



# **KMS TRAFFIC IMPACT ASSESSMENT**

**General Information and  
Frequently Asked Questions**



## GENERAL INFORMATION

The Thunderbird Mineral Sands Project (Thunderbird) will mine and export mineral sands from the Kimberley region of Western Australia. The mine is currently under construction and is located on the Dampier Peninsula, midway between Derby and Broome.

Thunderbird is being developed by Kimberley Mineral Sands Pty Ltd (KMS), which is a joint venture company equally owned by Sheffield Resources Pty Ltd and YGH Australia Investments Pty Ltd (Yansteel).

Thunderbird is one of the highest-grade mineral sand discoveries in Western Australia in the past 30 years. It will generate a high-quality suite of mineral sands concentrate products suited to international market requirements.

In August 2018 the WA Minister for Environment issued an environmental approval, following a Public Environmental Review (PER), that allowed Thunderbird to be developed and included the approval of bulk mineral sand products to be shipped from the Port of Derby and packaged products to be shipped from the Port of Broome.

KMS subsequently applied for an amendment to Ministerial Statement 1080 (MS1080) with the WA EPA to allow bulk export of mineral sands products from the Port of Broome, as well as via the Port of Derby. Approval of the amendment to the proposal to ship via the Port of Broome was granted under section 45C(1)(a) of the Environmental Protection Act 1986 (WA) in November 2022. This approval permits the use of heavy vehicle road trains up to 53.5m in length (inclusive of triples and quads) to travel to the Port of Broome via the main transport route of Gubinge Road, a Main Roads WA Road.

KMS is proposing the use of Performance Based Standard (PBS) 60m road trains rather than prescriptive road trains up to 53.5m length as KMS believes it will result in a safer and lower impact outcome.

Additionally, the PBS 60m road trains proposed for Thunderbird utilise extra safety features improving both vehicle and driver performance. These extra safety features include:

- **Electronic Braking Systems (EBS)** – ensures that the vehicle remains directionally stable and steerable even during emergency braking on slippery roads.
- **Electronic Stability Control (ESC)** – acts automatically to prevent loss-of-control movements by slowing the vehicle when dangerous movements are detected.



- **GPS and geo-fencing technology** – live linking of trucks to Main Roads for speed and road network reporting.
- **Fully steerable back axles** that unlock at low speeds to allow for better swept path turning circles.
- **A minimum of five cameras** facing in all directions.
- **Thermal imaging cameras** – to improve night visibility of stray fauna, through heat detection, providing the opportunity for better decision making by the driver.
- **Seeing machines in cabs** – using proprietary face and eye tracking to detect driver fatigue or distraction providing real-time in-cab intervention.
- **In-vehicle monitoring** – capturing critical information which is tracked by 24/7 Fleet Controller services.
- **Live driver alerts** linked to pre-set GPS locations to monitor speed and noise.

Main Roads WA states that “... Performance Based Standard vehicles ... are considered a safer alternative to prescriptive 53.5m road trains.”  
(See PBS 60m Road Trains Fact Sheet for more information).

Please view the Main Roads WA Fact Sheet at:

[www.kmsands.com.au/site/community/consultation](http://www.kmsands.com.au/site/community/consultation)

The use of PBS 60m road trains requires a permit from Main Roads WA. As part of this permit process KMS has appointed a preferred logistics and transport contractor, Campbell Transport, as well as community engagement and social impact specialist consultants Creating Communities who will undertake a detailed Traffic Impact Assessment and Management Plan in association with consultants with technical expertise in areas such as traffic and noise management.

These reports will be informed by extensive community consultation and will investigate the impacts of the proposed use of PBS 60m road trains, rather than prescriptive 53.5m road trains between the mine and the storage area near the port. The use of prescriptive road trains up to 53.5m in length is permitted and does not require a permit.

The Management Plan will propose management measures to limit impacts specific to the Broome haulage routes and will be submitted to Main Roads for review and approval.

**This document provides a range of information and frequently asked questions specifically focused on the Traffic Impact Assessment, Management Plan and the associated stakeholder and community consultation.**



# Frequently asked questions



## MINE DEVELOPMENT AND APPROVALS INFORMATION

### Where is the Thunderbird Mineral Sands Project located?

The Thunderbird Mineral Sands Project (Thunderbird) mine site is located on the Dampier Peninsula mid-way between Derby and Broome. Thunderbird is located within the Jooambarn Buru native title determination area on the Mount Jowlaenga and Yeeda pastoral leases and spans both the Shires of Derby-West Kimberley and Broome local government areas.

### Location Map: Thunderbird Mineral Sands Project



### Who is developing the Thunderbird Mineral Sands Project?

Thunderbird is being developed by Kimberley Mineral Sands Pty Ltd (KMS), which is a joint venture company equally owned by Sheffield Resources Pty Ltd and YGH Australia Investments Pty Ltd (Yansteel).

### What is being mined at Thunderbird?

The Thunderbird Mineral Sands Project is mining mineral sands. Mineral sands are generally found in old beach, river, or dune sands. Mineral sands originate from the erosion of ancient crustal rocks that have weathered over time to result in a residue of resistant hard minerals, such as the valuable zircon and ilmenite. Zircon and ilmenite are non-toxic minerals with every-day domestic and industrial applications.

Zircon is mostly used in ceramics such as tiles, porcelain and tableware and also used for precision casting, TV screens and resistive coatings. Ilmenite is mainly used for pigment in paints, plastics, paper, medicine, cosmetics and sunscreen, with a small amount of ilmenite being processed to make titanium metal for medical uses, aircraft construction and sporting goods.

### When will construction at the mine be complete?

A Final Investment Decision (FID) was announced by KMS on the 7 October 2022. As of the end of March 2023, construction was 80% complete with \$272m already spent on the project. The remaining construction works are forecast for completion by the end of 2023.

### How long is the mine life?

Thunderbird is expected to have a mine life of greater than 36 years.

### What approvals has the project received?

In August 2018, the WA Minister for Environment issued what is referred to as the Ministerial Statement Number 1080 for Thunderbird (MS1080). This environmental approval followed a Public Environmental Review (PER) for the development of Thunderbird which was issued for public comment between January and February 2017. The PER was assessed by the WA Environmental Protection Authority (EPA) and the final report was issued in October 2017. MS1080 allowed Thunderbird to be developed and included the approval of bulk mineral sand products to be shipped from the Port of Derby and packaged products to be shipped from the Port of Broome.

The application for the amendment to Ministerial Statement 1080 was lodged with the WA EPA on 3 December 2021 to enable the transport of mineral sands to Broome and shipped from the Port of Broome. On 8 November 2022, approval of the amendment to the proposal to ship via the Port of Broome was granted under section 45C(1)(a) of the Environmental Protection Act 1986 (WA).



## TRAFFIC/TRUCK MOVEMENTS

### Why is it proposed to export the mineral sands via Broome rather than just from Derby as originally proposed?

KMS' recent amendment to MS1080 was to achieve flexibility in our logistics solutions. Having the option of exporting the Thunderbird bulk mineral sands product from the Port of Broome means the product can be directly loaded onto the ship for final destination, whereas trans shipping (unloading from one vessel onto another vessel) is required at Derby. This also means advantage can be taken of the recent \$15 million investment by the Kimberley Ports Authority to optimise the shipping channel and the purchase of a mobile harbour crane in Broome.

The most attractive logistics solution for Thunderbird may change over the expected 36-year mine life and as new infrastructure is developed, particularly in relation to the Port of Derby. Approval to export Thunderbird products from both Derby and Broome will achieve the required flexibility.

### Where and how will the mineral sands be transported and stored before shipping from the Port of Broome?

It is proposed that the mineral sands will be transported and stored in sealed rotainers. Once transported from Thunderbird, these sealed rotainers will be stored close to the Port of Broome in preparation for loading onto the ship. These arrangements are currently being finalised.



It is anticipated the mineral sands product would be transported in the following stages:

- From the mine site to Broome via Great Northern Highway and Broome Road and then through Broome via Gubinge Road to a storage area near the Port of Broome. Transport for this section of the route will be in sealed rotainers and is proposed to be by PBS 60m road trains.
- Transport of the sealed rotainers of product from the storage area to the Port of Broome wharf for loading onto ships will be by double road trains. Ship loading is expected to occur two or three times per month, depending on the ship size.

It is estimated that KMS's storage area will have capacity of up to circa 80,000 tonnes (which is 2 to 3 shiploads depending on ship size). When a ship is in port, sealed rotainers of about 30mt capacity would be loaded onto double road trains and driven from the storage area onto the Port of Broome wharf.

The rotainers would be lifted by a mobile harbour crane from the trailers and lowered into the hull of the vessel, rotated and the product discharged. This system has been selected specifically to ensure there are no significant air quality impacts in line with best practice bulk material export processes.

### What number of PBS 60m road trains are permitted to be on the road each day?

KMS has approval for less than 50 round trips per day from the mine site to the storage area near the port.

It is estimated there would be approximately 26 round trips per day (52 truck movements) in Stage 1 from the mine site to the storage area.

### How many trucks currently use Broome Road and Gubinge Road each day and how will that change with the truck movements proposed by KMS?

The 2020-21 Main Roads Traffic Digest numbers show Gubinge Road south of Murray Road as having 376 truck movements per day and Gubinge Road south of Gantheaume Road as having 247 truck movements per day. Stage 1 of Thunderbird will increase this by up to 52 truck movements (26 round trips) per day. Main Roads are currently undertaking a traffic count update along Gubinge Road and Port Drive with data to be released soon.

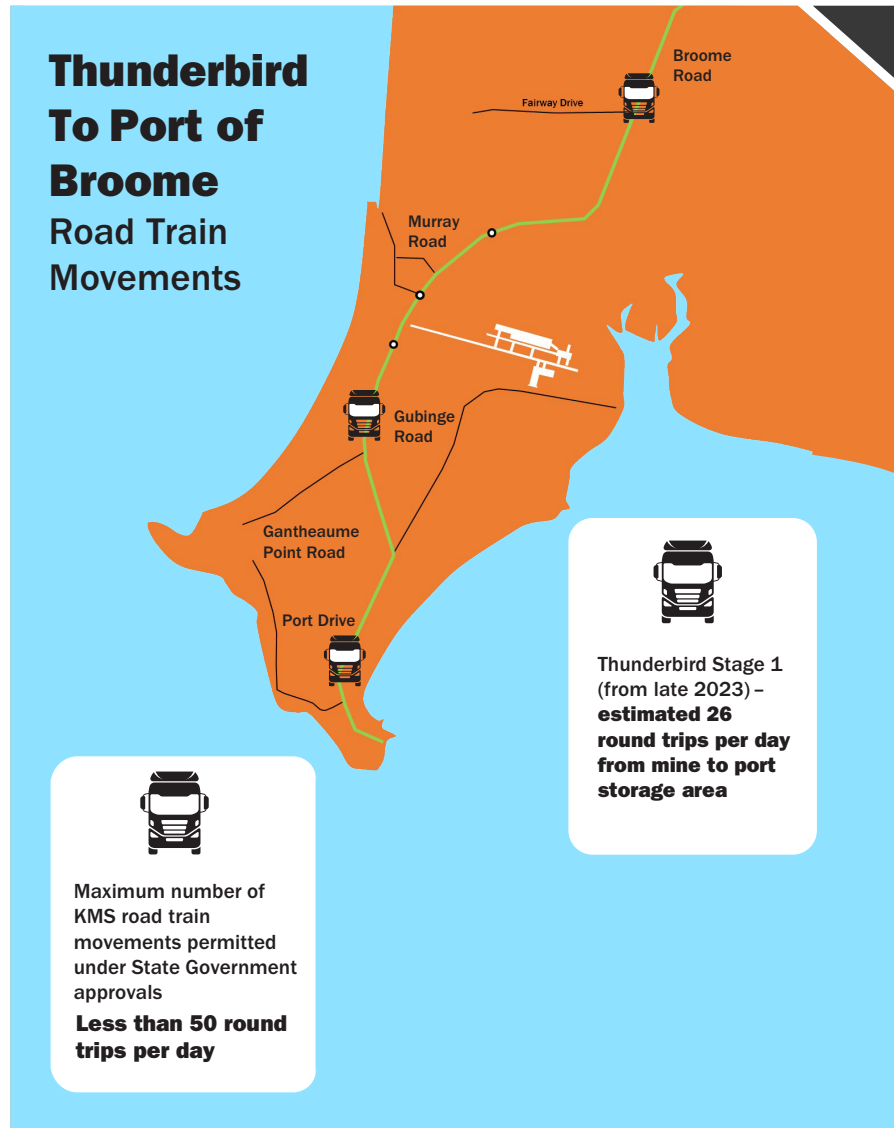
### Will there be a spacing of time between truck movements or will they travel in close succession?

There will be a time gap between trucks, as it takes time to load each truck at the mine before sending it to Broome. Additionally, KMS will limit traffic impacts by ensuring road trains travel some distance from each other.



### Why was the route along Gubinge Road into Port Drive chosen?

Gubinge Road was constructed in 2006 as Broome's primary designated heavy vehicle route to connect transport to the Broome Industrial Area and the Port. Use of Gubinge Road ensures that the heavy haulage vehicles travel on the designated heavy vehicle roads.



### What type of trucks are proposed to transport the mineral sands?

Transport of bulk mineral sands product from the mine site to the storage area near the port is proposed to use PBS 60m road trains, which requires a further permit approval from Main Roads WA.

Transport of the sealed rotainers of product from the storage area to the Port of Broome wharf for loading onto the ship is proposed to be by double road trains.

### Why is it proposed to use PBS 60m road trains rather than prescriptive road trains up to 53.5m length?

The use of PBS 60m road trains, rather than other road trains already permitted for transporting on this route, would require less truck movements along Gubinge Road. Additionally, these PBS 60m road trains also have extra safety features.

### What has Main Roads WA identified as the key features of the performance based quad road trains?

Main Roads in their fact sheet on Performance Based Standards (PBS) 60m road trains (see [www.kmsands.com.au/site/community/consultation](http://www.kmsands.com.au/site/community/consultation)) states that they are designed, manufactured, certified and maintained to meet rigorous safety performance standards. Prescriptive 53.5m road trains are only required to meet specified mass and dimension limits.



It also states that most prescriptive 53.5m road trains will not meet the rigorous PBS standards, which Performance Based Standards (PBS) 60m road trains do.

Main Roads WA state, in their fact sheet about the PBS 60m road trains, that they have the following features:

- A much lower risk of rollover than prescriptive 53.5m road trains.
- A better braking performance and have much less rear trailer sway than prescriptive 53.5m road trains.
- They are restricted to 90 km/h to ensure optimum safety performance.
- They are mandatorily fitted with Antilock Braking Systems (ABS) or Electronic Braking Systems (EBS), and trailers must be fitted with Trailer Electronic Braking Systems (TEBS) with Rollover Stability Controls (RSC). These systems ensure stability under braking and further reduce rollover risk.
- They are required to be fitted with special signage on the rear, to ensure other road users are aware of the additional length of the PBS 60m road trains.
- They are all fitted with in-vehicle telematics systems that are monitored by a third-party service provider who are certified by Transport Certification Australia (TCA). The in-vehicle telematics system monitors the vehicle's speed and location. If the vehicle exceeds the allowable speed or travels on a non-approved route, non-conformance reports are sent to Main Roads via TCA. The in-vehicle telematics systems are also used by the transport companies to monitor driver behaviour and geo-fence areas requiring particular attention, such as known rollover hotspots, town sites, roadworks etc.
- Main Roads administers an audit regime on PBS 60m road trains to ensure they are appropriately maintained and continue to perform to a high standard.

#### **What has Main Roads WA published as some of the other benefits from the use of Performance Based Scheme (PBS) 60m road trains?**

- If PBS 60m road trains are used instead of prescriptive 53.5m road trains, there would be a reduction in vehicle movements due to the additional payload capacity of the PBS 60m road trains. This in turn reduces risk exposure.
- Although the PBS 60m road trains are slightly longer than prescriptive 53.5m road trains, the impacts of the additional length are outweighed by the safety benefits and improved performance.



#### **Are any additional approvals required to enable PBS 60m road trains to be used?**

The use of any prescriptive 53.5m road trains is already allowed along Gubinge Road and Port Drive. The use of PBS 60m road trains for Thunderbird will require a specific permit. The permit approvals process for this will require a traffic impact assessment, traffic management plan and community consultation report.

#### **If approval is received for the PBS 60m road trains, will the roads to the Port of Broome be changed to accommodate the truck movements?**

The Great Northern Highway and access roads to the Port of Broome are multi-user roads, suitable for heavy vehicles.

The roads to the Port of Broome are public and are the responsibility of the State Government. KMS will continue to engage with the community and Main Roads to understand and report key issues that arise along the route to the Port of Broome.

#### **When is it proposed that KMS will start trucking and shipping through Broome?**

At this stage KMS anticipates initial trucking will commence during commissioning activities at the end of 2023 or early 2024.





**What is the expected frequency of trucks along Gubinge Road to the storage area?**

In Stage 1 of the project, it is estimated that there will be 26 round trips per day.

**What is the expected frequency of trucks from the storage area to the Port of Broome?**

Two or three times a month there would be approximately 160 double road train round trips per day between the storage area near the port and the wharf when a ship is being loaded. It is expected that loading will take approximately four to six days, depending on the ship's size.

**How often will ships be loaded requiring transport of the minerals from the storage area to the Port of Broome?**

It is estimated that ships will be loaded two or three times a month.

**Will KMS contribute to maintenance costs of Gubinge Road and Port Drive?**

As part of Main Roads' approval process, if KMS transport greater than 300,000 tonnes of product per year, a contribution fee will be payable to Main Roads WA.



# Traffic impact assessment, management and community consultation





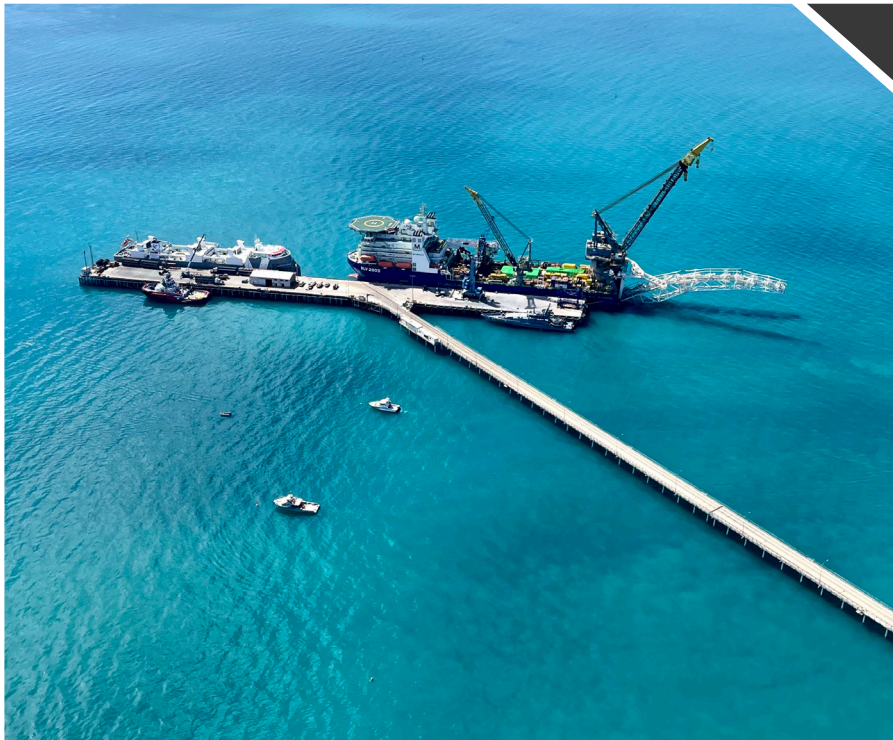
**Is a Traffic Impact Assessment being undertaken and is it being informed by stakeholder and community consultation?**

KMS has appointed a preferred logistics and transport contractor, Campbell Transport, as well as community engagement and social impact specialist consultants Creating Communities who will undertake a detailed Traffic Impact Assessment. This will be informed by extensive community consultation and will investigate the impacts of the use of PBS 60m road trains.

KMS will also submit a Management Plan as part of the Main Roads WA's road train permit approval process, which will also be informed by the community consultation process. This Management Plan will propose safety, noise and dust management measures specific to the Broome haulage routes and will be submitted to Main Roads WA for review and approval.

**Is there likely to be any air quality impacts?**

KMS undertook additional noise and air quality modelling to support the s45C approval process. KMS does not expect a material change in air quality as the product will be transported in sealed rotainers.



**What areas will the consultation for the Traffic Impact Assessment investigate?**

Consultants Creating Communities Australia Pty Ltd have extensive experience in community engagement and impact analyses and have proposed the following key areas of investigation in the consultation.

<b>PROPOSED IMPACT AREA</b>	<b>DEFINITION</b>
<b>Health, Liveability &amp; Wellbeing</b>	Considers the potential impacts that mineral sands transport through Broome may have on residents', business owners' and visitors' lives and their ability to maintain their physical health, mental health and wellbeing.
<b>Road Safety</b>	Considers the potential impacts that mineral sands transport through Broome may have on the safety of users of Gubinge Road and adjacent roads, such as drivers, cyclists, e-scooter users, pedestrians, school buses and tourists / recreational users unfamiliar with local conditions.
<b>Economic Impacts</b>	Considers the potential impacts that mineral sands transport through Broome may have on local businesses, industry and individuals engaged in the local economy. Feedback on the proposed truck movements and potential management strategies.





## CONSULTATION DETAILS

### Who is conducting the Stakeholder and Community consultation?

Creating Communities Australia Pty Ltd has been engaged to undertake the stakeholder and community consultation that will inform the development of Traffic Impact Assessment and Management Plan.

They have extensive experience in conducting community engagement and impact analyses both in Broome and in the mineral sands industry.

### What types of consultation are being undertaken?

#### Key Stakeholder Interviews

Interviews with key stakeholders/ organisations on the project to ensure they are across the project details and to seek feedback on what is proposed regarding traffic movements and potential management strategies.

#### Local Community Survey

Community survey for those who reside or have a business in proximity to Gubinge Road.

#### Focus Groups

Up to nine (9) focus groups of residents, community groups, business groups and other stakeholders to discuss and seek feedback on the proposed truck movements and potential management strategies.

### Where do I find out about the specific consultation activities?

Information about the Thunderbird Mineral Sands Project go to:

<https://kmsands.com.au/>

For online information about the Traffic Impact Assessment and Management Planning consultation process go to:

[www.kmsands.com.au/site/community/consultation](http://www.kmsands.com.au/site/community/consultation)

Or contact Shelley Harrison at [shelley@creatingcommunities.com.au](mailto:shelley@creatingcommunities.com.au) or phone 08 9284 0910.





Information about the Thunderbird Mineral Sands Project, the Traffic Impact Assessment and the Consultation process, including how to register for the focus groups is available at:

**[kmsands.com.au](http://kmsands.com.au)**



**Creating  
Communities**