

R2087 Rev 0

September 2025

Midwest Sand Supplies

Southgate Dunes  
Management & Decommissioning Plan  
(2025 to 2035)

- marinas
- boat harbours
- canals
- breakwaters
- jetties
- seawalls
- dredging
- reclamation
- climate change
- waves
- currents
- tides
- flood levels
- water quality
- siltation
- erosion
- rivers
- beaches
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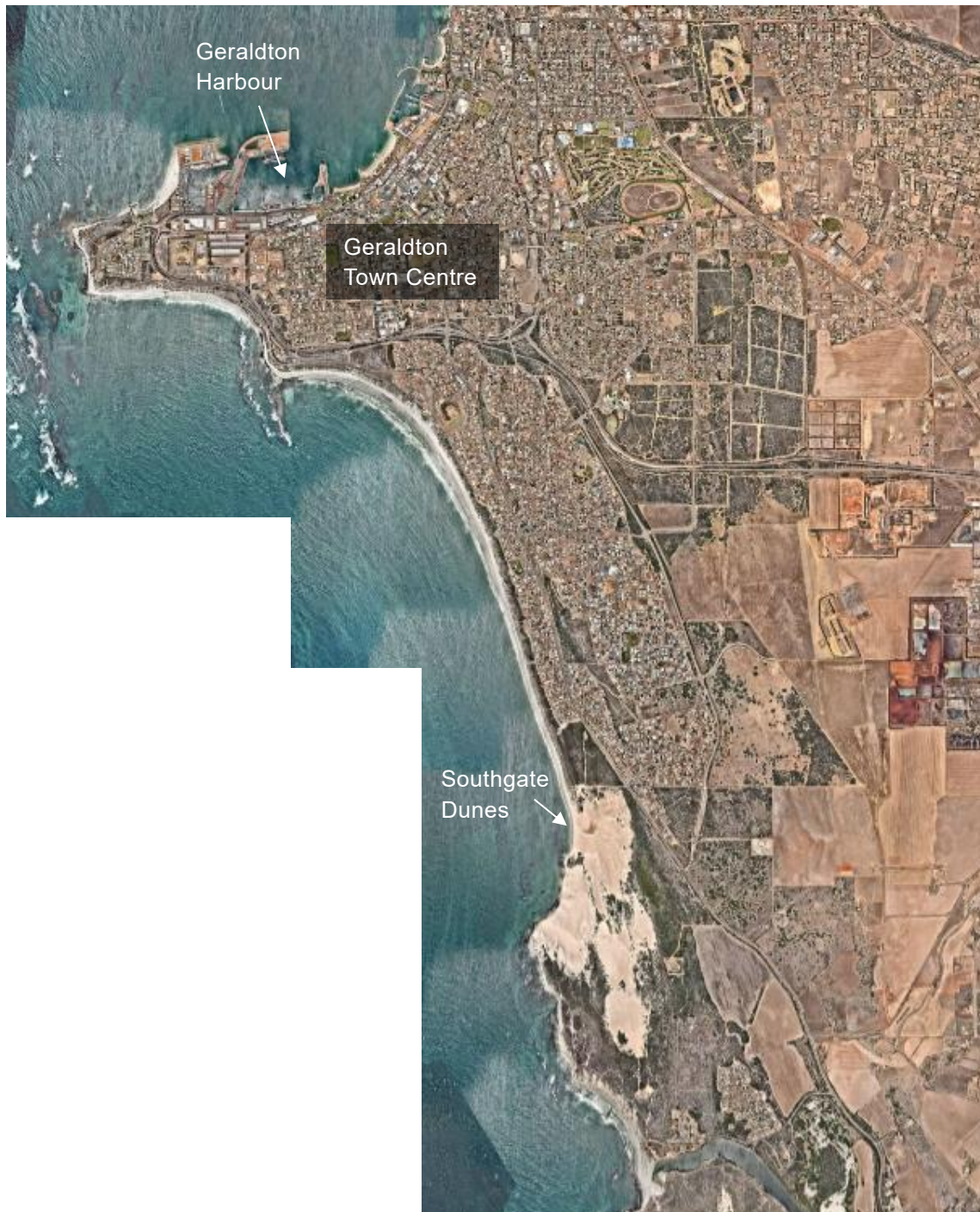
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## 1. Background

Midwest Sand Supplies (MSS) currently extract sand from the Southgate Dunes, located approximately 7 km south of Geraldton town centre along Brand Highway. The location of Southgate Dunes is shown in Figure 1.1.



**Figure 1.1 Southgate Dunes Location (Nearmap 10 February 2025)**

Current sand extraction operations within the Southgate Dunes are focussed within Lot 2453, Cape Burney and involve the removal of sand for a range of agricultural and industrial uses. The

volume of sand extracted is dictated by demand from farmers and other users and therefore varies from year to year.

Sand extraction activities by MSS have helped to manage the northwards movement of the Southgate Dunes, which is threatening Brand Highway and residential properties in the area (further details are provided in Section 2).

On 13 September 2016 following a special Council meeting, MSS were granted conditional Development Approval (TP16/150) to continue and expand sand extraction within Lot 2453. This included expanding the existing 2015 operations to the eastern flank of the lot, focusing on a large, untouched sand dune front moving towards Brand Highway. Subsequent applications for the renewal of Development Approval (TP16/150) were presented to Council on 26 September 2017 and 25 September 2018 and granted for one year on both occasions.

In 2019 MSS sought to apply for a 5 year Development Approval (13 September 2019 to 13 September 2024 inclusive) for the continued and expanded sand extraction within Lot 2453 of the Southgate Dunes. On 15 October 2019 the Council resolved to grant renewal of the extractive industry Development Approval (TP16/150) for a period of 3 years, for extraction within the previously approved area and in accordance with *Southgate Dunes Management & Decommissioning Plan* (R784 Rev 4) dated August 2018 (MRA, 2018). This 3 year renewal of the Development Approval allowed for extractive works from 15 October 2019 until 15 October 2022.

In 2022 MSS sought to apply for a 5 year Development Approval (15 October 2022 to 15 October 2025 inclusive) for the continued and expanded sand extraction within Lot 2453 of the Southgate Dunes. On 29 November 2022 the Council resolved to grant renewal of the extractive industry Development Approval (TP16/150) for a period of 3 years, for extraction within the previously approved area and in accordance with *Southgate Dunes Management & Decommissioning Plan* (R1708 Rev 0) dated September 2022 (MRA, 2022). This 3 year renewal of the Development Approval allows for extractive works from 15 October 2022 until 15 October 2025.

MSS propose to continue the sand extraction within Lot 2453, to the previously approved extent, and engaged M P Rogers & Associates Pty Ltd (MRA) to prepare an updated Management and Decommissioning plan. Additionally, consideration of the effects of the continued sand extraction are discussed within this report with reference to the historical sediment movement and previous studies completed, which are outlined in Section 2.

The Development Approval (TP16/150) issued to MSS in 2022 is subject to 11 conditions by the City of Greater Geraldton (City). Advice from the City confirms that Conditions 4 and 6 relating to the Transport Assessment and demarcation of the extraction area (respectively) have been complied with to the satisfaction of the City. The remaining Conditions (No's 1, 2, 3, 5, 7, 8, 9, 10 & 11) have been complied with since the previous approval, however are ongoing and need to be adhered to for the duration of the sand extraction operations.

It is noted that Condition 7 requires the proponent to submit details regarding the extent of the extraction, the amount of extracted material for the year and the AHD levels of the extraction area. MSS engaged a local surveyor (HTD Surveys & Planners) in August 2025 to complete a drone survey and capture the elevations of the extraction area. The major contours from this investigation have been overlaid in the Extraction Plan attached in Appendix A to satisfy this part of the condition.

Pursuant to Condition 9 of the approval, no extraction is permitted below the 3 mAHD level. The recent survey data will assist MSS in targeting areas of high elevation to continue to satisfy this condition.

It is noted that Condition 10 of the Development Approval (TP16/150) refers to the extraction volume of limesand in cubic meters (m<sup>3</sup>). In order to track the volume of extracted limesand, MSS utilise registered weight meters to record the quantities (tonnes) of limesand that are removed from the extraction area as a result of their operations. The typical density of extracted sand has historically been estimated to be 1.53 tonnes/m<sup>3</sup>. Therefore, the agreed conversion factor from m<sup>3</sup> to tonnes has been 1.53 (110,000 m<sup>3</sup> equals approximately 168,000 tonnes). To be consistent with MSS' record keeping methodology, quantities of limesand are given in tonnes for the remainder of this report.

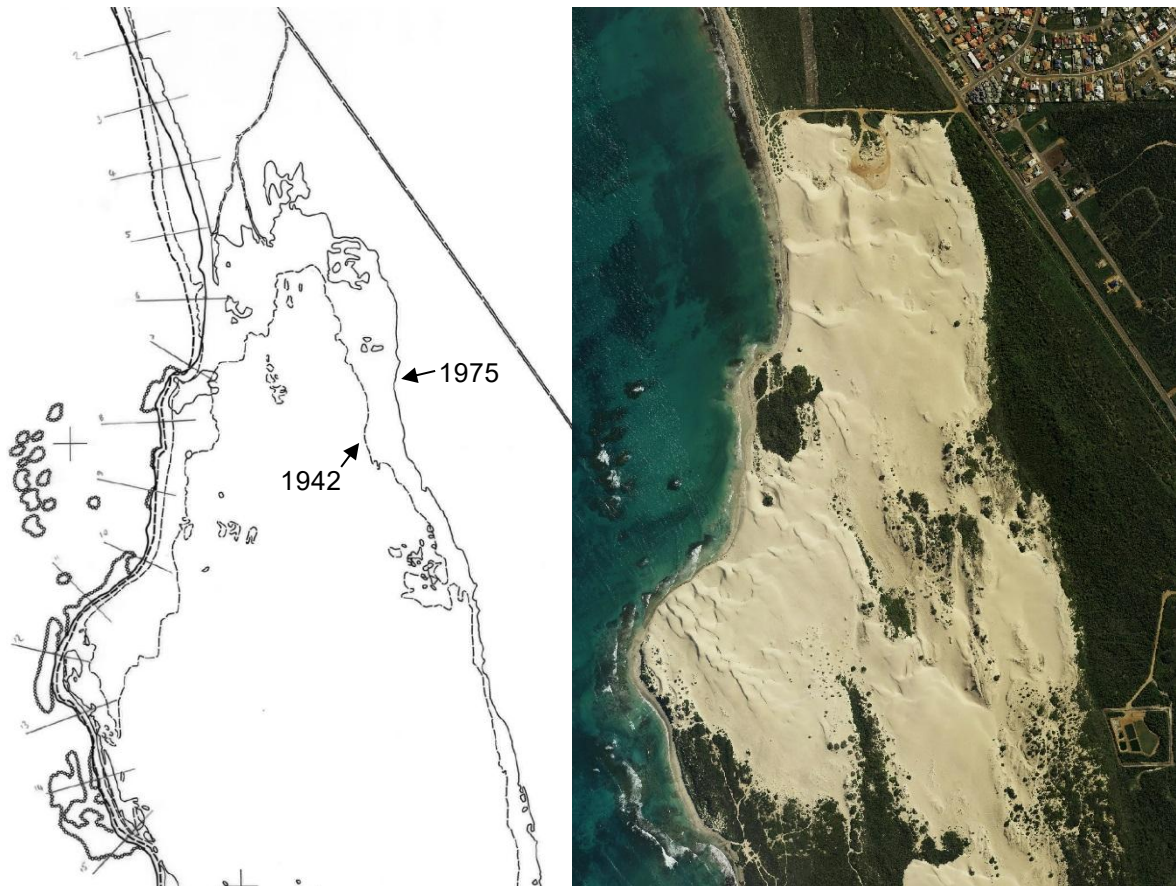
For the convenience of all parties, and consistency with industry practice, MSS seeks to apply for a 10 year Development Approval renewal for the continued sand extraction within Lot 2453 of the Southgate Dunes.

As per Condition 10 of the Development Approval, MSS propose to extract an annual quantity of limesand up to the limit of 168,000 tonnes/yr. This Management Plan for the continued extraction operations within Lot 2453 provides the following details, as required under the City's Extractive Industry Local Planning Policy (EILPP):

- Review of the historical movement of the Southgate Dunes.
- Plans showing the location of existing and proposed extraction activities and site details.
- Details of the current and proposed sand extraction methodology.
- Consideration of the effects of the proposed sand extraction operations.
- A rehabilitation and decommissioning plan.
- Dust management measures.
- An outline of the benefits to the community.

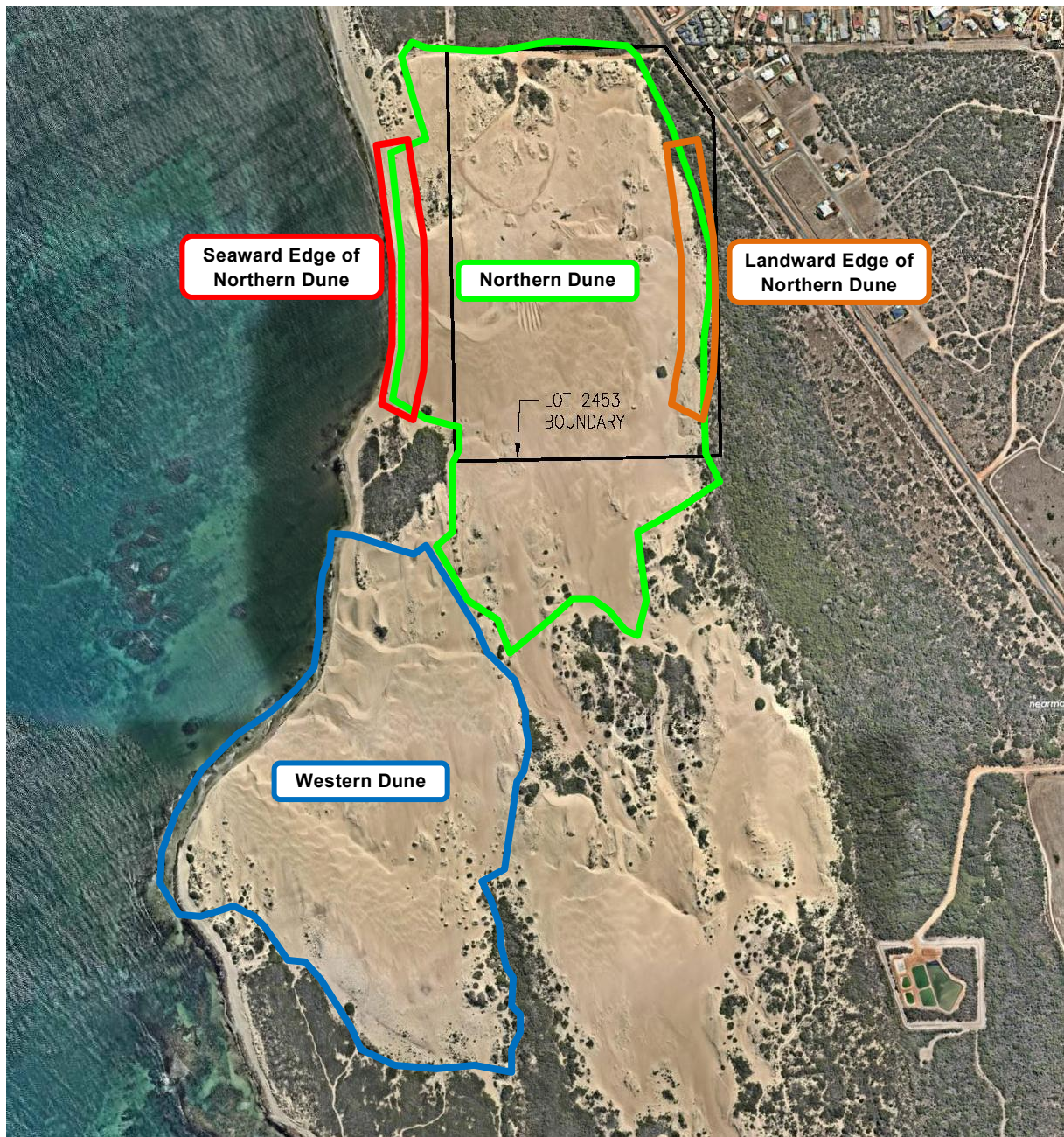
## 2. Sediment Transport

The area known as the Southgate Dunes system is essentially a large mobile sand sheet that is migrating in a northerly direction through the action of the prevailing southerly winds. The dunes were originally formed by sand blowing north from the beach adjacent to the Greenough River mouth (Short 2006). Figure 2.1 shows the position of the dune in 1942, 1975 and 2012 and illustrates the northerly migration of the dune system.



**Figure 2.1 Extent of Southgate Dunes in 1942, 1975 (Left) and 2012 (Right)**

A number of studies and investigations have been completed on the Southgate Dunes in order to quantify the contribution of sediment from the Southgate dune system into the littoral system of the Tarcoola Embayment. An important part of these studies has been to define movements that occur in different areas of the dune system. To provide context to the following sections of this report, the nomenclature adopted in reference to these different areas, as well as the location of Lot 2453, is outlined in Figure 2.2.



**Figure 2.2 Nomenclature Adopted for Southgate Dune System**

In 1991 the Department of Planning and Urban Development (DPUD 1991) presented the results from a study of the Southgate Dunes. The study estimated the contribution of the Southgate Dunes to the littoral sediment budget by completing a study into the changes in volume of sediment stored in the dune between 1969 and 1990. The study concluded the following:

- The Southgate dune system had been migrating northwards at a rate of around 10 m/yr.
- The Western Dune feeds an estimated 34,000 m<sup>3</sup>/yr into the littoral system.
- The seaward edge of the Northern Dune is not estimated to feed the littoral system.

Specialist coastal engineers, MRA, completed further studies of the Southgate Dunes system in 2012 and 2013 as part of the approvals process for the proposed development of the area by the landholder Bayform Holdings. Details of these studies are provided in the report *Southgate Dunes – Sediment Feed Analysis* (MRA 2013).

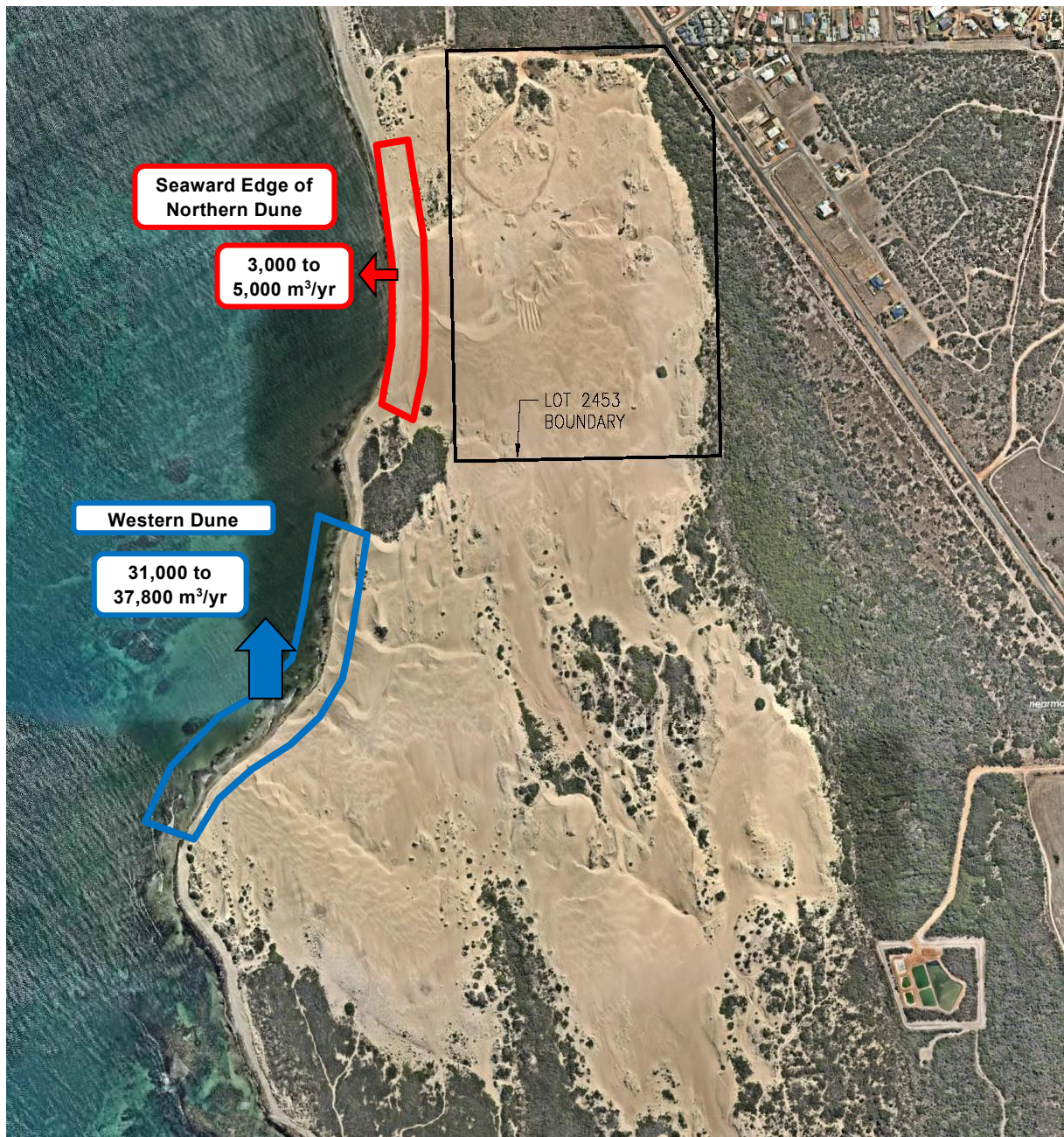
The studies completed by MRA involved the following:

- Assessment of the dune migration, based on orthorectified aerial imagery between 2001 and 2010.
- Analysis of the observed (2001 to 2010) and prevailing wind conditions.
- Assessment of the topography generated using photogrammetric mapping techniques between 2007 and 2012.

The results of these studies completed by MRA were generally similar with the previous DPUD (1991) study and concluded the following:

- The Southgate dune system migrated northwards at a rate of around 10 m/yr between 2001 and 2010.
- The volume of feed from the Western Dune to the littoral system is estimated to be in the order of 31,000 to 37,800 m<sup>3</sup>/yr.
- The estimated volume of feed from the seaward edge of the Northern Dune to the littoral system may be between 3,000 and 5,000 m<sup>3</sup>/yr.

The above volumes of feed estimated from the Southgate dune system into the littoral system are illustrated in the following Figure 2.3. The Lot 2453 boundary is also shown in the figure to provide context for later sections of this report.



**Figure 2.3 Summary of Estimated Sand Feed Volumes (MRA 2013)**

Based on the estimated quantities, the volume of feed from the seaward edge of the Northern Dune equates to around 10% of the total estimated sediment feed into the littoral system.

MSS have been extracting sand from the northern area of Southgate Dunes for a number of years. In the period from 2009 to 2013 MSS extracted between 65,000 and 128,000 tonnes/yr from the area. Between 2014 and 2017, the sand extraction quantity was approximately 150,000 tonnes/yr.

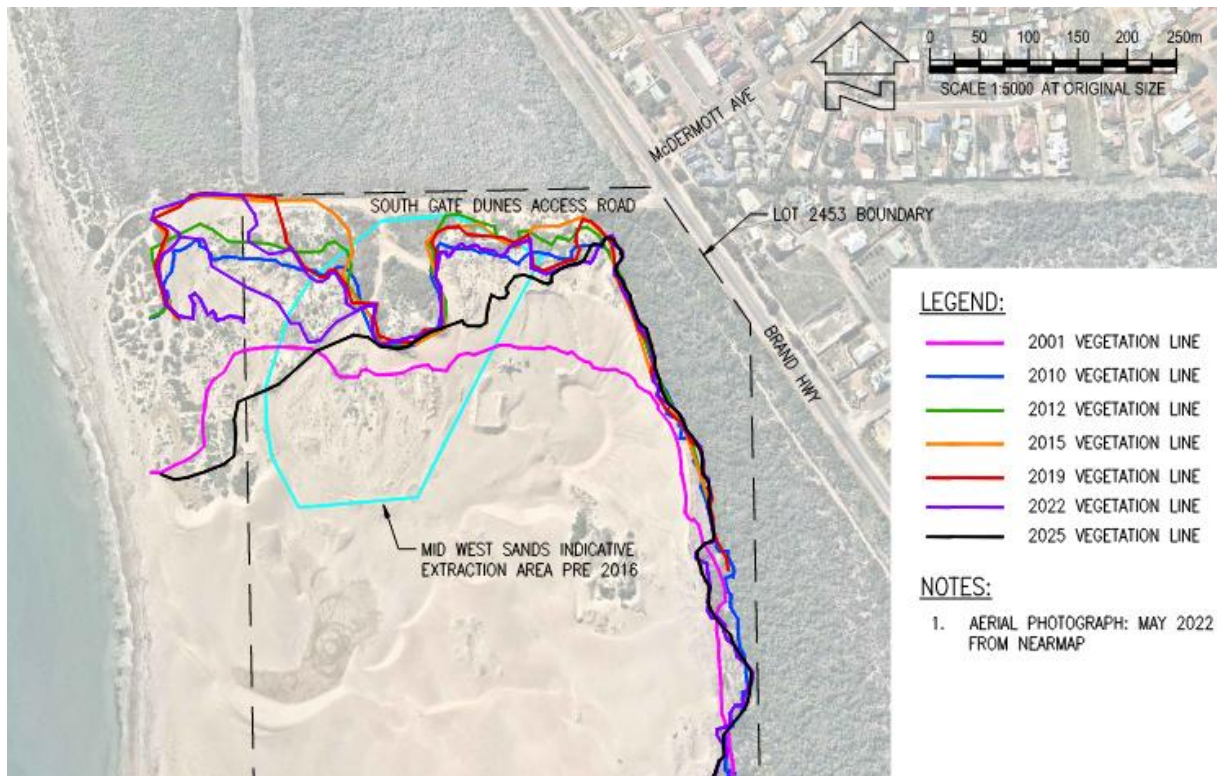
The recorded quantities of sand extracted in recent calendar years are presented in the following table.

**Table 2.1 Historical Limesand Extraction Quantities**

| Calendar Year | Estimated Volumes<br>(m <sup>3</sup> ) | Recorded Quantities<br>(tonnes) |
|---------------|----------------------------------------|---------------------------------|
| 2018          | 77,000                                 | 117,392                         |
| 2019          | 108,000                                | 165,554                         |
| 2020          | 52,000                                 | 79,873                          |
| 2021          | 79,000                                 | 121,301                         |
| 2022          | 96,700                                 | 147,997                         |
| 2023          | 110,000                                | 168,212                         |
| 2024          | 85,500 <sup>1</sup>                    | 130,752 <sup>1</sup>            |

Note: 1. Approximately 13,000 m<sup>3</sup> or 20,000 t of material was bought forward to 2023 pursuant with *Council Decision DS019 Proposed Variation to Extractive Industry Annual Amount – Southgates* dated 6 October 2023.

Figure 2.4 shows the position of the vegetation line in recent years. The stabilisation of the vegetation line in recent years, since the commencement of extractive activities, demonstrates that the actions of MSS has directly benefitted users of the Brand Highway and the nearby residences through slowing the northerly migration of the dune system. Based on the rate of dune movement between 2001 and 2010, if the extraction had not been occurring over the past decade, it is likely that sand dune front would now be threatening Brand Highway. It is recommended that sand extraction continue to take place, focussing on the north-east corridor of the previously approved extraction zone, in order to continue to actively manage the risk of wind-blown sand on Brand Highway.



**Figure 2.4 Historical Sand Dune Movement**

The vegetation line positions, shown in Figure 2.4, helped to identify that the dune front to the east and west of the pre 2016 extraction area would continue to move north at a rate of around 5 to 10 m/yr, covering parts of the Southgate Dunes Access Road unless the extraction area was expanded. Since the expansion of the extraction area in 2016, and a focused commitment to extracting material from the eastern half of the site, sand movement has been halted at the edge of the access road, with MSS removing sand off the access road as required to maintain the road. Since the beginning of 2017 (the commencement of recording by the City), MSS has removed over 60,000 tonnes from the Southgate Dunes Access Road in order to maintain public access (pers com Damian Wilson, Midwest Sand Supplies 28/09/2022). Limesand removed from the Southgate Dunes Access Road is not included in the 168,000 tonnes annual limit.

It is important to note that the movement of the dune front is highly dynamic. On-site experience suggests that the dune front can move up to 10 m in a matter of months depending on the prevailing winds and level of the dunes (pers com Doug Wilson, Midwest Sand Supplies 31/7/17).

The dune front is likely to continue moving to the north at around 5 to 10 m/yr unless sand is removed from this area. Without ongoing management, the dune front could start significantly impacting Brand Highway within 10 years. Therefore, the continued extraction of the Southgate Dunes would benefit both the City and the broader community.

### 3. Extraction Operations

#### 3.1 Site Boundary

To ensure that extraction operations are always within the approved area, MSS currently use large concrete blocks and wooden stakes as boundary markers. These are shown in Figures 3.1 to 3.4 below and marked on the Extraction Plan in Appendix A. The markers are located 20 m inside the Lot 2453 boundary and mark the area currently (2019-2025) approved for extraction. MSS propose to continue using these markers to aid compliance with the current and proposed extraction area.



**Figure 3.1 Concrete Block and Wooden Stake Markers 1 (Left) and 2 (Right)**



**Figure 3.2 Concrete Block Markers 3 (Left) and 4 (Right)**



**Figure 3.3 Concrete Block Marker 5**



**Figure 3.4 Wooden Stake Markers 6 (Left) and 7 (Right)**

### **3.2 Access & Constraints**

As noted previously, the Southgate Dunes are located approximately 7 kms south of the Geraldton town centre. The existing and proposed sand extraction is to occur on Lot 2453, Cape Burney. The lot is accessed from the Southgate Dunes Access Road located off Brand Highway, approximately 50 m south of McDermott Avenue. MSS plan to retain public access and maintain the portion of the road within Lot 2453 to the satisfaction of the City. The Extraction Plan contained in Appendix A shows the Southgate Dunes Access Road and the lot boundary for the site.

A Registered Aboriginal Heritage site (ID 5287 Southgates Burial Site) is located in the centre of the lot. This site was identified in the Department of Aboriginal Sites (1990) report and is shown on the Extraction Plan in Appendix A. No excavation is proposed within this area.

### 3.3 Extraction Methodology

MSS have provided an extraction plan statement which can be viewed in Appendix C. The extraction methodology is summarised as follows.

Sand is extracted from a number of dune faces using bulldozers and front end loaders. The dune face is generally flattened by the bulldozer with the loader working at the base, as shown in Figure 3.5.



**Figure 3.5 Typical Sand Extraction Methodology**

If the sand is clean, the loaders are able to place the sand directly into waiting road trains (typically 50 t) with the aid of loading ramps that have been set up on site. If there are no waiting road trains, the sand is stockpiled near the loading ramps.



**Figure 3.6 Loading Sand Directly into Waiting Road Trucks**

When the sand is not clean, due to the presence of dead vegetation, sticks, rocks and general debris, the sand is passed through a screening plant. The typical screening plant is shown in Figure 3.7.

MSS currently have the capacity to screen approximately 50,000 tonnes/yr (email Doug Wilson, Midwest Sand Supplies 3/7/19).



**Figure 3.7 Screening Equipment**

When required, sand is typically stockpiled close to the ramps or the screen for ease of loading. The screen location and stockpile area are shown in Appendix A.

Dead vegetation that has been covered by the advancing sand sometimes needs to be excavated. The Department of Water and Environment Regulation (DWER) has confirmed that a Purpose Permit is required for the extraction of this dead and buried vegetation (Pers Comm James Widenbar at DER, 21/7/16).

In 2016, The DER granted a Purpose Permit (7183/1) to MSS for the clearing of 0.4 hectares of dune vegetation by mechanical removal for the purpose of sand extraction. The initial Permit was valid until September 2021, and has since been renewed. MSS currently hold a purpose clearing permit for the clearing of buried vegetation which is valid until 24 September 2026. MSS have complied with the conditions of permit to date and will continue to do so whenever sand extraction activities are taking place at Lot 2453, Cape Burney. The current purpose permit is attached to this report in Appendix D. An update to the purpose permit will be obtained following approval of the updated extraction licence. This purpose permit will be also extend to 2035.

The sand extraction methodology outlined above and in Appendix C is proposed to be used in the future for the approved extraction area detailed in the following sections.

### **3.4 Mine Site & Traffic Management**

MSS have prepared a Southgates Limesand Extraction Plan (SLEP), which is contained in Appendix C. The SLEP provides details of the safety management and mine site internal signage.

All plant operators and truck drivers are inducted prior to being allowed on site. Inductions cover potential safety hazards and risk mitigation, as well as the mine road rules, speed and safety.

The emergency muster point and staff car park area are shown in Figure 3.8 below and labelled on the Extraction Plan contained in Appendix A.



**Figure 3.8 Emergency Muster Point and Staff Car Park Area**

With regards to public safety, the aim of the SLEP is to keep the public away from mining as much as possible. Signage is placed at the beginning of the Southgate Dunes Access Road, as shown in Figure 3.9. Members of the public are directed towards the beach, while trucks are diverted to the loading area.



**Figure 3.9 Entrance Signage**

Signage along the Southgate Dunes Access Road includes a 30 km/hr speed limit and a “Caution Trucks Entering” sign as shown in Figure 3.10.



**Figure 3.10 Signage Along Southgate Dunes Access Road**

At the northern entrance to the private lot (Lot 2453), restricted public access signage has been implemented on either side of the MSS compound access gate which is closed and locked outside mining hours. The signage at the gate is shown in Figure 3.11.



**Figure 3.11 Midwest Sand Supplies Compound Access Gate Signage**

MSS have also installed and implement the use of four 24 hour surveillance cameras to monitor the compound and its access routes. These cameras, shown below in Figures 3.12 and 3.13, aim to ensure public compliance with the restricted areas.



**Figure 3.12 Surveillance at Compound Gate (Left) and Muster Point (Right)**



**Figure 3.13 Surveillance Along Compound Access Routes**

MSS has been extracting lime sand at Southgate Dunes since 1991, prior to the proclamation of the Mines Safety and Inspection Act (1994). Therefore, the Department of Mines, Petroleum and Exploration (DMPE, formally Department of Mines and Petroleum) have confirmed that the

preparation and submission of a Project Management Plan and approval by the State Mining Engineer is not required at Southgate Dunes (Pers Comm Andrew Harris at DMP, 26/7/16).

Inspectors from the Mines Safety Branch in DMPE completed an inspection of the MSS operations on 18 March 2016 (Pers Comm Andrew Harris at DMP, 26/7/16). The aim of such inspections is to verify compliance with relevant legislation and to promote continuous improvement in work health and safety performance of mine operators. It is noted that this inspection process is not an approval. MSS implemented a number of operation changes identified during the DMPE inspection. This included the submission of an action plan, which included evidence of completion of the identified items and has met the requirements of the DMP (Pers Comm Andrew Harris at DMP, 26/7/16).

In response to Condition 4 of the Development Approval (TP16/150) and requirements outlined by Main Roads WA, MSS upgraded the intersection between the Southgate Dunes Access Road and Brand Highway. The upgrade was completed in December 2016 and included widening the intersection to provide for the swept path of turning road trains and an 8 m wide, 30 m sealed section at the access road entrance as shown in Figure 3.14.



**Figure 3.14 Dune Access Road Intersection Upgrade**

Upon inspection, Main Roads WA confirmed that the intersection upgrade completed by MSS complied with their requirements.

MSS predict around 50 to 60 road trains (typically 50 t) may enter and leave the site each day during the peak export season from January to May. Outside of this peak season, around 20 road trains may enter and leave the site each day. A range of trucks are used to haul sand, including B-double and double road trains. Figure 3.15 shows a double road train hauling sand away from site.



**Figure 3.15 Typical Double Road Train at Southgate Dunes**

The road trains head in both directions along Brand Highway, with the route taken dependent on the final destination. MSS estimate that around half the trucks head north and half the trucks head south along Brand Highway. Ultimately, the number, size and route taken by the trucks will depend on demand for the sand by farmers and other users.

MSS operate six days per week (Monday to Saturday) from 7:00 am to 6:00 pm, with no operation on Sundays or public holidays, unless approved in writing by the City, in accordance with Condition 8 of the DA approval. Works are not completed on public holidays to avoid heavy public interaction.

### **3.5 Proposed Extraction Details**

#### **3.5.1 Proposed Extraction Area**

The proposed extraction area for the coming 10 years is shown in the Extraction Plan provided in Appendix A. As shown, MSS is requesting a renewal to the existing approved 2022-2025 extraction area (23 ha). The total extraction area of 23 ha features a 20 m buffer from the western Lot 2453 boundary, a large buffer to the southern boundary and is outside the majority of the vegetated areas to the east. MSS intends to focus their extraction efforts in the eastern to north-eastern extent of the Lot. Furthermore, MSS will not complete any extraction within the designated Extraction Exclusion Zone (Aboriginal Site ID 5287).

#### **3.5.2 Proposed Extraction Quantities**

As per Condition 10 of Development Approval (TP16/150), renewed on 19 October 2019, MSS is restricted to an annual extraction limit of 168,000 tonnes.

As has been completed since 2016, it is proposed that sand will also be removed from the Southgate Dunes Access Road, as required by the City, to maintain the road for public access.

This maintenance removal is to be completed at the cost of MSS and not included in determining the extraction totals for each year.

### **3.5.3 Other Proposed Extraction Details**

Sand will be extracted from the extraction area using a minimum of two loading ramps; one on the southern dune front and one on the eastern front. A maximum of four ramps may be required depending on demand.

Sand is to be extracted only above the +3 mAHD contour across the site, as required by Condition 9 of Development Approval (TP16/150). This maximum excavation depth ties in with the approximate level of the vegetation on the western side of the lot. In reality, excavation is likely to remain higher than +3 mAHD on the eastern flank given the level of the surrounding land. Recent excavations have extended to a minimum elevation of around +5 mAHD on the dune faces. This is shown in Figure 3.16 which presents an extract from a 2025 topographic survey of the area completed by HTD.

It is noted that Lot 2453 is exposed to strong winds and coastal hazards such as erosion and inundation. It can be expected that, following periods of severe weather, the storm and aeolian (wind) erosion may reduce the height of the nominal surface level within isolated dune blowouts in the south-western extent of the approved extraction area. Dune blowouts and storm-triggered erosion are responses to natural processes and are outside of the control of MSS. To avoid interfering with the coastal processes, and to ensure that Condition 9 is satisfied at all times, the extraction efforts will be focussed within the eastern and north-eastern extent of the approved area, as they have been for the last several years. Regardless, as shown on the survey extract in Figure 3.16, the action of the wind has led to decreases in the elevation of some areas across the western portion of the site to below +3 mAHD. This is a natural process, and has occurred outside of the areas where MSS are operating.

With respect to the sand movement, it is noted that short term stabilisation of the dune is not practical whilst extraction operations are underway. To minimise the impact of sand drift and nuisance dust on the public, no excavation will occur within 20 m of the lot boundary or 40 m of a road or watercourse. Excavation of the sand on the eastern flank may actually help to reduce wind-blown sand impacting the Brand Highway and adjacent residential lots.

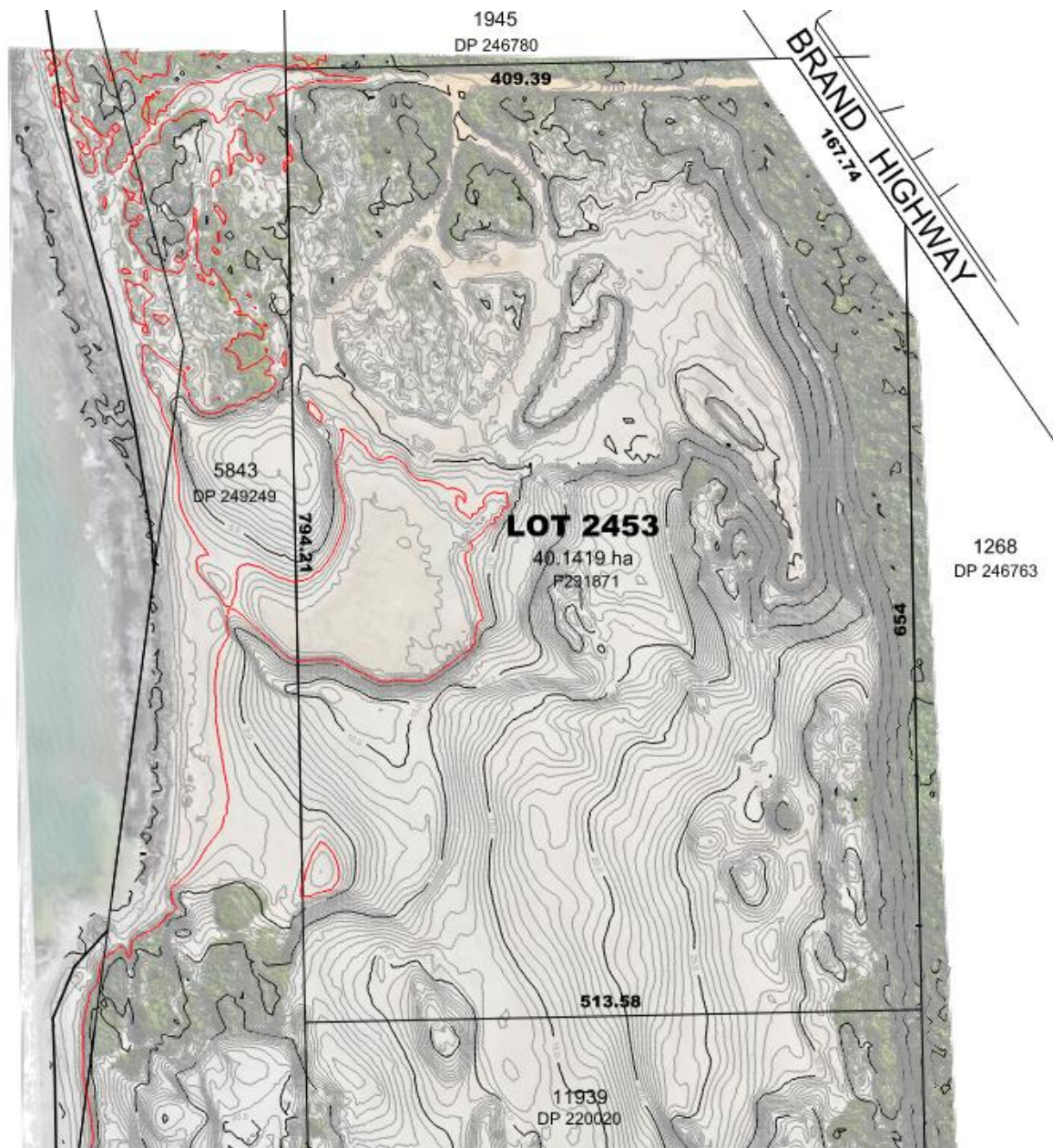


Figure 3.16 2025 Topographical Survey (HTD, 2025)

## 4. Dust Management Plan

The EILPP requires that measures be completed to minimise sand drift and dust nuisance associated with the extraction operations.

The Southgate Dunes is a highly mobile dune system, moving to the north at approximately 10 m/yr (refer to Section 2 for more details). Based on the rate of dune movement between 2001 and 2010, if the extraction had not been occurring over the past decades, it is likely that the dune front would now be threatening Brand Highway. Without ongoing management, it is expected that the dune front could start significantly impacting Brand Highway within 10 years. The recent expansion to extraction from the eastern flank of the dunes may actually help to reduce wind-blown sand impacting Brand Highway and adjacent residential lots.

Therefore the ongoing extraction of sand from the Southgate Dunes is, in effect, helping to minimise sand drift impacts and dust nuisance that would otherwise occur naturally.

### 4.1 Site Classification

MRA has completed a site classification assessment in accordance with the relevant guidance provided by the Department of Environment and Conservation (now Department of Water and Environmental Regulation), *A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities* (DEC 2011). This site classification assessment is included in Appendix E.

Based on the results of the site classification assessment the site falls under Classification 2 – Low Risk. In accordance with the DEC guidelines, the dust management plan requires a contingency plan to be submitted the City, outlining the dust mitigation measures to be undertaken should dust impacts occur.

### 4.2 Extraction Operations & Potential Dust Generation Sources

The extraction methodology is outlined in detail in Section 3.3 and Appendix C. In general, the methodology can be summarised as follows.

- Sand is extracted from dune faces using earthmoving equipment.
- The extracted sand is then either directly loaded into trucks or stockpiled, screened then loaded into trucks.
- The trucks then transport the sand, via the Southgate Dunes Access Road and Brand Highway, to the final destination.
- Sand is also removed off the Southgate Dunes Access Road, as a maintenance operation, to maintain public access.

Of the activities undertaken on site, the use of the unsealed Southgate Dunes Access Road presents the highest potential for dust generation, particularly during dry and windy conditions. By contrast, wind-blown sand from the extraction areas is expected to be minimal, as works are generally located within the dune system at lower elevations, where they are partially sheltered by surrounding topography. All trucks transporting sand from the site are covered to prevent dust lift off during transit

### 4.3 Dust Control Contingency Measures

In the event that visible dust lift-off is observed beyond the site boundary, or if a dust related complaint is received from the public or regulatory authorities, a series of contingency measures will be implemented without delay. The primary focus will be on controlling dust generated by vehicle movements along the unsealed Southgate Dunes Access Road, as this is the highest risk activity. Measures will also be applied within extraction areas if conditions warrant.

The approach is to address the source promptly, using proven suppression and operational controls, while maintaining a record of actions taken for accountability and review.

#### 4.3.1 Contingency Process

The following contingency processes will be enacted where a dust issue is identified.

##### Unsealed Southgate Dunes Access Road

- Apply water suppression using a water cart, with frequency adjusted to weather and traffic conditions.
- Undertake road maintenance, if required, to reduce loose material.
- Enforce the 30 km/h speed limit for all site vehicles; ensure signage is in place and drivers are inducted.

##### Extraction Areas

- During periods of very high wind speeds from directions likely to carry dust toward sensitive receptors, review work practices to minimise disturbance to areas high on the dune system.
- Complete works only at low elevations within the dune (away from the dune crests) that are sheltered by the existing topography.
- Minimise the heights of any stockpiles to ensure that they are lower than the elevation of surrounding dune systems.

### 4.4 Visual Monitoring

Dust emissions will be monitored visually by the site supervisor during all operational periods. Inspections will focus on the access road, extraction faces, and stockpile areas, with particular attention during dry, windy conditions. The aim is to detect dust lift-off early and implement control measures before impacts occur off-site.

All observations and actions will be documented in a Dust Monitoring Log, which will also record any complaints received and the corresponding responses.

#### 4.4.1 Monitoring Process

The following provides details of the monitoring process that will be completed as part of this dust management plan.

- Conduct visual inspections at least once per shift, and more frequently during adverse weather.
- Identify any visible dust plumes crossing the site boundary or sustained dust lift off from vehicle movements.

■ If triggers are met:

- Implement water suppression immediately.
- Consider additional measures such as road maintenance or operational adjustments.

■ Record:

- Date, time, and weather conditions.
- Observations made.
- Actions taken and their effectiveness.
- Any complaints received and follow-up actions.

## 5. Rehabilitation & Decommissioning Plan

The Southgate Dunes is a highly mobile dune system, moving to the north at approximately 10 m/yr (refer to Section 2 for more details). The sand dunes are expected to continue to move into the extraction area for the foreseeable future. Attempts at stabilisation and revegetation of the extraction area are therefore likely to be very difficult, as on-going passage of dune fronts would cover any stabilised or revegetated areas.

The rehabilitation and decommissioning plan will therefore aim to return the extraction site to a natural dune state at the end of the works. The following actions are proposed for the decommissioning of the extraction site.

- Very high or unstable excavation faces will be battered and flattened off to reduce potential collapse. It should be noted that steep dune faces are likely to form naturally due to wind forces over time. This process currently occurs naturally within Southgate Dunes.
- All of the screened debris and vegetation will be removed from the site and disposed of at an appropriate landfill site.
- All facilities and equipment will be removed from site at the end of the works. This includes all earthmoving equipment, screen, ramps and equipment storage areas.

The Decommissioning Plan in Appendix B shows the proposed decommissioning approach.

## 6. Benefits to Community

The continued extraction of sand within Lot 2453 of the Southgate Dunes has a number of benefits to the local community and to the City of Greater Geraldton. These are outlined below.

- Economic benefit with direct employment of 10 MSS employees and indirect employment of around 100 other people from truck drivers to farm hands.
- Improved soil conditions and hence productivity on farms which have the lime sands applied.
- Reduced management of windblown sand onto Brand Highway and the Southgate Dunes Access Road required by the City of Geraldton and Main Roads WA.

The continued sand extraction within Lot 2453 of the Southgate Dunes will allow MSS to continue to provide the Mid West region with a low cost, local source of lime sands into the future.

## 7. References

- Department of Aboriginal Sites, 1990. *An archaeological and ethnographic survey of the proposed Geraldton Mid-West Development Authority Sand Pit at Southgate Beach, Geraldton.* Western Australia.
- Department of Planning and Urban Development, 1991. *Results from Studies of Southgate Dunes Conducted after Completion of the Southgate Dunes Restoration Study.* Government of Western Australia, Perth.
- M P Rogers & Associates Pty Ltd (MRA), 2013. *Southgate Dunes – Sediment Feed Analysis.* R386 Rev 0. Prepared for Bayform Holdings.
- M P Rogers & Associates Pty Ltd (MRA), 2018. *Southgate Dunes Management and Decommissioning Plan.* R784 Rev 4. Prepared for Midwest Sand Supplies.
- M P Rogers & Associates Pty Ltd (MRA), 2022. *Southgate Dunes Management and Decommissioning Plan (2022 to 2027).* R1708 Rev 0. Prepared for Midwest Sand Supplies.
- Short, A.D., 2006. *Beaches of the Western Australian Coast: Eucla to Roebuck Bay.* Sydney University Press, University of Sydney.

## **8. Appendices**

|                   |                                                                    |
|-------------------|--------------------------------------------------------------------|
| <b>Appendix A</b> | <b>Extraction Plan</b>                                             |
| <b>Appendix B</b> | <b>Decommissioning Plan</b>                                        |
| <b>Appendix C</b> | <b>Southgate Lime Sand Extraction Plan (Midwest Sand Supplies)</b> |
| <b>Appendix D</b> | <b>Purpose Permit</b>                                              |
| <b>Appendix E</b> | <b>Dust Site Classification Assessment Chart</b>                   |

## Appendix A    Extraction Plan

## LEGEND:

- LOT 2453 BOUNDARY
- 2019-2022 APPROVED EXTRACTION AREA & PROPOSED AREA FOR COMING 5 YEARS (~23 HA)
- MUSTER POINT & STAFF CAR-PARKING
- REGISTERED ABORIGINAL HERITAGE SITE
- EXTRACTION EXCLUSION ZONE
- EXISTING MARKERS

## NOTES:

1. ABORIGINAL HERITAGE LOCATION BASED ON GENERAL EXTENT PRESENTED IN DEPARTMENT OF ABORIGINAL SITES REPORT (JANUARY 1990). NO SAND EXTRACTION WILL BE COMPLETED WITHIN THIS AREA.
2. NO EXCAVATION PERMITTED BELOW THE 3 mAHd LEVEL.
3. EXTRACTION TO BE FOCUSED ON THE EASTERN AND NORTH-EASTERN EXTENT OF THE EXTRACTION AREA.
4. AERIAL PHOTOGRAPH: MAY 2022 FROM NEARMAP.
5. SURVEY COMPLETED BY HTD SURVEYS & PLANNERS IN SEPTEMBER 2022. THE LEVELS AND CONTOURS REFLECT THE SURFACE AT THE TIME OF THE SURVEY ONLY.
6. CONTOURS SHOWN AT 5.0 m INTERVALS.

EARTHMOVING EQUIPMENT STORAGE, MUSTER POINT & STAFF CAR-PARKING

INTERSECTION UPGRADED BY MID WEST SANDS IN 2016

SOUTH GATE DUNES ACCESS ROAD

McDERMOTT AVE

INDIAN OCEAN

MARKER 1

MARKER 2

MARKER 3

MARKER 4

MARKER 5

LOT 2453 BOUNDARY

20m BUFFER

TYPICAL SCREENING & STOCKPILE AREA

EXTENT OF 2019-2022 APPROVED EXTRACTION AREA (~23 HA) TO A MAX DEPTH FROM NSL TO +3 mAHd

ABORIGINAL HERITAGE SITE (ID 5287).

EXTRACTION EXCLUSION ZONE. REFER NOTE 1.

MARKER 6

MARKER 7

BRAND HWY

0 50 100 150 200 250m  
SCALE 1:5000 AT ORIGINAL SIZE

## Appendix B Decommissioning Plan

AT CORRECT SCALE THIS IS 100 mm



## NOTES:

1. AERIAL PHOTOGRAPH: MAY 2022 FROM NEARMAP.

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coastal and port engineers

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**DECOMMISSIONING PLAN**  
MIDWEST SAND SUPPLIES – SOUTHGATE DUNES

SCALE  
AT A3 1:2,000

SEPTEMBER 2022  
SK2006-02A

## **Appendix C    Southgate Lime Sand Extraction Plan (Midwest Sand Supplies)**

## **Southgate Lime Sand Extraction Plan**

The plan for lime sand extraction at Vic. Location 2453 Geraldton W.A. consists of the following:

### **Site Access Signage and Traffic Management**

1. Signage will be in place advising the public that the Southgate Road is a private road.
2. The public can use the road to access the beach with access to the active mining area prohibited.
3. Signage will include speed signs, warning signs and other information signs inclusive of evacuation areas, emergency response processes and contact numbers.
4. Signage in the active mining area inclusive of warning signs, mining in progress signs, truck access, and any signs related to the mining operation will be erected daily before commencement.

### **Active Mining Area Access and Induction Requirements**

1. All operators of plant and equipment on site are fully inducted with verification of competency assessed on machines.
2. All truck drivers will be inducted prior to entry to the mine. This includes stating the rules of the mine and the rules of the road for entering and exiting the pit, speed limits and safety to the public. Drivers will also communicate on entry and exit on CH40 UHF with mine staff and other trucks.

### **Extraction Methodology**

1. The methodology for mining of lime sand at this location consists of the following:
  - Sand is extracted from a number of dune faces using bulldozers and frontend loaders.
  - Sand is loaded onto road trains.
  - If the sand is clean it can be loaded directly into waiting road trains or stockpiled.
  - If the sand is not clean it needs to be passed through a screening plant prior to stockpiling or loading.
  - The loaders load the screen with sand to be cleaned.
  - The loaders take away the clean sand from the screen for either stockpiling or loading.
  - Where sand is further from the loading area, a bulldozer will push the sand if needed closer to the screen or the ramps for loading.
  - The bulldozer is also utilised to manage the slope faces as required to prevent engulfment.
  - The loaders load the trucks from 1 of 3 ramps made of concrete blocks.
  - When the trucks come into the pit they call up on CH40 to ensure it is ok to enter the active mining area.
  - The truck drivers will un-tarp while waiting to be called to the loading area using channel 40.
  - Once in the loading area, truck drivers are not allowed to leave their vehicles until they are loaded and the loader bucket is on the ground.
  - The driver can then get out of the truck and collect the weight docket and tarp up.
  - The driver calls up on CH40 when leaving the active mining area.
  - Site signage must be obeyed at all times.

## **Safety Reporting and Investigation**

2. Any breach of site safety rules will be investigated and actioned accordingly.

- There have been no recordable injuries in 28 years of operation at the Southgate Lime Sand Pit. Midwest Sand Supplies are very proud of this achievement and aim to maintain its safety record.

Outside of the specifics of the operation at the Southgate Lime Sand pit, Midwest Sand Supplies operates a Business Management System consisting of policies, plans and procedures to ensure the effective a successful management of its operations. Some of the areas documented are related to Management, OH&S, Emergency Response, Fitness for Work, Quality and Code of Conduct.

Yours faithfully,



---

Douglas G Wilson

Principal Employer / Registered Manager

Midwest Sand Supplies

20/07/2022

## Appendix D Purpose Permit



## **CLEARING PERMIT**

*Granted under section 51E of the Environmental Protection Act 1986*

|                               |                                             |
|-------------------------------|---------------------------------------------|
| <b>Purpose Permit number:</b> | CPS 7183/2                                  |
| <b>Permit Holder:</b>         | Midwest Sand Supplies                       |
| <b>Duration of Permit:</b>    | From 24 September 2016 to 24 September 2026 |

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

**1. Purpose for which clearing may be done**

Clearing for the purpose of sand extraction.

**2. Land on which clearing may be done**

Lot 2453 on Deposited Plan 248687, Cape Burney

**3. Area of clearing**

Within the area cross-hatched yellow on attached Plan 7183/2, the Permit Holder may clear:

- (a) buried native vegetation; and
- (b) up to 0.4 hectares of non-buried native vegetation.

**4. Application**

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation authorised under this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

### **PART II – MANAGEMENT CONDITIONS**

**5. Avoid, minimise and reduce the impacts and extent of clearing**

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

**6. Weed control**

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

## **PART III – RECORD KEEPING AND REPORTING**

### **7. Record keeping**

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
  - (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
  - (ii) the date(s) that the area was cleared;
  - (iii) the size of the area cleared (in hectares);
  - (iv) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 5 of this Permit; and
  - (v) actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 6 of this Permit.

### **8. Reporting**

The Permit Holder must produce the records required under condition 7 of this Permit when required by the *CEO*.

## **DEFINITIONS**

The following meanings are given to terms used in this Permit:

**CEO** means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

**fill** means material used to increase the ground level, or fill a hollow;

**mulch** means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

**weed/s** means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Samara Rogers  
MANAGER  
NATIVE VEGETATION REGULATION

Officer delegated under section 20  
of the *Environmental Protection Act 1986*

7 October 2019

## Appendix E    Dust Site Classification Assessment Chart

## ADDENDUM

The Department of Environment and Conservation (DEC) released an updated dust guideline in January 2011, "A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities, January 2011". An error was identified in Appendix 1 on page 35. This error has since been corrected (See below). This document is the corrected version published in March 2011.

### Appendix 1: Site risk assessment/classification for activities generating uncontaminated dust

#### Sheet 1: Site classification assessment chart

##### Part A. Nature of site

| Item                                                            | Score options                   |                                             |                                                    |                                         | Allocated score |
|-----------------------------------------------------------------|---------------------------------|---------------------------------------------|----------------------------------------------------|-----------------------------------------|-----------------|
| 1. Nuisance potential of soil, when disturbed                   | Very low.....1                  | Low.....2                                   | Medium.....4                                       | High.....6                              | 2               |
| 2. Topography and protection provided by undisturbed vegetation | Sheltered and screened.....1    | Medium screening....6                       | Little screening.....12                            | Exposed and wind prone.....18           | 6               |
| 3. Area of site disturbed by the works                          | Less than 1ha.....1             | Between 1 and 5ha..3                        | Between 5 and 10ha.....6                           | More than 10ha.....9                    | 3               |
| 4. Type of work being done                                      | roads or shallow trenches.....1 | roads, drains and medium depth sewers.....3 | Roads, drains, sewers and partial earthworks.....6 | Bulk earthworks and deep trenches.....9 | 9               |
| TOTAL score for Part A                                          |                                 |                                             |                                                    |                                         | 20              |

##### Part B. Proximity of site to other land uses

| Item                                                                                | Score options       |                                                         |                                                      |                                                                      | Allocated score |
|-------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------|-----------------|
| 1. Distance of other land uses from site                                            | More than 1km.....1 | Between 1km and 500m.....6                              | Between 100m and 500m.....12                         | Less than 100m.....18                                                | 12              |
| 2. Effect of prevailing wind direction (at time of construction) on other land uses | Not affected.....1  | Isolated land uses affected by one wind direction.....6 | Dense land uses affected by one wind direction.....9 | Dense/sensitive land uses highly affected by prevailing winds.....12 | 6               |
| TOTAL score for Part B                                                              |                     |                                                         |                                                      |                                                                      | 18              |

SITE CLASSIFICATION SCORE (A X B) = 360

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