

PROPOSED EXPANSION OF FAIRFIELD SUSTAINABLE RESOURCE CENTRE GREENHOUSE GAS ASSESSMENT

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PREPARED FOR

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GLOSSARY OF TERMS

SCOPE 1 GREENHOUSE GAS EMISSIONS

Emissions released into the atmosphere as a direct result of an activity, or series of activities (including ancillary activities) that constitutes the facility.

SCOPE 2 GREENHOUSE GAS EMISSIONS

Emissions released as a result of one or more activities that generate electricity, heating, cooling or steam that is consumed by the facility but that do not form part of the facility.

SCOPE 3 GREENHOUSE GAS EMISSIONS

Emissions that occur outside the site boundary of a facility as a result of activities at a facility that are not Scope 2 emissions.

1 INTRODUCTION

Wilkinson Murray (WM) has been commissioned by Fairfield City Council to provide a Greenhouse Gas assessment to accompany a Development Application for the expansion of the Fairfield Sustainable Resource Centre (SRC) located on the corner of Hassall Street and Widemere Road, Wetherill Park.

The centre accepts construction and demolition waste including roof tiles, clay bricks, concrete and asphalt. The construction waste is crushed or milled to produce recycled materials such as sand, road base, cement stabilised sands and aggregates for use in civil construction, landscaping and domestic building applications.

The existing facility is approved and licenced to receive 180,000 tonnes per year. The facility is however understood to have been operating in excess of that currently licensed for some time, with approximately 520,000 tonnes being received during the 2017 calendar year.

An application has accordingly been formulated which seeks approval to licence the facility generally in accordance with current operations, whereby a capacity to 550,000 tonnes per year is being sought.

The increased SRC capacity is proposed to be facilitated through the filling of an existing gully running north-south through the centre of the site, allowing the creation of a new large temporary stockpiling area for excess material and the extension of the existing facility hours of operation.

In addition to the increased SRC capacity, the application includes provision for a new on-site sedimentation basin x2 and a new car parking area. Further, an increase in the currently approved hours of operation is also being sought.

The Project was declared to be a State Significant Development (SSD). Assessment and approval is being pursued in accordance with the EP&A Act. The Secretary's Environmental Assessment Requirements (SEARs) for the Project have been issued and set out the environmental assessment requirements for the Project.

This Greenhouse Gas Assessment has been prepared to address the relevant SEARs in relation to the preparation of the Environmental Impact Statement (EIS) for the project, and was conducted in general accordance with the following documents:

- *Technical Guidelines for the Estimation of Greenhouse Gas Emissions by Facilities in Australia* (DoE, 2017); and,
- *National Greenhouse Accounts Factors* (DoE, 2019)

2 AREA DESCRIPTION & PROPOSED OPERATION

2.1 The Site

The SRC is located at the corner of Hassall Street and Widemere Road, Wetherill Park, within the Wetherill Park industrial precinct, south of the Prospect Reservoir (Figure 2-1).

Figure 2-1 Locality Plan



2.2 Existing Site Facilities

The SRC includes the following facilities and equipment:

- Single storey office building;
- Weighbridge;
- Car parking areas;
- Concrete materials storage bays;
- Materials crushing and mixing plant machinery;

- Pug mill (blending/mixing plant);
- Water retention dams;
- Trucks, utility vehicles, and earthmoving and road building equipment;
- Vehicle circulation roadways; and
- Stockpiles of crushed materials.

The site has two access points off Widemere Road, including a primary entrance for the SRC site and a secondary entrance providing access to the waste depot and recycling facility at the northern end of the site.

The site was used for landfill during the 1980s and as a result has a modified and raised land mass which is generally flat and drops to natural ground level to the north and northeast of the site where the land adjoins Prospect Creek.

2.3 The Project

2.3.1 Overview

The proposed development is for an expansion of the SRC to increase its processing capacity to up to 550,000 tonnes of recycled materials per year.

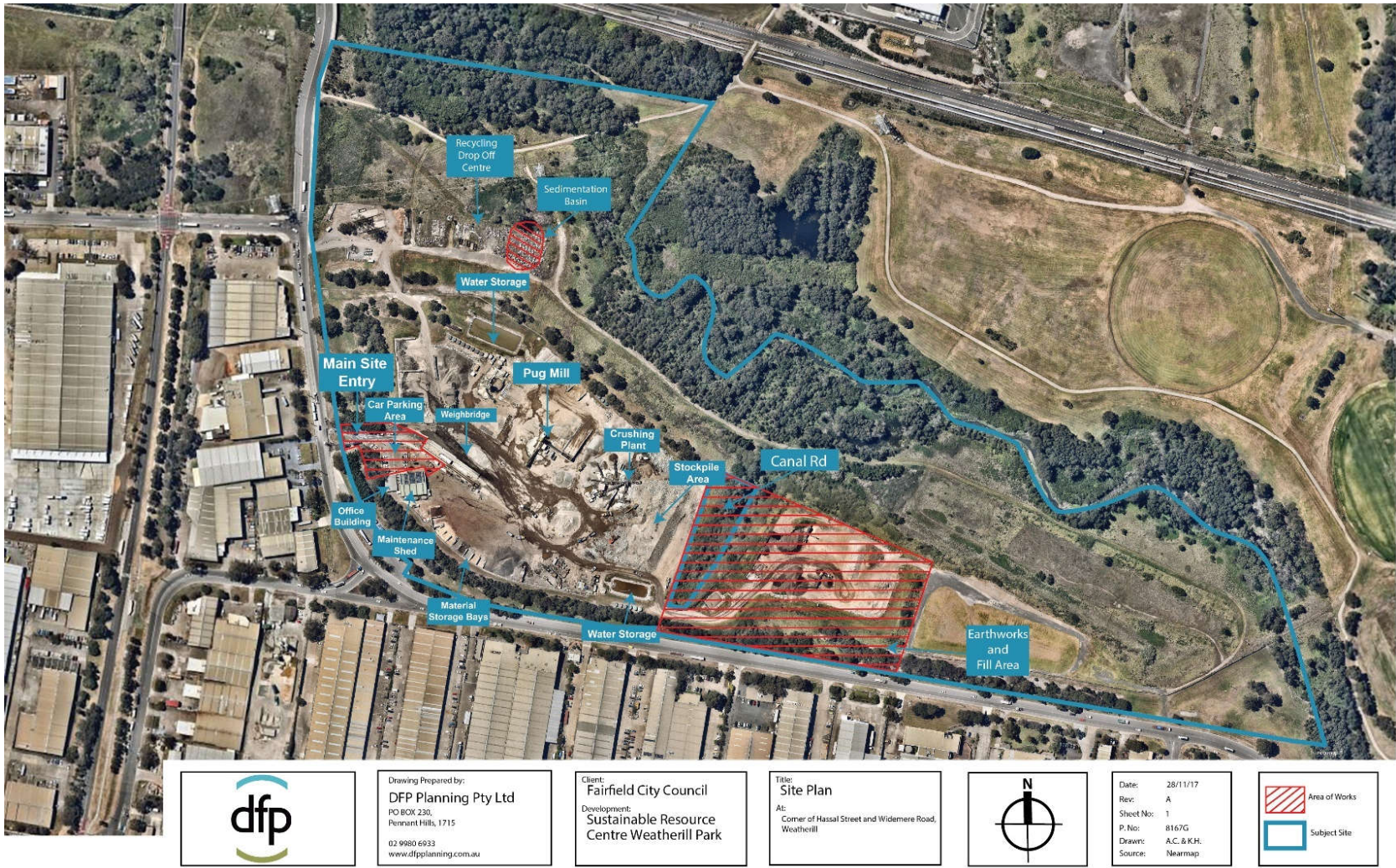
Since commencement, the SRC has continued to grow and now processes in excess of the approved 180,000 tonnes of materials per annum. The facility is understood to have processed approximately 520,000 tonnes during the 2017 calendar year.

An application has accordingly been formulated which seeks approval to licence the facility generally in accordance with current operations, whereby a capacity to 550,000 tonnes per year is being sought. The increased Centre capacity is proposed to be facilitated through the filling of an existing gully running north-south through the centre of the site, allowing the creation of a new large temporary stockpiling area for excess material.

In order to fill the gully, 31,000m³ of fill material will be brought in over a period of 18-24 months. This will be achieved by approximately 6-8 truck movements per day. A front-end loader will be used to fill the gully and a vibratory roller will be used to compact the soil.

The site currently has a fixed crushing plant, a fixed pug mill, 2 mobile crushing and screening plants. The locations of the plant are not expected to change significantly as part of the proposal. The site layout including location of the main equipment is shown in Figure 2-2.

Figure 2-2 Site Layout (Source: DFP Planning Pty Ltd)



2.4 Proposed Hours of Operation

It is proposed that the hours of operation be altered as follows:

- Receiving and loading of vehicles – 24 hours, seven days.
- Crushing operations – 5:00am – 6:00pm Monday to Friday; and
- Pug mill operations – 3:00am – 4:00pm Monday to Friday.

3 ASSESSMENT METHODOLOGY

The following greenhouse gases (GHG) have been identified as significant contributors to global warming:

- Carbon dioxide (CO₂);
- Methane (CH₄);
- Nitrous oxide (N₂O);
- Synthetic gases; and
- Hydro fluorocarbons HFCs, SF₆, CF₄, C₂F₆.

No significant emissions of HFCs and synthetic gases are likely to occur as a result of the construction or operation of the project and have therefore been omitted from the remainder of the assessment.

Under the Department of Climate Change and Energy Efficiency protocol, GHG emissions are categorized as Scope 1, Scope 2 and Scope 3 emissions; which are defined as follows:

- **Scope 1 – Direct (or point-source) emissions** – emissions from sources owned or operated by the facility. These may be calculated using 'Point Source Emissions Factors' as defined in the AGO Factors and Methods Workbook;
- **Scope 2 – Indirect emissions** – emissions released as a result of the generation of electricity, or the production of heat, cooling or steam purchased by the reporting company.
- **Scope 3 – Various emissions** – all other GHG emissions that are not covered under Scope 1 or Scope 2 are Scope 3 emissions. These can include activities such as employees commuting to work; extraction, production and transport of fuels, materials and other goods; and use of products manufactured and sold.

In accordance with the SEARs for the project, this GHG assessment considers the following GHG emissions and energy consumption activities associated with the project:

Scope 1 – Direct Emissions:

- Combustion of fuel in facility owned stationary and mobile plant and equipment along with outgoing trucks (i.e. bulk haul trucks and semi-trailers).

Scope 2 – Indirect Emissions:

- Electricity generated off-site of that is consumed on the site.

Scope 3 – Various Emissions:

- Combustion of fuel in all incoming trucks (i.e. kerbside and commercial recycling collection trucks) and employee car travel to and from work.

3.1 Emission Factors

Based on the identified sources of GHG emissions from the Project, relevant emission factors have been adopted from the *National Greenhouse Accounts Factors, August 2019*.

Table 3-1 presents the Scope 1 emissions factors used in this assessment.

Table 3-1 Scope 1 Emission Factors (Transport Fuels)

Fuel Type	Energy Content (GJ/kL)	Emission Factor (kg CO ₂ -e/GJ)		
		CO ₂	CH ₄	N ₂ O
Diesel Oil	38.6	69.9	0.01	0.6
Gasoline	34.2	67.4	0.02	0.2

Scope 2 emissions have been calculated using an emission factor of 0.81 (kg CO₂-e/kWh), applicable to electricity produced in New South Wales.

4 ESTIMATION OF GREENHOUSE EMISSIONS

Greenhouse gas emissions associated with the construction and operation of the project have been estimated based on information from the client, and published emissions factors. The emissions estimates are based on the best available data for the project at the time of undertaken the assessment and have been scaled up to allow for an increase in capacity to 550,000 tonnes.

In addition, the 6-8 truck movements associated with the fill process have been included in the transport fuel consumption calculations.

4.1 Operational Greenhouse Gas Emissions

Greenhouse gas emissions associated with the operation of the Project will result from fuel combusted in mobile plant, and electricity used to power the processing equipment, ventilation system operation and in offices.

In the case of fuel associated delivery vehicles these are included in Scope 3 emissions whilst fuel associated with departure trucks (taking recycled product) from the site is included in Scope 1.

The following section presents an estimation of greenhouse gas emissions associated with the operation of the Project.

4.1.1 Fuel Consumption

The usage of diesel fuel for on-site mobile plant is estimated to be approximately 10,120 litres per month. Based on the emissions factors for diesel transport fuel, presented in Section 3, the CO₂-e emissions associated with on-site fuel combustion are 331 tonnes per annum.

Diesel fuel from associated outgoing truck transport is estimated to be approximately 114,995 litres per month. Based on the emissions factors for diesel transport fuel, presented in Section 3, the CO₂-e emissions associated with on-site fuel combustion are 3,756 tonnes per annum.

4.1.2 Electricity Use

Electricity use has been based on energy accounts for the last year totalling 87750 kW/hr, the CO₂-e emissions associated with electricity usage are 71 tonnes per annum.

4.1.3 Total Operational GHG

The total operational GHG emissions for the Project are summarised in Table 4-1.

Table 4-1 Summary of Estimated Operational CO₂-e Emissions

Source	CO ₂ -e Emissions (tonnes)
Fuel Consumption (On Site)	507
Fuel Consumption (Outbound)	3756
On Site Electricity Consumption	71
Total	4334 per annum

4.2 Scope 3 Emissions

Scope 3 emission included in this assessment are those associated with the trucks bringing waste to the facility (331 tonnes CO₂-e) and Staff Vehicle Operations (12.8 tonnes CO₂-e).

4.3 Overall Emissions

The total estimated annual operational greenhouse gas emissions for the Project is 4679 tCO₂-e.

Australia's total greenhouse gas emissions in 2019 amounted to 538.9 million tonnes of carbon dioxide equivalent (MtCO₂-e) (reference: Quarterly Update of Australia's National Greenhouse Gas Inventory: March 2019), whilst New South Wales, in 2017, accounted for 128.87 Mt of the total. Therefore, operation of the project will account for approximately 0.004% of current annual NSW emissions.

5 CONCLUSION

A greenhouse gas assessment has been conducted for Fairfield Sustainable Resource Centre (SRC) located on the corner of Hassall Street and Widemere Road, Wetherill Park.

This study has identified sources of greenhouse gas (GHG) emissions associated with the construction and operation of the project, in accordance with the Secretary's Environmental Assessment Requirements issued for the project.

Estimates of equivalent carbon dioxide have been predicted and it has been determined that the operation of the project, including Scope 3 emissions, will account for approximately 0.004% of current NSW emissions.