

# northstar

## AIR QUALITY



This document has been prepared on behalf of **Sell & Parker Pty Ltd** by:

**Northstar Air Quality Pty Ltd,**

**Suite 1504, 275 Alfred Street, North Sydney, NSW 2060**

[www.northstarairquality.com](http://www.northstarairquality.com) | Tel: +61 (02) 9071 8600

### **Kings Park Metal Resource Facility**

### **Greenhouse Gas Assessment**

Addressee(s): **Sell & Parker Pty Ltd**

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Legislation, Regulation and Guidance	Final	Northstar	MD, GCG	MD
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## Report Status

Northstar References		Report Status	Report Reference	Version
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## Final Authority

This report must be regarded as draft until the above study components have been each marked as final, and the document has been signed and dated below.



**Martin Doyle**

**24<sup>th</sup> July 2020**

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## Non-Technical Summary

On behalf of Sell & Parker Pty Ltd, Northstar Air Quality Pty Ltd was engaged by Arcadis Australia Pty Ltd to perform an Greenhouse Gas Assessment, to support an EIS for the proposed expansion of the existing Resource Recovery Facility (RRF) operations from 350 000 to 600 000 tonnes per annum at the existing Kings Park Facility.

This Greenhouse Gas Assessment presents an assessment of the potential greenhouse gas emissions which may result during the operation of the Proposal.

The prediction of potential impacts, associated with the Proposal's operational activities, has been performed adopting greenhouse gas emission factors, as outlined within the National Greenhouse Accounts Factors Workbook, 2019. Greenhouse gas emissions associated are anticipated to represent less than 0.023% of total NSW GHG emissions in 2018 and less than 0.006% of total Australian GHG emissions in 2019. These have been assessed to be insignificant.

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## Units Used in the Report

All units presented in the report follow International System of Units (SI) conventions, unless derived from references using non-SI units. In this report, units formed by the division of SI and non-SI units are expressed as a negative exponent, and do not use the solidus (/) symbol. *For example*, 50 micrograms per cubic metre would be presented as  $50 \mu\text{g}\cdot\text{m}^{-3}$  and not  $50 \mu\text{g}/\text{m}^3$ .

## Common Abbreviations

Abbreviation	Term
CO <sub>2</sub> -e	carbon dioxide equivalent
DoEE	Department of Environment and Energy
EPA	Environmental Protection Authority
ESS	Energy Savings Scheme
DISER	Department of Industry, Science, Energy and Resources
DP&E	Department of Planning and Environment
GHG	greenhouse gas
kWh	kilowatt hour
m <sup>2</sup>	square metre
NGA	National Greenhouse Accounts
OEH	NSW Office of Environment and Heritage
PV	photovoltaic
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SSD	State Significant Development
WRI	World Resources Institute
WSEA	Western Sydney Employment Area

## 1. INTRODUCTION

On behalf of Sell & Parker Pty Ltd, Arcadis Australia Pty Ltd (Arcadis) has engaged Northstar Air Quality Pty Ltd (Northstar) to perform a Greenhouse Gas Assessment (GHGA) for the proposed expansion of the existing resource recovery facility (RRF). The applicant is seeking approval to increase the throughput limit of the RRF from 350 000 to 600 000 tonnes per annum (tpa) (the Proposal).

### 1.1. Project Background

Sell and Parker (S&P) purchase, sell and recycle all types of ferrous and non-ferrous metals. Their facilities are located strategically throughout NSW and Australia. S&P currently own and operate a resource recovery facility (RRF) at 23-43 and 45 Tattersall Road, Kings Park (the Proposal site). This RRF currently operates under approval SSD 5041 and three associated modifications (the Original Approval)<sup>1</sup>.

- Original Approval: <https://www.planningportal.nsw.gov.au/major-projects/project/5191>

S&P is seeking approval to increase the throughput limit of the RRF from 350 000 to 600 000 tonnes per annum (tpa) (the Proposal). Approval for the Proposal is sought as State Significant Development (SSD) under Part 4, Division 4.7 of the *Environmental Planning and Assessment 1979* (EP&A Act).

The existing infrastructure at the Proposal site has the capacity to accommodate an increased throughput without altering the approved operational hours or requiring any construction works on the Proposal site.

The Proposal would assist in achieving the higher recycling contamination standards prescribed by China's National Sword Policy as well as further reducing the volume of scrap metal that goes to landfill.

### 1.2. Key Terms

The key terms are outlined in **Table 1**.

**Table 1 Terminology**

Term	Description
The Original Approval	The approved Environmental Impact Assessment for SSD 5041 (and subsequent modifications)
The Proposal	The proposal for which approval is being sought, namely the expansion of Kings Park metal recycling and processing facility
The Proposal site	The Sell and Parker Premises at 23-43 and 45 Tattersall Road, Kings Park NSW. The area at which the Proposal would be located incorporates the following lots:

<sup>1</sup> Original Approval: <https://www.planningportal.nsw.gov.au/major-projects/project/5191>

Term	Description
	<ul style="list-style-type: none"> <li>Lot 2, DP 550522</li> <li>Lot 5, DP 7086.</li> </ul>

### 1.3. Referenced Guidance

To allow assessment of the level of risk associated with the Proposal in relation to air quality, the GHGA has been performed with due reference to:

- National Greenhouse and Energy Reporting (Measurement) Technical Guidelines (NGER Technical Guidelines);
- Guidelines for Energy Savings Action Plans (DEUS 2005)

### 1.4. Secretary's Environmental Assessment Requirements

NSW Department of Planning, Industry and Environment (DPIE), issued the Planning Secretary's Environmental Assessment Requirements (SEARs) for the Proposal in December 2019. **Table 2** below identifies the SEARs relevant to this GHGA report and the relevant sections of the report in which they have been addressed.

**Table 2 Secretary's Environmental Assessment Requirements (SSD 10396)**

Agency / Issue	Requirement	Addressed
DPIE	The EIS must address the following specific measures: <ul style="list-style-type: none"> <li>Air Quality and Odour – including:               <ul style="list-style-type: none"> <li>a greenhouse gas assessment</li> </ul> </li> </ul>	This report



## 2. THE PROPOSAL

The following provides a description of the context, location, and scale of the Proposal, and a description of the processes and development activities on site.

### 2.1. Proposal Site

The Proposal site is situated within the Blacktown Local Government Area (LGA) approximately 40 kilometres (km) north-west of the Sydney Central Business District (CBD) and around 3 km from Blacktown CBD. The local area is characterised by general industrial development.

Access is from Tattersall Road, to which the Proposal site has approximately 240 metres (m) of frontage. Tattersall Road is a two-lane road which connects to Sunnyholt Road to the east, and Vardys Road to the north-west, both of which are four lanes. Sunnyholt Road connects in turn to the M7, 1.2 km to the north of the Tattersall Road intersection. The area of the Proposal site is approximately 6.4 hectares (ha).

The location of the Proposal site is shown in **Figure 1**. An aerial view of the Proposal site is shown in **Figure 2**.

### 2.2. Proposal Description

The Proposal would be considered SSD under Clause 23 (waste and resource management facilities) of Schedule 1 of the State Environmental Planning Policy (State and Regional Development) 2011, and therefore requires the preparation of an EIS prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) No. 10396 (see **Section 1.4**).

The Proposal is to increase the maximum scrap metal processing throughput at the Proposal site from 350 000 to 600 000 tpa.

The existing infrastructure at the Proposal site has the capacity to accommodate the increased throughput. The Proposal would not require any construction works and would not change the mix of materials currently received at the RRF (i.e. it is an operational approval only). However, adjustments to site management practices would be required in terms of internal vehicle movements and stacking locations to allow the increased throughput.

The Proposal would utilise existing road infrastructure, other utility installations and stormwater discharge points.

The operation of the Proposal site would employ up to 119 employees with 79 being on site at the RRF at any one time. The approved operational hours for the existing RRF are outlined in **Table 3**.

Figure 1 Location of the Proposal site

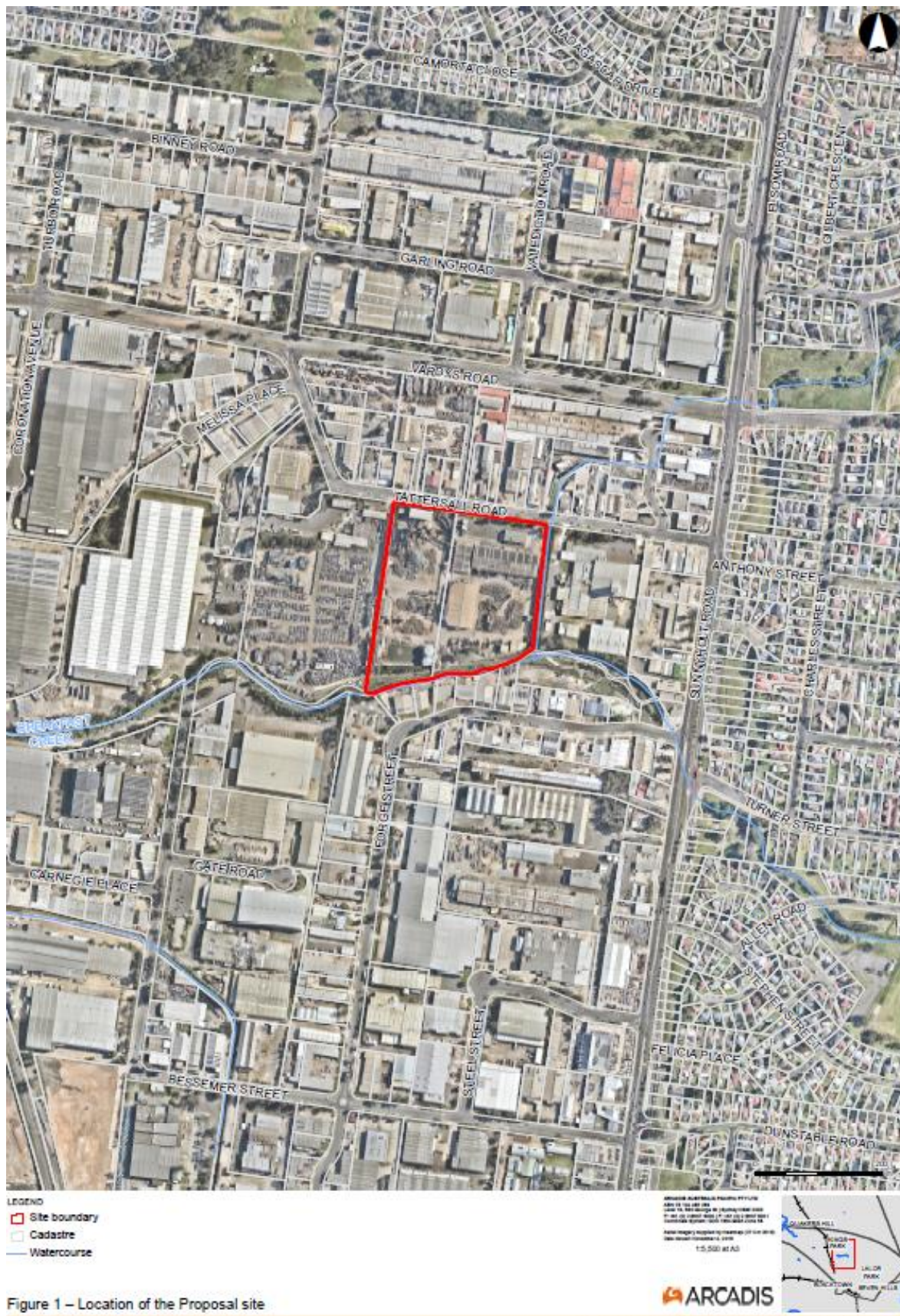


Figure 1 – Location of the Proposal site

Source: Arcadis





**Table 3    Approved operational hours**

Activity	Day	Hours
Oxy-acetylene torch cutting	Monday to Saturday	9 am to 3 pm
	Sunday and public holidays	Nil
Maintenance and cleaning	Monday to Saturday	9 pm to 6 am
	Sunday	24 hours
All other activities	Monday to Saturday	6 am to 9 pm
	Sunday and Public Holidays	Nil

The hours of operations at the RRF would not change as a result of the Proposal.

### 2.2.1.    Construction

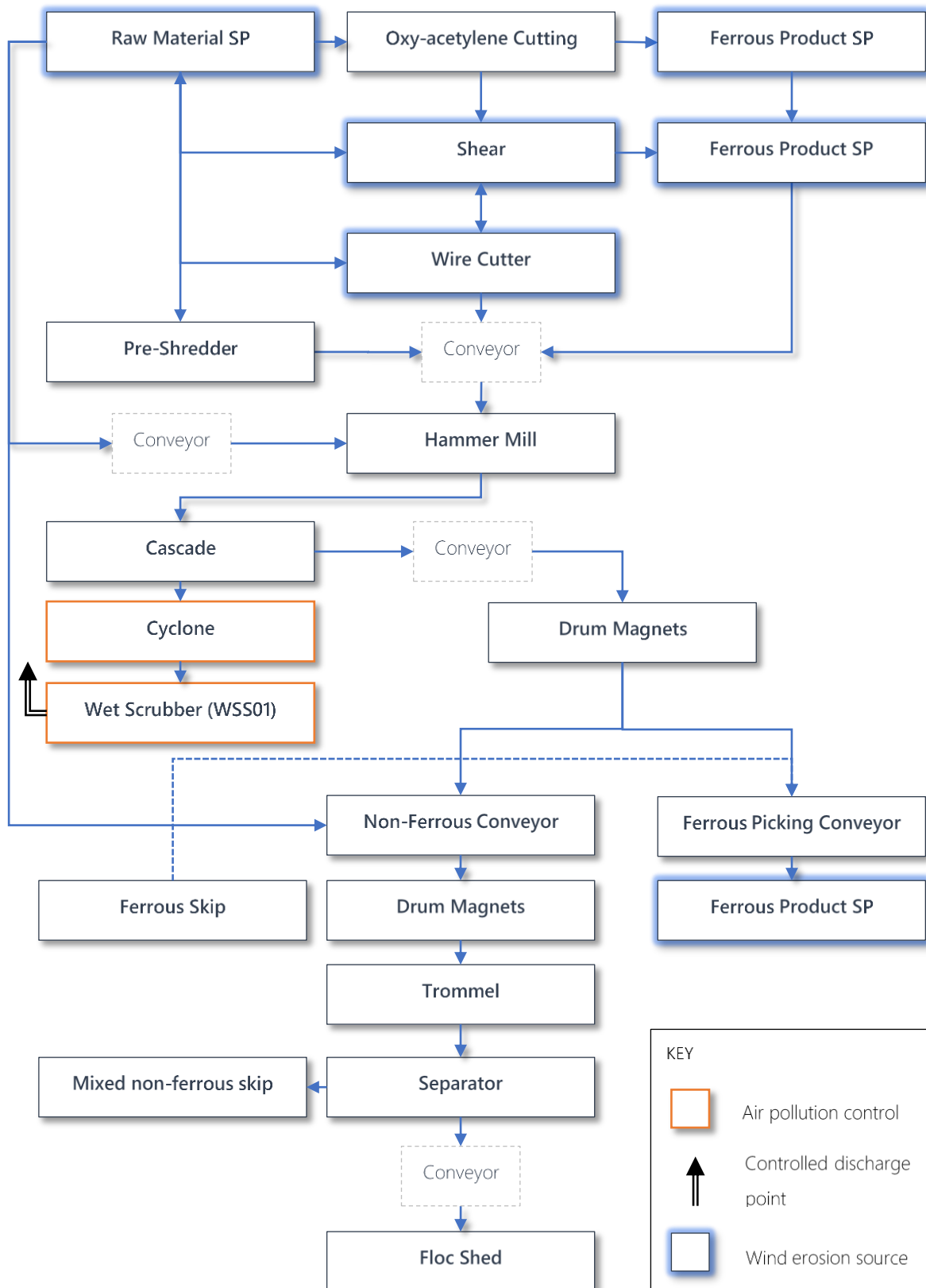
As noted above, the Proposal would utilise existing approved infrastructure. Therefore, no construction activities would be required as part of the Proposal.

### 2.2.2.    Operation

The Proposal would facilitate an increased throughput limit from 350 000 to 600 000 tpa of scrap metal.

It is understood that the scrap metal processing is generally in accordance with the stylised flow diagram presented in **Figure 3**.

Figure 3 Process flow diagram



Source: Northstar

### 2.2.3. Plant and Equipment

The existing plant and equipment would be utilised as part of the Proposal. Therefore, there would be no changes to plant and equipment, or their location.

## 3. LEGISLATION, REGULATION & GUIDANCE

### 3.1. Federal Legislation

The Australian Government Clean Energy Regulator administers schemes legislated by the Australian Government for measuring, managing, reducing or offsetting Australia's carbon emissions.

The scheme administered by the Clean Energy Regulator of most relevance to this Proposal is the National Greenhouse and Energy Reporting (NGER) Scheme, under the *National Greenhouse and Energy Reporting Act* (2007) (NGER Act).

#### 3.1.1. National Greenhouse and Energy Reporting Scheme

The NGER scheme, established by the NGER Act, is a national framework for reporting and disseminating company information about greenhouse gas emissions, energy production, energy consumption and other information specified under NGER legislation.

The objectives of the NGER scheme are to:

- inform government policy;
- inform the Australian public;
- help meet Australia's international reporting obligations;
- assist Commonwealth, state and territory government programmes and activities; and,
- avoid duplication of similar reporting requirements in the states and territories.

Further information on the NGER scheme, specifically the definitions of various scopes and types of GHG emissions, which have also been adopted for the purposes of this assessment, is provided in **Section 4**.

There are two types of thresholds that determine which companies have an obligation under NGER Act: facility and corporate group thresholds. These thresholds and their statutory reporting dates are summarised below.

#### Facility threshold

The current facility threshold is:

- 25 kt or more of greenhouse gases (CO<sub>2</sub>-e) (scope 1 and scope 2 emissions), or
- production of 100 TJ or more of energy, or
- consumption of 100 TJ or more of energy.

#### Corporate group thresholds

The current corporate group threshold is:

- 50 kt or more of greenhouse gases (CO<sub>2</sub>-e) (scope 1 and scope 2 emissions), or
- production of 200 TJ or more of energy, or
- consumption of 200 TJ or more of energy.

Based on the activity data and calculated emissions outlined in **Section 4.4.1** and **Section 5.1** respectively, the facility is likely to have triggered the energy reporting threshold for the facility currently, and is likely to trigger the emissions reporting and energy reporting thresholds for the Proposal<sup>2</sup>. It is recommended that the Clean Energy Regulator is contacted to discuss any obligations under the NGER Act.

### 3.2. Relevant State Legislation

There is no specific GHG legislation administered within NSW. The NGER scheme is the applicable legislation within NSW.

The NSW Government is working to deliver economically efficient and environmentally effective policies and programs that do not duplicate initiatives of the Australian Government. They include:

- understanding NSW emissions;
- providing financial support through the Climate Change Fund;
- promoting energy efficiency (e.g. through the Energy Savings Scheme [ESS]); and,
- promoting soil carbon sequestration.

### 3.3. Guidance

The GHG accounting and reporting principles adopted, within this GHG assessment, are based on the following financial accounting and reporting standards:

- Australian Government Department of the Environment, Australian National Greenhouse Accounts, National Greenhouse Accounts Factors, August 2019 (DISER, 2020a);
- The World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) GHG Protocol: A Corporate Accounting and Report Standard (WRI, 2004);
- ISO 14064-1:2006 (Greenhouse Gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of GHG emissions and removal);
- ISO 14064-2:2006 (Greenhouse Gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of GHG emission reductions or removal enhancements); and,
- ISO 14064-3:2006 (Greenhouse Gases – Part 3: Specification with guidance for the validation and verification of GHG assertions) guidelines (internationally accepted best practice).

Further detail is provided in **Section 4**.

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<sup>2</sup> <http://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Calculators>





## 4. METHODOLOGY

### 4.1. Emission Types

The Australian Government Department of the Environment (DoE) document, “National Greenhouse Accounts Factors” Workbook (NGA Factors) (DISER, 2020a), defines two types of GHG emissions (see **Table 4** below), namely ‘direct’ and ‘indirect’ emissions. This assessment considers both direct emissions and indirect emissions resulting from the operation of the Proposal.

**Table 4 Greenhouse gas emission types**

Emission Type	Definition
Direct	Produced from sources within the boundary of an organisation and as a result of that organisation’s activities (e.g. consumption of fuel in on-site vehicles)
Indirect	Generated in the wider economy as a consequence of an organisation’s activities (particularly from its demand for goods and services), but which are physically produced by the activities of another organisation (e.g. consumption of purchased electricity).

Note: Adapted from NGA Factors Workbook (DISER, 2020a)

### 4.2. Emission Scopes

The NGA Factors (DISER, 2020a) identifies two ‘scopes’ of emissions for GHG accounting and reporting purposes as shown in **Table 5** below.

**Table 5 Greenhouse gas emission scopes**

Emission Scope	Definition
Scope 1	Direct (or point-source) emission factors give the kilograms of carbon dioxide equivalent (CO <sub>2</sub> -e) emitted per unit of activity at the point of emission release (i.e. fuel use, energy use, manufacturing process activity, mining activity, on-site waste disposal, etc.). These factors are used to calculate Scope 1 emissions.
Scope 2	Indirect emission factors are used to calculate Scope 2 emissions from the generation of the electricity purchased and consumed by an organisation as kilograms of CO <sub>2</sub> -e per unit of electricity consumed. Scope 2 emissions are physically produced by the burning of fuels (coal, natural gas, etc.) at the power station.

Note: Adapted from NGA Factors Workbook (DISER, 2020a)

A third scope of emissions, Scope 3 Emissions, are also recognised in some GHG assessments. The Greenhouse Gas Protocol (GHG Protocol) (WRI, 2004) defines Scope 3 emissions as “other indirect GHG emissions”:

*“Scope 3 is an optional reporting category that allows for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Some examples of Scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services.”*

Scope 3 emissions have not been considered within this assessment but are entirely optional.

### 4.3. Emission Source Identification

The geographical boundary set for this GHG assessment covers the Proposal site and does not include the transport of materials to and from the Proposal site (as defined above). As there is no construction associated with the Proposal, the ongoing energy efficiency of the Proposal’s operation has been considered the main focus of this assessment.

The GHG emission sources associated with the operation of the Proposal have been identified through the review of the proposed broad activities as described in **Section 2**.

The activities/operations being performed, as part of the Proposal, which have the potential to result in emissions of GHG, are presented in **Table 6** below.

**Table 6 Greenhouse gas emission sources**

Proposal Component	Scope	Emission Source Description
Consumption of diesel fuel in mobile plant and equipment at the Proposal site	1	Emissions from combustion of fuel (scope 1)
Consumption of purchased electricity	2	Emissions associated with the generation of electricity from fossil fuel combustion

## 4.4. Emissions Estimation

Emissions of GHG from the source identified in **Table 6** have been calculated using activity data for the source per annum (e.g. per kilowatt-hour (kWh) of electricity) and the relevant emission factor for each source.

The assumptions used in the calculation of activity data for the emission source and emission factors, are presented below.

### 4.4.1. Activity Data

The assumptions relating to activity data are outlined in **Table 7** below. All data has been supplied by S&P.

**Table 7 Provided activity data**

Year	Tonnes Material Processed	Annual Consumption		Consumption Rate	
		Diesel	Electricity	Diesel	Electricity
	t	L	kWh	L·t <sup>-1</sup>	kWh·t <sup>-1</sup>
2019	244,055	644,105	13,176,831	2.64	53.99
2018	226,929	564,168	12,389,279	2.49	54.60
2017	227,594	624,838	12,433,487	2.75	54.63

Data relating to 2019 has been used in this assessment, representing the most recent operating changes and consumption rates relevant to the Proposal site. The calculated rates (per tonne material processed) has been increased to a pro-rata rate of 350 000 tpa (for benchmarking purposes only, no calculation of GHG at this activity rate has been performed) and 600 000 tpa representing the Proposal.

**Table 8 Activity data used in the assessment**

Proposal Component	Assumptions	Activity at 350 000 tpa	Activity at 600 000 tpa	Units
Diesel fuel (plant and machinery)	Consumption of 644.1 kL·year <sup>-1</sup> (based on information provided by S&P at a material processing rate of 244.1 kt·year <sup>-1</sup> )	923.7	1 583.5	kL·year <sup>-1</sup>
Travel fuel (post 2004 gasoline vehicles)	79 full time equivalent employees at current operations and at 600 000 tpa (no change) 10 km as a two-way journey (assumed employees reside in Blacktown) 280 days per year 10.6 L per 100km fuel efficiency (ABS, 2017)	23.4	23.4	kL·year <sup>-1</sup>

Proposal Component	Assumptions	Activity at 350 000 tpa	Activity at 600 000 tpa	Units
Consumption of purchased electricity	Consumption of 13 176 831 kWh·year <sup>-1</sup> (based on information provided by S&P at a material processing rate of 244.1 kt·year <sup>-1</sup> )	18 896 933	32 394 642	kWh year <sup>-1</sup>

#### 4.4.2. Emission Factors

Emissions factors used for the assessment of GHG emissions associated with the operation of the Proposal have been sourced from the NGA Factors (DISER, 2020a) (refer to **Table 9**).

**Table 9 Greenhouse gas emission factors**

Emission Scope	Emission Source	Emission Factor
Scope 1	Diesel fuel (plant and machinery)	70.2 kg CO <sub>2</sub> -e·GJ <sup>-1</sup> (at 38.6 GJ·kL <sup>-1</sup> )
	Travel fuel	67.6 kg CO <sub>2</sub> -e·GJ <sup>-1</sup> (at 34.2 GJ·kL <sup>-1</sup> )
Scope 2	Electricity (NSW)	0.81 kg CO <sub>2</sub> -e·kWh <sup>-1</sup>

## 5. ASSESSMENT OUTCOMES

### 5.1. Quantification of Greenhouse Gas Emissions

Based on the activity data for the operation of the Proposal and the emission factors outlined in **Section 4.4**, annual GHG emissions have been calculated and are presented in **Table 10** below. The Proposal is calculated to result in an increase in GHG emissions of approximately 71% or 12 721 t CO<sub>2-e</sub> per annum.

**Table 10 Calculated proposal GHG emissions**

Scope		Activity Rate		Units	Emission Factor		CO <sub>2</sub> (t·yr <sup>-1</sup> )	
		350 ktpa	600 ktpa				350 ktpa	600 ktpa
1	Plant & machinery	923.7	1,583.5	kL·year <sup>-1</sup>	70.2	kgCO <sub>2</sub> -e·GJ <sup>-1</sup>	2 503.0	4,290.9
	Travel	23.4	23.4	kL·year <sup>-1</sup>	67.2	kgCO <sub>2</sub> -e·GJ <sup>-1</sup>	53.9	53.9
Scope 1 (subtotal)							2 556.9	4 344.8
2	Electricity	18 896 933	32 394 742	kWh·year <sup>-1</sup>	0.81	kgCO <sub>2</sub> -e·kWh <sup>-1</sup>	15 306.5	26 239.7
Scope 2 (subtotal)							15 306.5	26 239.7
TOTAL							17 863.4	30 584.5

### 5.2. Greenhouse Gas Emissions in Context

A comparison of the calculated GHG emissions associated with the Proposal against Australian (DISER, 2020a) and NSW (DISER, 2020c) total emissions in 2018 and 2019, respectively is presented **Table 11**.

These data indicate that the operation of the Proposal (at 600 000 tpa) in its entirety, would contribute less than 0.023% of NSW total GHG emissions and less than 0.006% of Australian total GHG emissions in 2018.

**Table 11 Proposal GHG emissions in context**

Proposal Phase	Emissions (t CO <sub>2-e</sub> per annum)		
	Proposal	NSW (2018)	Australia (2018)
		Total 131,700,000	Total 532,500,000
Operation	30 584.5	0.023 %	0.006 %

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## 6. CONCLUSION

On behalf of Sell & Parker Pty Ltd, Arcadis Australia Pty Ltd (Arcadis) has engaged Northstar Air Quality Pty Ltd (Northstar) to perform a Greenhouse Gas Assessment (GHGA) for the proposed expansion of the existing resource recovery facility (RRF). The applicant is seeking approval to increase the throughput limit of the RRF from 350 000 to 600 000 tonnes per annum (tpa) (the Proposal).

This GHG assessment presents an assessment of the potential GHG emissions which may result during the operation of the Proposal.

The prediction of potential impacts, associated with the Proposal's operational activities, has been performed adopting GHG emission factors, as outlined within the National Greenhouse Accounts Factors Workbook, 2019. GHG emissions associated with the Proposal are anticipated to represent less than 0.023% of total NSW GHG emissions in 2018 and less than 0.006% of total Australian GHG emissions in 2019. These have been assessed to be insignificant.

## 7. REFERENCES

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