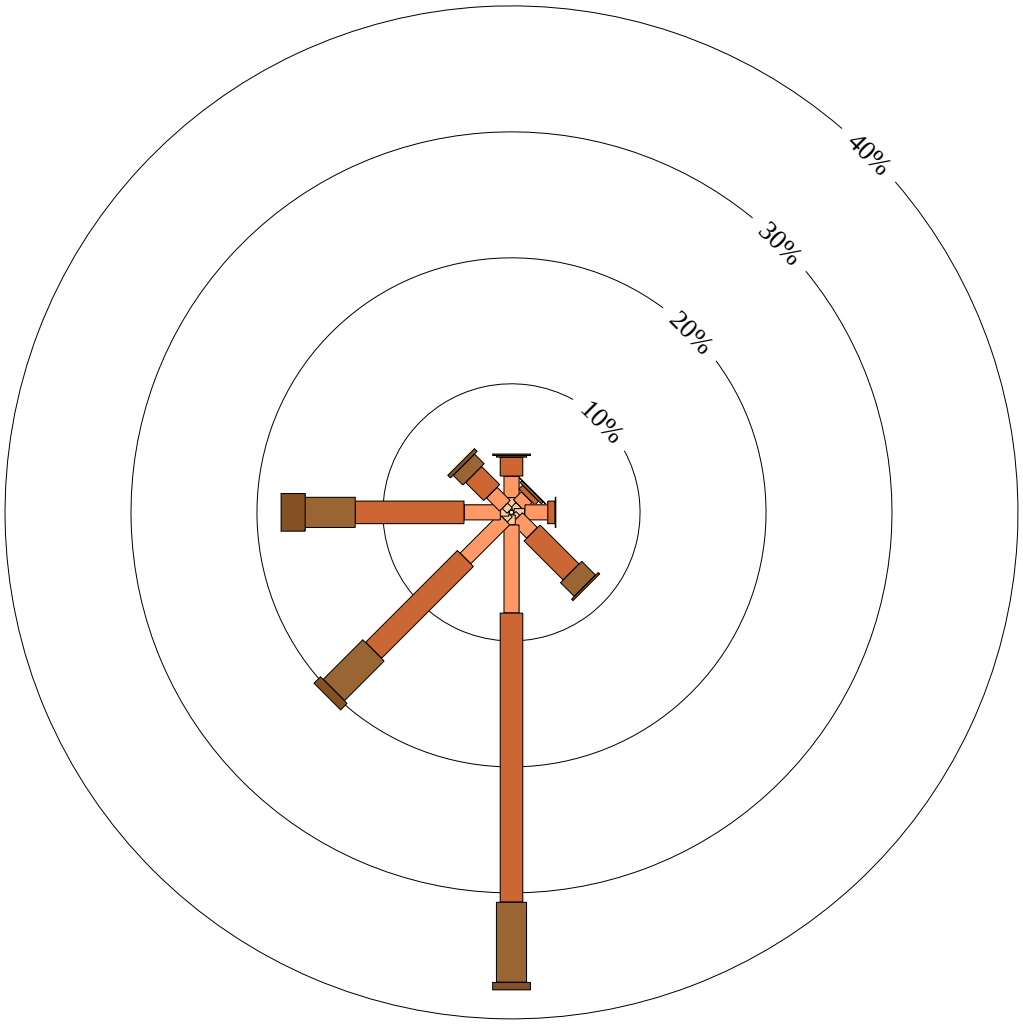


3 pm Jan
2200 Total Observations

Calm 1%



Rose of Wind direction versus Wind speed in km/h (12 Mar 1943 to 12 Aug 2020)

Custom times selected, refer to attached note for details

MOUNT GAMBIER AERO

Site No: 026021 • Opened Jan 1941 • Still Open • Latitude: -37.7473° • Longitude: 140.7739° • Elevation 63m

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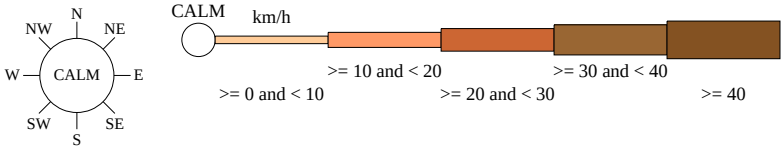
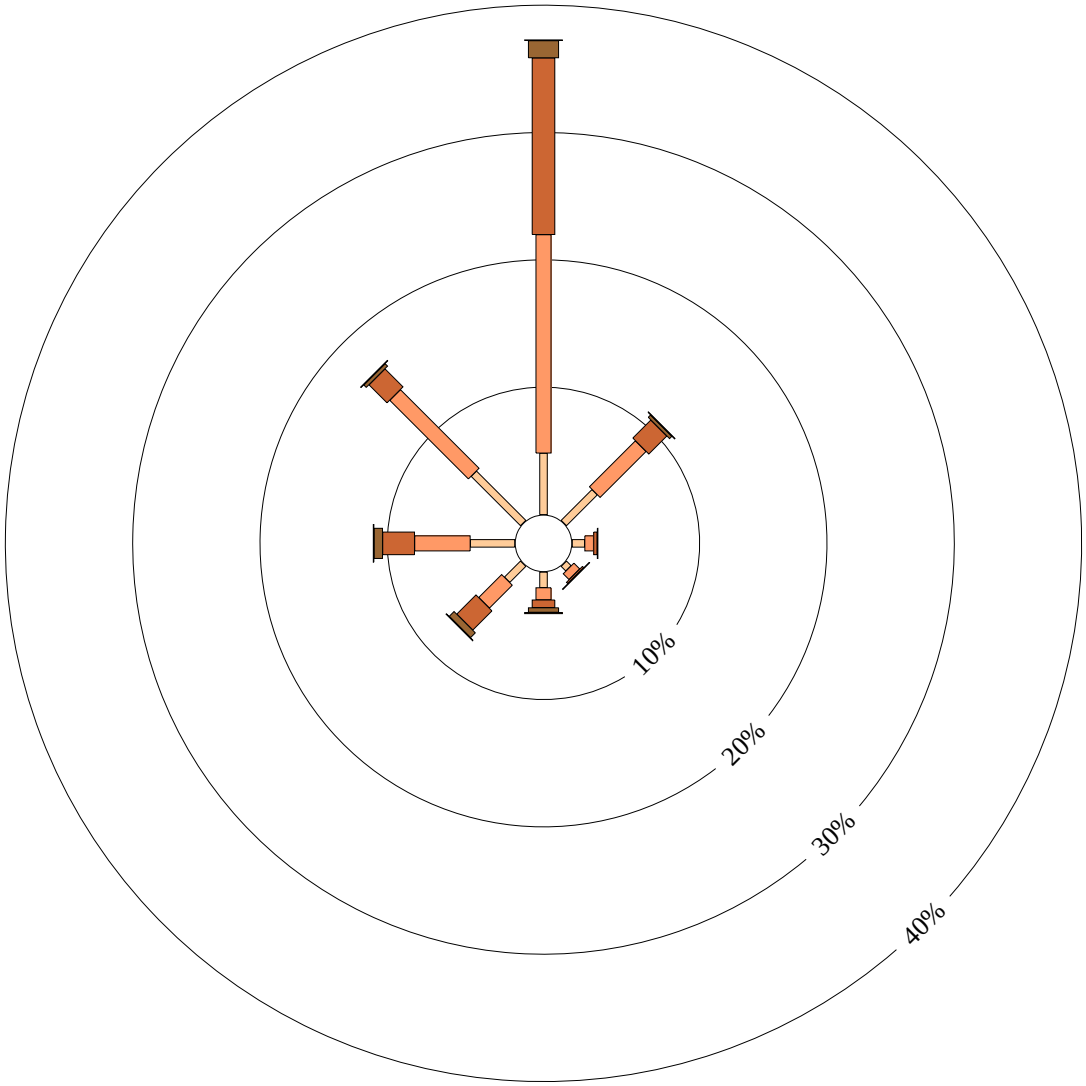


9 am Jul
2286 Total Observations

Calm 11%



Rose of Wind direction versus Wind speed in km/h (12 Mar 1943 to 12 Aug 2020)

Custom times selected, refer to attached note for details

MOUNT GAMBIER AERO

Site No: 026021 • Opened Jan 1941 • Still Open • Latitude: -37.7473° • Longitude: 140.7739° • Elevation 63m

An asterisk (*) indicates that calm is less than 0.5%.
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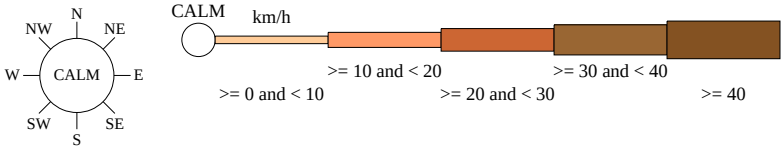
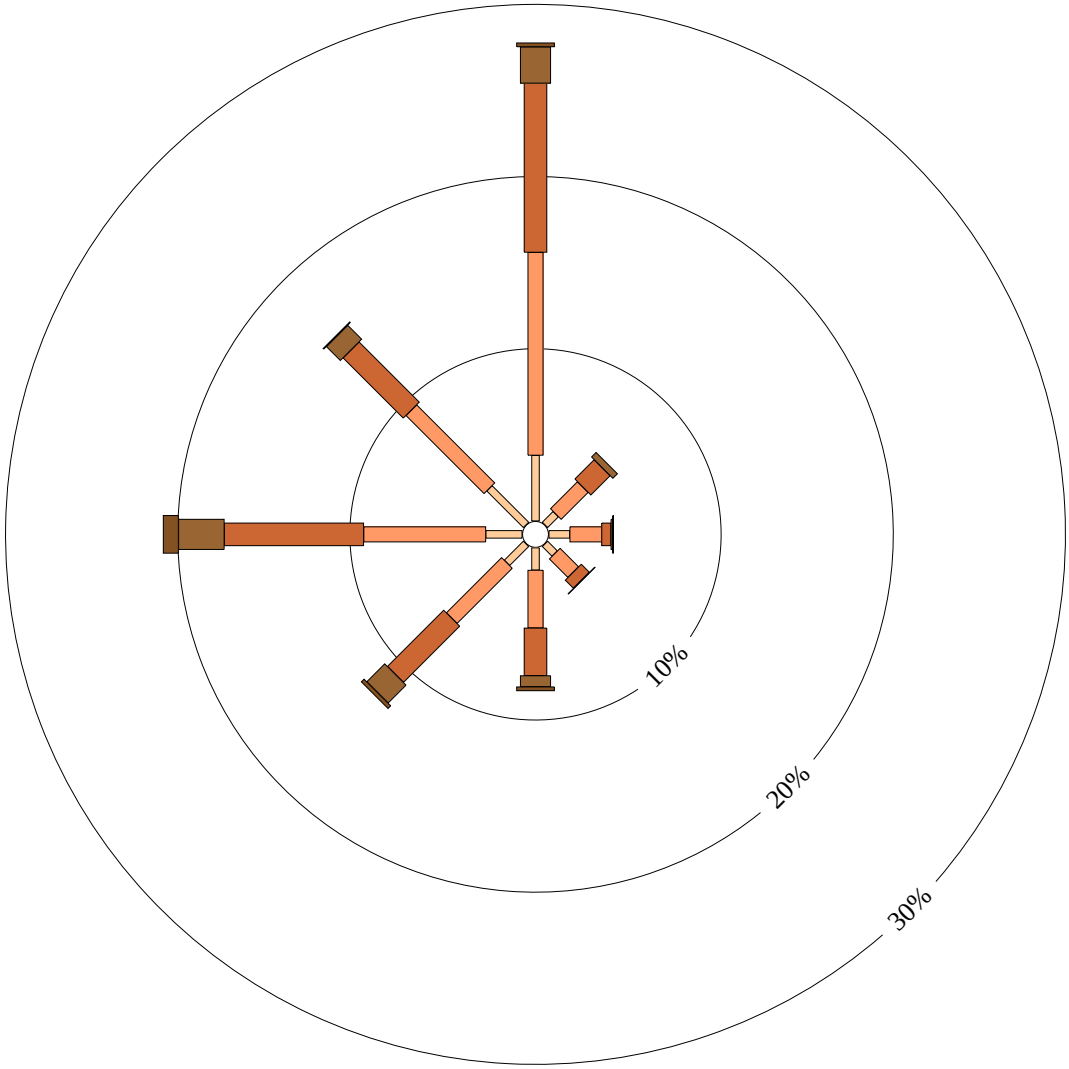


3 pm Jul
2289 Total Observations

Calm 4%



Appendix C – Community Newsletter

SANDYRIDGE

We are writing to you to give an update on activities at Sandyridge's Compton site.

COMMUNITY NEWSLETTER

CURRENT ACTIVITIES

At the Sandyridge Cafpirco Road Compton site, we produce quarried materials for the local building and construction industry. We also accept waste from this same industry. We sort the waste to allow reuse of steel, aluminum, copper and other materials and recycling of green waste and inert waste, such as bricks and concrete. The inert waste is recycled as backfill into the quarry void to save using valuable clean soil. We do not accept tyres or asbestos.

All of these activities are undertaken in accordance with approvals from South Australian Government regulators.

FUTURE ACTIVITIES

Activities at the Compton site have been undertaken for more than 30 years. To support our continued operations, we are seeking to extend the sand extraction area within the Sandyridge property.

To facilitate this, we are in the process of preparing an Extractive Mining Lease Application for submission to the Department for Energy and Mining.

The proposed area is approximately 10.45 ha and is adjacent to the existing quarry void, wholly within the Sandyridge property.

We do not intend to significantly increase the current rate of extraction. Rather, the extension is intended to provide a stable source of mineral resource for the local building and construction industry over the longer term.

COMMUNITY BENEFITS

Sandyridge provides important services and economic support for the local South East community. We employ local team members and are committed to securing our future business operations and supporting local jobs in the region.

Currently, more than 50 businesses use our locally quarried sandstone products. Local production reduces transport costs, making building projects more affordable for local residents.

Continuing to produce locally made building materials will provide economic benefits for our region for many years to come.

SHARE YOUR VIEWS

Your views are important to us. If you would like to provide feedback or have questions, please contact us via one of the methods below:

Email **info@sandy-ridge.com**
Post **Sandyridge, PO Box 9524, Mt Gambier West, SA 5290**

Please provide your feedback by **5pm, 25 June 2021** and include your name, address and telephone contact details.

There is also an opportunity for community members to speak directly with the professionals engaged by Sandyridge to assist in the operation of the site. If you would like to have a conversation with our environmental consultants, please let us know by emailing **info@sandy-ridge.com** and provide your name and best contact phone number.

FREQUENTLY ASKED QUESTIONS

Will there be changes to the scale of extraction operations at the site?

It's unlikely you will notice changes to operations at the site. As reserves in the current extraction area diminish, operations will conclude, rehabilitation will be undertaken, and extraction activities will transition to a new area within the property.

Will the visual amenity of the local area change?

Screening vegetation is established along the northern, southern and most of the eastern boundaries of the property. To further improve views south and west of the site, we are planning to establish a double tree belt along the southern and western boundaries.

How will the environment be protected?

Sandyridge is committed to protecting the local environment and will continue to comply with relevant legislation and regulations.

Will there be changes to noise or air quality?

The proposed extraction activities are not expected to cause an increase in the generation of dust at the site or an increase in noise. Our hours of operation will remain the same and we will continue monitor and minimise any impacts of our operations on the community.

Appendix D – Environmental Risk Register

Definition of Risk

Table E1. Description of credible consequence in relation to people/public health, the environment and finical loss (from AS31000:2009).

Consequence	People	Environment	Production Delay / Loss / Damage
Catastrophic	Death. Permanent disabling injury. Major impact for large population.	Potentially lethal to regional ecosystem or threatened species; widespread on-site and off-site impacts. Extensive clean-up required; complete failure of environmental controls.	Huge financial loss, more than $5m delay/loss.
Major	Extensive permanent injury. Major impact for small population. Hospitalisation required. Extensive injuries or illness.	Potentially lethal to ecosystem; predominant local but potential off-site impacts. Medium to long term impact, potentially reversible over a number of years. Possible cessation of use; off-site clean-up required; breach of environmental legislation.	Major financial loss $1m to $5m delay/loss.
Moderate	Minor impact for large population. Medical Treatment Required.	Potentially harmful to regional ecosystem with local impacts primarily contained on-site. Moderate on-site impacts, temporary impacts, some off-site impacts.	High financial loss $0.5m to $1m delay/loss.
Minor	Minor impact for small population. First Aid Treatment.	Potentially harmful to local ecosystem with local impacts confined to site. Minimal onsite impacts no discernible offsite impacts, immediately contained, no external complaints received.	Medium financial loss $5k to $500k delay/loss.
Insignificant	Insignificant impact or not detectable. No injuries or illness.	Insignificant impact or not detectable.	Low financial loss. Less than $5000 delay/loss.

Table E2. Description of the likelihood of the event occurring (from AS31000:2009).

Likelihood	Description
Almost Certain	Is expected to occur with a probability of multiple occurrences within a year.
Likely	Will probably occur within a 1 - 5 year period.
Possible	Might or should be expected to occur within a 5 - 10 year period.
Unlikely	Could occur within 10-20 years or in unusual circumstances.
Rare	May occur only in exceptional circumstances. May occur once in 100 years.

Table E3. Risk matrix used to assign a risk rating (from AS31000:2009).

	Likelihood				
Consequence	Almost Certain	Likely	Possible	Unlikely	Rare
Insignificant	M - 18	M - 19	L - 22	L - 24	L - 25
Minor	M - 14	M - 15	M - 17	L - 21	L - 23
Moderate	H - 8	H - 9	H - 12	M – 16	L - 20
Major	E - 3	E - 5	E - 7	H - 11	H - 13
Catastrophic	E - 1	E – 2	E – 4	E – 6	H - 10

E: Extreme risk – Immediate action required.
H: High risk – senior management attention required.
M: Moderate risk – management responsibility required.
L: Low risk – a mange by routine procedures.

Appendix E – Operator Capability

This statement is provided to meet the requirements of section 30(1)(d) and 37(a) of the *Mining Regulations 2020*.

Sandyridge Holdings Pty Ltd (ABN 73 622 747 102) as the landowner of Allotment 22 in Deposited Plan 1608 and as the applicant of a Mineral Tenement over the above-mentioned land attest that:

(i) adequate technical, operational and financial capabilities and resources available to the applicant for the purpose of carrying out operations under the miscellaneous purposes licence;
(ii) there is a reasonable prospect that the land in respect of which the lease is sought could be effectively and efficiently mined;
(iii) the mineral resource has been adequately identified and estimated; and
(iv) appropriate environmental outcomes will be able to be achieved.

Signed

Signed by BRANT MURRAY,

Director of Sandyridge Holdings Pty Ltd as landowner and applicant

Date: 14/01/2022

Appendix F – History of Compliance

This statement is provided to meet the requirements of section 30(1)(f) and 37(c) of the *Mining Regulations 2020*.

Sandyridge Holdings Pty Ltd (ABN 73 622 747 102) as the landowner of Allotment 22 in Deposited Plan 1608 and as the applicant of a Mineral Tenement over the above-mentioned land attest that Sandyridge Holdings Pty Ltd have not contravened, or failed to comply with, a provision of a corresponding law or designated Act in connection with authorised operations carried out by Sandyridge Holdings Pty Ltd within the preceding period of 5 years that resulted in:

(i) the revocation or suspension of an authority to carry out authorised operations; or
(ii) a prosecution for an offence; or
(iii) the imposition of a penalty by a court; or
(iv) 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.

Signed

Signed by BRANT MUNNINGS,

Director of Sandyridge Holdings Pty Ltd as landowner and applicant

Date: 14/01/2022