Attachment 6A – Emissions and Discharges

Works Approval Application

Platinum Blasting Services Pty Ltd

15 May 2025

→ **The Power of Commitment**

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1. Introduction

GHD Pty Ltd (GHD) acts on behalf of Blue Diamond Australia Pty Ltd (BDA), the proponent of a proposed Ammonium Nitrate Facility (ANF), in preparing this Works Approval application for DWER. The ANF will be operated by Platinum Blasting Services Pty Ltd (PBA) on behalf of BDA, who will be the applicant for this Works Approval application.

The ANF project is commercially referred to as 'Project Terra'. It is proposed to be a 12 ha site (located within an overall 48-ha lease area) located across Lots 11 and 12 on Plan 18559 within the Oakajee Strategic Industrial Area (Oakajee SIA), 20 kilometres north of Geraldton in Western Australia.

Oakajee SIA has been selected as the location of the proposed ANF because of its strategic Mid-West location and future development potential as a hub for heavy industry projects. Oakajee SIA is owned and managed by DevelopmentWA (DevWA), the State Government's development agency.

At the time of writing, the Oakajee SIA remains undeveloped, making Project Terra the first industrial facility development in the SIA that is not only submitted but capable of development imminently. The proposed ANF consists of two core components which are:

– An ammonium nitrate emulsion manufacturing plant with an initial production capacity of up to 40,000 tonnes per year; and,
– An ammonium nitrate storage faciality with a capacity of up to 13,500 tonnes per year.

The purpose of the ANF is to produce ammonium nitrate emulsion, which is used as a blasting agent in mining operations. Platinum Blasting Services will manage and operate the facility on behalf of BDA.

A Works Approval and Licence will be required for the ANF as it will be a Prescribed Premises under Schedule 1 of the *Environmental Protection Regulations 1987*, with the ANF being categorised under the following Prescribed Premises activity and design capacity threshold:

Category Number	Description	Category Production or Design Capacity	Proposed Design Capacity
33	Chemical blending or mixing: premises on which chemicals or chemical products are mixed, blended or packaged in a manner that causes or is likely to cause a discharge of waste into the environment.	500 tonnes or more per year	40,000 tonnes/year

2. Emissions, discharges and waste

2.1 Emissions

2.1.1 Air emissions

An air quality assessment (refer to Attachment 8A) has been undertaken for the site to understand the potential emission impacts on nearby sensitive receptors from the ANF during standard operations. Emissions from the proposed ANF include point-source emissions of CO, NO_2, SO_2, and total VOCs from a diesel fired boiler and a diesel generator, and fugitive dust emissions (as PM_{10} and $PM_{2.5}$) generated from general site operations (i.e., heavy vehicle movements).

The results of the air dispersion modelling indicate that the Project will comply with the relevant air quality criteria for each of the pollutants across all scenarios, except for the cumulative assessment for annual $PM_{2.5}$ GLCs (ground level concentrations) where the contribution of the background concentrations resulted in exceedances for all receptors. However, the proposed activities do not significantly contribute to the increase in annual $PM_{2.5}$ average concentrations, as the incremental contribution is approximately 0.01% of the total $PM_{2.5}$ concentration.

Overall, the proposed ANF does not pose a significant threat to air quality in the vicinity of the project site.

2.1.2 Light emissions

Project Terra will only undertake nighttime operations for 20 to 30 days per year where the site will operate for a 24-hour period on these days. On these occasions there will be some sky glow, light spill, and glare from the site during nighttime operations which may be visible from surrounding residential receptors, and potentially create a hazard to traffic on the North West Coastal Highway.

To mitigate these potential impacts, Project Terra will adopt design recommendations and mitigation measures outlined in Table 1 that are sourced from the Oakajee industrial Estate Structure Plan (Landcorp, 2012). Adoption of these recommendations will ensure that the site will comply with Australian Standards for external lighting. Given this, the local impact to surrounding residential receptors is expected to be slight to minor.

Table 1 Recommended design and mitigation measures to reduce light emission impacts from the site

Design Recommendations
Select luminaries that minimise upward waste light and stray light
Select light poles that are high enough to minimise upcast angles of luminaries but low enough to limit spill light
Locate lighting appropriately by adhering to all relevant and appropriate standards to avoid unacceptable levels of artificial lighting
Industrial allotments should include a landscape screening to reduce the impacts of any lighting installed
Mitigation Measures
Avoid poorly sighted lights on the boundary of the estate
Positioning lights appropriately to avoid poorly directed lighting
Use appropriate shields to avoid light spilling upwards
Low level bollard lights can provide an alternative to taller columns along pedestrian routes within industrial allotments
Restriction of running hours by limiting usage to an as-needed basis
Where practicable, switch off lights when not required for safety, security
Limiting roads directly facing any existing nearby residential properties
Signage should be carefully illuminated to minimise glare
Landscape buffers to further reduce the impact of vehicle headlights

2.1.3 Noise emissions

Facility equipment, including the emulsion manufacturing plant, pumps, heating and cooling systems as well as onsite vehicles have the potential to generate noise emissions. To understand the extent of these emissions and assess compliance, a noise impact assessment was undertaken in accordance with the *Environmental Noise Protection Regulations 1997* (EPA, 1997). The noise impact assessment undertaken for the project is provided in Attachment 8B.

Modelled noise (L_{A10}) contours predicted to be generated from project operations are shown in Figure 1. Noise levels at identified nearby sensitive receptor boundaries used in the study are predicted to range from 23 to 29 dB(A) L_{A10}[1] and will comply with the 'Day', 'Evening' and 'Night' noise criteria at all sensitive receivers, with the project operational noise impacts to surrounding residential receptors likely to be only slight.

[1] Where noise level exceeded for 10 percent of the measurement period over A-weighted spectra, in dB

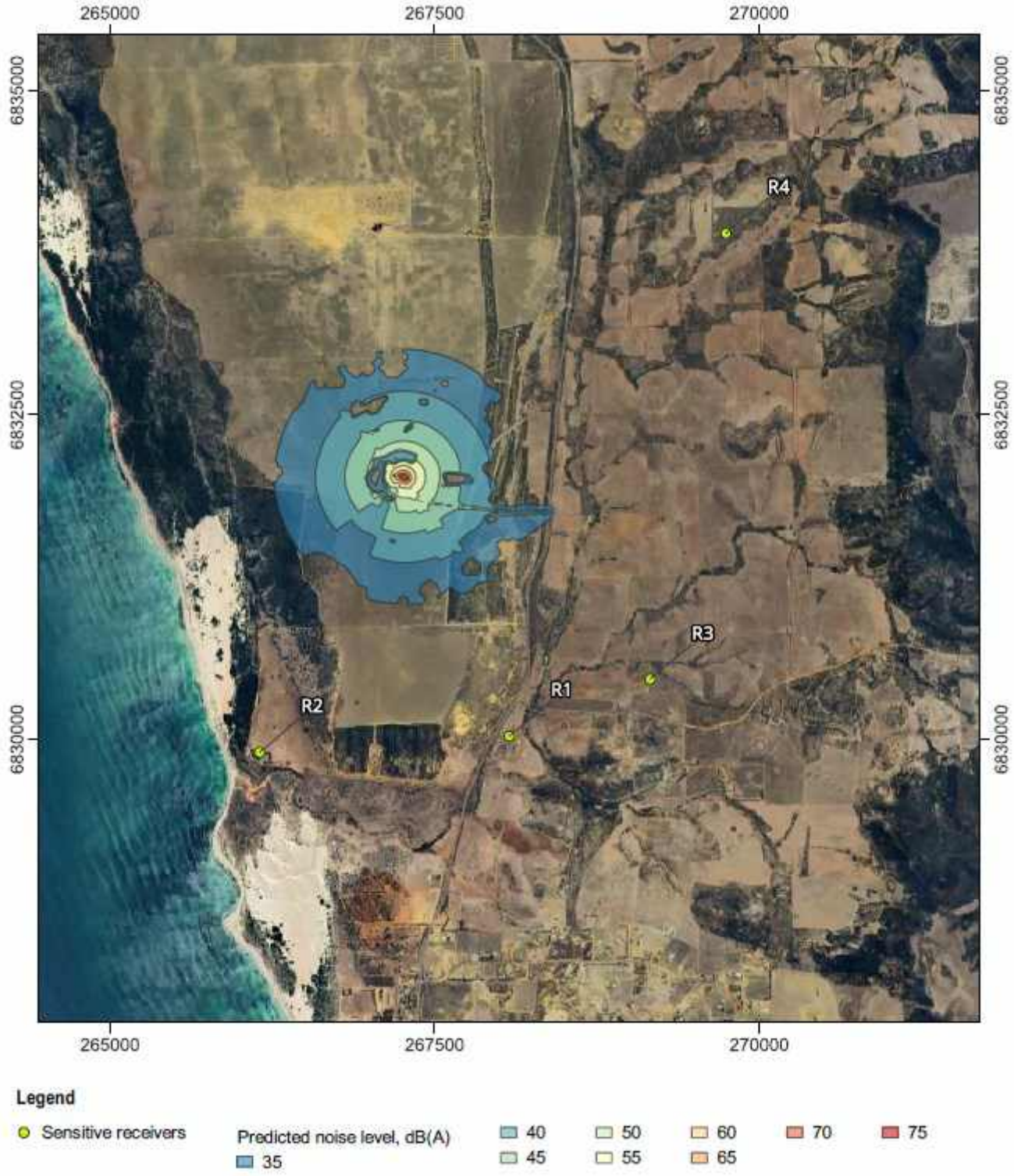

Figure 1 ***L_{A10} noise contours generated from Project Terra operations***

2.2 Discharges

2.2.1 Treated wastewater

Treated wastewater (generated from staff facilities) from the small wastewater treatment plant (WWTP) installed on the site will be discharge into the ground. The maximum discharge from the system is expected to be no more than 300 L/day during periods (20 to 30 days/year) where staff numbers peak (10 people). However during standard operations with fewer staff (6 people), the typical wastewater volume generated and discharged on the site will be only 180 L/day. Given the small volume of the wastewater discharge which will undergo further treatment as it passes through the underlying soil/sand strata before it could encounter groundwater (located at least 14 m BGL), the potential to contaminate and impact underlying groundwater is considered *de minimis*.

2.2.2 Contaminated runoff and spills

2.2.2.1 Site stormwater runoff

Stormwater runoff from the site if left unchecked has the potential to contaminate nearby surface water bodies with entrained sediments and other potential contaminants, and potentially contaminate soil and underlying shallow unconfined groundwater resources.

The Stormwater Management Plan (refer to Attachment 3B) proposed for the site (to cover both construction and operations) is for the pre-treatment (via a Water Quality Basin) of the potentially contaminated (with sediments, Ammonium Nitrate and diesel) stormwater runoff generated from the AN emulsion plant, container stacks, and domes, and diesel tank area. This shall provide pre-treatment of the stormwater runoff before discharging to the environment. Runoff from other areas (pervious areas, roads, buildings) of the site will be screened for solids and sediments as it passes through gross pollutant traps before it undergoes final treatment as it is discharge in a Detention Basin.

Most entrained contaminants in the stormwater runoff from the site will be removed from the proposed treatment system of bunding, gross pollutant traps, water quality, and water detention infiltration basins. The likely impact to nearby surface water bodies (Buller located 1 km East) and to underlying groundwater (located at least 14m BGL) resources is likely to be slight to minor.

2.2.2.2 Spills, ruptures, and loss of containment

In the event of any spills, ruptures or loss of containment, there is the potential to cause localised contamination to soil and underlying groundwater. At the Project Terra site, possible spills, ruptures, or loss of containment risk will come from diesel use and storage, and storage of AN, emulsifier, ANE, and intermediate products (Fuel Phase and ANSOL) used in the ANE manufacturing process (refer to Figure 3, Attachment 3B). The proposed Stormwater Management Plan for the site requires that these storage components are located within bunded areas of the site that will capture and divert an spills, ruptures, or loss of containment to pits/sumps before diversion to a water quality basin for containment. Any diesel spill or loss of containment within the possible HC contaminated catchment of the site will be captured using spill kits, and an inground hydrocarbon separator (SPEL Puraceptor) for treatment and discharge to the water quality basin. In the event of a spill, rupture, or loss of containment, the likely contamination impact will be contained within the bunded areas and localised in nature, with there being only being a slight risk to soil and groundwater resources.

2.2.2.3 Recommended monitoring and implementation

The performance monitoring of drainage elements is required to be completed to ensure the system is working efficiently. Key elements to be monitored include:

– Inlet and outlet structures are required to be ensured free of debris;
– Clean water and contaminated water are kept separated implementing the proposed management plans
– Sediment build up is not impending the drainage performance;
– Vegetation cover of the basins is to be maintained;
– Erosion process is not active;

– Litter is required to be removed;
– Weeds need to be controlled;
– Excessive hydrocarbons are not present in the drainage system;
– Soils are not compacted;
– Infiltration of stormwater is maintained;
– Flows are not excessively detained;
– Stormwater pipes are flowing freely.

Maintenance inspections should be conducted after a significant storm event. Testing of stormwater within the water quality basin should be conducted following a storm event. The inspections should also focus on ponding time for basins and scouring.

Water quality within the water quality basin should be tested after each storm event. If testing of stormwater within the basin identifies that it does not meet with water quality criteria (indicating the presence of AN contamination), a licenced contractor will be engaged to pump out the stormwater storage for disposal to an appropriate licenced receiving facility.

2.3 Waste

If waste is not appropriately managed within the ANF the following potential environmental impacts may occur:

– Contamination of surrounding soil, groundwater and surface water
– Poor on site waste category segregation resulting in cross-contamination of waste streams
– Poor visual amenity and landscape value
– Waste data collection and tracking information is insufficient to demonstrate effective waste management
– Community and stakeholder dissatisfaction

A detailed Waste Management Plan for the proposed ANF has been developed and is included in Attachment 8C. The Waste Management Plan includes proposed objectives, targets, management actions, and monitoring (refer to Table 7; Attachment 8C) for the handling of wastes generated at the ANF, which should ensure that any potential environmental/social impacts from wastes generated on the site being minor.

3. Risk assessment

An environmental risk assessment has been conducted for the potential emissions discussed in section 2, which are associated with the construction and operation of the Project. The risk assessment has been conducted in accordance with the DWER Guidance Statement: Risk Assessments (released by the then named Department of Environmental Regulation in 2017).

The following criteria (DWER, 2017) are used to determine the consequence (Table 2) and likelihood (Table 3) of a risk event occurring, with the resulting risk rating calculated using the risk rating matrix provided in Table 4.

The potential emissions, sources, pathways and receptors that have been identified for the construction and operation of the Project are outlined in Table 5. This table also identifies the potential impacts, proposed controls and associated risk ratings.

Table 2 Consequence descriptors

Consequence	Consequence description	
	Environment	**Public Health and Amenity**
Severe	– On-site impacts: catastrophic – Off-site impacts (local scale): high level – Off-site impacts (wider scale): mid level – Mid to long term or permanent impact to an area of high conservation value or special significance	– Loss of life – Adverse health effects: high level or ongoing medical treatment – Local scale impacts: permanent loss of amenity
Major	– On-site impacts: high level – 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	– Adverse health effects: mid level or frequent medical treatment – Local scale impacts: high level impact to amenity
Moderate	– On-site impacts: mid level – Off-site impacts local scale: low level – Off-site impacts wider scale: minimal	– Adverse health effects: low level or occasional medical treatment – Local scale impacts: mid level impact to amenity
Minor	– On-site impacts: low level – Off-site impacts (local scale): minimal – Off-site impacts (wider scale): not detectable	– Local scale impacts: low level impact to amenity
Slight	– On-site impacts: minimal	– Local scale impacts: minimal impacts to amenity

Table 3 Likelihood descriptors

Likelihood	Likelihood description
Almost certain	The risk event is expected to occur in most circumstances.
Likely	The risk event will probably occur in most circumstances
Possible	The risk event could occur at some time.
Unlikely	The risk event will probably not occur in most circumstances.
Rare	The risk event may only occur in exceptional circumstances.

Table 4 Risk rating 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

Table 5 Risk assessment of proposed activities to construct and operate the BOD facility

Risk Events					Proposed Controls	Consequence Rating	Likelihood Rating	Residual Risk Rating	Reasoning
Emission/Discharge/Waste	**Development Phase**	**Potential Pathway**	**Potential Receptors**	**Potential Adverse Impacts**					
Air emissions (including odour)	Construction Commissioning Operation	Air and wind dispersion	Nearby residential receptors Environmental receptors (flora & fauna)	Health and amenity impacts	None proposed	Slight	Almost certain	Medium	Refer to Section 2.1.1
Light emissions	Construction Commissioning Operation		Highway users Nearby residential receptors Environmental receptors (flora & fauna)		Refer to proposed controls outlined in Table 1	Minor	Unlikely	Medium	Refer to Section 2.1.2
Noise	Construction Commissioning Operation				None proposed	Slight	Almost certain	Medium	Refer to Section 2.1.3
Wastewater discharge	Operation	Seepage into soil and groundwater	Soil and groundwater	Soil, surface water, and groundwater contamination	Maximum wastewater discharge will only be 300 L/day	Slight	Almost certain	Medium	Refer to Section 2.2.1
Site stormwater runoff	Construction Commissioning Operation	Overland flow to nearby surface water bodies, seepage into soil and groundwater	Soil, surface water, groundwater		Development and implementation of a Construction Sediment Control Plan Bunding and capture of runoff from possible AN contaminated areas will be diverted to a lined water quality basin to store first flush contaminated runoff Bunding and capture of runoff from possible hydrocarbon areas for diversion to a hydrocarbon separator system for treatment and discharge to the water quality basin Capture and diversion of runoff from buildings (roofs), roads, and undeveloped areas to diversion channels/drains to a detention basin soil infiltration and treatment Monitoring of the drainage basins to assess their performance and respond accordingly	Slight	Possible	Low	Refer to Section 2.2.2.1
Spills, ruptures and loss of containment	Construction Commissioning Operation	Infiltration into soil and groundwater	Soil and groundwater	Localised contamination of soil and groundwater	Use of spill kits and isolation of any potential contamination from possible spills, ruptures and loss of containment via bunding in processing areas and diversion to hydrocarbon separator for treatment and/or diversion to a lined water quality basin.	Slight	Unlikely	Low	Refer to Section 0
Waste	Construction Commissioning Operation	No pathway	-	No impact – Solid waste will be removed off-site and will be recycled or transported to a waste management facility					Refer to Section 0

4. References

DWER. (2017). *Guideline for Risk Assessments.* Department of Environmental Regulation.

EPA. (1997). *Environmental Protection (Noise) Regulation.* Environmental Protection Authority .

Landcorp. (2012). *Oakajee Industrial Estate Structure Plan.* Government of Western Australia, Department of State Development. Retrieved from https://www.chapmanvalley.wa.gov.au/documents/217/geoak-2012-03-14-structure-plan-report-rps

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