Weston Aluminum
Additional Waste Streams

Environmental Impact Statement

Executive Summary

December 2022

EXECUTIVE SUMMARY

1 INTRODUCTION

Weston Aluminium Pty Ltd (WA) has been operating their resource recovery facility since 1998, located at 129 Mitchell Road, Kurri Kurri (Lot 2 DP 1267615) (refer **Figure 1**). The facility was originally established to recover aluminium from dross, which is a by-product of aluminium smelting, casting and remelt processes (primary and secondary aluminium production sectors). The site also remelts aluminium scrap onsite to produce deoxidant products which are used in the steel making industry. More recently, and as part of company diversification efforts, a dedicated thermal waste treatment plant was established on site.

WA is seeking to diversify the waste streams which may be received at the facility whilst ceasing the treatment of primary smelter drosses and spent pot lining (SPL) wastes (the Project). The proposed changes have been designed to meet shifts in the waste management market as well as provide much needed additional waste treatment capacity in NSW (Blue Environment, 2018). The Project involves the receipt of alternate waste types, along with conducting physio-chemical waste treatment within the Aldex building. To facilitate the Project internal upgrades to the current Aldex Building (so named in response to historical processing and beneficiation therein of non-metallic furnace ash residues termed 'Aldex') will be undertaken.

2 PROJECT SETTING AND EXISITNG OPERATIONS

2.1 Project Setting

The Project is located within the existing WA resource recovery facility. The site is located approximately 130 km north of Sydney and approximately 30 kilometres (km) west of Newcastle (Refer **Figure 1**). The site is approximately 6.6 hectares (ha) in size and lies between 12 and 16 m Australian Height Datum (AHD). The site is located within an existing industrial area to the north of Kurri Kurri and the east of Weston, approximately 700 m from the nearest residential area. The Project area comprises a single parcel of land known as Lot 61 DP 1237125. This parcel of land is owned by WA.

The facility is located within Cessnock City Council (CCC) local government area (LGA). Cessnock Shire is situated encompassing an area of around 1,950 square km (km^2), about

120 km north-of Sydney and 40 km west of Newcastle. With a population of 63,632 residents (ABS, 2022), the Shires' economy is built around coal mining, viticulture and tourism. The population of Weston is 4,088 with a median age of 37 (ABS, 2022). The population of Kurri Kurri is 6,173 with a median age of 38 (ABS, 2022).

The site is currently located on land zoned IN3 Heavy Industry under the *Cessnock Local Environment Plan 2011.* The IN3 zoning identifies development for the purpose of heavy industry and hazardous waste storage as permissible with consent. It is understood that changes to the standard instrument were passed in November, and this zoning will transition to E5 Heavy Industrial from the 1st December 2022. The permissibility of the activity remains unchanged with the changes to the standard instrument.

The Hunter Expressway (M15) is located 500 m to the north of the WA facility. Vehicles accessing WA will exit via the Loxford Exchange, travelling along Hart Road, Government Road and Mitchell Avenue before departing the site using the same route.

The site is void of vegetation, with some remnant vegetation located at the perimeter of the site and at the entry. The closest waterbody is Swamp Creek which is located 100 m to the north of the WA facility.

Figure: 1

Site Location

Weston Aluminium Resource Recovery Facility

129 MITCHELL AVENUE
KURRI KURRI, NSW 2327

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Source: Esri, HERE, Garmin, Foursquare, METI/NASA, USGS, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, USGS, NSW SS-SDS, 2021, NSW DFSI - 2022

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space URBAN

Space Urban Pty Ltd
ABN: 43 644 377 293

2.2 Existing Operations

The WA site currently operates under three Development Consents. Development Consent (DA 10397 of 1995) for the facility was granted by the Land and Environment Court of NSW on 30 August 1996. WA was subsequently granted Development Consent (DA 86-04-01) on 20 September 2001 for additions to the facility. These two approvals (now consolidated) have identical conditions of Consent and have been subject to 12 modification applications to allow various processing trials, and alterations and additions.

State Significant Development Consent (SSD 7396) was granted on 12 December 2018 for the construction and operation of the independent Thermal Processing Facility (TPF) at the WA facility. SSD 7396 has been modified once in 2020 to clarify the recycling process for residual ash and to remove any obligation to dispose of residual ash to landfill (allowing for onsite reprocessing and recycling of the residual ash).

WA is approved under its current Development Consents to process the following:

- Up to 40,000 tonnes per year as a combination of aluminium dross, SPL and pharmaceutical and illicit drug waste inputs through its rotary furnace operations;
- Up to 35,000 tonnes of scrap metal per year via trading and through its reverberatory furnace remelt operation; and
- Up to 8,000 tonnes per year of the following waste types within the Thermal Processing Facility:
    - Clinical and related waste;
    - Waste pharmaceuticals, drugs and medicines;
    - Waste from the production and preparation of pharmaceutical products;
    - Quarantine wastes; and
    - Other wastes (as permitted by the EPL).

WA holds Environment Protection Licence (EPL) 6423 issued in accordance with the *Protection of the Environment Operations Act 1997.*

All wastes are currently transported to the facility via road, enter the site via the existing weighbridge for recording, and are then directed to the appropriate location for unloading. Wastes are visually screened by operators and paperwork checked prior to unloading and receipt. Any non-conforming consignments are quarantined and re-directed back to the origin source.

Waste processing and production areas have historically been undertaken at three locations within the facility:

- Main Plant Building;
- Aldex Building; and
- Thermal Processing Facility.

Provided in **Figure 2** is a general layout of the Facility.

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space URBAN
Space Urban Pty Ltd
ABN: 43 644 377 293

Weston Aluminium Pty Ltd

ENTECH solutions

Figure: 2

Site Layout

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Source: Esri Community Maps Contributors, Geoscape, Esri, HERE, Garmin, Foursquare, METI/NASA, USGS, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, USGS, NSW SS-SDS, 2021, NSW DFSI - 2022

129 MITCHELL AVE, KURRI KURRI 2327

User: smithtl

Version 1

Date: 11/11/2022 10:11 AM

Scale: 1:3,000

0 15 30 45 60 75 Meters

3 PROJECT OVERVIEW

WA are seeking to further diversify wastes streams which can be stored and treated on site, and to cease the receipt, storage and processing of other wastes. In addition, WA is seeking approval to establish new physiochemical treatment technologies within the proposed development. The Project does not include an increase in waste tonnages (i.e., maintain activity within the combined 48,000 tonnes per annum). To facilitate the storage and treatment of additional waste streams, WA are seeking to repurpose the existing Aldex building. A summary of the Project is provided in **Table 1**.

Table 1 Project Summary

Project Element	Summary of the Project
Waste Types	Both DG classified wastes and non DG wastes will be managed at the facility.
Waste Tonnages	There will be no increase above the approved 48,000 tpa operational scale. Total waste tonnages for the Project will be 8,750 tpa.
Waste Transport	Waste will be delivered to the site via road utilising existing heavy vehicle routes.
Waste Storage	Wastes will be stored within the existing Aldex Building which will have internal alterations to meet dangerous goods storage requirements.
Waste Treatment	Wastes will be either treated through physio-chemical treatments or wastes will be consolidated into larger consignments for off site treatment.
General Infrastructure	A waste receival area covered by an awning and secured with chain mail fencing will be erected on the northern side of the building. A dedicated Non-DG decant area will also be established. Existing accessways, amenities, carparking, office areas and drainage will remain.
Fire Protection	Smoke and fire detection devices will be fitted within the Aldex Building. Fire protection will be achieved through the installation of fire hydrant systems, fire hose reels, portable fire extinguishers, fire sprinkler systems and the establishment of a building occupant warning system.
Operational Workforce	It is estimated that the Project will generate an additional 9 full time equivalent positions.
Hours of Operation	WA are currently licensed to operate 24 hours per day 7 days per week, with truck movements limited to 7 am to 10 pm Monday to Sunday. The Project does not propose to alter the current operating hours.
CIV	The CIV has been estimated at $3,296,470 excluding GST.

Key aspects of the Project include:

- Deletion of the Briquetting Plant from the Project Approval;
- Discontinuation of the storage and handling of DG Class 4.3 material (dross and spent pot linings (SPL)) within the Aldex Building;
- Repurposing of the Aldex Building to undertake new activities. These include:
    - Receipt and storage of various aqueous- and solvent-based liquid wastes (e.g. Class 3 flammables; paints, solvents, dyes, etc.) and other wastes currently approved for thermal treatment in WA's existing Thermal Treatment Facility;
    - Receipt, storage and consolidation (i.e. bulking) of other additional waste types for subsequent treatment onsite or alternatively for transfer to an offsite treatment facility;
    - Establishment of new physio-chemical treatment processes including chemical immobilization, solidification and neutralisation; and
- Discontinuation of the receipt, storage and processing of primary smelter drosses and SPL. Only small quantities of secondary aluminium dross (including dross generated by approved onsite scrap remelt operations) will continue to be received, stored and processed onsite, and only within the Main Plant Building.

The Project involves the internal reconfiguration of the Aldex building to provide for the storage and treatment of the additional waste streams. A partial re-build of the Aldex building within the former footprint is also required in response to fire damage which occurred in November 2021 (this is being achieved in conjunction with Cessnock City Council, independently of the current Proposal). An additional awning will also be erected adjacent to the northeastern boundary to allow for the safe receipt of the new waste streams.

The existing concrete bays located in the western portion of the building will be retained for bulk storage and used as treatment pits. The reconfigured area located at the eastern end will be purpose designed to store dangerous and non-dangerous goods and will be segregated from the western portion via an internal wall.

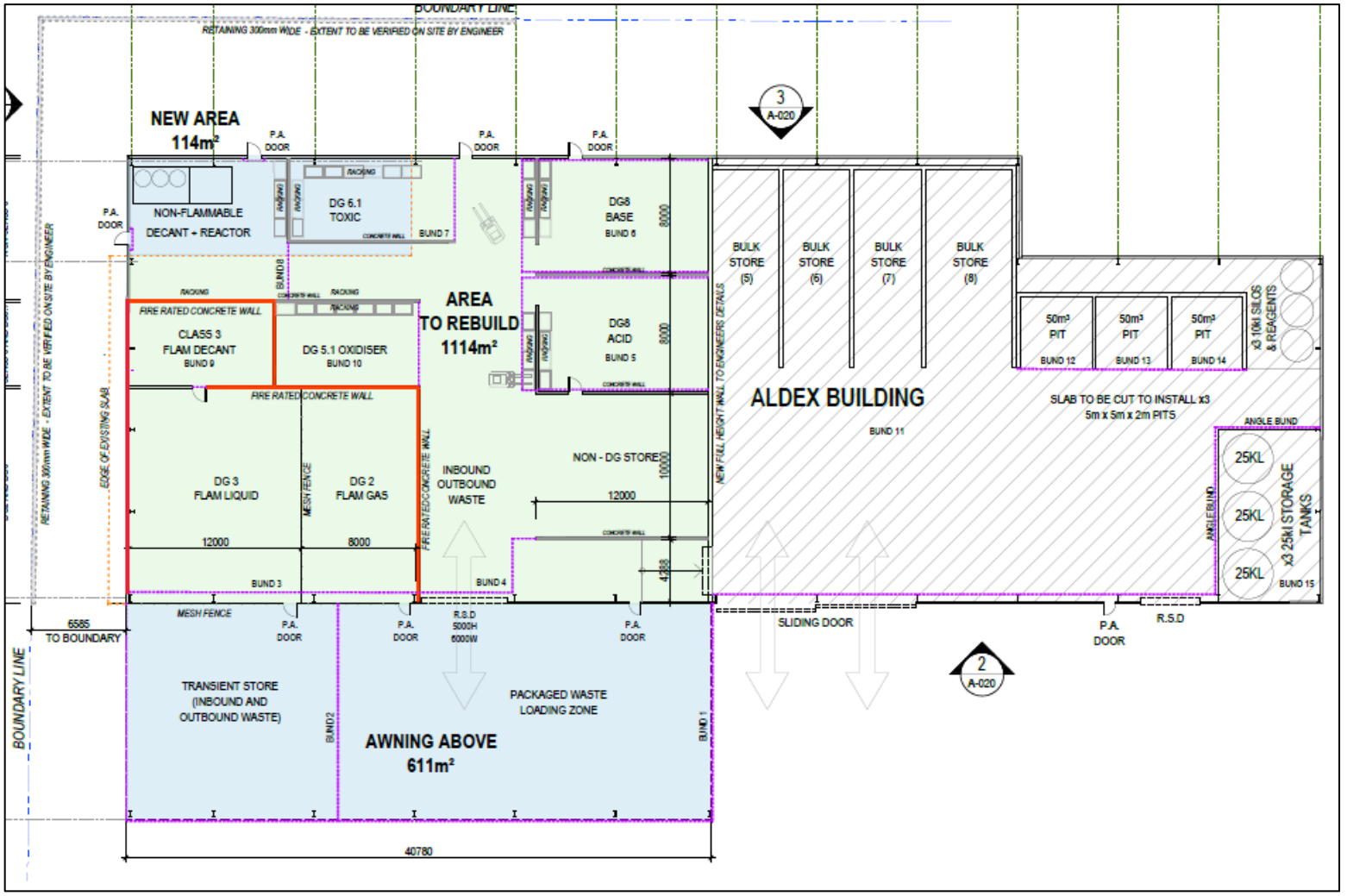
Alterations will be undertaken within the Aldex building to facilitate the Project which includes:

- Installation of a new full-height wall at the centre of the Aldex building with the establishment of a dedicated dangerous goods storage zone in the eastern portion;
- Installation of a new sliding door on the northern wall for bulk storage access;
- Installation of three 50 m^3 pits in the southwestern corner of the building;

- Establishment of three new 10 KL silos in the southwestern corner of the building for the storage of reagents;
- Establishment of three 25 KL storage tanks in the north-western corner for non-Dangerous Goods treatment;
- Establishment of dedicated dangerous goods storage areas in the eastern portion of the building;
- Installation of fire-rated concrete walls around Dangerous Good Class 2 and 3 waste storage areas;
- Installation of racking for the storage of Dangerous Good Class 8 wastes (acid and bases stored separately);
- Addition of Non-flammable (aqueous) and combustible waste decant and consolidation area at the south-eastern corner;
- Establishment of a Dangerous Good 6.1 storage area;
- Installation of a rollover bund at the entry of the flammable storage area; and
- Erection of an awning to the north eastern area of the building and installation of mesh fencing around the awning area.

The proposed building alterations and facility layout is illustrated in **Figure 3**.

Figure 3 Proposed Waste Storage Locations



3.1 Waste Management

The introduction of additional waste streams at the WA facility is in response to an increase in demand for licensed facilities to receive and treat regulated wastes in NSW. Wastes which will be sourced will be from a wide range of sources such as community regulated waste collections, construction, industrial, mining and defence. All waste delivered to site will be via road entering from Mitchell Avenue, utilising Government Road and Hart Road to access the Hunter Expressway via the Loxford Interchange. All wastes transported to the site would follow the EPA waste tracking and Dangerous Goods licencing requirements, as applicable. All vehicles transporting wastes are to be appropriately licenced in accordance with the *Dangerous Goods (Road and Rail) Transport Act 2008.*

All wastes which will be received, stored, treated and disposed through the facility will be undertaken in accordance with WA quality management system and will be tracked through the NSW waste tracking system. All handling and storage of dangerous goods wastes will be performed in accordance with the *Dangerous Goods (Road and Rail) Transport Act 2008.* All wastes will be inspected and weighed prior to being accepted on site. Any wastes which are found to non-conforming will not be accepted on site and will be returned to the waste generator.

Once accepted on site, deliveries will be directed to the unloading area located on the northern side of the Aldex building. A dedicated unloading area will be established, which will be fully covered with a new awning and secured by wire chain fencing and surrounded by bunding.

Wastes will be stored within the Aldex building in accordance with their dangerous good classification and physical properties. All wastes which are classified as flammable will be stored in dedicated storage areas which will be surrounded by fire rated concrete walls both internally and externally. The DG classes and quantities proposed to be stored and handled at any one time as part of the waste treatment operation within the building are summarised in **Table 2**.

Table 2 Dangerous Goods Storage Quantity

DG Class	Quantity (T)
2.1& 2.2	30
3	30
5.1	40
6.1	80
8 (acids)	80
8 (alkali)	80

Wastes which are received on site may be either treated on site through physio-chemical means or loads will be consolidated and dispatched for offsite treatment and disposal. Consolidation will involve the bulking of smaller loads into one large transport consignment.

Physio-chemical treatment of wastes will involve either immobilisation/solidification or neutralisation. Immobilisation / solidification involves the introduction of chemical reagents, which would convert the target contaminants contained in the waste so that they would be chemically stable and suitable for landfill disposal. Stabilisation or solidification would involve the mixing of cement (or other suitable solidification reagents), which would transform the waste into a stabilised form suitable for landfill disposal.

Chemical Neutralisation is a term where a particular chemical characteristic is neutralised to produce an inert by-product. The most common example is the neutralisation of waste acids and alkalis to produce a salty effluent. Other types of neutralisation target changes in the redox potential. It is proposed that small scale Chemical Neutralisation be undertaken, and focused largely on packaged waste.

Prior to final disposal, all wastes will be sampled and assessed to ensure that the applicable criteria is met (e.g., meets requirements of an immobilisation approval). There are three pathways in terms of waste disposal off site and one on-site disposal pathway, which include:

- Onsite thermal destruction (disposal);
- Offsite thermal destruction (disposal);
- Off site landfill (disposal); and
- Energy recovery (disposal pathway).

Those wastes which are not treated on site, but rather stored on site for consolidation will be transported via road adhering to the NSW waste tracking requirements. Those wastes which will be stored on site will remain until a full load can be achieved.

4 STATUTORY CONTEXT

Part 4, Division 4.7 of the EP&A Act specifically relates to the assessment of State Significant Development (SSD). Under Section 4.36 of the EP&A Act, a development is designated SSD if it is declared to be as such by any SEPP. The relevant SEPP for the declaration of the Project is the SEPP (Planning Systems) 2021 (Planning SEPP). Part 2.2 clause 2.6 1(b) of the Planning SEPP states that development may be declared an SSD if it is specified in Schedule 1 or 2.

Schedule 1 State significant development—general identifies the following activities:
23 Waste and resource management facilities

(5) Development for the purpose of hazardous waste facilities that transfer, store or dispose of solid or liquid waste classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste that handles more than 1,000 tonnes per year of waste.

As the Project is proposed to handle and store more than 1,000 tonne per year of solid and liquid waste classified as Dangerous Goods, the Project has been declared an SSD.

In accordance with Section 4.12 of the EP&A Act, a Development Application (DA) for an SSD must be accompanied by an EIS. The EIS must be prepared in accordance with Schedule 2 of the EP&A Regulation. Schedule 2 of the EP&A Regulation provides the framework by which an application is made to obtain assessment requirements to inform the preparation of an EIS and the requirement for consultation with relevant public authorities. Schedule 2 also provides form and content which must be included within an EIS.

To inform the content of the EIS, a request for SEARs from the Secretary of DPE is required. The SEARS specify the issues that must be addressed in the EIS. The SEARs for the Project were issued by DPE on 6 October 2021, and this EIS has been prepared in accordance with the SEARs.

5 CONSULTATION AND ENGAGEMENT

Engagement for the Project was informed by the Community and Stakeholder Participation Strategy, which identified key community and agency stakeholders, and the tools that would best be utilised to ensure effective communication outcomes. To date, there has been one

Project-specific community information session on the 17th November 2022. This was supplemented by Project flyer updates sent to specific community groups, local businesses, and residents. Issues which have been communicated to WA through this process have been documented and addressed in the EIS.

Engagement with government stakeholders has been undertaken as part of the preparation of the EIS for the Project, and consisted primarily of meetings and email correspondence. Issues which have been raised during the consultation process, including the submissions to the SEARs, have been considered and addressed in the EIS.

WA also maintains a company website which provides contact details and a 24/7 complaints phone number.

Consultation with Aboriginal community representatives was undertaken through the development of the Cultural Heritage Assessment, and included a site visit and inspection of the Project site.

6 IMPACT ASSESSMENT

A number of comprehensive technical investigations have been completed by appropriately qualified and experienced Specialists to ensure that potential environmental impacts associated with the Project (both positive and negative) are appropriately assessed. The investigations have also identified management measures to be implemented for the duration of the Project to avoid or mitigate the identified impacts.

The findings of the technical investigations are summarised in the main body of this EIS and are provided in full in the appendices. The following sub-sections provide an overview of the key findings.

6.1 Air Quality and Odour

An Air Quality and Odour assessment was prepared by Todoroski Air Sciences to assess the potential impacts on air quality associated with of the Project.

To assess the potential impacts, the existing climatic conditions and existing air quality were defined. Long-term climatic data from the Bureau of Meteorology weather station at Cessnock Airport Automatic Weather Station (Site No. 061260) was used to characterise the local climate in the proximity of the Project. The Cessnock Airport AWS is located approximately 13 km west-northwest of the Project.

The main sources of air pollutants in the area surrounding the Project include emissions from other industries within the local industrial area, local anthropogenic activities (such as

motor vehicle exhaust and domestic wood heaters) and commercial activities. Available data from the nearest air quality monitors operated by DPE were used to quantify the existing background levels for PM_{10}, $PM_{2.5}$, SO_2 and NO_2 pollutants at the Project site.

For the air quality assessment, the CALPUFF modelling suite was applied to dispersion modelling. The model was setup in accordance with the NSW EPA documents *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW EPA, 2021) and *Generic Guidance and Optimum Model Settings for the CALPUFF Modeling System for Inclusion into the 'Approved Methods for the Modeling and Assessments of Air Pollutants in NSW, Australia'.*

The 2020 calendar year was selected as the period for modelling the Project. This period was selected based on a review of the long-term meteorological and ambient air quality conditions representative of the prevailing conditions.

Odour emissions have the potential to be generated from the processing of waste materials at the Project. Generally, such odours may be present in the form of Volatile Organic Compounds potentially emitted from the activity. Due to the low potential emission rate and good dispersion, odour emissions were not considered further in the assessment.

Construction emissions were identified as being primarily associated with dust and vehicle emissions. It was concluded that the total amount of dust generated from the construction process is unlikely to be significant given the limited and short term nature of the construction activities.

The facility operates six stacks which service different parts of the facility. The Project entails processing waste in the Aldex Building, where emissions generated from the physio-chemical treatments would be ventilated via the existing Stack 7. Emissions generated from the Project were modelled based on the maximum tonnage of each waste material proposed to be processed at the site relative to the proposed total waste tonnage. As a conservative measure, the calculations for emissions for each pollutant emitted from Stack 7 assumed that all of the materials were solid.

The results indicate the maximum contribution from the existing and proposed Project at the worst affected off-site location would be below the relevant criteria for each of the assessed pollutants. These are provided in **Table 3.**

Table 3 Maximum Concentrations

Pollutant	Averaging period	Incremental impact due to Project and Existing Operations	Criteria
Sulfuric acid (H_2SO_4)	1-hour	9.0	18
Hydrogen Chloride (HCl)	1-hour	1.3	140
Ammonia (NH_3)	1-hour	2.69E-04	330
Antimony (Sb)	1-hour	5.24E-04	9
Arsenic (As)	1-hour	4.79E-04	0.09
Barium (Ba)	1-hour	1.08E-05	9
Beryllium (Be)	1-hour	6.52E-05	0.004
Boron (B) *	1-hour	1.08E-05	50
Cadmium (Cd)	1-hour	1.39E-02	0.018
Chromium (Cr) (VI compounds)	1-hour	2.34E-03	0.09
Chlorine (Cl)	1-hour	5.38E-05	50
Cobalt (Co) *	1-hour	6.52E-05	0.2
Copper (Cu)	1-hour	5.58E-04	18
Manganese (Mn)	1-hour	4.30E-03	18
Nickel (Ni)	1-hour	1.21E-03	0.18
Mercury (Hg)	1-hour	1.06E-03	1.8
Selenium (Se) *	1-hour	3.44E-04	2
Thallium (Tl) *	1-hour	1.08E-05	1
Tin (Sn) *	1-hour	1.58E-03	1
Vanadium (V) *	1-hour	1.10E-04	2
Dioxin and Furans	1-hour	2.46E-09	2×10^{-6}
Cyanide (CN)	1-hour	0.50	90
PAHs (as benzo[a]pyrene)	1-hour	0.55	0.4
TVOCs (as benzene)	1-hour	7.4	29
Zinc (Zn)	1-hour	4.55E-06	90

Management measures designed to minimise any dust generation during construction were proposed. Air quality monitoring and reporting will continue as per EPL and EERS requirements.

6.2 Traffic and Transport

A Traffic and Transport assessment was prepared by Intersect Traffic. The assessment was undertaken to determine the likely impact of the Project on the adjacent local road network.

The facility currently has a median separated entry/exit sealed access approximately 14 m constructed at grade with Mitchell Ave, which suitably caters for all heaving vehicle movements in and out of the facility. The proposal does not involve an increase in waste tonnages, however an additional 3 heavy vehicle deliveries have been considered in the assessment. All vehicles will enter and exit the facility via the existing access. This includes movements via the Loxford Interchange at the M14, Hart Road, Government Road and Mitchell Ave.

Traffic counts were undertaken in June 2022 at the intersection of Government Road/ Mitchell Ave. An annual growth rate of 1.5% was added to these volumes to determine the 2022 and 2032 mid-block peak hour traffic volumes.

The current local and state road network was assessed as operating well within the technical road capacities. It was concluded that the Project, together with predicted traffic growth, would not adversely affect the current capacity. Similarly, an assessment of the existing intersections using SIDRA modelling software would continue to perform at an acceptable level of service post Project.

The site is capable of accommodating all existing- and Project-forecast staff, contractor and delivery vehicle parking demands, and offsite parking will therefore not be required.

Lastly, it was concluded that the existing vehicular access to the site is able to cater for the largest vehicle entering the site and is constructed to a standard in excess of current requirements.

6.3 Noise and Vibration

A Noise and Vibration assessment was developed by Muller Acoustics. The assessment was prepared with reference to applicable noise and vibrations policies and guidelines.

To quantify the existing background noise environment of the area, unattended noise monitoring was conducted at two locations representative of the ambient environments surrounding the Project site. The selected monitoring locations were considered representative of surrounding residential receivers. The unattended noise survey was conducted by using two Svantek 977 noise analysers betweenFriday 29 July 2022 and Monday 8 August 2022.

A computer model was developed to quantify Project noise emissions at neighbouring receivers using DGMR (DMGR Software, 2022) noise modelling software. The model incorporated a three-dimensional digital terrain map giving all relevant topographic information used in the modelling process. Additionally, the model uses relevant noise source data, ground type, attenuation from barrier or buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers.

The noise assessment quantified operational noise levels at the nearest residential receivers. Predicted noise levels at all receivers are expected to comply with the Project Noise Trigger Levels under this worst-case operational assessment scenario (refer **Table 4**).

Table 4 Project Noise Emissions

Receiver ID	Predicted Noise Level dB $LA_{eq(15\ min)}$			PNTL dB $LA_{eq(15\ min)}$			Compliant
	Day	Evening	Night	Day	Evening	Night	
R01	35	37	35	47	43	37	✓
R02	37	38	34	47	43	37	✓
R03	41	41	40	47	43	37	✓
R04	41	43	43	52	48	43	✓
R05	38	40	40	52	48	43	✓
Other Receivers							
Rec No.	Period			Predicted Noise Level dB $LA_{eq(15\ min)}$		PNTL dB $LA_{eq(15\ min)}$	Compliant
IN01	When in use			54		68	✓
IN02	When in use			52		68	✓

Receiver ID	Predicted Noise Level dB $LA_{eq(15\ min)}$	PNTL dB $LA_{eq(15\ min)}$		Compliant
IN03	When in use	48	68	✓
IN04	When in use	45	38	✓

In assessing maximum noise events, typical LAmax noise levels from transient events were assessed at the nearest residential receivers. For the sleep disturbance assessment, a sound power level of 115dBA for a metal impact noise onsite was adopted for maximum noise level (LAmax) events during the night period. Results identify that the maximum noise trigger levels will be satisfied for all assessed receivers.

Results of modelled construction noise emissions for the proposed development predicted that emissions from construction are below the noise management levels at all receivers.

Mitigation of any construction- and operational-related noise will be managed through the development of a Construction Environmental Management Plan, and an update of the site's Operational Environmental Management Plan.

6.4 Soils and Water

A surface impacts assessment was prepared by Royal Haskoning which included a flooding impact assessment. The assessment considered the current environment and existing controls on site and identified any potential impacts to surface water and flooding and soils.

Swamp Creek is the primary receiving watercourse located north of the site. Swamp Creek is located within the Fishery Creek Catchment. Previous studies found that within this catchment there has been a decline in the stream water quality in addition to a reduction in diversity of native animals and plants.

Available water quality sampling data from surface water has been collected as part of the annual sampling requirement from the Main Pond required by the EPL. Applicable water quality criteria were considered as either trade waste discharge or on-site reuse (i.e there is no offsite discharge).

To assess the potential impacts on surface waters of the Project, the following aspects were considered:

- Existing site water management systems;
- The current site balance compared to the future balance after the Project;
- The potential of the proposal to impact surface water quality on or leaving the site;
- Risks associated with flooding events; and
- Stormwater management systems recommended for the development.

The existing site stormwater system generally follows the philosophy of segregating 'clean' and 'dirty' surface water flows but are combined in the Main Pond for pumping for reuse or discharge to sewer. The Main Pond has a total design storage capacity of 650 m^3, which has been enlarged through the height extension of the pond batter walls with geotextile-lined clay material. The site is connected to the Hunter Water sewer system and discharges the collected stormwater runoff (in addition to process trade waste) under a Trade Waste Agreement.

The proposed new Aldex Building will be fully contained with all operations being carried out undercover and protected from rainwater ingress by roofs and awnings, building walls, bunds and kerbing. As such, there is not expected to be any exposure of rainwater to waste products, or storage and processing areas introduced by the proposal.

A water balance was prepared for the Project which considered stormwater, potable and trade waste flows. To summarise the key outputs of the comparison between the existing and proposed water balance:

- The site's potable water demand is expected to increase by approximately 1.8 ML/year;
- Trade waste discharges are expected to increase by up to 1.8 ML/year; and
- There will be no change to surface water flow quantities in the Main Pond.

The Flooding Assessment was undertaken using a TUFLOW hydraulic model with inflows hydrographs applied from the Swamp Creek Floodplain Risk Management Study. The model was used to assess flood impacts on the proposed development and neighbouring properties related to the development. Impacts were assessed for the 100-, 200-year Average Recurrence Interval (ARI) and Probable Maximum Flood (PMF) events, considering the existing (prior to fire damage) and fully developed scenarios. The assessment concluded that the impact of the development is considered insignificant, with the development not impacting flood levels in a 200-year event or smaller, and in an extreme event, impacts are minor and localised.

A Preliminary Site Investigation (PSI) was prepared in accordance with Schedule B2 of the *National Environmental Protection Measure* and Guidelines for Consultants Reporting on

Contaminated Land. A review of the site's history was undertaken through the review of the following sources:

- Local government records;
- Historical aerial photographs (earliest being taken in 1951);
- Previous reports; and
- Regulatory database searches.

A site inspection was also undertaken with observations noted to supplement the desktop review. Based on the information which could be obtained for the site relating to contamination, a conceptual site model (CSM) was prepared for the site. It was concluded that likelihood of harmful contamination within the soil underlying the Aldex building was considered low.

6.5 Human Health

A Human Health Risk Assessment (HHRA) was prepared by EnRiskS for the Project. The HHRA sought to determine any potential risks to human health as a result of the Project, and documented appropriate management measures.

The HHRA also documented measures which will be implemented on site to protect WA employees and contractors. WA will implement their comprehensive Standard Operating Procedures which provide details on the identification and management of risks to workers and operations. Furthermore, all personnel will be required to wear appropriate personal protective equipment as appropriate to the task being undertaken.

The HHRA drew upon the air emission modelling prepared for the Project. The source of exposure was assumed to be through either inhalation of particulates as well as multiple pathway exposures (ie, dermal contact, inhalation or ingestion) from a range of potential contaminants associated with particulate emissions.

For inhalation pathways, the assessment focused on fine particulates, namely $PM_{2.5}$, which are small enough to reach deep into the lungs and have been linked with, and shown to be causal, for a wide range of health effects. Inhalation of sulphur dioxide, nitrogen dioxide and carbon monoxide were also assessed.

The HHRA concluded that both scenarios based on the evaluation presented in relation to potential health impacts of air emissions from the Project, are negligible or low and acceptable.

6.6 Hazards and Risks

A Preliminary Hazard Assessment (PHA) was prepared by RiskCon for the Project. The PHA estimates the cumulative risks from the existing and proposed development, to determine the level of risk to people, property and the environment at the proposed location and in the presence of controls.

The Multi-Level Risk Assessment approach published by the NSW Department of Planning and Environment, has been used as the basis for the study to determine the level of risk assessment required. Based on the type of DGs proposed to be stored and handled at the Facility, a Level 2 Assessment was selected for the Site. This approach provides a qualitative assessment of those DGs of lesser quantities and hazard, and a quantitative approach for the more hazardous materials to be used on-site. This approach is commensurate with the methodologies recommended in “Applying SEPP 33’s” Multi Level Risk Assessment approach.

The first stage of the PHA was to identify hazards. Each hazard is identified in detail and no hazards were eliminated from the assessment by qualitative risk assessment prior to detailed hazard assessment section of the PHA.

The following hazards were identified:

- Flammable Liquid or Gas Release, Delayed Ignition and Flash Fire or Explosion;
- Flammable Material Spill, Ignition and Fire;
- Decanting Release, Ignition and Flash Fire or Explosion;
- Decanting Release, Ignition and Pool Fire;
- Dangerous Goods Liquid Spill, Release and Environmental Incident;
- Entire Building Fire and Radiant Heat;
- Entire Building Fire and Toxic Smoke Emission
- Warehouse Fire, Sprinkler Activation and Potentially Contaminated Water Release; and
- Neutralisation Reaction, Exothermic Reaction and Escalation.

As the storage of DGs are within areas of the Aldex building surrounded by fire rated walls, all flammable contours were within the boundary of the site. Therefore, no hazards were considered likely and hence not considered further in the PHA.

6.7 Fire and Incident

The assessment of fire and incident management was documented through the development of a Fire Safety Study (FSS), prepared by RiskCon. The scope of the FSS was

to assess the potential hazards at the site to ensure that the existing and proposed fire protection systems are commensurate with the identified hazards.

The fire safety systems at the site were split into four main categories:

- Fire Prevention – systems, installed to prevent the conditions that may result in initiating fire;
- Fire Detection – systems installed to detect fire and raise alarm so that emergency response can be affected (both evacuation and firefighting);
- Fire Protection – systems installed to protect against the impacts of fire or explosion (e.g. fire walls); and
- Fire Mitigation – systems installed to minimise the impacts of fire and to reduce the potential damage (e.g. fire water application)

Each category was reviewed with respect to the existing systems incorporated into the design and those to be provided as part of the recommendations.

Fire protection at the WA facility will be achieved through:

- The control of ignition sources;
- Separation of Dangerous Goods classes;
- Housekeeping practices;
- Work practices;
- Implementation of Emergency Plan; and
- Maintenance of a high level of site security.

Detection measures to be implemented include the timely detection of leaks and spills through routine inspections, and via smoke and fire detection devices fitted within the Aldex Building. Furthermore, fire protection will be achieved through the installation of fire hydrant systems, fire hose reels, portable fire extinguishers, fire sprinkler systems and the establishment of a building occupant warning system. Fire mitigation will be achieved via access to street mains fire water supply, which will be supplemented with on sire firefighting equipment.

To assess the likely fire brigade response times, an indicative assessment of fire brigade intervention has been undertaken based on the methods defined in the Fire Brigade Intervention Model (FBIM). Inputs into the FBIM include:

- Time between Ignition and Detection;
- Time for initial Brigade Notification;
- Time to dispatch resources;

- Time for initial determination of fire location;
- Time to assess the fire;
- Time for water setup; and
- Time for search and rescue.

Four possible fire scenarios were considered along with the expected actions to be undertaken by building occupants and Fire and Rescue NSW (FRNSW). Through determination of the possible fire scenarios, the fire safety systems can be assessed to establish if they are adequate for fire brigade intervention.

The FSS also assessed the current hydrant system to ensure that it meets the minimum requirements of the relevant standards. The results of the analysis show that at the required 30 L/s, the system will operate all hydrants at pressures exceeding 250 kPa, and with total friction losses below the 150 kPa limitations (of AS 2419-2017), and will therefore be compliant.

It was also necessary to review the facility against the FRNSW Fire Safety in Waste Facilities Guidelines. The review concluded that the site was compliant with the guidelines with the fire protection measures which are proposed.

The analysis performed in the FSS was based on credible fire scenarios to assess whether the protection measures at the site were adequate to combat the potential hazards associated with the proposed quantities and types of commodities being stored. Based on the assessment, it was concluded that the proposed designs, in conjunction with existing fire protection, adequately managed the risks.

The FSS provided a number of mitigation measures, including training, operational procedures, spill kits and fire fighting equipment. It was also recommended to undertake a detailed hydraulic and pressure loss analysis to demonstrate compliance with AS 2419.1-2005.

6.8 Greenhouse Gas

A Greenhouse Gas Assessment was prepared by Todoroski Air Sciences for the Project.

Scope 1 and 2 GHG emission sources identified for the existing operations as well as that forecast the Project are the on-site combustion of diesel fuel, combustion of natural gas and on-site consumption of electricity. Scope 3 emissions have been identified as resulting from the purchase of diesel, natural gas, electricity for use on-site and the transport of product material.

Table 5 summarises the estimated cumulative annual CO_2-e emissions due to both Project activities and existing operations.

Table 5: Summary of Forecast Facility Greenhouse Gas emissions (t CO_2-e)

Type	Scope 1	Scope 2	Scope 3
Diesel	709	-	36
Electricity	-	3,309	293
Natural gas	4,966	-	1,262
Transport of product – Existing	-	-	98
Transport of product – Project	-	-	21
Total	**5,675**	**3,309**	1,712

Table 6 summarises the emissions associated with both the existing operations and Project activities based on Scopes 1, 2 and 3.

Table 6: Summary of Forecast Facility Greenhouse Gas emissions per scope (kt CO_2-e)

Period	Scope 1	Scope 2	Scope 3
Annual	5,675	3,309	1,712

The estimated annual greenhouse emissions for Australia during 2021 was 501.5 million tonnes of carbon dioxide equivalent (Mt CO_2-e) (Department of Industry, Science, Energy and Environment., 2022). In comparison, the estimated annual average greenhouse emission for the Project is 0.009Mt CO_2-e (Scope 1 and 2). Therefore, the annual contribution of greenhouse emissions from the Project in comparison to the Australian greenhouse emissions for the 2019 period is estimated to be approximately 0.002 per cent (%).

6.9 Aboriginal Heritage

An Aboriginal Cultural Heritage Assessment was prepared by Myall Coast Archaeology in consultation with a representative of Wonnaruah Traditional Owners. The assessment included a review of desktop information and was informed by a site visit (accompanied by Aboriginal representatives) and a review of the proposed development on site. Due to the minimal surface disturbance and the lack of cultural significance attached to the current site, it was concluded that potential impact was negligible, and that further assessment was not warranted.

6.10 Biodiversity

A Biodiversity Diversity Assessment Report waiver request was prepared for the Project, which was granted on 10 November 2022.

7 SOCIAL IMPACTS

A standard Social Impact Assessment (SIA) was prepared for the Project, which was informed through the social impact scoping tool. Ten key project activities were identified as potentially causing a social impact. Of the ten risks, six were determined as potentially negative, with four being positive (relating to the removal of primary dross and SPL storage and treatment on site, employment and capital investment).

The existing social baseline was established through the analysis of available data. The SIA reviewed the local area of Kurri Kurri / Weston as well as the Cessnock LGA.

The Phase 2 of the SIA assumes that the Project will implement no mitigation or enhancement measures. Identified non-enhanced impacts related to:

Positive:

- Health and Well Being – provide a facility to safely and securely receive, store, treat and dispose of regulated wastes. Cessation of primary dross and SPL handling;
- Livelihood - business diversification and ongoing operations will secure future employment for employees and contractors – resulting in positive flow on economic benefits; and
- Community - The CIV for the Project will be in the order of $3.29M. This local investment will continue to offer a valuable waste management service along with the continued employment of WA staff and contractors.

Negative

- Access – the Project will continue to use local roads and transport routes (however there is no increase in waste tonnages); and
- Health and Well Being – there are risks to employees and the community associated with regulated waste management.

Each risk was then in turn assessed upon the assignment of management and mitigation measures. It was concluded that mitigated negative risk posed a low to medium residual risk. Positive risks were determined as high.

WA will continue to engage with all stakeholders and will seek further improvements at the Facility, where warranted.

8 JUSTIFICATION AND CONCLUSION

Potential Project impacts have been assessed by specialists in their respective areas of expertise. The EIS proposes a comprehensive set of management measures to mitigate or offset adverse impacts resulting from the Project.

The Project is consistent with the principles of Ecologically Sustainable Development as it does not exploit natural resources unsustainably, it has been based on economic and environmental considerations, and the likely environmental impacts of the Project are well understood and predictable.

The suitability of the site is considered optimal as it is located within an existing resource recovery facility and situated within a heavy industrial zoning. The site is well connected to major transport routes. The development of the Project will allow for the continuation of employment and WA employees and provide an opportunity for employment growth and capital investment.

The Project will provide additional, high-demand capacity in the management of regulated wastes in NSW which is very much needed both now and into the future. Through the diversification of the WA business by management of additional waste streams, it will have the ability to provide a valuable community service waste management service. The Project is strategically aligned with government policy of reducing wastes sent directly to landfill, minimising illegal dumping, creating employment opportunities and investing in future infrastructure.