Midland Brick

13 15 40

PO Box 2440
High Wycombe WA 6057

midlandbrick.com.au

8th June 2026

Samuel Bryce
Chief Executive Officer
Shire of Goomalling
PO Box 118
Goomalling WA 6460

Sheen Road (Wogamine) Quarry
Development Approval and Extractive Industry Licence Application

Dear Samuel,

Midland Brick Pty Ltd operates an extractive industry on a portion of Lot M488 Sheen Road, Mumberkine referred to as the "Sheen Road (Wogamine) Quarry". We are seeking Development Approval and an Extractive Industry Licence from the Shire for a period of 10 years for both approvals to continue existing clay extraction operations and to authorise the expansion of quarrying activities within the area indicated on the attached plans.

Attached to this letter is a supporting report which provides the planning and environmental context to support the Development Approval and Extractive Industry Licence applications. This report includes:

- A description of the operation
- The applicable planning and environmental regulatory context
- An environmental risk assessment ("EIA") for the operation based on site context
- Various environmental/operational management plans as relevant to the operation.

Also attached are a copy of the Certificate of Title and the application forms, signed by both the applicant and the landowner.

This application and the supporting report at Attachment 3 also seek to address Conditions 2 and 7 on the current Extractive Industry Licence which state:

> *Condition 2 – Annual reporting of extraction volumes and site activities to be provided to the Shire with an environmental management and closure plan by June 30, 2026.*
>
> *Condition 7 – The development of management plan/s that adequately describe the current and future activities, potential environmental, health and public amenity implications and proposed stewardship of the land use and rehabilitation.*

The attached report provides the 'environmental management and closure plan' as required by Condition 2 and the 'management plan' required by Condition 7. Please note that the Annual Report on the extraction volumes will be provided separately, as it does not form part of this application, or the management plan.

We thank the Shire of Goomalling for the consideration of this application and look forward to hearing back in due course. We would be grateful if the Shire is able to please forward an invoice for the planning application fee and we will arrange payment.

13 15 40

PO Box 2440
High Wycombe WA 6057

midlandbrick.com.au

If you have any queries regarding the application or require further information, please do not hesitate to contact me.

Sincerely,

Sharee Rasmussen
Principal Environmental Advisor

Attachments:

1. Signed Application Forms
2. Certificate of Title
3. Application Report

ATTACHMENT 1 –

SIGNED APPLICATION FORMS

SHIRE OF GOOMALLING

Application for Extractive Industries Licence

LOCALITY OF EXCAVATION SITE

Lot No.: M488___ House/Street No.: _____ Street Name.: Sheen Road_____

Location No.: _____ Diag/Plan No.: P2973_____ Title: Vol: 2037_____ Fol: 963_____

Title Encumbrances (eg. Easements, restrictive covenants): Memorial, Soil and Land Conservation Act 1945, portion only

OWNER DETAILS

(Title/Initials/Surname/Company Name)

Name: G & M Candeloro Nominees Pty Ltd _____ ABN: 82 081 484 951_____

Address: 1330 Nunile Road, Toodyay_____ Postcode: 6566_____

Phone: _____ Work Contact: _____ Mobile: 0427529354_____

Email Address: admin@candelorofarms.com.au_____

Contact Person: Joe Candeloro_____

Owners Signature: _____ Date: 3 - 6 - 26

Owners Signature: _____ Date: _____

Note:1. This application can only be signed by the owner, lessor or purchaser under option, of the land on which the development is proposed.
2. An application fee will apply.

APPLICANT DETAILS

Name: Midland Brick Pty Ltd _____ ABN: 93 635 664 710

(Title/Initials/Surname/Company Name)

Address: 260 Kalamunda Road, South Guildford _____

Postcode: 6105_____ Phone: _____ Work Contact: _____

Mobile: 0409 535 335_____ Email Address: sharee.rasmussen@midlandbrick.com.au

Contact Person: Sharee Rasmussen (Principal Environmental Advisor)_____

Applicants Signature: _____ Date: 08 June 2026

DUNCAN BOSCH - GENERAL MANAGER BRICKS & MASONRY

OFFICE USE ONLY

D/A Fee $_____ Receipt No: _____ Date Received: _____

SHIRE OF GOOMALLING
Office address: 32 Quinlan Street, Goomalling WA 6460
Postal address: PO Box 118, Goomalling WA 6460
Phone: 9629 1101 Email: goshire@goomalling.wa.gov.au

APPLICATION FOR DEVELOPMENT APPROVAL

Owner Details		
Name: G & M Candeloro Nominees Pty Ltd		ABN (if applicable): 081 484 951
Address: 1330 Nunile Road, Toodyay		Postcode: 6566
Phone: (work): (home): (mobile): 0427 529 354	Fax:	E-mail: admin@candelorofarms.com.au
Contact person for correspondence: Joe Candeloro		
Signature:		Date: 3-6-'26
Signature:		Date:
The signature of the owner(s) is required on all applications. This application will not proceed without that signature. For the purposes of signing this application an owner includes the persons referred to in the Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 clause 62(2)		

Applicant Details (if different from owner)		
Name: Midland Brick Pty Ltd		
Address: 260 Kalamunda Road, South Guildford		Postcode: 6105
Phone: (work): (home): (mobile): 0409 535 335	Fax:	E-mail: sharee.rasmussen@midlandbrick.com.au
Contact person for correspondence: Sharee Rasmussen		
The information and plans provided with this application may be made available by the local government f viewing in connection with the application. ☑ Yes ☐ No		
Signature: DUNCAN BOSCH - GENERAL MANAGER BRICKS & MASONRY		Date: 08 June 2026

Property Details		
Lot No: M488	House/Street No:	Location No:
Diagram or Plan No: P2973	Certificate of Title Vol. No: 2037	Folio: 963
Title encumbrances (e.g. easements, restrictive covenants): Memorial - Soil and Land Conservation Act (refer to Certificate of Title)		
Street name: Sheen Road		Suburb: Mumberkine
Nearest street intersection: Sheen Road and Bejoording Road		

Proposed Development
Nature of development: Extractive industries
Is an exemption from development claimed for part of the development? ☐ Yes ☐ No If yes, what is the exemption for:
Description of proposed works and/or land use: Continuation of extraction industries, including expansion of operations
Description of exemption claimed (if relevant): N/A
Nature of any existing buildings and/or land use: Extractive industries and rural
Approximate cost of proposed development: N/A
Estimated time of completion: Estimated duration of excavation is 10 plus years
OFFICE USE ONLY
Acceptance Officer's initials: Date received: Local Government reference no:

ATTACHMENT 2 –

CERTIFICATE OF TITLE

WESTERN AUSTRALIA

TITLE NUMBER	
Volume	Folio
2037	**963**

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BG Roberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT M 488 ON PLAN 2973

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

G. & M. CANDELORO NOMINEES PTY LTD OF "WOODLANDS", LOT 788 NUNYLE ROAD, TOODYAY
(T F849186) REGISTERED 6/4/1995

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 6620/1920.
2. F779471 MEMORIAL. SOIL AND LAND CONSERVATION ACT 1945. AS TO PORTION ONLY. REGISTERED 12/1/1995.
3. G450350 MORTGAGE TO PRIMARY INDUSTRY BANK OF AUSTRALIA LTD REGISTERED 17/4/1997.
4. P047121 MORTGAGE TO RABOBANK AUSTRALIA LTD REGISTERED 17/2/2022.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	2037-963 (M 488/P2973)
PREVIOUS TITLE:	1614-528
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF GOOMALLING

ATTACHMENT 3 –

SUPPORTING APPLICATION REPORT

Midland Brick

Sheen Road (Wogamine) Quarry

Development Approval & Extractive Industry Licence Application and Management Plan

Midland Brick Pty Ltd

May 2026

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Appendix A: Plans

Revision History

Date	Rev	Description	By	Checked	Approved
May-26	A - Final	Sheen Road Application Report	SR	NB	SR

Executive Summary

Midland Brick Pty Ltd (the applicant) makes the following application for Development Approval ("DA") and an Extractive Industry licence ("EIL") for an existing quarry located at Lot M488 Sheen Road, Mumberkine. The quarry is referred to as the Sheen Road (Wogamine) Quarry.

An Extractive Industry Licence has previously been issued for the quarry on an annual basis. It is requested through this application that the Shire issue a DA and EIL for a 10 year period. This report provides the relevant information to address the requirements of various state and local government policies and guidelines relating to extractive industries to support the application for a DA and EIL. It includes the following environmental management plans:

- Dust Management Plan
- Noise Management Plan
- Water Management Plan
- Refuelling Management Plan
- Visual Amenity management Plan
- Waste Management Plan
- Rehabilitation Management Plan

A summary of the quarry operation is outlined below.

TOPIC	DESCRIPTION
Life of project	There are resources on site for over 10 years, but depending on market demand, this could be longer.
Operating times	The hours of operation will be from 07:00 to 18:00 hours from Monday to Saturday. No operation will occur on Sundays or Public Holidays.
Volume (approx.)	Approximately 100,000 tonnes annually depending on market demand and other clay resources available.
Site preparation	Limited site preparation is required as the site is already established for clay extraction. No clearing of native vegetation will be required. Drainage systems are already in place. Road access, signage and fencing has already been established.
Operation Area	The current footprint is approximately 26 hectares, and the total "operational area" (which incorporates the current footprint and possible expansion areas) is approximately 82 hectares.
Quarry location	The quarry is located at the southern side of Lot M488, adjacent to Sheen Road. The area subject to this application includes the current quarry footprint as well as the new areas of operation.
Depth	Approximately 10m from natural ground level, although the depth varies across the extraction area depending on the depth of resource and geology.
Operational process	Excavation of clay takes place in a sequence of steps which can be broadly broken down into; the Excavation Campaign (i.e. removal of topsoil and overburden, excavation of clay to stockpile) and Carting Campaign (transport of clay from stockpiles to the factories) and Rehabilitation. In general, the steps will involve the following: • Overburden and topsoil will be removed from excavation area. It will be stockpiled in bunds around the perimeter of the pit to be used as part of land recontouring during rehabilitation.

	• Excavation involves moving clay with an excavator and dump trucks and placing into stockpiles located on the site. Excavation takes place for approximately 25 days in total (approx.. 5 weeks) per year. • Stockpiles will be located at the southern end of the excavation, alongside the haul road for easy access. • Previously excavated areas will be utilised as water detention basins for drainage management and to access other parts of the quarry. Recontouring will take place where it is safe and possible to do so. • Clay will be transported off-site during a carting campaign and as required.
Workforce	2-6 people on site during the excavation and carting campaigns.
Access	Direct access is already provided onto Sheen Road. Trucks exit the site by turning right onto Sheen Road, then left onto Bejoording Road and onto the Goomalling-Toodyay Road.
Stockpiling	Clay is stockpiled within a designated area at the western side of the current footprint, closest to the access point to allow for ease of access and reduced movements through the site.
Vehicle movements	There will be approximately 2,500 truck loads from the site per year. Clay is carted at various times throughout the year, but averages approximately 4 days per month of carting when operating at 60 truck loads per carting day. This is approximately 60 days of carting per year. This means that for a majority of the time there is no carting from the site.
Refuelling	Refuelling will be managed in accordance with the Refuelling Management Plan.
Environmental management	Environmental management is provided in this report. The excavation operation has been subject to a rigorous environmental assessment which has considered ways to avoid, reduce and mitigate environmental impact. This is in accordance with the Policy Objective (e) from State Planning Policy 2.4 which states that “extraction of basic raw materials avoids, minimises or mitigates any adverse impacts on the community, water resources and biodiversity values.”
Structures	There will be a temporary structure located on the site if required (lunchroom and ablution facilities).
Decommissioning	The operational area will be rehabilitated by recontouring the land into a slope which can be used for pasture/rural purposes, with a farm dam located at the lowest part of the pit area.

1 Introduction

1.1 Background

Midland Brick Pty Ltd (the applicant) makes the following application for Development Approval ("DA") and an Extractive Industry licence ("EIL") for an existing quarry located at Lot M488 Sheen Road, Mumberkine. The quarry is referred to as the Sheen Road (Wogamine) Quarry.

An Extractive Industry Licence has previously been issued for the quarry since 2007. The Licence has for the most part been renewed on an annual basis. However, in order to streamline the administrative and assessment process, Midland Brick have applied for a Licence for a period of 10 years. This application also requests the Shire issue a Development Approval (DA) for the operation. The area subject to this application includes the current quarry footprint as well as the proposed new areas of operation.

This report provides the relevant information to address the requirements of various state and local government policies and guidelines relating to extractive industries to support the application for a DA and EIL.

The operation has been subject to a rigorous environmental assessment which has considered ways to avoid, reduce and mitigate environmental impact. This is in accordance with the Policy Objective (e) from State Planning Policy 2.4 which states that "extraction of basic raw materials avoids, minimises or mitigates any adverse impacts on the community, water resources and biodiversity values." The following environmental management plans are provided:

- Dust Management Plan
- Noise Management Plan
- Water Management Plan
- Refuelling Management Plan
- Visual Amenity management Plan
- Waste Management Plan
- Rehabilitation Management Plan.

It should be noted that with clay excavation specifically, the operator is not on the site every day. For large stretches of time and for a majority of the year there will be no activity on the site (i.e. it will be dormant). Excavation, carting and rehabilitation only take place over a certain period of time or at scattered times throughout the year.

1.2 Importance of the resource

Clay is an essential basic raw material used in the manufacture of roof tiles, bricks and paving blocks. As such, the extraction of clay is an important process in the supply of bricks and other construction materials for the community.

The Perth housing industry is almost entirely reliant on the supply of economic and quality bricks and Midland Brick is currently the only local manufacturer in Perth. The resource on this site is a critical part of the production of these bricks and homes for Western Australians.

The clay resource is geologically unique. Deposits of this type of clay are restricted by geology, regolith and environmental and access factors. The proximity of resource close to the Perth

metropolitan area, combined with the local manufacturing of bricks in Perth, significantly contributes to lowering development costs and transport costs.

The importance of clay to the community is reflected in State Planning Policy 2.4: Basic Raw Materials (WAPC, 2021).

1.3 Location

The property (Lot M488) is located approximately 23km SW of the Goomalling townsite and approximately 19km NE of the Toodyay townsite, within the Western Australian wheatbelt. The property is approximate 277 hectares in size and the quarry ("the site") is located at the southern side of the lot. The current footprint is approximately 26 hectares, and the total "operational area" (which incorporates the current footprint and possible expansion areas) is approximately 82 hectares.

1.4 Ownership

Ownership details are provided in Table 1.1 below.

Table 1.1 – Ownership details

LOT	PLAN	VOLUME	FOLIO	OWNER
M488	P2973	2037	963	G & M Candeloro Nominees Pty Ltd

1.5 Surrounding uses

The surrounding area is predominantly rural use. A Context Plan showing the location of rural houses, nature reserves and lakes and an Aerial Photo of the adjoining properties are included at Appendix A.

2 Works and Excavation Program

2.1 Operational procedure

Excavation of clay takes place in a sequence of steps which can be broadly broken down into the following:

1. Earthworks Campaign – Including removal of topsoil and overburden, excavation of clay to stockpile, processing (crushing and screening if required)
2. Carting Campaign – Including transport of clay from the excavation area or stockpiles to the factories.
3. Rehabilitation – Including recontouring the land surface and planting.

Further information on the excavation process is below. The operation has been subject to a rigorous environmental assessment which has considered ways to avoid, reduce and mitigate environmental impact. This is in accordance with the Policy Objective (e) from State Planning Policy 2.4 which states that "extraction of basic raw materials avoids, minimises or mitigates any adverse impacts on the community, water resources and biodiversity values."

It should be noted that for a typical clay operation such as this, the operator is not on the site every day undertaking the activities listed above. For large stretches of time and for a majority of the year there will be no activity on the site (i.e. it will be dormant). Excavation, carting and rehabilitation only take place during campaigns or at scattered times throughout the year (as described further below).

Excavation Campaign

The "Earthworks Campaign" includes removal of topsoil and overburden and excavation of clay to stockpile. Topsoil is placed into stockpiles and kept aside for later use in rehabilitation. Overburden is pushed to create bunds or placed into stockpiles for use in rehabilitation.

The Operation Area (as shown on the Excavation Plan at Appendix A) includes all excavation areas (existing and new) and the stockpiling areas.

An earthworks campaign will take place for the equivalent of approximately 25 days per year (approximately 5 weeks throughout the year). Each campaign usually lasts for a few weeks each time. During a typical campaign, excavation will generally take place for six days a week during the approved operation times. This means that for much of the year (the equivalent of 10.5-11 months) there will be no extraction taking place.

It is estimated that there could be up to approximately 100,000 tonnes of clay excavated and carted each year. It is important to note that the tonnage of resource extracted annually will depend on demand for material and the extraction of clay from other clay pits. Many different factors come into play when Midland Brick determine which clay quarry to excavate and cart clay from, including weather, type of bricks being produced (market demand), contractor availability, road access etc. Provision should therefore be made for the tonnage to vary from this depending on market demand.

The excavation process is undertaken as an "inside out" operation. Excavation of the first part of the active pit becomes the water detention pond so that drainage management can commence straight away. Machinery work on the floor of the pit area and work towards the edges of the excavation.

This excavation process can be seen in the current operation where the water detention basins have been formed from previous excavation and current excavation areas.

The clay resource is approximately 10m in depth, although this can vary across the site. Excavation can reach the groundwater (depending on the depth and time of year). In these situations, the clay is excavated by forming 'cells' which contain the groundwater to allow for extraction of the clay. As the excavation progresses, groundwater is allowed to drain into the previously excavated cells to allow the clay to dry for extraction. The expression of groundwater in the base of the pit creates a temporary lake, which will eventually be covered and rehabilitated. This is the only part of the site where the groundwater is expressed. There is no expressed groundwater in previously excavated areas.

Excavated clay is either placed directly onto clay transport trucks or it is placed within onto stockpiles.

As machinery usually operates from the pit floor, the walls of the pit also act as a noise and dust barrier for most of the excavation process. There will be a relatively short period where vehicles are located at the ground level (when stripping topsoil and overburden), however the existing pit walls and overburden bunds around the pit area provide a physical noise and dust barrier for a majority of the operation. In addition, a Dust Management Plan and Noise Management Plan will be in place providing additional management actions to address noise and dust.

There will be no processing of resource (screening and crushing).

Machinery and vehicles used for the excavation campaign includes:

- Excavator
- Dozer
- Dump truck
- Wheel loader

- Water cart
- Haul trucks.

Carting Campaign

The “Cartage Campaign” is the removal or transport of clay from the site where it is taken to the brickmaking factories located in the Perth Metropolitan area. Loading and carting from the site will occur throughout the year for the equivalent of approximately 4 days per months when operating at 60 truck loads per carting day. This is approximately 60 days of carting per year. This means that for a majority of the time (approximately 10 months equivalent) there is no carting from the site. Each carting campaign will last for a few days to a few weeks at a time.

It is estimated that up to 100,000 tonnes of clay could potentially be carted from the site annually. It should be noted that the amount of clay excavated and carted is likely to be different in a given year as sometimes more clay is excavated and stockpiled than carted from the site. The amount of clay carted is almost entirely dependent on market demand and availability of resources at other clay pits.

Many different factors come into play when Midland Brick determine which clay quarry to excavate and cart clay from, including weather, type of bricks being produced (market demand), contractor availability, road access etc. Provision should therefore be made for the tonnage to vary from this depending on market demand. Therefore, there may be some variation from the truck numbers and the number of days that carting will be required each month (i.e. some months will have more carting days than other months). Further detail regarding truck numbers is provided below.

Generally, the clay stockpiles will be located at the southern end of the operation, alongside the haul road. This allows for ease of access and to reduce the distance trucks need to travel along internal access roads. This is a management technique used to help reduce the potential dust and noise impacts by reducing the access route through the site.

The stockpile area will also be used to blend clays. Blending and loading of clay in the stockpile area will use a front end loader.

Rehabilitation

Rehabilitation of the quarry will involve recontouring the slopes to a safe and stable condition and returning the site to pasture with a farm dam located at the lowest point.

Overburden stored around the site will be used to recontour slopes. Topsoil will be placed as the top layer of the rehabilitated area which will allow pasture to be established.

It should also be noted that the rehabilitation and closure of the quarry will also be reviewed by the Department of Local Government, Industry Regulation and Safety (DLGIRS) in accordance with the *Mines Safety and Inspection Act 1994*. Further details relating to rehabilitation is provided in the Rehabilitation Management Plan.

2.2 Hours of Operation

The hours of operation will be from 07:00 to18:00 hours from Monday to Saturday. A six-day working week is required to maintain efficiency which in turn reduces the brick manufacturing cost. No operation will occur on Sundays or Public Holidays. Note that operation is not continuous throughout the year, and there will be large stretches of time where the site will be dormant.

2.3 Extent of excavation

The operational area comprises of different areas which serve a different purpose as follows:

- Excavation area
- Stockpiling area
- Water detention basins
- Haul road
- Overburden bunds
- Topsoil stockpiles

These areas are marked on the plans at Appendix B and can be seen on the aerial photography of the site.

The current footprint is located at the southern end of Lot M488 and is approximately 26 hectares in size. There is still resource available within the existing footprint. The total “operational area” (which incorporates the current footprint and possible expansion areas) is approximately 82 hectares.

2.4 Depth of excavation

The original landscape is relatively flat, at 260 metres AHD (Australian Height Datum). The depth of excavation is currently approximately 10 metres below natural ground level, but can vary slightly depending on the depth of clay.

It is expected that excavation could reach depths of approximately 10 metres, depending on the depth of the resource. The depth of excavation varies across the quarry depends on the geology, the depth of overburden and the depth of the resource. It is important to note that despite the careful planning and onsite investigations which help determine the location of the resource, the depth can vary slightly from the areas depicted on the plans.

2.5 Topsoil and overburden

Topsoil and overburden, consisting primarily of gravel and sand is removed prior to excavation commencing in new areas. The depth of overburden is up to 5 metres in depth, depending on the location.

Topsoil is scraped from the top of the area to be excavated to a depth of approximately 0.5 metres. It is placed into low stockpiles for later use in rehabilitation.

Overburden is scraped from the surface and used to create bunds around the perimeter of the excavation/pit area and where needed for drainage management and visual amenity. Bunds also assist with dust and noise mitigation. Overburden bunds are placed in close proximity to the pit area so that it is an efficient way of undertaking future recontouring.

2.6 Site preparation

Minimal additional site preparation will be required as the site is already used for extractive industry. Signage, fencing, gates, security, site access, bunding, internal access roads, stockpiling area and drainage management is already in place. Drainage management, bunding, internal access roads and stockpiling areas will continue to be established and rearranged across the site as excavation progresses.

2.7 Access arrangement

Access to the site will continue to be from Sheen Road. Unauthorised access to the site is restricted by a locked gate at the entrance to the property and the site is fenced around the boundary.

2.8 Truck movements

Trucks are used during the cartage campaigns to cart clay from the site to the factories. All trucks enter the site at Sheen Road. They exit the site by turning right onto Sheen Road and turning left onto Bejoording Road and right onto the Goomalling-Toodyay Road. Trucks travel west towards the Perth metropolitan area where the factories are located.

Loading and carting from the site will occur throughout the year for the equivalent of approximately 4 days per months when operating at 60 truck loads per carting day. This is approximately 60 days of carting per year. This means that for a majority of the time (approximately 10 months equivalent) there is no carting from the site. Each carting campaign will last for a few days to a few weeks at a time.

It is estimated that up to 100,000 tonnes of clay could potentially be carted from the site annually.

During any given carting day, it is anticipated that there will be approximately 5-6 truck loads per hour. This is the equivalence of approximately 2,500 truck loads each year. It is important to note that this is an estimate and may vary slightly depending on demand. An approximate number is provided because there may be some variation in truck numbers due to the cyclic demand for clay building products. The number of trucks will also vary depending on the weather and demand for a particular type of clay required at the factories.

Trucks used for the extraction are RAV 2 truck and dog combination with a payload of 42 tonnes.

2.9 Plant and on-site equipment

No permanent structures are required. A temporary lunchroom may be placed on the site if the site will be operated for a period of time. Ablution facilities will also be provided.

The equipment required for excavation will be brought in on an as-required basis and generally includes:

- Excavator
- Dozer
- Dump truck
- Wheel loader
- Water cart
- Haul trucks.

This equipment is removed at the end of each “earthworks campaign”.

No bulk storage of fuel and oil is required on site and no chemicals are stored on site. A Refuelling Management Plan is provided.

All supplies will be delivered. Rubbish bins will be provided for site workers to use. A Waste Management Plan is provided.

2.10 Safety and controls

Quarrying activities on site will be conducted in accordance with the *Work Health and Safety (Mines) Regulations 2022*. Operation inspections are carried out by the Department of Local Government, Industry Regulation and Safety (DLGIRS) who inspect safety, operational procedures and workplace health such as dust and noise.

Operations are managed by a licenced Quarry Manager and inspections occur on a daily basis during the excavation and cartage campaigns. Midland Brick have internal procedures in place to manage safety, health, environmental impact, site completion and rehabilitation.

In terms of occupational health and safety, Midland Brick requires full personal protection be required for all persons on site at all times. All workers are required to wear full protective safety and high visibility gear when on site. There is a site entry “call up” procedure in place. All vehicles are equipped with two-way radios.

Site closure and decommissioning will also be regulated by DLGIRS. The Department will also inspect the site following recontouring to ensure it is safe and stable (as required by the *Work Health and Safety (Mines) Regulations 2022*). Similarly, should the quarry be temporarily unused for a period of time, the excavation will be made safe to comply with the Act such as maintaining pit faces in a stable manner and ensuring surface water runoff continues to be retained on site within detention basins.

Fences, gates and warning signs required by DLGIRS, and the Shire will be maintained.

2.11 Public Safety

Site security is already established. Public access to the quarry is restricted and appropriate warning signs are located at the entrance regarding quarrying and restricted entrance as required by DLGIRS. The site has locked gates when it is not being worked.

As operation will be discontinuous and there will be periods of time throughout the year when no activity will take place on site, this reduces the risk to public safety from machinery and truck movements. When the site is not operational, the Quarry Manager periodically checks to ensure the site is secure and safe.

2.12 Workforce

During operational periods it is expected that the number of workers will vary from 1-6 people in addition to any truck drivers who enter and leave the site.

2.13 Bushfire

The quarry is not located within a Bushfire Prone Area as mapped by the DPLH as shown on the plan at Appendix A (apart from a small part at the northern end of the Operation Area which is not currently part of the footprint).

Despite this, information is provided below on Midland Brick's standard operating procedures and responses to bushfire. A review of bushfire risk and a description of current operational management is provided below. It should also be noted that a Bushfire Management Plan and Bushfire Attack Level Assessment can be interpreted as not required for extractive industry as stated in Clause 1.2.1 of the "Guidelines for Planning in Bushfire Prone Areas" (WAPC, November 2024) prepared under State Planning Policy 3.7 (WAPC, 2024). This Clause states that SPP 3.7 and the Guidelines may not apply if the site is not in a bushfire prone area and does not include habitable buildings.

The greatest risk of starting a fire from operations on site is during stripping of topsoil, particularly during hot and windy conditions. This type of work in summer can generate sparks which when combined with dry grasses and leaves may lead to fire. Stripping of topsoil is only conducted in campaigns of once every 2-5 years.

Standard Operating Practices.

There are a range of activities documented (known as "Standard Operating Practices" – SOP) within Midland Brick to assist staff in carrying out work in a safe and efficient manner. Many SOP's linked with mobile equipment have actions for operators to check around and under the machine for sources of fuel that could be a problem. All staff are trained to carry out daily pre-start checks on their machinery. One of the checks is for hydrocarbon leaks. Staff are trained on how to contain a hydrocarbon leak.

Machine maintenance and refuelling is carried out in areas free from fuel burdens. The mobile mining equipment is nearly always in the mine area, hence well away from dry grass and leaves.

Pre-Start Meetings

Quarry Managers (who are responsible for Midland Brick quarrying and transport teams) hold briefing sessions for their work crews every morning. The points of discussion will always cover:

- Safety – issues from the previous days and anything likely to be aware of that day, including hazards, incidents/near misses etc.
- Production – what we are doing, where and quality. Allocation of water trucks to sites will be discussed at this time.
- Issues for the day – weather conditions and warnings, possible visitors to the site, maintenance of any plant etc.

To prepare for the next day's quarrying activities, the Quarry Manager will review forecasts from Bureau of Meteorology daily to check for temp and wind plus check warnings from DFES during extremely hot windy days. All staff are briefed at the morning pre-start meeting about likely fire dangers and the possibility of lightning developing and compliance with Lightning Procedures. Midland Brick comply with warnings prepared by DFES.

Fuel load reduction

Midland Brick encourages the owners of land used for clay mining to graze the paddocks to reduce the fuel loads from winter annual grasses. It should be noted that Midland Brick does not own any of the land where they extract clay.

Fire response

The Midland Brick team have developed an Emergency Management Plan and have trained their staff in what to do in all types of emergencies. Should there be a small fire associated with any quarrying equipment it will be treated immediately.

All mobile plant carries at least one portable fire extinguisher. Operators are trained in the correct use of various types of handheld fire extinguishers.

Stormwater is retained within the operation area in a dam for internal use, including use during a bushfire.

The Midland Brick staff/team are briefed on what they should do in case of Fire Emergency.

3 Site Description

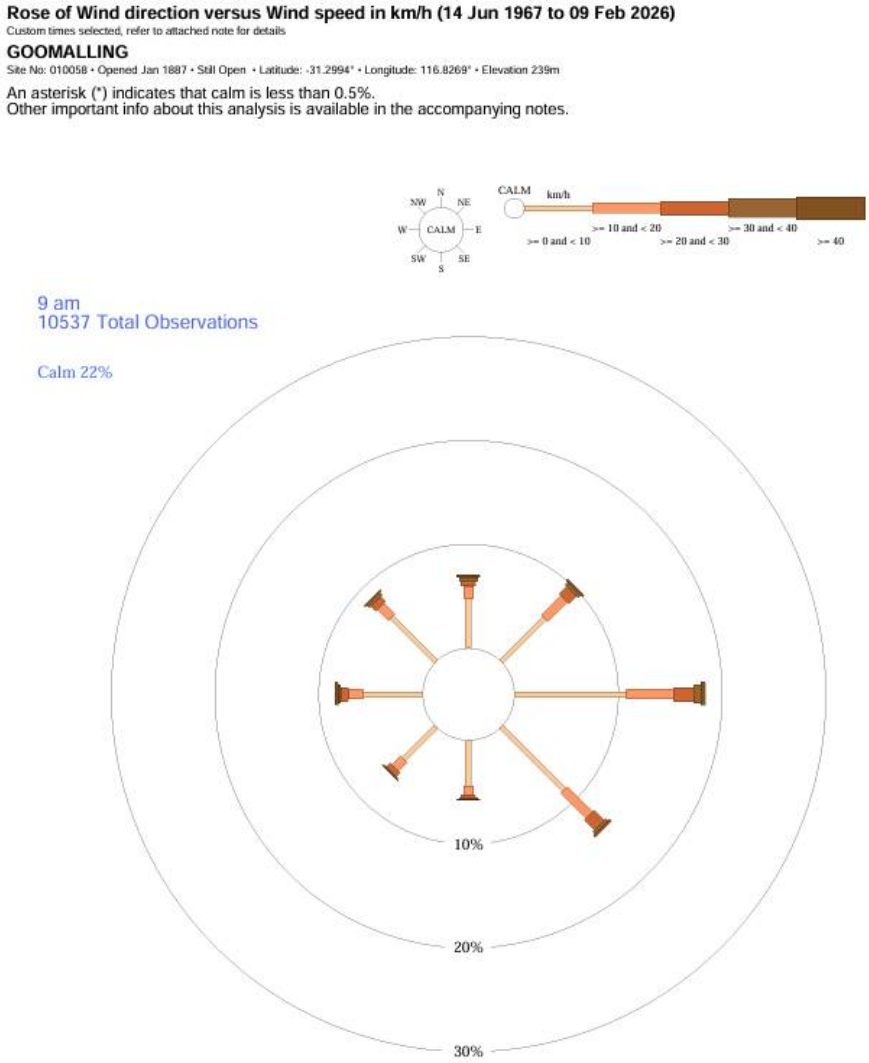
3.1 Climate

The south-west of Western Australia experiences a Mediterranean climate which is characterised by warm, dry summers and cool, wet winters.

The rainfall and temperature data for the region has been obtained from the Bureau of Meteorology "Climate Data Online" services. The average rainfall from the closest station which is the Wattening station (16km away) is 426.8mm. A majority of rainfall is from May to August.

The mean temperature information is from the closest station which is the Goomalling station (18.7km away). It states that the hottest month is January with an average maximum of 35.1°C and the coldest month is August with an average minimum of 5.3°C.

The prevailing winds throughout the majority of the year are predominantly from the east (9am) and the south-west (afternoon) (Bureau of Meteorology, 2025). Wind roses for Goomalling at 9am (annual average) is shown below.



3.2 Topography

The original landscape where the quarry is located was relatively flat at approximately 260 metres AHD (Australian Height Datum). The surrounding area is also relatively flat and gently slopes down to the north (approximately 240m AHD at the northern lot boundary) and slopes up gently to the south.

3.3 Geology

The geology is described by DPIRD on SLIP (2026) as “Laterite, deeply weathered mantles & colluvium overlying crystalline rocks of the Albany-Fraser Orogen”. The regional underlying geology comprises a thin veneer of sand, a lacustrine clay deposit, with bands of ferruginous pisolith, underlain by Archaean granite rocks and laterite.

The site is located within the Northern Zone of Rejuvenated Drainage hydrogeological zone, which is characterised by red calacareous clay or loams in the valleys (D P Commander et. Al., 2001). It is predominately an erosional surface of gently undulating rises to low hills with continuous stream channels that flow in most years. Colluvial processes are active with soils forming in colluvium or rock weathered in situ. The basement geology is of variable even grained granitoids, including fine to coarse-grained granodiorite, adamellite and granite (Ghauri, 2004).

3.4 Soils

The site is located within the “Ewarts 1 phase” soil landscape system. The soil-landscape units are mapped by the Department of Primary Industries and Regional Development (DPIRD). It is described as “hillslopes containing sand and loamy sand over yellowish clay soils, with some gravel ridges”.

Soil qualities and risks, as mapped by DPIRD, are listed below:

- Wind erosion risk – moderate
- Water erosion risk – low
- Waterlogging risk – moderate.

3.5 Vegetation

There is no remnant native vegetation located within or adjacent to the operational area. The closest remnant vegetation is approximately 200m north of the operation. The pre-European vegetation mapping (DPIRD) maps the vegetation as “York – 352” which is described as comprising York Gum and Salmon Gum. There will be no clearing required to facilitate future extraction (except for clearing of regrowth within the operation area).

Over the past few years, native vegetation has naturally regenerated on top of topsoil and overburden, particularly bunds that have been in place for a few years. It is likely that this vegetation will need to be cleared to facilitate future recontouring. A Clearing Permit will be obtained from the Department of Water and Environmental Regulation (DWER) if required.

There are no past or current Clearing Permits on the site. There are no Environmentally Sensitive Areas on or adjacent to the site.

3.6 Water resources

Hydrological mapping

The site is located on the Northern Zone of Rejuvenated Drainage hydrogeological zone. It is described as "Erosional surface of gently undulating rises to low hills. Continuous stream channels that flow in most years. Colluvial processes are active. Soils formed in colluvium or in-situ weathered rock." (DPIRD, 2026). The Northern Zone of Rejuvenated Drainage hydrological zone lies on a basement of granitoid rock at the western edge of the Yilgarn Craton. It is predominantly an erosional landscape of gently undulating rises to low hills with continuous stream channels that flow in most years. Colluvial processes are active with soils forming in colluvium or rock weathered in situ (Ghauri, S, 2004).

The site is located within a "Proclaimed Surface Water Area" (Avon River Catchment Area) but is not located within a "Proclaimed Groundwater Area" under the *Rights in Water and Irrigation (RIWI) Act 1914*.

In a regional context, the site is located within the Avon River Surface Water Area and the Avon River sub-catchment area.

Additional hydrological mapping relating to the site (as mapped by DWER) are listed below:

- Surface Water Area – "Avon River Catchment"
- Surface Water Subarea – "Avon River"
- Hydrographic Catchment Basin – "Avon River"
- Hydrographic Catchment – "Swan Avon – Main Avon"
- Hydrographic Sub catchment – "Avon River Subcatchment"
- Surface Water Management Area – "Avon River Catchment"
- Surface Water Management Subarea – "Avon River"
- Groundwater Area – "Karri"
- Groundwater subarea – "Karri"

The site is not located within or in close proximity to a Public Drinking Water Source Areas (PDWSA's).

There are no "sensitive water resources" identified and mapped by SPP 2.9 within or adjacent to the site. The closest are two mapped "habitats of specially protected water-dependent fauna, and within 1km of groundwater dependent threatened and priority ecological communities" located over 5km to the north-west of the site.

There are no floodplain areas or Floodplain Development Control Areas located on or surrounding the property.

Surface Water Features

There are two minor creeklines within 3km metres of the site. The Wongamine Brook commences 2.3km to the north-east of the quarry and flows west for a short distance before curving and flowing south. At the closest point the quarry is approximately 1km from the Brook, providing adequate separation distance.

The Chitibin Brook is located approximately 1.4km to the south-east of the quarry. It flows in a southerly direction, away from the quarry. There is adequate separation to this surface water feature.

The closest wetlands are located to the north (Clarkes Lake) and north-east (Herridges Lake and Abots Lake) of the quarry. The closest is a distance of approximately 2.1km.

The quarry operations do not intercept any surface water features such as a watercourse or wetland, and there is adequate separation distance to the closest watercourses. There will be no hydrological impact from the quarry operation on surface water features.

Groundwater

Ghauri (2004) states in *Groundwater Trends in the Southern Agricultural Region, Resource Management Technical Report 269* that within the Northern Zone of Rejuvenated Drainage 256 "perched aquifers are widespread and are a significant fresh to brackish groundwater resource suitable for on-farm use. Discharge from these perched aquifers occurs as seepage at the termination of sandplain units and also recharge to deep aquifers. Thickness of sandplain aquifers can extend to 5 m. Saprock aquifers of various thicknesses extend throughout the zone except where shallow bedrock exists or palaeodrainage has scoured to bedrock."

Inferred groundwater flow direction is to the north towards Wongamine Brook and groundwater beneath the site is hosted within a combined fractured rock aquifer. It also determines that the inferred depth to groundwater is greater than 10 metres below ground level. From operational experience, the groundwater has been intercepted at approximately 10 metres depth, although this can vary slightly.

3.7 Contaminated sites

No contaminated sites, including "contaminated – remediation required", "contaminated – restricted use" and "remediated for restricted use" are mapped on or adjacent to the site.

3.8 Heritage

A search was undertaken on the Aboriginal Cultural Heritage Inquiry System (operated by DPLH) for Aboriginal Heritage Sites in the local area. There is a Registered Site mapped approximately 1km to the west of the quarry. The site is associated with the Wongamine Brook. It is Site ID 15979 and is labelled as "Avon River". The Place Type is listed as "Camp, creation/dreaming narrative, landscape/seascape feature, other, water source". Further heritage investigations and consultation will be undertaken by Midland Brick in accordance with the requirements of the *Aboriginal Heritage Act 1972*.

3.9 Separation distances

The following sensitive receptors have been identified from the Operation Area:

- South – 1.4km
- South-east – 1.5km
- East – 2.7km
- North – 2.4km
- North-west – 3.3km

- North-east – 3.7km
- West – 4.5km

The EPA's Guidance Statement No. 3 provides a guideline on the separation distances for a range of industrial land uses to sensitive land uses (such as residential dwellings). It should be noted that the distances in the policy assume the land use is not managed and, should best practice environmental management take place, these distances can be reduced.

The operations on site fit into the category "clay extraction or processing". The potential impacts are listed as "noise" and "dust". The separation distance is "500-1000 metres, depending on size and processing", however this can be less with appropriate environmental management. There are no sensitive receptors within 1000 metres of the operation.

4 Statutory Framework

4.1 State Planning Policy 1 – State Planning Framework

The *State Planning Framework* was prepared by the WAPC in 2017. It sets out the key principles relating to environment, community, economy, infrastructure, regional development and governance. Its intention is to guide the way in which future planning decisions are made. It also identifies relevant policies and strategies used by the Commission in making decisions.

State Planning Policy 2.4 – Planning for Basic Raw Materials and *State Planning Policy 2.5 – Rural Planning* are recognised under the Framework. The requirements of SPP2.4 and SPP2.5 are discussed below.

4.2 State Planning Policy 2.0 – Environment and Natural Resources Policy

State Planning Policy 2.0 – Environment and Natural Resources Policy was prepared by the WAPC in 2003. The purpose of the Policy is to integrate environment and natural resource management with broader land use planning and to protect, conserve and enhance the natural environment.

Basic Raw Materials are mentioned in Policy Measure 5.7 which states that "mineral resources, petroleum resources and basic raw materials are important natural resource assets and are a vital part of the economy".

The importance of basic raw materials located in close proximity to the metropolitan area is also recognised in the Policy. It states that "A ready supply of basic raw materials close to developing areas is required in order to keep down the cost of land development and the price of housing."

In accordance with this Policy, the continuation of extraction at the quarry is of significance to the local economy and construction industry as it supplies essential basic raw materials located close to brickmaking factories.

The Policy sets out a list of principles which should be considered by decision-makers including the following relating to basic raw materials:

- *The identification and protection of important and economic mineral resources to enable mineral exploration and mining in accordance with acceptable environmental standards;*
- *The identification and protection of important basic raw material resources and provide for their extraction and use;*
- *Support sequencing of uses where appropriate to maximise options and resultant benefits to community and the environment;*
- *Support, where possible, improved efficiencies in the production and consumption of mineral and basic raw material resources to ensure their availability for future environmental and human uses.*

Therefore, SPP 2 supports the identification, protection and extraction of basic raw materials. Protection of basic raw materials is also provided in SPP 2.4 and SPP 2.5 (discussed below).

4.3 State Planning Policy 2.4 – Planning for Basic Raw Materials

State Planning Policy 2.4 – Planning for Basic Raw Materials was finalised and gazetted in July 2021. It "enables the responsible extraction of BRM, while ensuring the protection of people and the environment".

The Policy provides guidance to operators and decision makers regarding applications for BRM extraction, as well as other types of planning applications that can potentially impact on extraction sites or significant geological supplies. The associated Planning for Basic Raw Materials Guidelines (WAPC, 2021) provide further information on the specific requirements that need to be met for extractive industry (including operational and environmental protection requirements).

While this site is outside of the boundaries of the mapped resources covered by this Policy, the principles throughout are relevant to extraction of basic raw materials, regardless of location. The Policy and the Guidelines apply to the preparation and assessment of development proposals where approval is required for extractive industries under the *Planning and Development Act 2005*.

This application for extractive industry is consistent with the principles and objectives of the Policy as discussed in the table below.

Table 4.1 – Objectives of SPP 2.4

OBJECTIVE	COMMENT
Ensure BRM and its regional importance is considered at the earliest stages of the planning process.	The site is zoned "Rural 2" in the Local Planning Scheme and not recognised in local planning for BRM, however, Midland Brick support the regional recognition of BRM.
Protect BRM in SGS areas and ES by avoiding encroachment from incompatible land uses.	The site is located outside of the SPP 2.4 mapping, however the site is already operational and the quality of BRM is already known.
Ensure BRM resources are used efficiently in land use planning and development.	Continued use of the site will ensure that this objective can be achieved.
Identify BRM extraction opportunities through sequential land use without compromising the final intended land use.	Continued use of the site will ensure that this objective can be achieved.
Ensure the extraction of BRM avoids, minimises or mitigates any adverse impacts on the community, water resources and biodiversity values.	The management plans provided in this report will ensure appropriate environmental management. All sensitive receptors are further than the recommended separation distance.

The SPP 2.4 Planning for Basic Raw Materials Guidelines (WAPC, 2021) provide support for decision making authorities, proponents and referral agencies to implement SPP 2.4. Section 4 of the Guidelines provides advice on the assessment of proposals for extractive industries.

The Guidelines suggest the type and content of information to be submitted with an application for extractive industry including operational information, separation distances, environmental management, surface and groundwater, noise, dust, landscaping, access and rehabilitation. The information recommended by the Guidelines is included in this application.

4.4 State Planning Policy 2.5 – Rural Planning

State Planning Policy 2.5 – Rural Planning and the associated guidelines were gazetted by the WAPC in 2016. Its purpose is to protect and preserve Western Australia's rural land assets due to the importance of their economic, natural resource, food production, environmental and landscape values. SPP 2.4 (above) states that SPP 2.5 addresses BRM matters on rural land, however where there is a conflict between SPP 2.5 and SPP 2.4 in relation to BRM matters, SPP 2.4 prevails to the extent of any inconsistency.

Objective c) of the Policy directly addresses basic raw materials. It states that Objective c) is to "secure significant basic raw material resources and provide for their extraction". Policy Measure 5.9 addresses "basic raw materials outside of the Perth and Peel planning regions". The policy measures and how they relate to this proposal are set out in the table below.

Table 4.2 – Policy Measures in SPP 2.5

POLICY MEASURE	COMMENT
Significant Geological Supplies and their buffers are not to be developed for other purposes until the resource is extracted, or unless development is compatible with the future extraction of the resource.	This SGS mapping does not extend beyond the Shire of Toodyay and does not include this area, however the location of the resource is already well-known by the applicant.
Significant Geological Supplies and significant basic raw material resources, and an indicative separation distance or buffer, should be identified in sub regional and/or local planning strategies.	Protection of SGS and BRM is supported by Midland Brick.
Region and local planning schemes should identify Significant Geological Supplies and significant basic raw material resources, and include provisions for their protection, access and use.	Protection of SGS and BRM is supported by Midland Brick.
Basic raw material resources and sites should be identified in local planning strategies and schemes as required.	Protection of SGS and BRM is supported by Midland Brick.
Region and local planning schemes should not generally prohibit the extraction of basic raw material resources.	Protection of SGS and BRM is supported by Midland Brick.
Sequential land use planning is encouraged whereby extraction and appropriate rehabilitation can take place on a programmed basis in advance of longer term use and development.	N/A – There is no longer-term change of use and development of this site.
Sensitive zones and/or land uses may be approved where it can be demonstrated they will not limit the existing or potential extraction of basic raw materials.	No sensitive zones or land uses are proposed adjoining or in close proximity to the site.
Where a basic raw material resource is located with native vegetation or significant biodiversity values, extraction of the resource may require referral under Part IV or Part V of	There is no vegetation or significant biodiversity values within or adjoining the site.

POLICY MEASURE	COMMENT
the Environmental Protection Act 1986. Environmental regulation of the proposal may require vegetation retention and/or protection of other environmental assets.	
Planning decision-makers are to have due regard to advice from environmental agencies and consider potential impacts on fragmentation and connectivity of remnant vegetation.	This application will be advertised to environmental departments for comment.
Where a basic raw material resource is located in a public drinking water source area, extraction of the resource may be subject to achieving separation distances to the groundwater table to protect water quality. Separation distances from water supply infrastructure, and other management measures to protect water quality, should be applied in planning decision-making.	The site is not located within a PDWSA. There are appropriate separation distances to surface water features.

4.5 State Planning Policy 2.9 – Water

State Planning Policy 2.9 – Water and the associated Guidelines were gazetted by the WAPC in 2025. The Policy aims to ensure that planning and development considers all water matters and delivers the outcomes in section 6 of the policy.

The Policy is a comprehensive review of all water-related matters which should be considered early in the planning process, and it is supported by more specific water related guidelines such as the Water Quality Protection Note series and the Water Quality Protection Guidelines by DWER.

Policy Measures include consideration of the environmental, cultural and social values of water resources, riverine flooding, infrastructure and supply. Most relevant to this project is the environmental, social and cultural values of water resources.

The Policy also defines “sensitive water resources” and mapping is provided to demonstrate the location of these. There are no water features mapped by the Policy identified within or adjacent to the site. The closest are two mapped “habitats of specially protected water-dependent fauna, and within 1km of groundwater dependent threatened and priority ecological communities” located over 5km to the north-west of the site.

The SPP 2.9 Guidelines provide more detail on the above. It supports the preparation of Water Management Reports where relevant to demonstrate the appropriate protection, management and use of water resources. A Water Management Plan has been prepared for this operation in accordance with this recommendation. In relation to protection of environment, social and cultural values, the Guidelines recommend:

- Identification of waterway foreshore areas
- Identification of wetland buffers
- Management of wetlands and waterways
- Identification and management of sensitive water resources

- Protection of sensitive water resource areas
- Management of water quality
- Consideration of Aboriginal and historic heritage values.

More specific information is provided in the context on water resources in Chapter 3 and the Water Management Plan at Chapter 9.

4.6 State Planning Policy 3.7 – Bushfire

State Planning Policy 3.7 – Bushfire and the associated Guidelines were gazetted by the WAPC in November 2024. The intent of the Policy is to "implement effective, risk-based land use planning and development which in the first instance avoids the bushfire risk, but where unavoidable, manages and/or mitigates the risk to people, property and infrastructure to an acceptable level."

The scenarios in Chapter 4 – Application of the Policy do not apply to this particular development. In addition, the site is not located within a Bushfire Prone Area and does not propose habitable buildings. Therefore, a Bushfire Attack Level assessment and a Bushfire Management Plan is not considered to be required. Midland Brick Standard Operating Procedures and Emergency Procedures are provided in the previous Chapter.

4.7 Shire of Goomalling Town Planning Scheme No. 3

The *Shire of Goomalling Town Planning Scheme No. 3* was gazetted on the 14th July 1995.

The site is zoned "Rural 2 – Wongamine" in the Scheme. The objective of this zone is "to ensure that buildings and other development on the prevailing small rural lots are not unduly intrusive onto the rural landscape." This Development Approval application does not propose any permanent buildings.

Impacts on the rural landscape include visual amenity, dust, noise and odour. There is no risk of odour associated with this operation and potential impacts on dust, noise and visual amenity are addressed in the respective, detailed management plans contained in this report.

The Scheme also specifies the following should be considered by Council in making a decision for the Rural 2 zone.

Table 4.3 – Considerations in the Rural 2 Wongamine Zone

CONSIDERATION	COMMENT
Require that planning approval be obtained for all buildings, including a residence;	There are no buildings proposed as part of this application.
require that outbuildings, including sheds, garages and the like be sited so that the outbuilding is no closer to the road frontage of a lot than the front wall of any residence on the lot;	There are no buildings proposed as part of this application.
Assess applications for planning approval for a residence or other building to ensure minimal intrusion onto the rural landscape and consider requiring relocation of the building or tree planting for screening purposes where this is considered desirable and practicable.	There are no buildings proposed as part of this application.

Protect the land from closer development which would detract from the rural character and amenity of the area.	There is no closer development identified at the site or the surrounding area.

4.8 Shire of Goomalling Extractive Industries Local Law

The *Shire of Goomalling Extractive Industries Local Law* was endorsed by the Shire under the then *Local Government Act 1995* in 2007. It sets out the licensing requirements for extraction of basic raw materials in the Shire. This application has been prepared in accordance with the requirements of this Local Law by providing detailed information on the operation and management.

Specifically, this application provides the relevant details as required by Clause 2.3 (please note that not all requirements are relevant to this site).

The Local Law provides the ability for the Shire to issue a Licence for a period "not exceeding 21 years from the date of issue". This application seeks a 10-year Licence term.

4.9 EPA Guidance Statement No. 3 – Separation Distances Between Industrial and Sensitive Land Uses

The *EPA's Guidance Statement No. 3* (GS3) provides a guideline on the separation distances and buffers for a range of industrial land uses to sensitive land uses (such as residential dwellings). It should be noted that the distances in GS3 assume the land use is not managed and, should best practice environmental management take place, these distances can be reduced.

The operations on site fit into the category "clay extraction or processing". The potential impacts are listed as "noise" and "dust". The separation distance is "500-1000 metres, depending on size and processing", however this can be less with appropriate environmental management. Site management, including dust and noise management and protection of visual amenity, is addressed in the management plans attached to this report. The quarry has been in operation since 2007 and has received no complaints relating to amenity indicating that the existing management is adequate to address potential dust, noise and amenity impacts on neighbours.

The current and future operations are over 1,000 metres from the nearest sensitive receptors.

4.10 Water Quality Protection Note No. 15 – Basic Raw Materials Extraction

Water Quality Protection Note No 15 – Basic Raw Materials Extraction was prepared by DWER in 2019. The Note applies to extraction of basic raw materials and associated processing activities (stockpiling, crushing, screening etc.) It provides a comprehensive list of recommendations for a variety of situations and scenarios where protection of water resources needs to be considered for extractive industry.

The recommendations from the WQPN have been incorporated into the Water Management Plan for the operation. A detailed review of the recommendations from the WQPN are included in the Water Management Plan.

5 Environmental Risk Assessment

5.1 Introduction

Environmental management is achieved through implementation of site-specific management plans during operation. Compliance with these environmental management commitments can also be monitored by Local Government through the Development Approval and Extractive Industry Licence.

The primary objective of environmental management plans is to implement the environmental management hierarchy of avoid and mitigate environmental impact. The following management plans are included with this report:

- Dust Management Plan
- Noise Management Plan
- Water Management Plan
- Visual and Amenity Management Plan
- Refuelling Management Plan
- Waste Management Plan
- Rehabilitation Management Plan.

This chapter presents an environmental risk assessment for the operation. It considers the environmental risk to elements of the environment (based off the EPA's Environmental Factors). The results of the risk assessment inform the appropriate management response for the operation (which are reflected in the above management plans).

5.2 Risk Assessment

The risk assessment is presented in Table 5.1 below. It considers the environmental feature/element (based off the EPA's Environmental Factors), the risk if the operation is not managed and the residual risk once avoidance, mitigation and management is considered. The assessment is based on the criteria in DWER's *Guidance Statement: Risk Assessments* (2017) with integration of relevant components from other government policies and guidelines.

The risks are determined by considering the likelihood and consequence of environmental and amenity impact. The likelihood and consequence criteria are defined in Tables 5.2 and 5.3. The risk matrix criteria is set out in Table 5.4. This information is sourced from *Guidance Statement: Risk Assessments* (DWER, 2017).

The "inherent" risk rating considers the likelihood and consequence of impact if the operation was unmanaged. That is, if there was no avoidance of impact, mitigation or reduction of impact, complaints procedures and training. The "residual" risk rating is determined by considering the likelihood and consequence of impact once avoidance, mitigation and management are considered.

The purpose of the risk assessment is to demonstrate that inherent risk identified as "medium", "high" or "extreme" can be effectively managed. Management of the operation has the potential to reduce the likelihood of an impact occurring (i.e., the frequency) as well as the consequence of what this impact will be.

In general, given the operation is located on rural land (i.e. highly disturbed) there is minimal impact on the natural environment. The greatest risk associated with the operation is with regards to the

potential impact on amenity, and this is the focus of the Management Plans. Several management plans are in place to address potential impacts such as dust, noise, water and waste. It should be noted that more detailed risk assessments are also provided in the respective management plans for dust, noise, water, refuelling etc.

Table 5.1 – Environmental Risk Assessment

POTENTIAL IMPACT	CONSIDERATION OF RECEPTORS & INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
Native vegetation may be cleared or disturbed to facilitate excavation.	The likelihood of impact without management (avoidance and mitigation) is considered to be "rare" and the consequence is "slight" as there is no vegetation within the operation.	Rare	Slight	Low	No management is required as there is no native vegetation in the operational area, apart from some regrowth on the overburden bunds. No change to likelihood and consequence.	Rare	Slight	Low
Threatened and Priority Communities may be impacted if present on site.	As there is no native vegetation within the operational area, the risk is low.	Rare	Slight	Low	No management is required as there is no native vegetation in the operational area.	Rare	Slight	Low
Threatened and Priority Species may be impacted if present on site.	As there is no native vegetation within the operational area, the risk is low.	Rare	Slight	Low	No management is required as there is no native vegetation in the operational area.	Rare	Slight	Low
Weeds may be introduced to areas of native vegetation adjoining the pit area.	The native vegetation is approximately 200m north of the operation. The inherent likelihood is "rare" and the consequence is "slight".	Rare	Slight	Low	No additional management is required as the inherent risk is low.	Rare	Slight	Low
Dieback may be introduced and impact on native vegetation.	The native vegetation is approximately 200m north of the operation. The inherent likelihood is "rare" and the consequence is "slight".	Rare	Slight	Low	No additional management is required as the inherent risk is low.	Rare	Slight	Low
Fragmentation to vegetation and impact to ecological linkages.	The native vegetation is approximately 200m north of the operation and no clearing is required. The inherent likelihood is "rare" and the consequence is "slight".	Rare	Slight	Low	No management is required as there is no native vegetation in the operational area.	Rare	Slight	Low

POTENTIAL IMPACT	CONSIDERATION OF RECEPTORS & INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
Native fauna (individuals and communities) significantly impacted by the operation through land clearing, introduction of weeds and disease and activities on site.	The native vegetation is approximately 200m north of the operation and no clearing or removal of habitat is required or will be impacted by the operation. The inherent likelihood is “rare” and the consequence is “slight”.	Rare	Slight	Low	No management is required as there is no native vegetation in the operational area.	Rare	Slight	Low
Threatened and Priority Fauna disturbed and impacted by the operation (predominantly through clearing).	The native vegetation is approximately 200m north of the operation and no clearing or removal of habitat is required or will be impacted by the operation. The inherent likelihood is “rare” and the consequence is “slight”.	Rare	Slight	Low	No management is required as there is no native vegetation in the operational area.	Rare	Slight	Low
Direct disturbance and modification to surface water features.	The closest watercourse is 1.4km from the operation and the closest wetland is 2.1km. There will be no direct impact to hydrological features. The inherent likelihood is “rare” and the consequence is “minor”.	Rare	Minor	Low	With the implementation of water management, the risk is unchanged.	Rare	Minor	Low
Changes to hydrological regimes such as water runoff from the surface water catchment.	The closest watercourse is 1.4km from the operation and the closest wetland is 2.1km. There will be no direct impact to hydrological features. The inherent likelihood is “possible” and the consequence is “minor”.	Possible	Minor	Med	With the implementation of water management, the residual likelihood is “rare” and the consequence is “minor”.	Rare	Minor	Low

POTENTIAL IMPACT	CONSIDERATION OF RECEPTORS & INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
Intersection of groundwater.	The depth to groundwater is unknown, but likely >10mbgl, and groundwater has been encountered during excavation. Therefore, the inherent likelihood is “likely” and the consequence is “minor”.	Likely	Minor	Med	With the implementation of water management (including refuelling management), the residual likelihood that groundwater will be intercepted is “likely” and the consequence is “slight”.	Likely	Slight	Med
Turbidity: Increase in turbidity levels due to water runoff from the disturbed/operational areas.	The closest watercourse is 1.4km from the operation and the closest wetland is 2.1km. There will be no direct impact to hydrological features. The inherent likelihood is “possible” and the consequence is “minor”.	Possible	Minor	Med	With the implementation of water management, the residual likelihood is “rare” and the consequence is “minor”.	Rare	Minor	Low
Salinity: Increase in groundwater salinity levels due to the extraction of clay soils with a high salt content (“liberation” of salt from the soil).	The inherent likelihood of liberating soils with a high salt content is considered to be “likely” and the consequence is considered to be “moderate”.	Likely	Moderate	High	With the implementation of water management, including the retention of surface water runoff on site, the residual likelihood is “unlikely” and the consequence is “minor”.	Unlikely	Minor	Med
Hydrocarbons: Hydrocarbons from fuel spills and leaks from refuelling entering water sources.	The closest watercourse is 1.4km from the operation and the closest wetland is 2.1km and the depth to groundwater is unknown but likely >10mbgl. The inherent likelihood is “possible” and the consequence is “minor”.	Possible	Minor	Med	With the implementation of refuelling management, the residual likelihood is “rare” and the consequence is “minor”.	Rare	Minor	Low
Acid sulphate soils: Risk to surface water and groundwater from acid sulphate soils.	There is a low risk of acid sulphate soils in this locality. pH of the surface water is regularly neutral. The inherent likelihood is	Rare	Slight	Low	No additional management is considered necessary.	Rare	Slight	Low

POTENTIAL IMPACT	CONSIDERATION OF RECEPTORS & INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
	"rare" and the consequence is "slight".							
Pathogens: Wastewater and pathogens entering water sources.	The inherent likelihood is "possible" and the consequence is "minor".	Possible	Minor	Med	With staff amenities in place, and the low frequency of operation/staff, the residual likelihood is "rare" and the consequence is "minor".	Rare	Minor	Low
Soils subject to significant water and wind erosion can cause land degradation.	Considering the operation is bulk earthworks, the inherent likelihood is "possible" and the consequence is "moderate".	Possible	Moderate	Med	With management of the operation, the likelihood is "unlikely" and the consequence is "slight".	Unlikely	Slight	Low
Local landform not being recontoured to be compatible with the surrounding landscape.	The inherent risk of inappropriate rehabilitation is "possible" and consequence is "moderate".	Possible	Moderate	Med	With appropriate site rehabilitation, the residual likelihood is "rare" and consequence is "slight".	Rare	Slight	Low
Impact to Aboriginal Heritage Sites.	The closest registered site is approximately 1km west of the operation. The inherent likelihood is "possible" and consequence is "high".	Possible	Moderate	Med	With management of heritage, including following proper due diligence in accordance with the Aboriginal Heritage Act, the residual likelihood is "Possible" and consequence is "slight".	Possible	Slight	Low
Impact to sites of European heritage.	There are no heritage sites within the site.	Rare	Slight	Low	No management required.	Rare	Slight	Low
Noise levels exceed the assigned noise levels as prescribed by the Noise Regulations to noise sensitive premises. Refer to the risk assessment in the Noise Management Plan.	The closest sensitive receptor is located approximately 1.4km from the operation, but without management the inherent likelihood is considered to be "Possible" and consequence "minor".	Possible	Minor	Med	The closest sensitive receptor is located approximately 1.4km from the operation, exceeding the minimum recommended separation distances. Furthermore, noise management will be in place, reducing the residual likelihood is considered to be "rare" and consequence to "Minor".	Rare	Minor	Low

POTENTIAL IMPACT	CONSIDERATION OF RECEPTORS & INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
Dust emissions cause impact to sensitive land uses (such as residential properties). Refer to the risk assessment in the Dust Management Plan.	The closest sensitive receptor is located approximately 1.4km from the operation, but without management the inherent likelihood is considered to be "Possible" and consequence "minor".	Possible	Minor	Med	The closest sensitive receptor is located approximately 1.4km from the operation, exceeding the minimum recommended separation distances. Furthermore, dust management will be in place, reducing the residual likelihood is considered to be "rare" and consequence to "Minor".	Rare	Minor	Low
Impact of truck use on local and regional roads and traffic.	Without consideration of operating hours, number of trucks per day/hour, RAV networks and road maintenance, the inherent likelihood is considered to be "likely" and consequence "moderate".	Likely	Moderate	High	With management of carting/trucking and maintenance of local roads, the residual likelihood is considered to be "possible" and consequence is "minor".	Possible	Minor	Med
Impact of the operation on visual amenity and that the pit area can be seen from the public realm.	The closest sensitive receptor is located approximately 1.4km from the operation, but the operation is not setback far from Sheen Road. The operation is located in a fairly remote area, and not located along a major route. Without visual management the inherent likelihood is considered to be "likely" and consequence "moderate".	Likely	Moderate	High	The operation is largely hidden from view with bunding in place, with the exception of the stockpiles which can be seen from some surrounding roads. The residual likelihood is considered to be "Possible" and consequence to "Minor".	Possible	Minor	Med

Table 5.2 – Likelihood Criteria

ALMOST CERTAIN	LIKELY	POSSIBLE	UNLIKELY	RARE
The risk event is expected to occur in most circumstances	The risk event will probably occur in most circumstances.	The risk event could occur at some time.	The risk event will probably not occur in most circumstances.	The risk event may only occur in exceptional circumstances.

Table 5.3 – Consequence Criteria

	SLIGHT	MINOR	MODERATE	MAJOR	SEVERE
ENVIRONMENTAL	• On-site impact: minimal (No discernible adverse impact).	• On-site impacts: low level (discernible effect on the environment but no adverse impact). • Off-site impacts local scale: minimal. • Off-site impacts wider scale: not detectable. • Minor number of individuals of species may be affected locally.	• On-site impacts: mid level (Minor adverse affect to the environment). • Off-site impacts local scale: low level. • Off-site impacts wider scale: minimal. • Moderate loss of individuals of species locally.	• On-site impacts: high level (moderate impact to the environment). • Off-site impacts local scale: mid level. • Off-site impacts wider scale: low level. • Short term impact to an area of high conservation value or special significance^. • Moderate damage to ecosystem function and major loss of individuals of species locally.	• On-site impacts: catastrophic (significant impact to the environment). • Off-site impacts local scale: high level or above. • Off-site impacts wider scale: mid level or above. • Mid to long term or permanent impact to an area of high conservation value or special significance^. • Significant long-term damage/loss of ecosystem function and loss of individuals of species locally.
PUBLIC HEALTH & AMENITY	• Local scale: minimal to amenity.	• Local scale impacts: low level impact to amenity.	• Adverse health effects: low level or occasional medical treatment • Local scale impacts: mid level impact to amenity.	• Adverse health effects: mid level or frequent medical treatment. • Local scale impacts: high level impact to amenity.	• Loss of life. • Adverse health effects: high level or ongoing medical treatment. • Local scale impacts: permanent loss of amenity.

^ Determination of areas of high conservation value or special significance should be informed by the Guidance Statement: Environmental Siting.

*'onsite' means within the Lot boundary.

Table 5.4 – Risk Matrix

LIKELIHOOD	CONSEQUENCE				
	SLIGHT	MINOR	MODERATE	MAJOR	SEVERE
ALMOST CERTAIN	Medium	High	High	Extreme	Extreme
LIKELY	Medium	Medium	High	High	Extreme
POSSIBLE	Low	Medium	Medium	High	Extreme
UNLIKELY	Low	Medium	Medium	Medium	High
RARE	Low	Low	Medium	Medium	High

6 Rehabilitation Management Plan

6.1 Background and purpose

This chapter presents the Rehabilitation Management Plan for the "Sheen Road" ("Wogamine") clay quarry operated by Midland Brick Pty Ltd located at Lot M488 Sheen Road, Mumberkine. It applies to the operational area used for the clay extraction and associated activities.

The purpose of the Rehabilitation Management Plan is to set out the obligations and requirements to satisfy rehabilitation in relation to the quarry.

The Rehabilitation Management Plan has been prepared in accordance with the *Guidelines for the Management and Rehabilitation of Basic Raw Material Pits* prepared by the (then) Department of Environment and Conservation in 2008. This is the guideline recommended for use in the *State Planning Policy 2.4 – Planning for Basic Raw Materials Guidelines* (WAPC, 2021). It should also be noted that quarry operators are also obligated to rehabilitate and make safe all slopes in accordance with the Department of Local Government, Industry Regulation and Safety (DLGIRS) requirements under the *Work Health and Safety (Mines) Regulations 2022*.

In summary, the site will be rehabilitated by using overburden to recontour slopes to a safe and stable condition and returning the land to pasture, surrounding a dam (or two) located at the lowest parts of the pit.

The pit area has been divided into three Rehabilitation Areas due to the varying operational requirements. The western and central portions of the site are designated as "Area A" (approximately 20 hectares) which have been previously excavated and are currently being recontoured by Midland Brick. "Area B" is the pit area currently being excavated (approximately 10 hectares). "Area C" refers to the stockpiling area and access tracks. A Rehabilitation Concept Plan is provided at Appendix A which shows the delineation of the different areas. These areas are summarised as follows:

- Area A – recontoured using overburden and topsoil to a sloping landscape with a dam at the lowest point, with pasture over a majority (at least 80% coverage, not including the dam)
- Area B – recontoured to safe and stable slopes in accordance with the DLGIRS requirements.
- Areas C – Stockpiling Area and access tracks – ripped and covered with at least 80% pasture cover.

Any future excavation areas (i.e. expansion of the current pit area) will be rehabilitated in accordance with the completion criteria for Area A.

6.2 Objectives and completion criteria

The objectives and completion criteria of the Rehabilitation Management Plan are provided in Table 7.1 below. They have been developed in accordance with EPA's *Guidance Statement No. 6 Rehabilitation of Terrestrial Ecosystems* (2006) and DWER's *A Guide to Preparing Revegetation Plans for Clearing Permits* (2018). The completion criteria provide a measurable outcome so that the effectiveness of the rehabilitation can be assessed over time.

It should be noted that the completion criteria listed in Table 6.1 are the criteria which will be achieved by Midland Brick. Area B will be recontoured to safe and stable slopes, but will not be

recontoured to a sloping landscape. Any future use or rehabilitation within Area B will be undertaken by the landowner.

Table 6.1 – Rehabilitation Objectives and Completion Criteria

OBJECTIVE	COMPLETION CRITERIA
Area A – Use overburden to recontour Area A to a sloping landscape with a dam.	Area A is recontoured to a gently sloping landscape, compatible with the surrounding area, and made safe and stable in compliance with DLGIRS requirements.
Area A – Pasture is growing across recontoured areas.	Pasture has been established across a majority of recontoured areas (i.e. areas which were spread with topsoil).
Area B – Recontour the land surface within Area B to a safe and stable condition.	Recontoured slopes within Area B are safe and stable in compliance with DLGIRS requirements.
Area C – establish pasture across the remaining areas of the operation such as stockpiling areas and access tracks.	Pasture has been established across a majority of Area C.

6.3 Rehabilitation methods

Introduction

This section provides a description of the rehabilitation and closure process. It sets out rehabilitation of the operation area in broad steps comprising recontouring and shaping the land, recontouring, planting with pasture and monitoring. It describes the rehabilitation process for Area A and Area B, which are different is some respects, as detailed below.

Recontouring

Recontouring and establishment of overburden and topsoil is an important step in achieving successful rehabilitation. Recontouring within the pit area starts with bulk earthworks. Generally, a large bulldozer will be used to form the basic new slope angle by removing the mine bench structure. This is done by pushing from the top bench. Survey markers are placed at set positions back from the face to indicate where the dozer is to work to. The dozer operator cuts the face down slice by slice until they have worked back to the markers. Each bench is recontoured in the same manner. Once the clay benches have been reshaped, the overburden is spread over the entire face.

Contour banks will be used to control surface water runoff from the rehabilitated landform. The purpose of the contour banks is to reduce the effect of rain from causing excessive soil movement. Water management will continue throughout recontouring and rehabilitation with water directed from disturbed areas into the basins located within the pit areas.

It is anticipated that Rehabilitation Area A will be recontoured as the first priority, as this area is previous excavation. A large overburden stockpile is located adjacent to the pit area so that it can readily be used to recontour this part of the operation. Recontouring within Area A has already commenced. Progressive recontouring depends on the size of the quarry, the type of clay located within the pit, water management and the amount of overburden available. For example, if different types of clay are located within the same pit area this will require the need to keep a larger area open at one time to allow access to both types of clay. Different types of clay across the operation area might also require the need to have multiple active pit areas open at one time and old pit areas might not be able to be completely rehabilitated before new areas are opened. For example,

previous excavated areas sometimes need to be kept open to allow a basin for water drainage. The specifics will be worked out as operations continue, however progressive rehabilitation has already commenced and will continue within Area A over the next few years. Final recontouring will take place at site decommissioning.

Following decommissioning of each area, Midland Brick will complete mine closure documents as required by the DLGIRS. These documents demonstrate to the Department that slopes are recontoured to a safe and stable condition.

Geotechnical stability

The slopes will be made as gentle as possible, and will be more accurately determined as recontouring progresses. Recontoured slopes comprising of weathered rock and soil will be recontoured to slopes of 1:4 vertical to horizontal grading and up to 1:2 slopes for less weathered rock.

In between excavation campaigns (i.e. the quarry will not be operated on for a period of time), the pit area will be made safe in compliance with the *Work Health and Safety (Mines) Regulations 2022*, and will include maintaining faces in a stable manner, providing fencing above vertical edges of the pit and the use of warning signs. The slopes of the pit will be maintained to enable the continued capture of surface water to the detention basin in compliance with the Water Management Plan.

Topsoil spreading

Topsoil will be retained onsite throughout the life of the operation. It will be used as the top layer of the rehabilitated surface to provide a substrate for pasture growth. Following recontouring, topsoil will be spread over the parts of the site which will be planted with pasture. Soil will be ripped if required to facilitate planting.

Pre-seeding weed control is only likely to be required where topsoils are used that contain weed species. As the post-excavation land use is pasture, it is not anticipated that weed control will be required other than normal agriculture practice. Weed control (if required) will be undertaken prior to planting pasture. This will allow enough time for weed growth after the first rains and enough time to reduce weed density before planting.

Weed control is most likely only required to be undertaken once topsoil has been spread and any seeds have been allowed to germinate (usually if there has been some rain). It should be noted that it is not the intention to remove all agricultural weeds from the operation area, however effort will be made to control Declared Weeds.

Pasture

Pasture will be cultivated across the recontoured areas (primarily Area A) to establish groundcover. It will be established across Area A once recontouring has taken place, and will be established across other parts of the site (Area C) once they are no longer needed for operation. Pasture will also assist in erosion control once recontouring has taken place.

The species of pasture to be planted may vary depending on the preference of the landowner however, is likely to include the usual varieties planted in the local area.

Erosion control

Erosion is more likely if soil particles are disturbed by wind or water and there is no protection from plants (including grass and pasture). The significance of water erosion also depends on the slope of

the land, with gentle slopes less likely to be susceptible to erosion. As is mentioned above, contour banks will be used to control surface water runoff from the rehabilitated landform. The purpose of the contour banks is to reduce the effect of rain from causing excessive soil movement. The final land surface will be internally draining and direct runoff to the dams created.

Planting pasture over rehabilitated areas will assist in wind erosion control.

Monitoring and completion

The progress of rehabilitation will be monitored to assess against the completion criteria.

The progress and success of rehabilitation within the rehabilitated clay quarry will be monitored for one year following site decommissioning. It should also be noted that quarry operators are also obligated to rehabilitate and make safe all slopes in accordance with DLGIRS requirements as required under the *Work Health and Safety (Mines) Regulations 2022.*

Reporting

It is proposed that an Annual Report be provided by Midland Brick to the Shire which will provide a yearly update on the rehabilitation of the site, including any progress or updates (if any). It is important to note that some years will have less rehabilitation progress than other years, but Midland Brick acknowledges that the Shire and community will have an interest in being notified of any updates. The Annual Report can also include a forecast of anticipated rehabilitation the following year.

6.4 Timing

As is explained above, it is anticipated that recontouring within Area A will take place as a priority, and will be progressive (i.e. possibly undertaken during a number of earthmoving campaigns). Recontouring and rehabilitation within Area B (the current excavation area) and the stockpiling area and other parts of the operation will take place once they are no longer required for excavation. As rehabilitation within Area B will be the landowner responsibility (once the slopes are left safe and stable), the timing of further use within Area B will be determined by the landowner.

A majority of the site rehabilitation will take place at the decommissioning stage. This is due to the aforementioned reasons such as keeping different areas open for water management and drainage, access and resource variation. A general indication of timing is provided in the table below.

6.5 Clean-up

All wastes on site will be appropriately managed during and after operation of the site in accordance with the Waste Management Plan. They will either be recycled or taken to an approved waste disposal site.

Rubbish will be stored in bins, which will be emptied at an appropriate rubbish tip. Clay excavation activities do not require the use of chemicals apart from lubrication materials and fuel. There will be no chemicals or fuel stored on site requiring cleanup or removal.

After clay extraction activities have ceased, all equipment will be removed from the site except for machinery required for recontouring. Following rehabilitation, all machinery will be removed from the site.

6.6 Rehabilitation Schedule

This chapter sets out the rehabilitation schedule in detailed steps with an associated responsibility and timing recommended. The intent of this is to provide a working document for Midland Brick and the landowner to use to help guide rehabilitation and responsibilities.

The Rehabilitation Management Plan actions, responsibilities and timing is presented in Table 7.2 below.

Table 6.2 – Rehabilitation Management Plan

MANGEMENT/ACTION	RESPONSIBILITY	TIMING
1. Remove all equipment and machinery not required for rehabilitation.	Quarry Manager	At site decommissioning
2. Undertake recontouring within Area A (and any future excavation areas) to create new gently sloping landform using overburden, ensuring that all slopes meet DLGIRS requirements.	Quarry Manager/Midland Brick	Annually (weather dependent).
3. Undertake recontouring/dozing of benches to make them safe and stable within Area B in accordance with DLGIRS requirements.	Quarry Manager/Midland Brick	Undetermined at this stage – once Area B is decommissioned.
4. Maintain water drainage throughout the site – direct water from the disturbed areas into the dam located within the pit area.	Quarry Manager	Ongoing
5. Construct contour/interceptor banks on the recontoured surfaces to control erosion.	Quarry Manager	During recontouring
6. Spread topsoil over areas to be planted with pasture within Area A.	Quarry Manager	Prior to planting
7. Undertake weed control (if required) within Area A prior to planting pasture. Ensure that no Declared Weeds and Weeds of National Significance are located within Area A.	Quarry Manager	Prior to pasture cultivation and as required.
8. Establish pasture across Area A.	Quarry Manager	Following final recontouring of Area A.
9. Rip soils within Area C and establish pasture.	Quarry Manager	Following site decommissioning.
10. No weed contaminated or suspect soil or plant particles will be brought on site for rehabilitation.	Quarry Manager	Ongoing
11. Keep the site secure with perimeter fencing, signs and locked gates to avoid rubbish dumping from trespassers.	Quarry Manager	Ongoing
12. Monitor the rehabilitated areas within each area for one year to ensure the completion criteria are met.	Quarry Manager and Environmental Manager	One year following decommissioning of each Area.
13. Remove the remainder of equipment at the final decommissioning, once the site is closed.	Quarry Manager	Decommissioning.

7 Dust Management Plan

7.1 Background

This chapter presents the Dust Management Plan for the Sheen Road (Wogamine) clay quarry operated by Midland Brick Pty Ltd. The quarry ("the site") is located at Lot M488 Sheen Road, Mumberkine. It outlines the appropriate procedures implemented by Midland Brick to manage any potential for dust generation and supports an application for Development Approval and Extractive Industry Licence.

The Dust Management Plan has been prepared to incorporate best practice dust management actions and relevant recommendations from the *Draft Guideline: Dust Emissions* (DWER, 2021) as well as recommendations from *A Guideline for Managing the Impacts of Dust and Associated Contaminants From Land Development Sites, Contaminated Sites, Remediation and Other Related Activities* (Department of Environment and Conservation, 2011).

7.2 Objectives

The objectives of the Dust Management Plan are:

- To manage the potential for dust generation
- To minimise the likelihood of any dust created dispersing past the lot boundaries
- To provide a process in the event of a dust-related complaint.

7.3 Context

Dust is particulate matter (PM) comprising very small solid particles that may become airborne by natural forces (such as wind) or mechanical forces (earth-moving, stockpiling, haulage) (DWER, 2021). Dust particles are generally referred to as either "fine" or "course". According to the *Draft Guidelines: Dust Emissions* (DWER, 2021), fine dust particles (PM10 and PM2.5) that are readily inhaled are associated with a range of chronic health effects and fine and course dust particles can cause acute health effects (such as eye or breathing irritation).

In terms of guidelines and best practice dust management in Western Australia, there are two main documents which can be referred to for dust management controls. The current guideline for dust management is *A Guideline for Managing the Impacts of Dust and Associated Contaminants from Land Development Sites, Contaminated Sites, Remediation and Other Related Activities* (Department of Environment and Conservation, 2011). However, the recommendations from this document are not specific to extractive industries and therefore have only been used where relevant. It has therefore been supplemented with the information from the *draft Guidelines: Dust Emissions* (DWER, 2021) where appropriate. In addition, the risk assessment has been undertaken based on *Guidance Statement: Risk Assessments* (Department of Environment Regulation, 2017).

7.4 Screening Analysis

The Screening Analysis is based off Appendix B of the Draft Guidelines (DWER, 2021) which help determine if additional and more detailed information is required for a proposed development. The outcomes of the questionnaire are provided below.

Question 1 – Description of dust emissions

A description of the activities, potential dust sources and proposed controls are provided in Table 8.1 below.

Question 2 – Identification of current dust impacts

No community complaints have been received. No other records of dust impacts (such as ambient monitoring, negative community feedback or dust diaries) have occurred throughout the site's operation.

Question 3 – Changes to emissions

There are no proposed changes to the existing operation that are likely to increase the dust emissions or change the configuration of any dust source, apart from the slow progression of excavation. There are no proposed changes to the intensity of the operation or the rate of extraction.

Question 4 – Separation Distances

The closest sensitive receptor is approximately 1.4km from the operation, which exceeds the recommended separation distance in EPA Guidance Statement No. 3 of 500-1000m.

Question 5 – Special case factors

The draft Guidelines lists the "special case factors" to be considered for new and existing sites. The special case factors do not apply in this instance.

Conclusion

The result of the above questionnaire is that a detailed dust assessment is not required for the proposed development. Therefore, an operational dust analysis and an assessment of the existing dust levels and dust characteristics has not been undertaken.

7.5 Dust risk assessment

A dust risk assessment for the quarry is presented in this chapter. It considers the potential for dust generation and the potential impact off-site. The assessment has considered in detail the activities associated with the operation, the risk factors and the proposed controls.

There are three different components to the below risk assessment which provide a thorough consideration of the potential issues and risks as follows:

1. The assessment commences with a review of the "factors" from Chapter 7 of the *Draft Guidelines: Dust Emissions* (DWER, 2021). This provides an overarching look of the factors that are considered in a dust emission assessment and helps determine the site classification and the overall risk assessment.

2. The "site classification" has been determined using the current guideline for dust management – *A Guideline for Managing the Impacts of Dust and Associated Contaminants from land Development Sites, Contaminated Sites, Remediation and Other Related Activities* (Department of Environment and Conservation, 2011). It should be noted that the recommendations from this document are not specific to extractive industries and therefore a more detailed management plan is provided in this document.

3. Following this is a more detailed risk assessment of the specific activities that take place for the operation. The assessment has been prepared based on the consequence, likelihood and risk definitions provided in *Guidance Statement: Risk Assessments* (Department of Environment Regulation, 2017).

The Draft Guideline (DWER, 2021) provides information on the "factors" to be considered in a dust emission assessment. Each of the factors listed in Chapter 7 of the Guidelines is provided in the table below. Commentary on the operation against these factors is also provided.

Table 7.1 – Dust emission assessment

FACTOR	COMMENT	CONCLUSION
Location and proximity to sensitive receptors	The closest sensitive receptor is approximately 1.4km from the operation, which exceeds the recommended separation distance in EPA Guidance Statement No. 3 of 500-1000m.	It is considered that there is a low risk from the proximity of sensitive receptors.
Management of dust sources and activities.	Management of dust sources and activities (proposed controls) are set out below.	It is considered that there is a low risk of dust affecting nearby sensitive receptors when the Dust Management Plan is implemented as is demonstrated in the dust risk assessment
Characteristics of the dust.	As is explained above, the Screening Analysis for the proposed operation concluded that a detailed analysis of the dust is not required. Clay soils are particularly prone to "soil crusting" which is when moisture in the soil turns surface aggregates into crusts. It requires a much higher wind speed for particle dislodgment. And wind erosion is likely to be negligible until a disturbance significant enough to generate new erodible material occurs.	It is considered that there is a low risk of dust being created when the site is inactive due to soil crusting.
Potential dust impacts from other nearby sources.	There are no potential dust impacts from other nearby sources (i.e. within 500-1000m of the site) that will have a possible cumulative effect of dust, apart from normal farming operations.	It is considered that the potential risk from other sources is low.
Topography and complexity of terrain.	The topography in the local area is relatively flat, and there are no geographical features which can provide a physical barrier. Therefore, overburden is used to create bunds which can provide a physical barrier for the movement of dust beyond the operation and property boundaries.	It is considered that the topography does not pose a risk to dust emissions.
Size and/or complexity of the facility.	The operation is approximately 26ha in size and is not a complex operation. Dust-generating activities are largely limited to earthmoving and carting.	The scale and complexity of the operation is considered to have a low risk on nearby sensitive receptors.
Whether the proposal is in a Strategic Industrial Area.	The site is not located within a Strategic Industrial Area.	N/A – This factor is not relevant.
Whether the proposal is in an area that has an established riskbased approach and regulatory context.	The proposal is not within an area with an established risk-based approach and regulatory context.	N/A – This factor is not relevant.

FACTOR	COMMENT	CONCLUSION
Compliance history of existing premises.	No community complaints have been received since the site commenced operation. No other records of dust impacts (such as ambient monitoring, negative community feedback or dust diaries) have occurred throughout the site's operation.	The compliance history for the site is good and therefore is not a concern.
Other considerations.	The local area experiences a Mediterranean climate which experiences cool, wet winters and hot dry summer. A majority of rain occurs in the Winter months (May-August) and summer months can be typically dry. The prevailing winds throughout the majority of the year are predominantly from the east and the southeast (Bureau of Meteorology, 2026). The closest sensitive receptors are to the south and south-east and not in the direction of the prevailing wind direction.	It is considered that the weather conditions do not pose a risk to sensitive receptors.

7.6 Site classification

The site classification has been determined for the operation based on DWER's Guidelines (2011). The operation is determined to have a "negligible risk". The assessment is provided in the table below (reproduced from Appendix 1 of the Guidelines). The total score is 68 which fits into "Classification 1 – score below 199 – considered negligible risk".

Table 7.2 – Dust classification assessment

ITEM	SCORE	COMMENT
Part A – Nature of the site		
Nuisance potential of soil, when disturbed	Medium – 4	The activities on site that will likely "disturb" the soil are excavation activities, loading trucks with clay, recontouring and vehicles moving across the site. For the remainder of the time (when the site is not operational) the soil will not be disturbed.
Topography and protection provided by undisturbed vegetation	Little screening – 12	The only vegetation is a small amount along the road verge. Although there is no screening provided by topography, the overburden bunds are placed around the quarry to provide physical protection.
Area of site disturbed by the works.	More than 10ha – 9	This includes the current quarry and future stages.
Type of work being done.	Bulk earthworks – 9	Extraction activities.
Part B – Proximity of the site to other land uses		
Distance of other land uses from site.	More than 1km – 1	The closest is 1.4km from the operation.
Effect of prevailing wind direction on other land uses	Not affected – 1	No receptors within 1km of the operation in the prevailing wind direction.

Source: A Guideline for Managing the Impacts of Dust and Associated Contaminants from Land Development Sites, Contaminated Sites, Remediation and Other Related Activities (Department of Environment and Conservation, 2011)

Reflecting the very low risk of dust impact on a site classified as “negligible risk”, the Guidelines do not recommend that any management provisions or contingency actions are required.

7.7 Dust risk assessment

A detailed risk assessment is presented in the table below based on the criteria for likelihood, consequence and risk as defined in *Guidance Statement: Risk Assessments* (DWER, 2017). The risk assessment below considers the activities which have the potential to cause dust impact, the inherent risk of dust affecting sensitive receptors (i.e. with no controls) and the residual risk of dust affecting sensitive receptors (with controls in place).

The purpose of the risk assessment is to demonstrate that risk identified as “medium”, “high” or “extreme” can be effectively managed. As is stated in the *Guidance Statement: Risk Assessments* (DWER, 2017), a “low risk” is considered acceptable and generally not controlled through regulation.

Table 7.3 – Dust Risk Assessment

ACTIVITY	CONSIDERATION OF INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
Vehicle and truck movements entering and exiting the site.	The inherent likelihood of dust affecting sensitive receptors without management is considered to be "unlikely" and the consequence "minor", taking into consideration existing separation distances	Unlikely	Minor	Med	Following implementation of dust management, the likelihood of dust affecting sensitive receptors is considered to be "rare" and the consequence "minor".	Rare	Minor	Low
Machinery and vehicle movements on internal access tracks throughout the site.	The inherent likelihood of dust affecting sensitive receptors without management is considered to be "unlikely" and the consequence "minor", taking into consideration existing separation distances.	Unlikely	Minor	Med	Following implementation of dust management, the likelihood of dust affecting sensitive receptors is considered to be "rare" and the consequence "minor".	Rare	Minor	Low
Stripping topsoil and overburden	The inherent likelihood of dust affecting sensitive receptors without management is considered to be "unlikely" and the consequence "minor", taking into consideration existing separation distances.	Unlikely	Minor	Med	Following implementation of dust management, the likelihood of dust affecting sensitive receptors is considered to be "rare" and the consequence "minor".	Rare	Minor	Low
Excavation of clay and tipping clay onto stockpile.	The inherent likelihood of dust affecting sensitive receptors without management is considered to be "unlikely" and the consequence "minor" taking into consideration existing separation distances.	Unlikely	Minor	Med	Following implementation of dust management, the likelihood of dust affecting sensitive receptors is considered to be "rare" and the consequence "minor".	Rare	Minor	Low
Loading clay onto trucks during carting campaign.	The inherent likelihood of dust affecting sensitive receptors without management is	Unlikely	Minor	Med	Following implementation of dust management, the likelihood of dust affecting sensitive receptors is	Rare	Minor	Low

ACTIVITY	CONSIDERATION OF INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
	considered to be “unlikely” and the consequence “minor” taking into consideration existing separation distances.				considered to be “rare” and the consequence “minor”.			
Recontouring and rehabilitation of the operation area.	The inherent likelihood of dust affecting sensitive receptors without management is considered to be “unlikely” and the consequence “minor” taking into consideration existing separation distances.	Unlikely	Minor	Med	Following implementation of dust management, the likelihood of dust affecting sensitive receptors is considered to be “rare” and the consequence “minor”.	Rare	Minor	Low
Exposed excavation areas and other open areas	The inherent likelihood of dust affecting sensitive receptors without management is considered to be “unlikely” and the consequence as “slight”. Soil crusts on the surface of exposed areas. Some groundcover also tends to grow over areas that haven’t been worked in a while.	Unlikely	Slight	Low	No particular dust control required as the clay soil is particularly prone to soil crusting, and the residual risk has not changed.	Unlikely	Slight	Low
Stockpiles (overburden and clay)	The inherent likelihood of dust affecting sensitive receptors is considered to be “unlikely” and the consequence as “slight”. The stockpiles form a crust when they haven’t been disturbed in a while.	Unlikely	Slight	Low	No particular dust control required as the clay soil is particularly prone to soil crusting, and the residual risk has not changed.	Unlikely	Slight	Low

7.8 Dust Control

Introduction

This chapter sets out the measures that will be used by Midland Brick to reduce the creation and effect of dust. It includes actions relating to dust control measures, corrective procedures and complaints protocol. It describes the dust control actions in detail to provide context on how these methods operate to reduce the creation and have more effective control of dust.

The specific actions relating to each dust source is listed the table below. The plan is designed to provide items which can be efficiently and effectively understood and actioned by Midland Brick staff and contractors.

It has been prepared in accordance with the following:

- *A Guideline for Managing the Impacts of Dust and Associated Contaminants from Land Development Sites, Contaminated Sites, Remediation and Other Related Activities* (Department of Environment and Conservation, 2011);
- *Draft Guideline: Dust Emissions* (DWER, 2021);
- State Planning Policy 2.4 – Planning for Basic Raw Materials Guidelines (WAPC, 2021)
- Best practice in mine/quarry management;
- Industry experience.

Site layout

The quarry is located at the southern boundary of the property and extends into the centre of the property. The stockpiling area is located closest to the site entrance, to reduce the amount trucks are required to travel through the site.

A majority of the operation is essentially located in a hole surrounded by high pit walls on all sides. Nearby sensitive resources do not have a direct view into the site and the bunding provides a visual screen to the extraction area. While some stockpiles can be seen from some viewpoints along local roads, it cannot be seen from any major road.

These considerations have meant that there is little else that needs to be done to manage or reduce noise from a site layout or design perspective.

Complaints procedure

The complaints procedure is set out below:

- Complaints made to Midland Brick will be documented and investigated.
- Complaints received either directly from the complainant or via the Shire or DWER will be reviewed by Midland Brick to assess:
  (i) the legitimacy of the complaint;
  (ii) the aspects of the operation that could have caused an impact;
  (iii) management actions required to address an issues.
- Actions deemed necessary to bring operations into line with relevant legislation, regulation and license conditions will be undertaken immediately and before works are recommenced.
- Summaries of complaints and actions taken will be recorded in the Complaints Register.

If any complaints are received, necessary action will take place to help rectify the issue. It should be noted that the sooner a complaint is made, the sooner it can be investigated. Complaints made several days after a perceived event may not be able to be actioned due to the time lapsed.

The complaints response is applicable at all times (i.e. not just during site operation) and there will always be a prompt response from Midland Brick whether onsite or not. If the Shire receives a complaint, it will be necessary for them to contact Midland Brick. It should be noted that this complaints procedure has worked very well for Midland Brick at numerous other sites in the past.

Dust suppression

Dust suppression is generally achieved through the use of a "dust suppression agent", most commonly water. The application of water over areas prone to the generation of dust, during certain activities, helps to reduce the likelihood of dust generation. Water will be used as a dust supressing agent on days where excavation and carting take place.

Water will be available from the detention basins located at the base of the pit area. It is very unlikely that the basins will dry.

Watering will be undertaken as required utilising a water cart. The water cart will have a capacity of at least 12,000 litres. The frequency and amount of water applied will be dependent upon local conditions and observable dust generation and will vary as conditions will change from day to day.

Monitoring weather conditions

The Quarry Manager will review the predicted weather conditions from the Bureau of Meteorology on the day before excavation and carting is scheduled to take place. The purpose is to check whether strong winds or adverse weather conditions are predicted. The Quarry Manager will make a decision at the pre-start meeting on the morning of operation to advise whether the scheduled activities will occur.

During the course of the day, the Quarry Manager will check weather conditions. If weather conditions are adverse (i.e. particularly strong winds are making dust management difficult), then operations will stop until the weather improves.

Visual monitoring

The Quarry Manager visits the site each day that the site is operational (i.e. excavating or carting). When the site is not being worked it is attended every quarter (approximately) for inspection by the Quarry Manager. The visual monitoring is undertaken when required. It is in the interest of Midland Brick to make sure that dust management is adequate, and they are committed to this.

Vehicle movements

There are several different mobile pieces of equipment moving around a clay quarry at any one time. These can vary from slow moving dozers and excavators to all types of trucks. The operational area is entirely unsealed surface.

When vehicles drive over an unsealed surface, they break it down into smaller particles which eventually is fine enough to become airbourne dust. Small particles that are wet don't become a dust issue, but when trafficked, the truck wheels generate friction, and this dries the fine particles. Truck wheels moving over loose dry particles tend to generate dust clouds when large areas of road are not maintained.

The normally accepted practice is to use a water cart to spray water on surfaces. Speed of vehicle movements is also reduced throughout the site which helps to reduce dust generation. Vehicle speeds vary slightly from clay quarry to clay quarry and are well sign posted.

Stripping topsoil

Removal of topsoil is only performed once every 2-5 years depending on the depth of the clay deposit. In most cases a bulldozer on tracks will be used for this task as it has the necessary power and traction.

Often, the dozer is assisted by a rubber tyre front end loader and a truck to move the topsoil to another position. All of these vehicles have the potential to generate dust.

On a hot windy day in summer, this dust might be clearly visible. However, with proper management procedures in place, the potential for dust to move off-site is minimised.

At Midland Brick, the Quarry Manager plans his mining sequence well in advance. The clearing and stripping activities are conducted during late winter and spring when there is sufficient moisture in the soil to prevent any dust generation.

Regardless of timing and weather, operators on site have delegated authority to stop work immediately if visible dust is generated.

Excavation of clay and loading onto trucks

Clay is excavated and stockpiled or is loaded direct into trucks for transport to the brick making factories in the Midland area. When stockpiled on the site, damp clay is excavated via an excavator or bulldozer. Dump trucks then take the clay to prepared stockpile areas for later loading into road trucks.

Mostly, freshly excavated clay is damp and has no dust however, when loading road trucks from a stockpile, the clay has dried slightly and can generate dust if the loader operator drops the load into the truck without any care. At Midland Brick, operators are trained to carefully place each load into the truck body by keeping the bucket low and tipping slowly. When loading from a stockpile into road trucks, operators are encouraged to load from one end only. When loaded, the truck drivers can then close their tarps.

Loading takes place within the pit area which is screened with high quarry walls and bunding.

Tipping clay onto stockpiles

On all Midland Brick clay quarries, stockpiles are created so that road trucks can be loaded throughout the year. To create the stockpiles, off highway dump trucks are loaded by an excavator. The clay is generally damp however the movement of the dump trucks can create dust.

The disciplines of a water truck wetting the roads being used by the dump trucks and also dump truck drivers being cautious of their speeds will alleviate most of the issues with dust generation.

Stockpiles are located in the pit area and are screened with high quarry walls and bunding.

Dust management during non-operational periods

The site will be nonoperational for large stretches of time. During non-operational periods Midland Brick will adhere to the following procedures:

- Continue to respond to complaints as described above
- Visually inspect the site each month by the Quarry Manager.

During non-operational times wind erosion of an undisturbed clay pit is unlikely to present a significant risk as the clay soil is particularly prone to soil crusting and the development of a "skin" which means that the wind erosion is likely to be negligible. Therefore, no additional dust management is required during non-operational times except for those listed above.

Stockpiles and bunding

As above, experience has shown that after a heavy rain event, a "skin" is formed on the surface of the stockpile/bund which protects fine dust from escaping, providing there is no mechanical disturbance.

7.9 Dust management plan

The Dust Management Plan is presented in the table below. A majority of the dust management procedures apply at all times and are included under the heading 'general'. Specific actions relating to a certain activity are also listed below.

It should be noted that the risk assessment demonstrated that all activities can be managed to a "low" risk of impact. In accordance with the DWER Guidance Statement on risk assessments, a "low risk" is considered acceptable and generally not controlled through regulation. Therefore, the dust controls measures set out below are considered suitable for the risk of impact. Additional dust control and dust monitoring is not considered necessary given the low risk of impact.

Table 7.4 – Dust management plan

ACTIVITY	ACTION	RESPONSIBILITY	TIMING
General	Quarry Manager to review the Bureau of Meteorology forecast regarding wind and temperature at the prestart team meeting and discuss the likely weather impacts (and to decide whether the conditions mean that operations should not commence for the day or should be monitored for worsening conditions). QM's use the latest weather technology apps to review weather conditions, particularly wind.	Quarry Manager	Ongoing
	When winds are sufficiently strong to negate the effects of dust management, operations will cease until conditions improve and compliance can be achieved. The team have authority to stop work if they see visible dust issues, especially if wind conditions deteriorate.	Quarry manager, Team	Ongoing
	Maintain all equipment in good condition.	Raw Materials Manager, Quarry Manager	Ongoing
	Keep vehicle speed limits low throughout the site.	Quarry Manager, team	Ongoing

ACTIVITY	ACTION	RESPONSIBILITY	TIMING
	Continue training programmes on dust control requirements to all workers and contractors.	Quarry Manager, Environmental Advisor	Ongoing
	All non-conformances and dust related complaints received should be immediately reported to the Quarry Manager.	Quarry Manager, Environmental Advisor	Ongoing, as required
	Comply with the "Complaints Procedure" at all times.	Quarry Manager, Environmental Advisor	Ongoing, as required
	Following complaints, the source of any excessive dust will be identified and work practices will be modified or re-scheduled to reduce or eliminate the risk of future events.	Quarry Manager, Environmental Advisor	Ongoing, as required
	A notice is placed on site with contact details of the Quarry Manager and details as to where dust complaints are to be addressed. It will be displayed at all times.	Quarry Manager	Ongoing
	Ensure that all site operators are trained to observe whether dust is leaving the property boundary or if adverse weather conditions are present. Ensure that all site operators are trained in procedures should dust be observed leaving the boundary or if there are adverse weather conditions such as when to stop operations or when to increase dust management measures (such as wetting down areas etc.)	Quarry Manager, Environmental Advisor	Ongoing
	Should dust visibly cross the site boundary at any time, dust suppression measures shall be increased immediately and if works are taking place they shall be modified accordingly. Should dust continue to be generated all works shall cease immediately and the site shall be sufficiently stabilised by application of water until the wind conditions are appropriate to resume works.	Quarry Manager, Team	Ongoing
Vehicle movements	Vehicle and machinery exiting the site should be inspected to ensure they are not carrying clods/slurry of soil (this is also part of the dieback management for the site).	Quarry Manager, Team	Ongoing, when carting
	Cover truck loads with a tarp before exiting the site.	Quarry Manager, Team	Ongoing, when carting
	Quarry Manager to inspect the site on excavation and carting days to review dust management.	Quarry Manager	Ongoing, when carting
	Watercarts will be utilised to wet down access tracks to prevent dust generation.	Quarry Manager	Ongoing, as required

ACTIVITY	ACTION	RESPONSIBILITY	TIMING
	Water for the carts can be obtained from the pond onsite.		
	Train and discuss the impacts of vehicle speeds on dust generation.	Quarry Manager	Ongoing
Stripping topsoil and overburden	Plan to conduct activity during late winter and spring when the soil is moist.	Quarry Manager	Ongoing, as required
	The team have authority to stop work if they see visible dust issues, especially if wind conditions deteriorate.	Quarry Manager, Team	Ongoing, as required
	Watercarts will be utilised to wet down access tracks to prevent dust generation. Water for the carts can be obtained from the pond onsite.	Quarry Manager	Ongoing, as required
	Quarry Manager to inspect the site to review dust management during clearing and stripping activities.	Quarry Manager	Ongoing
Excavation of clay and loading onto trucks or stockpiles, loading clay onto trucks and recontouring and rehabilitation	Train team on how to reduce dust via sensible placement of loads into trucks.	Quarry Manager, Team	Ongoing
	Excavate clay behind pit walls and bunds (where possible).	Quarry Manager, Team	Ongoing, when excavating
	Consider wind direction when tipping and make adjustments if necessary.	Quarry Manager, Team	Ongoing
	Ensure vehicles slow down as they approach the dump zone.	Quarry Manager, Team	Ongoing
	Ensure operators place each load into the truck carefully by keeping the bucket low and tipping slowly in order to reduce the potential for dust generation from loading trucks.	Quarry Manager, Team	Ongoing
	Limit stockpile disturbance by only loading from one face.	Quarry Manager, Team	Ongoing
	Train team on how to reduce dust via sensible placement of loads into trucks.	Quarry Manager, Team	Ongoing
	Watercarts will be utilised to wet down access tracks to prevent dust generation. Water for the carts can be obtained from the pond onsite.	Quarry Manager	Ongoing, as required
	Quarry Manager to inspect the site to review dust management.	Quarry Manager	Ongoing
Exposed excavation areas and other open areas.	Allow a dry crust to form on the exposed operation areas and the stockpile surface.	Quarry Manager, Team	Ongoing
	Use the cannon on water truck to wet down any stockpiles that are causing dust (if required), hence forming a skin.	Quarry Manager	Ongoing, as required

8 Noise Management Plan

8.1 Background

This chapter presents the Noise Management Plan for the Sheen Road (Wogamine) clay quarry operated by Midland Brick Pty Ltd. The quarry ("the site") is located at Lot M488 Sheen Road, Mumberkine. It outlines the appropriate procedures implemented by Midland Brick to manage any potential for noise generation and supports an application for Development Approval and Extractive Industry Licence.

In this report, noise-generating activities are considered in the context of their potential impact on noise sensitive premises, such as residential dwellings. The potential for noise generation can be managed through the implementation of appropriate noise management procedures adopted as part of a Noise Management Plan.

The Noise Management Plan has been prepared to incorporate best practice noise management actions, relevant recommendations from *Draft Assessment of Environmental Noise Emissions Guideline* released by DWER in 2021 and to ensure compliance with the *Environmental Protection (Noise) Regulations 1997*.

8.2 Objectives

The objectives of the Noise Management Plan are:

- To manage the potential for noise generation to ensure compliance with the *Environmental Protection (Noise) Regulations 1997*
- To reduce the potential for noise to impact on noise sensitive premises
- To provide a process in the event of a noise-related complaint.

8.3 Context

Environmental noise in Western Australia is regulated by the *Environmental Protection Act 1986*, through the *Environmental Protection (Noise) Regulations 1997* (the Regulations).

Regulation 7 of the Regulations defines the prescribed standard for noise emissions as follows:

> *7. (1) Noise emitted from any premises or public place when received at other premises –*
>
> *(a) Must not cause or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind; and*
>
> *(b) Must be free of –*
>
> *i. tonality.*
>
> *ii. impulsiveness; and*
>
> *iii. modulation,*
>
> *when assessed under Regulation 9.*

Regulation 7(2) states that a "noise emission is taken to significantly contribute to a level of noise if the noise emission…exceeds a value which is 5 dB below the assigned level".

"Noise sensitive premises" are set out in Schedule 1, Part C of the Regulations. They include, but are not limited to, premises occupied solely or mainly for residential or accommodation purposes and rural premises. Furthermore, a "highly sensitive area" is defined in the Regulations as an area of noise sensitive premises comprising a building used for a noise sensitive purpose (such as a residential or accommodation building). Therefore, the assigned noise levels applicable to this site are those set out in Regulation 8 (3) Table 1 of the Regulations for "noise sensitive premises: highly sensitive area".

A range of facts sheets have been prepared by DWER to assist with the interpretation of the Regulations. The *Draft Assessment of Environmental Noise Emissions Guideline* (DWER, 2021) was prepared to provide further guidance.

The other guideline regularly used to determine impact on sensitive land uses is the Environmental Protection Authority's *Guidance Statement No. 3 Separation Distances Between Industrial and Sensitive Landuses* (EPA, 2005). It states that "land uses considered to be potentially sensitive to emissions from industry and infrastructure include residential developments, hospitals, hotels, motels, hostels, caravan parks, schools, nursing homes, childcare facilities, shopping centres, playgrounds, and some public buildings".

The separation distance for "clay extraction" is 500-1,000 metres. These distances are guidelines only depending on size and scale of a proposal. Lesser separation distances can be supported with site specific assessments.

The closest sensitive receptor to the operation is approximately 1.4km to the south, which exceeds the recommended distances.

8.4 Noise risk assessment

Introduction

This chapter presents a noise risk assessment for the Sheen Road Quarry. It considers the potential for noise generation and the potential impact off-site. The assessment has considered in detail the activities associated with the operation, the risk factors, and the proposed controls.

There are three different assessments undertaken for the operation as follows:

1. A screening analysis based on Appendix A of the *Draft Guideline: Assessment of Environmental Noise Emissions* (DWER, 2021).
2. The assessment commences with a review of the "factors" from *the Draft Guideline: Assessment of Environmental Noise Emissions* (DWER, 2021). This provides an overarching look of the factors that are considered in a noise emission assessment and helps lead into the site classification and the overall risk assessment.
3. Following this is a more detailed risk assessment of the specific activities that take place for the operation. The assessment has been prepared based on the consequence, likelihood and risk definitions provided in *Guidance Statement: Risk Assessments* (Department of Environment Regulation, 2017).

8.5 Screening analysis

The Draft Assessment of Environmental Noise Emissions Guideline (DWER, 2021) includes a "screening analysis" which is used to help determine if detailed noise assessments are required for a proposed development. As the minimum separation distances are not, a detailed noise assessment is not required, as recommended by the draft Guideline.

8.6 Noise emission assessment

The *Draft Guideline: Assessment of Environmental Noise Emissions* (DWER, 2021) provides information on the factors to be considered in a noise emission assessment. This includes the following:

- The context of the noise emissions
- The nature of the noise emissions
- The control and management of noise emissions
- Known or demonstrated compliance.

A review of the above factors is provided in the table below. It should be noted that the below is based on the excavation and carting operations (as the construction noise from removal of topsoil and construction of noise bunds does not need to comply with Regulation 7/operational noise).

Table 8.1 – Noise emission assessment

FACTOR	COMMENT	CONCLUSION
The context of the noise emissions: • Background noise • Time of day and activity of the receiver • Distance, topography and meteorological conditions between the emitter and receivers • The types of receptors, including current and potential • Contributing and cumulative noise sources.	The closest sensitive receptor is approximately 1.4km south of the operation. There are no known future sensitive receptors surrounding the operation. Operation of the quarry will be between daylight hours of between 7am and 6pm Monday to Saturday. There are no current contributing or cumulative noise producing activities in the vicinity from industrial, only rural activities.	It is considered that the context provides a low risk of noise emissions causing impact on sensitive receptors.
The nature of the noise emissions • The characteristics of the noise emission • Received noise/vibration levels • How the noise emission • is perceived by receivers.	The noise emissions associated with extractive industry relate to use of machinery (i.e. dozer, loader, excavator etc), blasting, processing equipment and haul trucks.	While there are noise emissions from activities on the site, the distance to sensitive receptors are considered to present low risk of impact.
The control and management of noise emissions • Whether the noise management measures set out in a detailed noise emission assessment are	This Nosie Management Plan sets out the noise management controls in place for the operation. A detailed noise assessment is not considered necessary as the risk is low.	It is considered that there is a low risk of noise affecting nearby sensitive receptors when the Noise Management Plan is implemented.

FACTOR	COMMENT	CONCLUSION
acceptable, reasonable and practical • Whether the noise management measures are likely to be effective in reducing noise levels to meet the Noise Regulations or other standards and noise values outlined in the guideline.		
Known or demonstrated compliance: • By the occupier and premises with the provisions of the EP Act • • With the Noise Regulations or other standards and noise values outlined in the guideline with the screening and detailed noise emission assessment process set out in the guideline.	The site has historically been used for extractive industry since 2007 and no noise complaints have been received.	The compliance history for the site is good and therefore is not a concern.

8.7 Noise risk assessment

A detailed risk assessment is presented in the table below based on the criteria for likelihood, consequence and risk as defined in *Guidance Statement: Risk Assessments* (DWER, 2017). The risk assessment below considers the activities which have the potential to cause noise impact, the inherent risk of noise impact (i.e. with no controls) and the residual risk of noise impact (with controls in place). The potential impact is that noise from machinery could exceed acceptable day-time levels at the nearest noise sensitive receptors.

The purpose of the risk assessment is to demonstrate that risk identified as “medium”, “high” or “extreme” can be effectively managed. As is stated in the *Guidance Statement: Risk Assessments* (DWER, 2017), a “low risk” is considered acceptable and generally not controlled through regulation.

Table 8.2 – Noise Risk Assessment

ACTIVITY	CONSIDERATION OF INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
Stripping topsoil and overburden ("construction noise")	The inherent likelihood of noise affecting sensitive receptors without management is considered to be "possible" and the consequence "minor", taking into consideration existing separation distances.	Possible	Minor	Med	Following implementation of noise management, the likelihood of noise affecting sensitive receptors is considered to be "rare" and the consequence "minor", due to the low frequency of overburden and topsoil stripping, and other controls.	Rare	Minor	Low
Vehicle and truck movements entering and exiting the site ("operational noise").	The inherent likelihood of noise affecting sensitive receptors without management is considered to be "possible" and the consequence "minor", taking into consideration existing separation distances.	Possible	Minor	Med	Following implementation of noise management, the likelihood of noise affecting sensitive receptors is considered to be "rare" and the consequence "minor".	Rare	Minor	Low
Excavation of clay and tipping clay onto stockpile ("operational noise").	The inherent likelihood of noise affecting sensitive receptors without management is considered to be "possible" and the consequence "minor", taking into consideration existing separation distances.	Possible	Minor	Med	Following implementation of noise management, the likelihood of noise affecting sensitive receptors is considered to be "rare" and the consequence "minor".	Rare	Minor	Low
Loading clay onto trucks during carting campaign ("operational noise").	The inherent likelihood of noise affecting sensitive receptors without management is considered to be "possible" and the consequence "minor", taking into consideration existing separation distances.	Possible	Minor	Med	Following implementation of noise management, the likelihood of noise affecting sensitive receptors is considered to be "rare" and the consequence "minor".	Rare	Minor	Low
Recontouring and rehabilitation of the	The inherent likelihood of noise affecting sensitive receptors without management is	Possible	Minor	Med	Following implementation of noise management, the likelihood of noise affecting sensitive receptors is	Rare	Minor	Low

ACTIVITY	CONSIDERATION OF INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
operation area (“operational noise”).	considered to be “possible” and the consequence “minor”, taking into consideration existing separation distances.				considered to be “rare” and the consequence “minor”.			

8.8 Noise controls

Introduction

This chapter sets out the measures that will be used by Midland Brick to reduce the creation and effect of noise. It includes actions relating to noise control measures, corrective procedures and complaints protocol. It describes the noise control actions in detail to provide context on how these methods operate to reduce the creation and have more effective control of noise.

The specific actions relating to each noise source is listed the table below. The plan is designed to provide items which can be efficiently and effectively understood and actioned by Midland Brick staff and contractors.

It has been prepared in accordance with the following:

- *Draft Assessment of Environmental Noise Emissions Guideline* (DWER, 2021)
- *Environmental Protection (Noise) Regulations 1997*
- *State Planning Policy 2.4 – Planning for Basic Raw Materials Guidelines* (WAPC, 2021)
- Best practice in mine/quarry management
- Industry experience.

Site layout

The quarry is located at the southern boundary of the property and extends into the centre of the property. The stockpiling area is located closest to the site entrance, to reduce the amount trucks are required to travel through the site.

A majority of the operation is essentially located in a hole surrounded by high pit walls on all sides. Nearby sensitive resources do not have a direct view into the site and the bunding provides a visual screen to the extraction area. While some stockpiles can be seen from some viewpoints along local roads, it cannot be seen from any major road.

These considerations have meant that there is little else that needs to be done to manage or reduce noise from a site layout or design perspective.

Complaints procedure

The complaints procedure is set out below:

- Complaints made to Midland Brick will be documented and investigated.
- Complaints received either directly from the complainant or via the Shire or DWER will be reviewed by Midland Brick to assess:
  (iv) the legitimacy of the complaint;
  (v) the aspects of the operation that could have caused an impact;
  (vi) management actions required to address an issues.
- Actions deemed necessary to bring operations into line with relevant legislation, regulation and license conditions will be undertaken immediately and before works are recommenced.
- Summaries of complaints and actions taken will be recorded in the Complaints Register.

If any complaints are received, necessary action will take place to help rectify the issue. It should be noted that the sooner a complaint is made, the sooner it can be investigated. Complaints made several days after a perceived event may not be able to be actioned due to the time lapsed.

The complaints response is applicable at all times (i.e. not just during site operation) and there will always be a prompt response from Midland Brick whether onsite or not. If the Shire receives a complaint, it will be necessary for them to contact Midland Brick. It should be noted that this complaints procedure has worked very well for Midland Brick at numerous other sites in the past.

Operational controls

Midland Brick are aware of their responsibilities to reduce potential impact from noise and already undertake the following:

- Carting and excavation will not be continuous throughout the year – there will be long periods of inactivity at the clay quarry.
- Construct noise bunds with the use of overburden and resource stockpiles.
- All equipment used for excavation is well maintained which aims to minimise noise generation.
- All vehicles use broadband reversing beepers to reduce noise emissions.
- Operations will only take place during the approved hours of operation which are within the hours stipulated by the Regulations.
- Comply with the complaints procedure as described above.

Other operational controls as set out below will also be implemented.

8.9 Noise Management Plan

The Noise Management Plan is presented in the table below. It should be noted that the risk assessment demonstrated that all activities can be managed to a "low" risk of impact. In accordance with the DWER Guidance Statement on risk assessments, a "low risk" is considered acceptable and generally not controlled through regulation. Therefore, the noise controls measures set out below are considered suitable for the risk of impact. Additional noise control and noise monitoring is not considered necessary given the low risk of impact.

Table 8.3 – Noise management plan

ACTION	RESPONSIBILITY	TIMING
1. Adhering to the "daylight hours" as set out in the Regulations, with work conducted in the hours identified in the application or on the approval.	Quarry Manager, Team	Ongoing
2. Maintain all equipment in good condition.	Raw Materials Manager, Quarry Manager	Ongoing
3. Keep vehicle speed limits low throughout the site.	Quarry Manager, team	Ongoing
4. Continue training programmes on noise control requirements to all workers and contractors.	Quarry Manager, Environmental Advisor	Ongoing
5. All non-conformances and dust related complaints received should be immediately reported to the Quarry Manager.	Quarry Manager, Environmental Advisor	Ongoing, as required
6. Comply with the "Complaints Procedure" at all times.	Quarry Manager, Environmental Advisor	Ongoing, as required

ACTION	RESPONSIBILITY	TIMING
7. Following substantiated complaints, the source of any excessive noise will be identified and work practices will be modified or re-scheduled to reduce or eliminate the risk of future events.	Quarry Manager, Environmental Advisor	Ongoing, as required
8. A notice is placed on site with contact details of the Quarry Manager and details as to where noise complaints are to be addressed. It will be displayed at all times.	Quarry Manager	Ongoing

9 Water Management Plan

9.1 Background

This chapter presents the Water Management Plan for the Sheen Road (Wogamine) clay quarry operated by Midland Brick Pty Ltd. The quarry ("the site") is located at Lot M488 Sheen Road, Mumberkine. It sets out the drainage management procedures during normal operation and the guidelines in the event of a storm or emergency and supports an application for Development Approval and Extractive Industry Licence.

The Water Management Plan has been prepared for the following reasons:

- To incorporate best practice water management
- To incorporate relevant recommendations from Guidelines and policies
- To accompany an application for approvals for the operation.

9.2 Objectives

The objectives of the Water Management Plan are to:

- Ensure that extractive industry activities do not have an adverse impact on surface water and groundwater resources.
- Provide for management of water within the operation area.

9.3 Context

This Water Management Plan has been prepared in accordance with the following policy documents:

- *State Planning Policy 2.4 – Planning for Basic Raw Materials Guidelines* (WAPC, 2014)
- State Planning Policy 2.9 – Water (WAPC, 2025)
- *State Planning Policy 2.9 – Planning for Water Guidelines* (WAPC, 2025)
- *Water Quality Protection Note (WQPN) No. 15 – Basic Raw Materials Extraction* (DWER, 2019)
- *Water Quality Protection Note No. 77 – Risk Assessment Process for Public Drinking Water Source Areas* (DWER, 2022).
- *Water Quality Protection Note No. 13 – Dewatering of Soils at Construction Sites* (DWER, 2012)
- *Water Quality Protection Guidelines No. 11 – Mining and Mineral Processing: Mine Dewatering* (DWER, 2000).

9.4 Risk Assessment

This chapter presents the outcomes of the water resources risk assessment for the Sheen Road Quarry. It considers the risks to water quality and the potential impact to water sources off-site. The assessment has considered in detail the potential hazards, the risk factors and the proposed controls in accordance with the risk assessment guidelines from WQPN No. 77 (DWER, 2022) and WQPN No. 15 (DWER, 2019).

The risk assessment considers the elements from the above policies and guidelines. They are summarised below:

1. Consideration of 'water management considerations' from WQPN No. 15 which is a policy which specifically relates to the potential impacts from extraction of basic raw materials. The purpose of this risk assessment is to provide a clear link between the Policy considerations and the management controls. It also demonstrates the effectiveness of the management controls through the assessment of the residual risk. It should be noted that some considerations from the WQPN (such as dust, site rehabilitation, refuelling, waste management etc.) are addressed in their own separate management plans.
2. A risk assessment against the potential 'hazards' as identified in WQPN No. 77. Although this policy has a particular focus on PDWSA's, the hazards can be relevant to this operation.

Table 9.1 – Rick Assessment on WQPN No. 15

WQPN CONSIDERATION	WQPN POLICY RECOMMENDATION	POTENTAL IMPACT	CONTEXT	CONTROL	RESIDUAL RISK		
					L	C	R
Public drinking water source areas.	The Policy makes recommendations if an operation is proposed within a public drinking water source area.	N/A	The site is not located within a PDWSA.	N/A	N/A		
Clearing control catchments (Country Areas Water Supply Act 1947).	BRM activities within clearing control catchments need to be assessed for potential salinity impacts.	N/A	The site is not located within a Clearing Control Catchment.	N/A	N/A		
Near waterways.	The Policy states that extraction should be above the 1 in 100 flood level, outside of areas subject to waterlogging or flooding and to have adequate buffers to waterways.	Potential for impact on waterways (turbidity, salinity etc) if an operation is inadequately separated.	The operation area is not located in an area prone to waterlogging and flooding. The operation is sufficiently separated from the nearest watercourses.	All stormwater will be retained on site and not permitted to drain into surrounding areas.	Rare	Minor	Low
BRM extraction within waterways (in-stream mining).	The Policy provides recommendations for BRM operations which extract from riverbeds or from pits in floodplains.	N/A	Not applicable – in-stream mining or extraction in waterways is not proposed.	N/A	N/A		
Wetlands.	The Policy recommends contacting DBCA to discuss wetlands.	N/A	Not applicable – There are no wetlands located on the site.	N/A	N/A		
Groundwater.	Consideration of acid sulphate soils and whether dewatering is required.	Potential impact to groundwater quality (such as salinity, hydrocarbons).	Depth to groundwater is approximately 10m bgl. There is low risk of acid sulphate soils occurring.	Groundwater will be intercepted during excavations, however, no dewatering of groundwater will be required as excavation is managed to keep groundwater within the pit	Unlikely	Minor	Med

WQPN CONSIDERATION	WQPN POLICY RECOMMENDATION	POTENTAL IMPACT	CONTEXT	CONTROL	RESIDUAL RISK		
					L	C	R
				area. The site is not located in a Proclaimed Groundwater Area.			
Landscape.	The Policy recommends that land selected should be gently sloping (between 1 in 20 and 1 in 50) so runoff and wastes can be more easily managed, but erosion is avoided. It also recommends that rocky and steep slopes, and land prone to erosion should be avoided.	Potential for exacerbated erosion which can also potentially lead to turbidity in surface water features.	The operation area is on fairly flat land. Wind erosion risk will be low for the pit area as the clay soils form a crust when dry and stick together when wet.	The final landform will be recontoured to safe and stable slopes. Water will be retained onsite and directed into the drainage basins.	Rare	Minor	Low
Other land uses.	This aspect relates to separation distances to sensitive land uses and the avoidance of infrastructure.	N/A	Not applicable – No permanent infrastructure is located on site. Separation distances and offsite impacts are addressed in other management plans.	N/A	N/A		
Construction.	The Policy recommends that existing tracks and roads should be used where possible, that any waterway crossings are constructed appropriately and that access should be designed to have the least impact on surface water features and vegetation.	N/A	Not applicable - No waterway crossings are proposed.	N/A	N/A		
Solid waste.	The Policy makes reference to the requirements of the *Environmental Protection (Unauthorised Discharges) Regulations 2004*.	Inadequate control of waste on site can have detrimental impact on surface water and their environs.	Midland Brick stores and appropriately disposes of wastes from the site in accordance with the Waste Management Plan.	Waste Management Plan	Rare	Slight	Low

WQPN CONSIDERATION	WQPN POLICY RECOMMENDATION	POTENTAL IMPACT	CONTEXT	CONTROL	RESIDUAL RISK		
					L	C	R
Water supply.	The Policy refers to the need for a licence under the Rights in Water and Irrigation Act 1914 to construct a bore, and abstract groundwater or surface water in a Proclaimed Surface or Groundwater Area. It also makes recommendations regarding water supply.	Potential for impact on a proclaimed groundwater resource through intersection of groundwater, filtration to the watertable etc.	The site is located in a Proclaimed Surface Water Area and not within a Proclaimed Groundwater Area.	There is no need for abstraction of surface water for the operation. There will be interception of the groundwater during extraction, but the site is not located in a Proclaimed Groundwater Area and does not require a licence. Water to be used for the operation (primarily dust suppression) is captured within the onsite dams.	Rare	Minor	Low
Wastewater.	The Policy makes recommendations relating to wastewater treatment and management.	Potential impact largely relates to pathogens and nutrients on water supplies.	A portable toilet may be located onsite during campaigns.	Ablution facilities will be managed in accordance with the manufacture's specifications. There will be no discharge to the environment.	Rare	Minor	Low
Stormwater.	This aspect of the Policy aims to ensure that stormwater from the operational areas is retained on site. It also recommends that ponds are used to manage turbidity (i.e. settling ponds) and that they are designed to handle up to a 2 hour, 1 in 10 (10 per cent) annual exceedance probability event.	Potential impact of stormwater runoff relates to impacts on surface water quality (e.g. turbidity, salinity etc) and impacts on hydrological regimes (such as surface water quantity, flow rates, groundwater recharge etc).	Stormwater basins are also constructed on site.	All stormwater is retained onsite and is diverted to the detention basins. The pit area is large enough to accommodate a 1 in 10 annual exceedance probability event and basins can be increased in size and new basins constructed within the operational area as the operation progresses.	Rare	Minor	Low
Dust	The Policy refers to the obligations of a proponent under the EP Act 1984 and mentions the DWER *A guideline*	Potential impact to water quantity if bore or surface water	Separation distances from nearest surface water features is adequate.	Water for dust suppression is taken from the onsite water basins and use of surface or groundwater is not required.	Rare	Minor	Low

WQPN CONSIDERATION	WQPN POLICY RECOMMENDATION	POTENTAL IMPACT	CONTEXT	CONTROL	RESIDUAL RISK		
					L	C	R
	for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities (2011).	is required for dust suppression.		Dust is managed on site in accordance with the Dust Management Plan.			
Toxic and hazardous substances.	The Policy makes recommendations for the storage and handling of chemicals, pesticides and fuel.	Potential for impact from hydrocarbons.	Separation distances from nearest surface water features is adequate.	Refuelling is managed in accordance with the Refuelling Management Plan. No fuels or oils are stored on site.	Rare	Minor	Low
Vehicles	Relates to the cleaning and maintenance of vehicles.	Potential for impact from hydrocarbons and chemicals.	Separation distances from nearest surface water features is adequate.	Cleaning and maintenance of vehicles is in accordance with the Refuelling Management Plan.	Rare	Minor	Low
Accidents and emergency response.	The Policy makes recommendations about spills and the need for a contingency plan.	Potential for impact from hydrocarbons and chemicals.	There will be a separation distance to the watertable.	No chemicals are used in the clay extraction operation and Midland Brick operates within a Refuelling Management Plan for the site which includes procedures for spills.	Rare	Minor	Low
Monitoring	The Policy recommends that monitoring occurs as appropriate for the site (i.e. monitoring of surface water if required etc.)	Potential for impact if there are issues which go unnoticed.	N/A	Regular monitoring of the pH and salinity in the basins takes place.	N/A		
Closure, rehabilitation and subsequent land uses.	The Policy makes recommendations with regards to mine closure plans and the consideration of the end use of a site.	Potential for impact to water sources if the site is not properly rehabilitated, such as erosion and turbidity.	N/A	Closure, decommissioning and site rehabilitation is provided in the Rehabilitation Management Plan.	Rare	Minor	Low

Table 9.2 – Water Management Risk Assessment

POTENTIAL IMPACT	CONSIDERATION OF INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
Direct disturbance and modification to surface water features.	The closest watercourse is 1.4km from the operation and the closest wetland is 2.1km. There will be no direct impact to hydrological features. The inherent likelihood is “rare” and the consequence is “minor”.	Rare	Minor	Low	With the implementation of water management, the risk is unchanged.	Rare	Minor	Low
Changes to hydrological regimes such as water runoff from the surface water catchment.	The closest watercourse is 1.4km from the operation and the closest wetland is 2.1km. There will be no direct impact to hydrological features. The inherent likelihood is “possible” and the consequence is “minor”.	Possible	Minor	Med	With the implementation of water management, the residual likelihood is “rare” and the consequence is “minor”.	Rare	Minor	Low
Intersection with groundwater.	The depth to groundwater is not confirmed but likely to be approx. 10mbgl. Extraction has historically encountered groundwater, but no dewatering will be required. Salinity of the groundwater in the local area is high and the extraction is not likely to result in increased salinity, or any other contamination. Therefore, the inherent likelihood is “likely” and the consequence is “minor”.	Likely	Minor	Med	With the implementation of water management, the residual likelihood that groundwater will be intercepted is “likely” and the consequence is “slight”.	Likely	Slight	Med

POTENTIAL IMPACT	CONSIDERATION OF INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
Turbidity: Increase in turbidity levels due to water runoff from the disturbed/operational areas.	The closest watercourse is 1.4km from the operation and the closest wetland is 2.1km. There will be no direct impact to hydrological features. The inherent likelihood is “possible” and the consequence is “minor”.	Possible	Minor	Med	With the implementation of water management, the residual likelihood is “rare” and the consequence is “minor”.	Rare	Minor	Low
Salinity: Increase in groundwater salinity levels due to the extraction of clay soils with a high salt content (“liberation” of salt from the soil) which has the potential to infiltrate into permeate into groundwater or runoff to surface water.	The inherent likelihood of liberating soils with a high salt content is considered to be “likely” and the consequence is considered to be “moderate”.	Likely	Moderate	High	With the implementation of water management, including the retention of surface water runoff on site, the residual likelihood is “unlikely” and the consequence is “minor”. The groundwater and surface water in the local area already record high salinity levels.	Unlikely	Minor	Med
Hydrocarbons: Hydrocarbons from fuel spills and leaks from refuelling entering water sources.	The closest watercourse is 1.4km from the operation and the closest wetland is 2.1km and the depth to groundwater is unknown but likely >10mbgl. The excavation intersects the groundwater. The inherent likelihood without management is “possible” and the consequence is “minor”.	Possible	Minor	Med	With the implementation of refuelling management, the residual likelihood is “rare” and the consequence is “minor”.	Rare	Minor	Low
Acid sulphate soils:	There is a low risk of acid sulphate soils in this locality. pH	Rare	Slight	Low	No additional management is considered necessary.	Rare	Slight	Low

POTENTIAL IMPACT	CONSIDERATION OF INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
Risk to surface water and groundwater from acid sulphate soils.	of the surface water is regularly neutral. The inherent likelihood is “rare” and the consequence is “slight”.							
Pathogens: Wastewater and pathogens entering water sources.	The inherent likelihood is “possible” and the consequence is “minor”.	Possible	Minor	Med	With staff amenities in place, and the low frequency of operation/staff, the residual likelihood is “rare” and the consequence is “minor”.	Rare	Minor	Low
Soils subject to significant water and wind erosion can cause land degradation.	Considering the operation is bulk earthworks, the inherent likelihood is “possible” and the consequence is “moderate”.	Possible	Moderate	Med	With management of the operation, the likelihood is “unlikely” and the consequence is “slight”.	Unlikely	Slight	Low

9.5 Water Management

Introduction

This chapter sets out the various drainage control and water management actions implemented at the Sheen Road quarry. It lists the water management controls in the table below. The plan is designed to provide items which can be efficiently and effectively understood and actioned by Midland Brick staff and contractors.

It has been prepared in accordance with the following:

- *State Planning Policy 2.4 – Planning for Basic Raw Materials Guidelines* (WAPC, 2014)
- State Planning Policy 2.9 – *Water* (WAPC, 2025)
- *State Planning Policy 2.9 – Planning for Water Guidelines* (WAPC, 2025)
- *Water Quality Protection Note (WQPN) No. 15 – Basic Raw Materials Extraction* (DWER, 2019)
- *Water Quality Protection Note No. 77 – Risk Assessment Process for Public Drinking Water Source Areas* (DWER, 2022).
- *Water Quality Protection Note No. 13 – Dewatering of Soils at Construction Sites* (DWER, 2012)
- *Water Quality Protection Guidelines No. 11 – Mining and Mineral Processing: Mine Dewatering* (DWER, 2000).
- *Environmental Protection (Unauthorised Discharges) Regulations 2004*
- Best practice in mine/quarry management
- Industry experience.

Site location and separation distances

There are no major or significant watercourses within or directly adjoining the site. Some minor drainage lines are located within 2km of the quarry. No surface water features are located within the quarry operation area.

There are two minor creeklines within 3km metres of the site. The Wongamine Brook commences 2.3km to the north-east of the quarry and flows west for a short distance before curving and flowing south. At the closest point the quarry is approximately 1km from the Brook, providing adequate separation distance.

The Chitibin Brook is located approximately 1.4km to the south-east of the quarry. It flows in a southerly direction, away from the quarry. There is adequate separation to this surface water feature.

The closest wetlands are located to the north (Clarkes Lake) and north-east (Herridges Lake and Abots Lake) of the quarry. The closest is a distance of approximately 2.1km.

The quarry operations do not intercept any surface water features such as a watercourse or wetland, and there is adequate separation distance to the closest watercourses. There will be no hydrological impact from the quarry operation on surface water features.

A report for the site by Senersva (2022) states that the inferred groundwater flow direction is to the north towards Wongamine Brook and groundwater beneath the site is hosted within a combined fractured rock aquifer. It also determines that the inferred depth to groundwater is greater than 10

metres below ground level. From operational experience, the groundwater has been intercepted at approximately 10 metres depth, although this can vary slightly.

Surface water runoff

All stormwater drainage will be contained within the operation area and is not permitted to flow into surrounding vegetation or the watercourse. Rainwater which falls into the operation will be directed into existing pit areas and drainage basins. This method is consistent with the recommendations from WQPN No. 15.

Water detention basins already exist within the pit area to capture water runoff. These are created from previously extracted areas. As extraction progresses the old pit areas are used as water detention basins before they are recontoured and rehabilitated.

Overburden excavated from the pit is used to create bunds around the pit area and water diversion drains (where required). These serve to prevent runoff from leaving the excavation area and to direct water to the drainage basins. The perimeter of the pit area is protected by bund walls which provide a physical barrier to water runoff. The bunds will be maintained throughout the life of the operation.

Water which lands within the excavation area flows down the batter slopes and is directed to the detention ponds at the lowest part of the pit. This ensures that rainwater which falls within the operation area is not permitted to flow into surrounding vegetation and the surrounding watercourse.

Monitoring

Water quality (salinity and pH) will continue to be tested from the dams located within the operation area. There are currently four basins located within the operation area but if any additional basins are created these will be tested also.

Water quality results indicate the pH of the water is around 6 and 7 and the salt content indicates that the water within the basins is brackish. This is consistent with the salinity for the local area.

Refuelling

The operation operates in accordance with a Refuelling Management Plan for the operation. The objective of the plan is to minimise risk to surface water and groundwater from fuel spills and leaks.

Management of waste

The operation operates in accordance with a Waste Management Plan for the operation. The objective of this plan is to provide actions to manage and dispose of waste appropriately.

9.6 Water Management Plan

The Water Management Plan is presented in the table below. It should be noted that the risk assessment demonstrated that all activities can be managed to a “low” risk of impact. In accordance with the DWER Guidance Statement on risk assessments, a “low risk” is considered acceptable and generally not controlled through regulation. Therefore, the water control measures set out below are considered suitable for the risk of impact. Additional water control and water monitoring is not considered necessary given the low risk of impact.

Table 9.3 – Water management plan

ACTION	RESPONSIBILITY	TIMING
1. Ensure run-off from operational areas is contained within the operation area through the placement of bunds and diversion drains.	Quarry Manager, Team	Ongoing
2. Clay stockpiles continue to be placed on a compacted clay base.	Quarry Manager	Ongoing
3. Water runoff from the stockpile area is directed into the detention basins through the maintenance of clay bunds and diversion drains around the stockpile area (where required).	Quarry Manager	Ongoing
4. Maintain all equipment in good condition.	Raw Materials Manager, Quarry Manager	Ongoing
5. Maintain current separation distances to nearest surface water features.	Raw Materials Manager, Quarry Manager, team	Ongoing
6. Ensure that mobile refuelling takes place and no fuel is stored on site.		
7. Careful intersection of the groundwater where it can be contained within the pit area.	Quarry Manager	Ongoing
8. Ensure mobile refuelling takes place within an area with at least 2 metres above the groundwater table and cannot drain into the exposed groundwater.	Raw Materials Manager, Quarry Manager	Ongoing
9. Ensure that there is capacity in the detention basins for high rainfall events.	Raw Materials Manager, Quarry Manager	Ongoing
10. Test the water quality of the basins (pH and salinity) at least twice a year.	Quarry Manager, Environmental Advisor	Twice a Year
11. Test the salt content and pH of clay as part of Midland Brick's quality assurance standard procedures.	Quarry Manager	As required
12. Ensure any ablution facilities are maintained in accordance with the manufacturer's specifications.	Quarry Manager	As required
13. Continue training programmes on noise control requirements to all workers and contractors.	Quarry Manager, Environmental Advisor	Ongoing, as required
14. Any significant adverse water management issues to be recorded, investigated and remediated internally.	Quarry Manager, Environmental Advisor	Ongoing, as required

10 Refuelling Management Plan

10.1 Introduction

This chapter presents the Refuelling Management Plan for the Sheen Road (Wogamine) clay quarry operated by Midland Brick Pty Ltd. The quarry ("the site") is located at Lot M488 Sheen Road, Mumberkine. The purpose of the plan is to outline the procedures to follow to reduce the risk of spills and leaks and the response in the event of a hydrocarbon spill. It also supports an application for Development Approval and Extractive Industry Licence.

Hydrocarbon leaks and spills have the potential to adversely impact on the environment and human health. Spills and leaks can pollute groundwater and surface water, ultimately impacting native flora and fauna and other users of water resources. In addition, spills and leaks can result in the site being classified as a contaminated site and higher closure/remediation costs. It is therefore in the best interests of everyone that the site is managed to reduce risk and that any hydrocarbon spills and leaks are cleaned and treated appropriately and in a timely way.

While no fuel, chemicals or lubricants are stored within the operation area, machinery and vehicles used for the operation are refuelled within the quarry using mobile tankers. This management plan provides a list of actions should any spills or leaks occur during refuelling and servicing.

10.2 Objectives

The objectives of the Refuelling Management Plan are:

- To reduce the potential for a fuel spill or leak
- To protect soil and water resources from fuels
- To provide a procedure to clean any fuel spills and leaks.

10.3 Refuelling Procedures and Risks

Trained Operators

Midland Brick provides Standard Operating Procedure (SOP) training to any person in operating a mobile fuel truck. The training covers aspects of how to carry out the task in a safe and environmentally friendly manner but also what to do in case of an accidental spill. At the conclusion of the training each operator is to satisfactorily pass a practical and written test. In addition to the SOP, each fuel truck operator is given training in how to use a Spill Kit. Additionally, operators are trained in all aspects of this management plan as well as the other management plans applicable to this operation.

Mines and safety legislation ensures an employer provides a safe working environment in which employees are not exposed to hazards in the workplace. Environmental legislation makes it an offence to cause harm or pollution to the environment. The *Environmental Protection (Unauthorised Discharges) Regulations 2004* specifically lists "petrol, diesel or other hydrocarbon" as "materials that must not be discharged into the environment".

Refuelling Procedure

Machinery and vehicles used for the operation will be refuelled on site from mobile tankers when required. As no fuel, chemicals or lubricants are stored on site, this considerably reduces the risk of

spills and leaks occurring. The use of mobile fuel tanks to refuel machinery and vehicles presents a much lower risk to the environment than storing fuel on site.

Refuelling will be undertaken in the operation area to allow for containment if a spill does occur. It will not be undertaken upstream of any surface water features and will occur in the operation area as the drainage in this area is controlled and does not flow into the surrounding area.

Refuelling will also not occur within any area with dry grass. The main risk associated with refuelling is the minor drips that occur during removal of the hoses etc. The actions required to address all spills (minor and large) is provided below.

Servicing

Servicing of machinery and vehicles is completed on site. Servicing mainly relates to oil and filter changes. A major service entails a more thorough inspection of the machinery and vehicles including diffs, gearbox/transmission, wheel hubs and engine. Some major repairs are undertaken off site.

The mobile fuel truck is well set up for evacuation of all waste fluids into containers on the truck. Any spills will be cleaned following the procedures outlined below.

Machinery is checked at the pre-start inspection each morning by the operator. Leaks in the hydrocarbon systems are part of the inspection.

10.4 Environmental risk assessment

The refuelling risk assessment is provided in the table below. This risk assessment was also considered in the Water Management Plan. The criteria are defined in *Guidance Statement: Risk Assessments* (DWER, 2017). The risk assessment below lists the activity(s) which have the potential to cause impact, the inherent risk (i.e. with no controls) and the residual risk (with controls in place).

Table 10.1 – Refuelling Risk Assessment

POTENTIAL IMPACT	CONSIDERATION OF INHERENT RISK	INHERENT RISK			MANAGEMENT	RESIDUAL RISK		
		L	C	R		L	C	R
Hydrocarbons: Hydrocarbons from fuel spills and leaks from refuelling entering water sources.	The closest watercourse is 1.4km from the operation and the closest wetland is 2.1km and the depth to groundwater is unknown but likely >10mbgl. The excavation intersects the groundwater. The inherent likelihood without management is “possible” and the consequence is “minor”.	Possible	Minor	Med	With the implementation of refuelling management, the residual likelihood is “rare” and the consequence is “minor”. Mobile refuelling will take place in another part of the operation, where there is a minimum of 2m separation distance to the groundwater and spill clean up procedures are in place, reducing the likelihood of impact to ‘rare’.	Rare	Minor	Low

10.5 Refuelling Management

The Refuelling Management Plan below provides the actions to be followed in the event of a hydrocarbon spill or leak. It includes actions for the following:

- General actions to maintain machinery and vehicles
- Servicing of machinery
- Actions for when a spill is identified
- Actions to manage a minor spill or leak
- Actions to manage a large spill or leak
- Reporting requirements.

Table 10.2 – Refuelling Management Plan

ACTION	RESPONSIBILITY	TIMING
General		
1. No fuels, lubricants or chemicals will be stored on site. They are brought to the site as required.	Quarry Manager, Team	Ongoing
2. Inspect all machinery for hydrocarbon leaks at the pre-start meeting.	Quarry Manager, Team	Ongoing, pre-start
3. Ensure mobile refuelling and lubricating occurs in designated areas within the operation area and free from vegetation and dry grass, and with at least 2m separation distance to the groundwater and is not sloped towards the exposed groundwater.	Quarry Manager, Team	Ongoing
4. Ensure that equipment for the containment and clean-up of spills is provided on site.	Quarry Manager	Ongoing
5. Ensure that refuelling activities are not located upstream of watercourses and take place within the drainage-controlled operation area.	Quarry Manager, Team	Ongoing
6. Ensure a spill kit is kept with the mobile fuel truck.	Quarry Manager	Ongoing
7. Train fuel truck operators and other site workers in Standard Operating Procedures, in the proper use of the spill kits and any other procedures from this Refuelling Management Plan.	Quarry Manager, Team	Ongoing
Servicing and repairs		
8. Service all machinery and equipment in accordance with the maintenance schedule prescribed.	Quarry Manager	Ongoing, as required
9. Ensure that all waste fluids are evacuated into the containers located on the mobile fuel truck.	Quarry Manager	Ongoing
10. Inspect for fuel, oil and hydraulic leaks on machinery during the start of shift pre-start inspection.	Quarry Manager, Team	Pre-start
If a Spill is Identified		
11. Isolate the spill area and identify the spilt substance.	Quarry Manager, Team	As soon as a spill or leak is identified.
12. Ensure the source of the spill is restricted or stopped.	Quarry Manager, Team	As soon as a spill or leak is identified.

ACTION	RESPONSIBILITY	TIMING
13. The spill or leak should be contained by placing soil and clay resource around it.	Quarry Manager, Team	As soon as a spill or leak is identified.
14. Contact the Quarry Manager to advise them that a spill has occurred.	Quarry Manager, Team	Once a spill is contained
Minor Spills		
15. In addition to the above procedure for identification of a spill, minor spills should be scooped up with the clay resource.	Quarry Manager, Team	Once a spill is contained
16. The clay resource containing the spill should be sent to the brickworks site and burnt with the clay during the firing process.	Quarry Manager, Team	Once a spill is contained
Large Spills		
17. Large spills can be absorbed using polypropylene pads and scooped up with the clay resource.	Quarry Manager, Team	Once a spill is contained
18. Depending on advice from DWER, soils containing large spills can be removed from the site and disposed of at an appropriate location/facility.	Quarry Manager, Team	Once a spill is contained
Reporting		
19. All spills and leaks incidents are to be reported to the Quarry Manager and followed up with an incident form.	Quarry Manager, Team	Following an incident
20. The incident form is to be followed up and investigated to determine the cause of the spill and to assist with prevention of future incidents.	Quarry Manager, Environmental Advisor	Following an incident
21. The Quarry Manager is to report large spills to DWER and follow up any additional reporting or remediation requirements.	Quarry Manager, Environmental Advisor	Following an incident

11 Visual Amenity Management Plan

11.1 Introduction

This chapter presents the Visual Amenity Management Plan for the Sheen Road (Wogamine) clay quarry operated by Midland Brick Pty Ltd. The quarry ("the site") is located at Lot M488 Sheen Road, Mumberkine. The purpose of the plan is to provide actions to reduce visual amenity impact of the operation from the road (public realm) and from neighbouring properties. It also supports an application for Development Approval and Extractive Industry Licence.

11.2 Objectives

The objective of the Visual and Amenity Management Plan is:

- To reduce the potential for the clay extraction operation to have a visual impact on neighbouring properties and the public realm.

11.3 Context

Extractive industries involve bulk earthworks and the creation of pit areas of various depths below the natural ground level and stockpiling of clay, either in the pit area or on the natural ground level. It can also involve the removal and planting of vegetation which can change the views into and out of a site, however this particular operation has not required any clearing of vegetation. In addition, the end use usually results in a change in land contours once the operation is decommissioned.

While the visual amenity of a location can be subjective, it is generally the aim for extractive industry to have minimal visual impact from the public realm (including roads and public places) and on neighbours, where possible. If the operation cannot be successfully hidden using the natural topography, this is usually achieved through a "visual screen" such as bund walls and screening vegetation.

Visual amenity impact is generally guided by two key documents prepared by the State Government:

- *Visual Landscape Planning in Western Australia: A Manual for Evaluation, Assessment, Siting and Design* (DPLH, 2007)
- *Guidance Statement No.3: Separation Distances Between Industrial and Sensitive Land Uses* (EPA, 2005).
- *State Planning Policy 2.4 Planning for Basic Raw Materials Guidelines* (WAPC, 2021).

The Manual provides advice on techniques for incorporating visual landscape planning into the planning system. As a general rule, the Manual states that "mining and extractive uses should avoid sites that are prominent in important views, especially where they are located at the focal point of views." It also states that the "visibility of mines, quarries and industry should be assessed from the property boundaries, from near and distant residences and from neighbourhood vantage points such as public roads".

In terms of reducing visual impact and amenity, the Manual recommends the following for quarries and mines:

- Use natural topography and existing vegetation for screening purposes

- Plant additional vegetation to enhance screening
- The working faces of mines or quarries may be oriented to minimise their public visibility.
- Access roads should be aligned to avoid providing a direct view of operations from nearby public view locations such as roads, lookouts, or recreation sites.

Guidance Statement No. 3 provides guidance on the separation distances and buffers for a range of industrial land uses to sensitive land uses. The operations on site fit into the category "Clay extraction or processing". The separation distance is given as "500-1000 metres, depending on size and processing", and the operation exceeds these distances. Therefore, even if the operation can be viewed from neighbouring properties, the closest residence is 1.4km from the operation, which significantly reduces the visual impact of the operation. There are only a few (around 5) neighbouring houses within a 4km radius from the operation.

The operation is accessed via a local, gravel road (Sheen Road), and does not directly adjoin any major roads which are frequently used by traffic. The Goomalling-Toodyay Road is approximately over 3km from the operation.

11.4 Visual Assessment

Introduction

As is discussed in Guidance Statement No. 3, separation distances serve the function of providing distance to sensitive land uses (such as residential dwellings). Impact on views and amenity are outlined in the Visual Landscape Planning Manual, and the below assessment is based on these factors.

Surrounding land uses

The surrounding area is predominantly rural use.

Separation distances

The following sensitive receptors have been identified from the existing and future operational areas:

- South – 1.4km
- South-east – 1.5km
- East – 2.7km
- North – 2.4km
- North-west – 3.3km
- North-east – 3.7km
- West – 4.5km

Site features

The topography is fairly flat, so overburden bunding has been established to provide visual screening. The operation is not located in a highly frequented area and is largely hidden from public view (i.e. not located near major roads and townsites). The pit areas are located lower in the landscape than the natural ground level, meaning that it is difficult to view into the extraction area. Stockpiles and bunding is usually placed on the natural ground surface, which can sometimes be seen from local roads or private land, although these just appear as mounts of earth. As the overburden is used to recontour the previous pit area, the size of the overburden bund will reduce in

the short term. Recontouring and rehabilitation within Rehabilitation Area A is already in progress, and the height of the overburden stockpile has already substantially reduced.

The operational area is void of native remnant vegetation, although some regrowth has appeared on some of the overburden bunds. Some mature trees are located within the road reserve.

Compliance history

It should be noted that no substantiated complaints have been received regarding visual amenity impacts since operations commenced in 2007.

Conclusion

Based off the information above, it can reasonably be concluded that the impact of the clay extraction operation on visual amenity from the public realm and adjoining land is low. A review against the recommendations in the Visual Landscape Planning Manual (DPLH, 2007) is provided in the table below.

Table 11.1 – Visual impact assessment

RECOMMENDATION	COMMENT
Use natural topography and existing vegetation for screening purposes.	The topography is fairly flat, so overburden bunding has been established to provide visual screening. The operation is not located in a highly frequented area and is largely hidden from public view (i.e. not located near major roads and townsites).
Plant additional vegetation to enhance screening.	Some mature trees are located within the road reserve.
The working faces of mines or quarries may be oriented to minimise their public visibility.	The excavation pit is shielded from view through the use of bunding.
Access roads should be aligned to avoid providing a direct view of operations from nearby public view locations such as roads, lookouts or recreation sites.	The operation is directly accessed from Sheen Road, however this road is a local, gravel road and is not a highly used road outside of local use.
Separation distances to neighbouring properties are met.	Separation distances to sensitive receptors exceed the recommendations.

11.5 Visual Amenity Management

The Visual Amenity Management Plan describes the measures that will be used by Midland Brick to reduce the impact of the clay quarry on visual amenity. The actions, responsibilities and timing relating to visual amenity is presented in the table below.

Table 11.2 – Visual Amenity Management Plan

ACTION	RESPONSIBILITY	TIMING
1. Maintain existing screening bunds around the excavation areas.	Quarry Manager	Ongoing
2. Establish new visual screening bunds using overburden when necessary to screen the pit area.	Quarry Manager	Ongoing
3. Rehabilitate the site in accordance with the Rehabilitation Management Plan.	Raw Materials Manager, Quarry Manager	Ongoing
4. Maintain effective communication with the nearest neighbours to ensure that any visual amenity concerns are addressed.	Raw Materials Manager, Quarry Manager	Ongoing
5. Maintain the site in a tidy manner and dispose of waste appropriately.	Quarry Manager, team	Ongoing

12 Waste Management Plan

12.1 Introduction

This chapter presents the Waste Management Plan for the Sheen Road (Wogamine) clay quarry operated by Midland Brick Pty Ltd. The quarry ("the site") is located at Lot M488 Sheen Road, Mumberkine. The purpose of the plan is to set out the actions to manage waste and rubbish within the clay quarry operation. It also supports an application for Development Approval and Extractive Industry Licence.

Extraction of clay is a low waste operation. As a result, there will be minimal waste produced on site and it will largely be limited to some rubbish by site workers. Waste can also occur when trespassers access the site, and this will also be managed accordingly.

12.2 Objectives

The objectives of the Waste Management Plan are:

- To ensure that the clay extraction operation is kept clean and tidy
- To ensure that waste and rubbish generated by the operation and trespassers is disposed of appropriately.

12.3 Context

Unauthorised access and dumping of waste

The potential for dumping of rubbish occurs from trespassers entering the site illegally. Although site security is in place, the risk of trespassers entering the site is always a possibility at extractive industry operations. The site will be fenced and the gates locked. Signs will be located on the site perimeter to warn the public that the site is an open pit to deter trespassers from entering the site.

Any illegally dumped material will be removed promptly and removed to an approved landfill site.

Solid domestic waste and light industrial waste

The quarry will only be operational intermittingly throughout the year so the potential for creating waste is small. Solid domestic waste and light industrial waste will be stored in appropriate containers and removed from the quarry frequently to an approved landfill site.

Wastewater disposal

There are ablution or toilet facilities on the site. They are cleaned in accordance with the manufacturer's specifications.

12.4 Waste Management Plan

The Waste Management Plan describes the measures that will be used by Midland Brick to manage waste. The actions, responsibilities and timing relating to waste management is presented in the table below.

Table 12.1 – Waste Management Plan

ACTION	RESPONSIBILITY	TIMING
1. Keep the site tidy and remove rubbish from the quarry to an approved waste disposal facility as required.	Quarry Manager	Ongoing
2. Recycle waste where possible.	Quarry Manager	Ongoing
3. Keep the site secured with fences and gates to reduce the potential for trespassers to enter the site.	Raw Materials Manager, Quarry Manager	Ongoing
4. Maintain signage to warn the public that there is an extractive industry operation on the site.	Raw Materials Manager, Quarry Manager	Ongoing
5. Maintain fences around the site perimeter.	Raw Materials Manager, Quarry Manager	Ongoing
6. Ensure any ablution facilities are maintained in 7. accordance with the manufacturer's specifications.	Quarry Manager	Ongoing

13 References

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APPENDIX A –

PLANS

NOTE: AREAS AND DISTANCES SUBJECT TO SURVEY

Cadastre

Operation Area

LGA Boundary

N

0 1 Km

Scale: 1:25,000 @ A4

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CLIENT: MIDLAND BRICK

Aerial Mosaic

PROPOSED EXTRACTIVE INDUSTRY

Project: 1377
Projection: GDA 1994 MGA Zone 50;
Date Exported: 27/05/2026 1:04 PM
Layout Name: AerialPhoto

Base data provided by SLIP

NOTE: AREAS AND DISTANCES SUBJECT TO SURVEY

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N

0 100 m

1:3,000 @ A3

- Cadastre
- Operation Area
- Current Extraction Area
- Direction of Excavation
- (A) Access Point

Project: 1377; Projection: GDA2020 MGA Zone 50
Date Exported: 27/05/2026 1:08 PM
Layout Name: Extraction Plan

CLIENT: MIDLAND BRICK

Extraction Plan
PROPOSED EXTRACTIVE INDUSTRY

Base data provided by SLIP

NOTE: AREAS AND DISTANCES SUBJECT TO SURVEY

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N

0 100 m

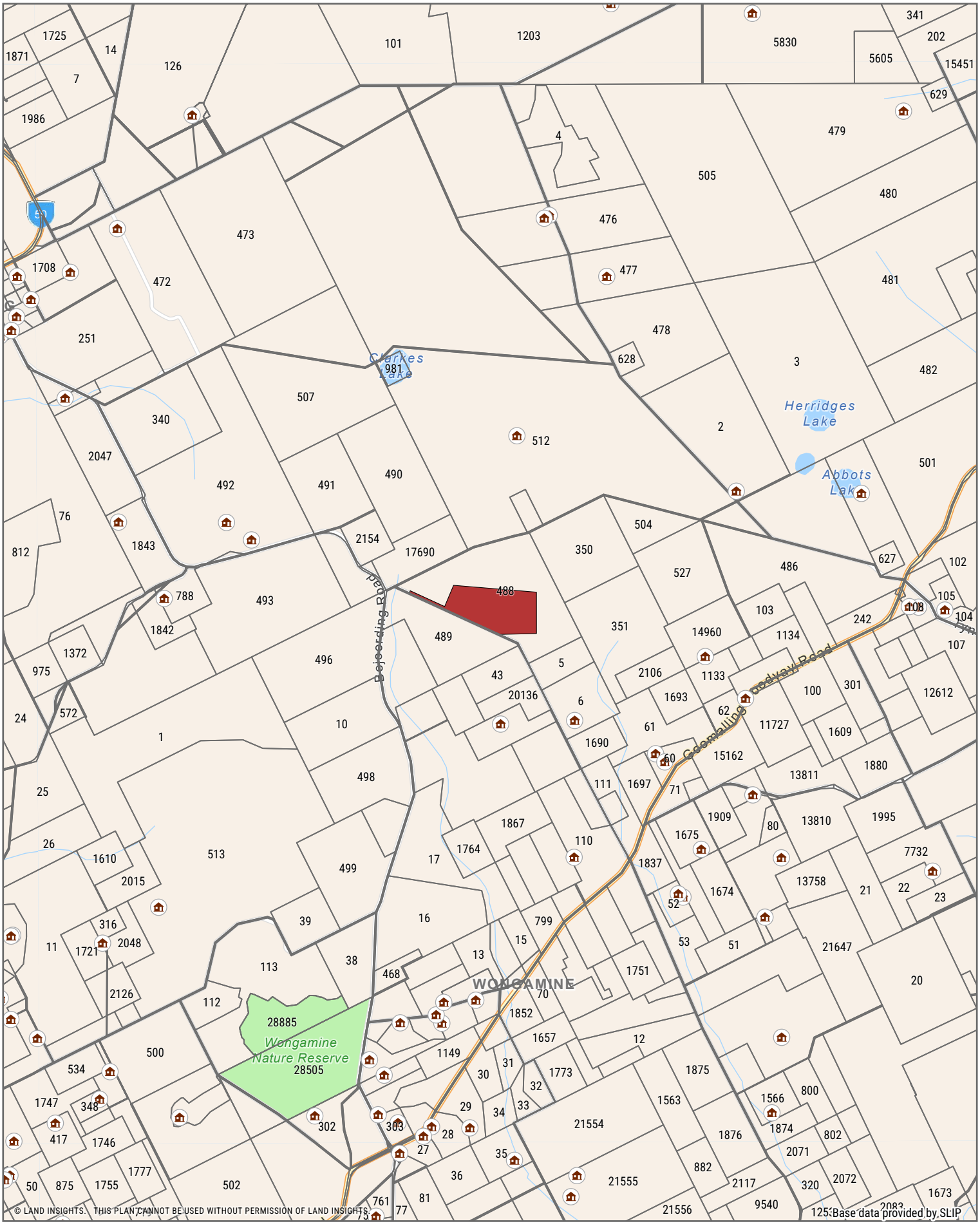
1:3,000 @ A3

- Cadastre
- Operation Area
- Rehabilitation Area A
- Rehabilitation Area B
- Rehabilitation Area C

Project: 1377; Projection: GDA2020 MGA Zone 50
Date Exported: 8/06/2026 5:11 PM
Layout Name: Rehabilitation Plan

CLIENT: MIDLAND BRICK

Rehabilitation Plan
PROPOSED EXTRACTIVE INDUSTRY



NOTE: AREAS AND DISTANCES SUBJECT TO SURVEY

Cadastre

Operation Area

House (based on available data)

N

0 1 2 Km

Scale: 1:75,000 @ A4

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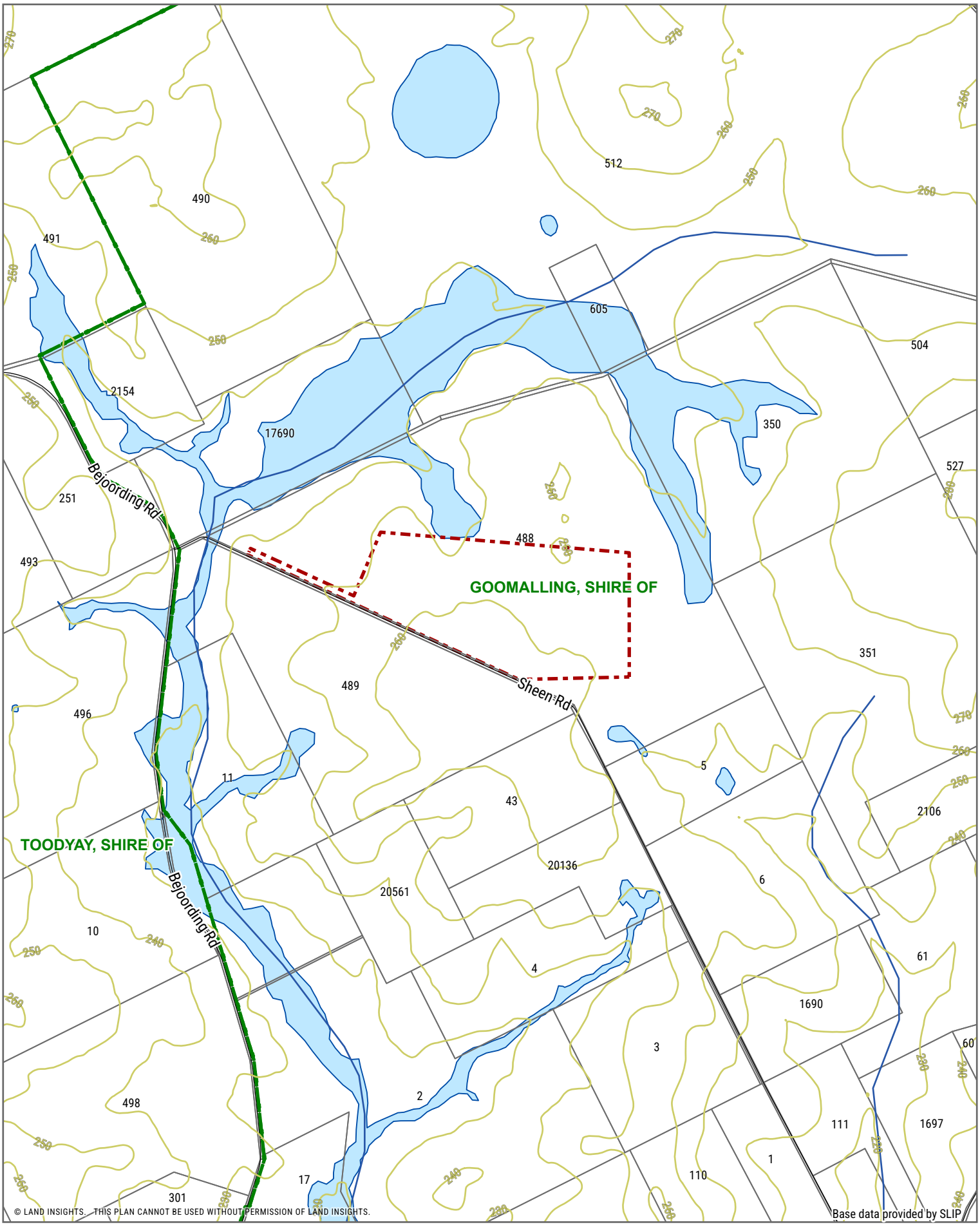
CLIENT: MIDLAND BRICK

Project: 1377
Projection: GDA2020 MGA Zone 50;
Date Exported: 28/05/2026 2:57 PM
Layout Name: ContextPlan

Context Plan

PROPOSED EXTRACTIVE INDUSTRY



Base data provided by SLIP

NOTE: AREAS AND DISTANCES SUBJECT TO SURVEY

N

0 1 Km

Scale: 1:25,000 @ A4

- Cadastre
- LGA Boundary
- Extent of Licence Area
- Wheatbelt Wetlands
- Watercourse or stream
- 10 metre contours (DPIRD-073)

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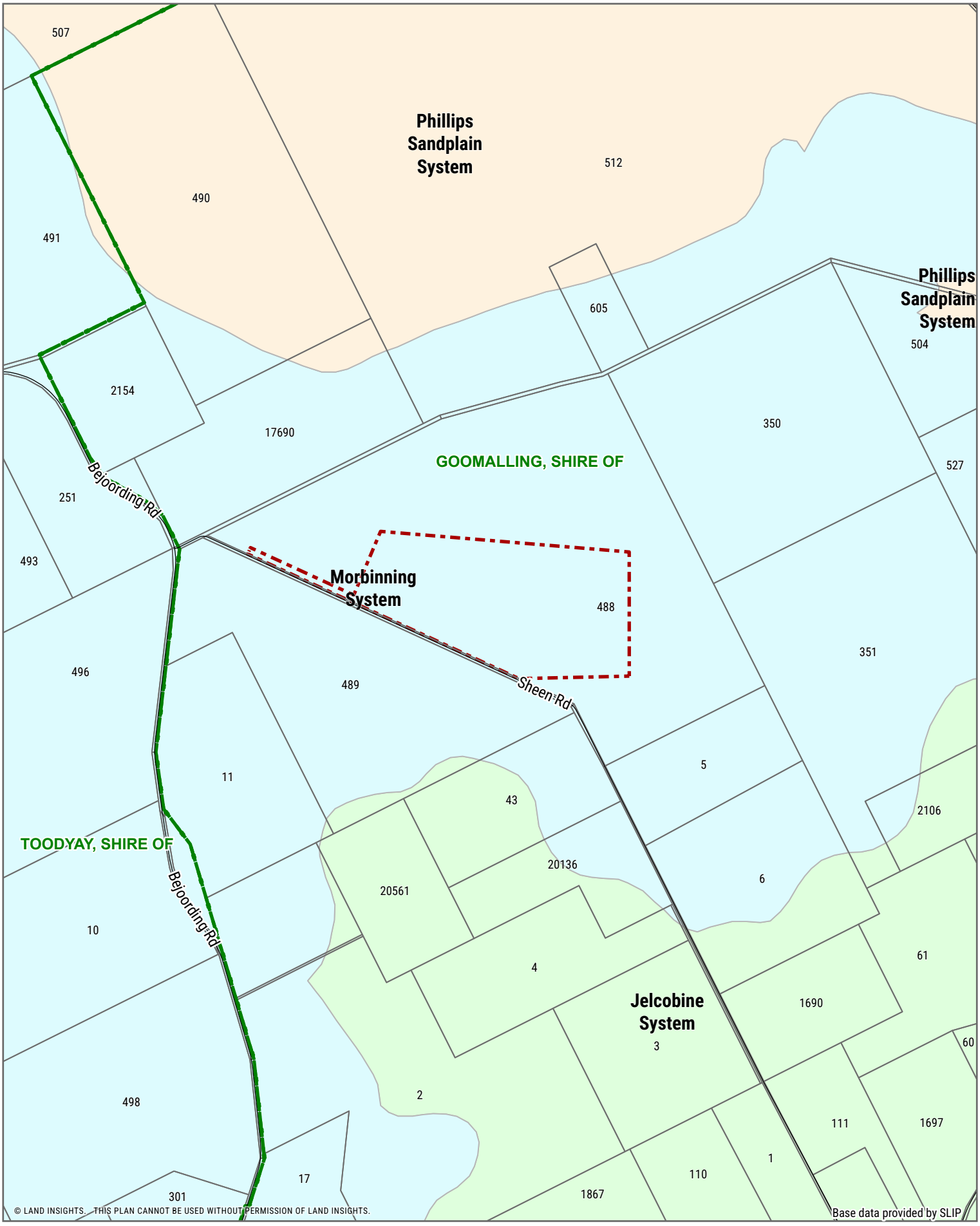
CLIENT: MIDLAND BRICK

Project: 1377
Projection: GDA 1994 MGA Zone 50;
Date Exported: 27/05/2026 12:53 PM
Layout Name: Wetlands

Surface Water Features

PROPOSED EXTRACTIVE INDUSTRY



NOTE: AREAS AND DISTANCES SUBJECT TO SURVEY

Cadastre

Operation Area

LGA Boundary

N

0 1 Km

Scale: 1:25,000 @ A4

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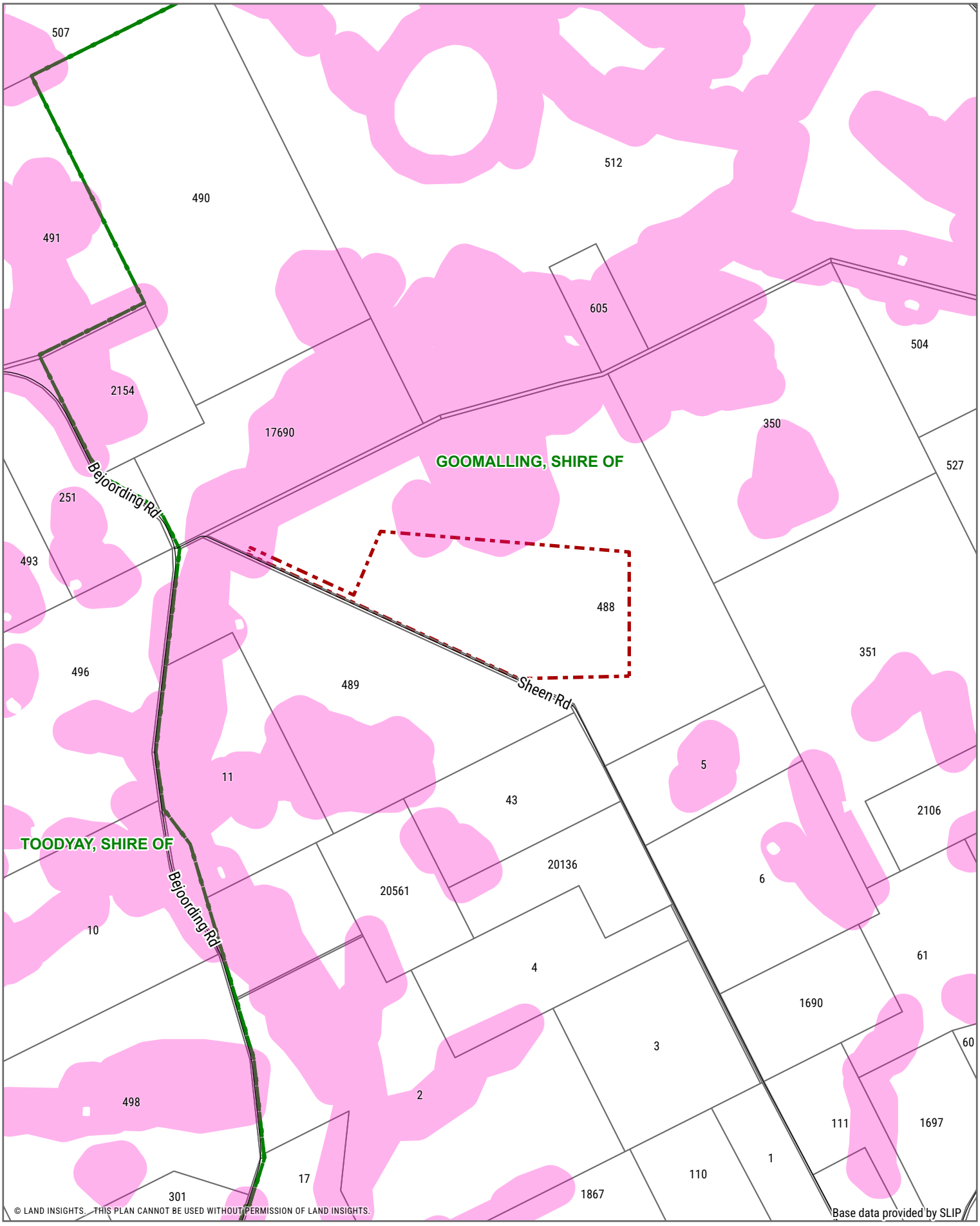
CLIENT: MIDLAND BRICK

Project: 1377
Projection: GDA 1994 MGA Zone 50;
Date Exported: 27/05/2026 1:32 PM
Layout Name: Soils

Soil - Landscape Systems

PROPOSED EXTRACTIVE INDUSTRY



NOTE: AREAS AND DISTANCES SUBJECT TO SURVEY

Cadastre
Operation Area
LGA Boundary
Bush Fire Prone Areas (OBRM-001)

N

0 1 Km

Scale: 1:25,000 @ A4

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CLIENT: MIDLAND BRICK

Project: 1377
Projection: GDA 1994 MGA Zone 50;
Date Exported: 27/05/2026 1:29 PM
Layout Name: BushfireProneAreas

Bushfire Prone Areas

PROPOSED EXTRACTIVE INDUSTRY