REMONDIS®
WORKING FOR THE FUTURE

Initial Advice Statement

Waste to Energy Facility
Swanbank Road, Swanbank

Submitted by REMONDIS Australia Pty Ltd
29 April 2020

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Abbreviations

Abbreviation	Descriptions
AADT	Annual average daily traffic
AHD	Australian Height Datum
BGL	Below Ground Level
CEMP	Construction Environmental Management Plan
Cth	Commonwealth
IAR	Impact Assessment Report
IED	Industrial Emissions Directive
IPS	Ipswich Planning Scheme
EIS	Environmental Impact Statement
EPBC	Environmental Protection and Biodiversity Act 1999 (Cth)
EPP (Noise)	Environmental Protection (Noise)Policy 2008
EPP (Air)	Environmental Protection (Air) Policy 2008
GHG	Greenhouse Gas
LGA	Local Government Area
NC Act	Nature Conservation Act 1992
Planning Act	Planning Act 2016
PDA	Priority Development Area
REMONDIS	REMONDIS Australia Pty Ltd
SREWMF	Swanbank Renewable Energy and Waste Management Facility
The Site	The location of the proposed development including the proposed WtE facility referred to as the 'Site'.
WtE	Waste to Energy
VM Act	Vegetation Management Act 1999 (Qld)

Appendices

Executive Summary

REMONDIS is one of Europe's largest privately owned operators of WtE facilities that produce heat, steam and generate energy. REMONDIS Australia is proposing to build Resource Recovery Infrastructure and a Waste to Energy (WtE) facility on its site at Swanbank, in area zoned for heavy industry (under the Ipswich City Plan) and adjacent to the Swanbank E gas-fired power station.

Currently, REMONDIS' Swanbank facility supplies around 12,000 MWh per annum of renewable energy to the Queensland electricity grid through a methane capture and electricity generation project.

This development will include processes to allow for the recovery of a range of recyclable products for processing and recycling. Waste material which cannot be recovered or recycled with be utilised for WtE activities rather than landfill. The proposed WtE facility will form a single component of the wider 'Swanbank Recycling Park'. The WtE technology is proven and currently operates reliably in Europe and many other countries and has a successful track record in treating the same waste streams proposed as fuel as part of this application. REMONDIS will be able to undertake recycling and recovery activities on the current waste being received at Swanbank and use the non-recyclable component to generate up to 50MW of baseload renewable electricity for Queensland households and businesses.

REMONDIS is committed to ensuring that higher order waste management opportunities (reduce, re-use and recycle) are prioritised and that the processing of waste through the proposed WtE facility will only occur when alternative recovery opportunities have been undertaken. A WtE facility which is synergistic with an existing waste disposal and recycling facility will be able to use the power and heat generated within the immediate business precinct and to attract investment, development and employment generating activities.

This Initial Advice Statement (IAS) demonstrates the suitability for 'coordinated project' determination as set out in section 26 (2), 27 and 27 (AC) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). This IAS provides information regarding the proposal and a brief description of the elements that comprise it. The IAS has been developed to provide an overview of the nature and extent of the potential environmental, social and economic impacts that may be associated with the construction and operation of the proposed project as far as they can be foreseen at this time. The IAS also identifies the key statutory approvals that may be required for the project to proceed, and identifies further environmental studies that may be required to support the project.

As a major Resource Recovery Infrastructure and Energy project requiring an investment of approximately $400 million, the Project is expected to deliver a range of positive socio-economic impacts targeting the region but extending to other population centres in South East Queensland. These include:

- Creation of employment opportunities during the planning, design, construction and operation of the Project – with current estimates of 200 Full Time Equivalent jobs during construction and up to 80 Full Time Equivalent jobs during operation;
- Project will assist the retention of jobs in the Ipswich LGA as a result of new investment and economic activity;
- Project is a strategically significant development for Ipswich in terms of supporting the city's industrial diversification;
- Facilitation of critical infrastructure to the State in advancing the resource recovery, recycling and waste management strategy;
- Assist to achieve the Queensland State Government target for 50 per cent renewable energy by 2030;
- Project adopts technology to ensure that wastes with recoverable value are not sent to landfill and, instead, are put to beneficial use; and
- Supply base load power to the domestic market.

On the basis that the Project's scale and extent is anticipated to have known environmental impacts that are able to be managed through well understood environmental risk mitigation measures, the use of an Impact Assessment Report (IAR) process under the SDPWO Act is requested as the prudent coordinated project

pathway. Given the existing approval of the wider SREWMF, the current site operations, the infrastructure that currently caters to waste storage and treatment (both on site and within the locality) and the industrial nature of the Swanbank precinct, the proposal is well suited to progress under an IAR pathway.

An aerial map of the Swanbank Renewable Energy and Waste Management Facility (SREWMF) is shown at **Figure 1**.

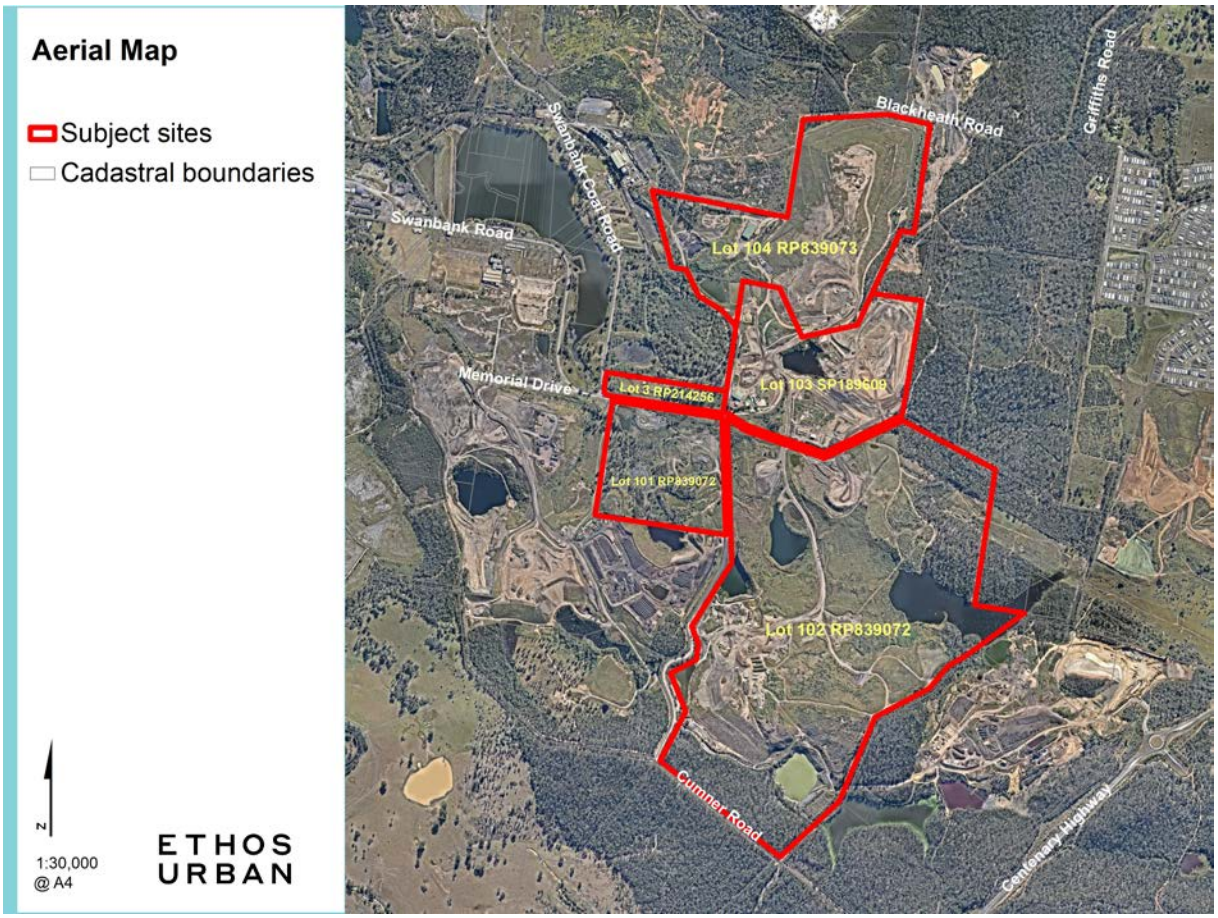

Figure 1: Site Aerial

REMONDIS has commenced implementing its Stakeholder Engagement program and will broaden the execution of this program after the Project is declared as a Coordinated Project.

This proposed WtE facility presents an opportunity for Queensland to benefit from REMONDIS' global experience, and other successful European and UK facilities, and incorporate WtE as part of the solution to sustainable, best practice waste management. Although the proposed technology is new in the context of Queensland, based on existing operational experience, REMONDIS is in a unique position to be able to provide the Coordinator General with certainty regarding the technology and provide assurance that the performance of the facility will meet Industrial Emissions Directive (IED) emissions limits and nearby sensitive receivers will not be at any risk in terms of air quality and human health.

REMONDIS has a proven track record in the Ipswich region in relation to resource recovery and waste management and the proposal is considered to be well suited for declaration as a Coordinated Project.

1.0 Introduction

1.1 Background

REMONDIS Australia (REMONDIS) is committed to diverting waste from landfill and revolutionising recycling and resource recovery at its Swanbank Renewable Energy and Waste Management Facility (SREWMF).

Waste disposal at SREWMF (Stage 1) commenced in 1998 and the landfill currently comprises seven cells, which were constructed progressively between 1997 and 2018. Although the site has operated as a landfill for many years, the subject site was previously used for open cut mining activities and is surrounded primarily by extractive industries and other waste management operations.

REMONDIS has identified that the biggest waste management issue for South East Queensland Councils is the cost of cheap landfill, which results in little incentive to look for other waste management options. Further, a business as usual approach to waste management may see most of South East Queensland's landfills with no capacity by 2040.

Waste-to-energy technology is used across the world, with countries including Germany, Japan, China and Finland using waste to generate electricity. Diverting thousands of tonnes of suitable waste away from landfill and into a best-practice WtE facility will extend the life of South East Queensland's constrained landfills and also provide an additional, baseload electricity source for Queensland residents and businesses.

Queensland has the opportunity to benefit from successful European and UK experiences and incorporate WtE as part of the solution to sustainable, best practice waste management.

1.1.1 Site Details

The SREWMF is located at 66-114 Blackheath Road SWANBANK QLD 4306 and is legally described as:

- Lot 101 on RP839072
- Lot 102 on RP839072
- Lot 103 on SP189609
- Lot 104 on RP839073
- Lot 3 on RP214256

The SREWMF includes the approved landfill footprints identified as Stage 1 and 2:

- Stage 1 is made up of Lot 103 on SP189609 and Lot 104 on RP 839073.
- Stage 2 is identified as Lot 101 and 102 on RP 839072 and Lot 3 on RP 214256.
- Stage 1 of the landfill operation comprises a number of approved individual landfill cells along with a major power easement which runs along the western and southern boundary of Stage 1B on SP 152158 and SP 127335.

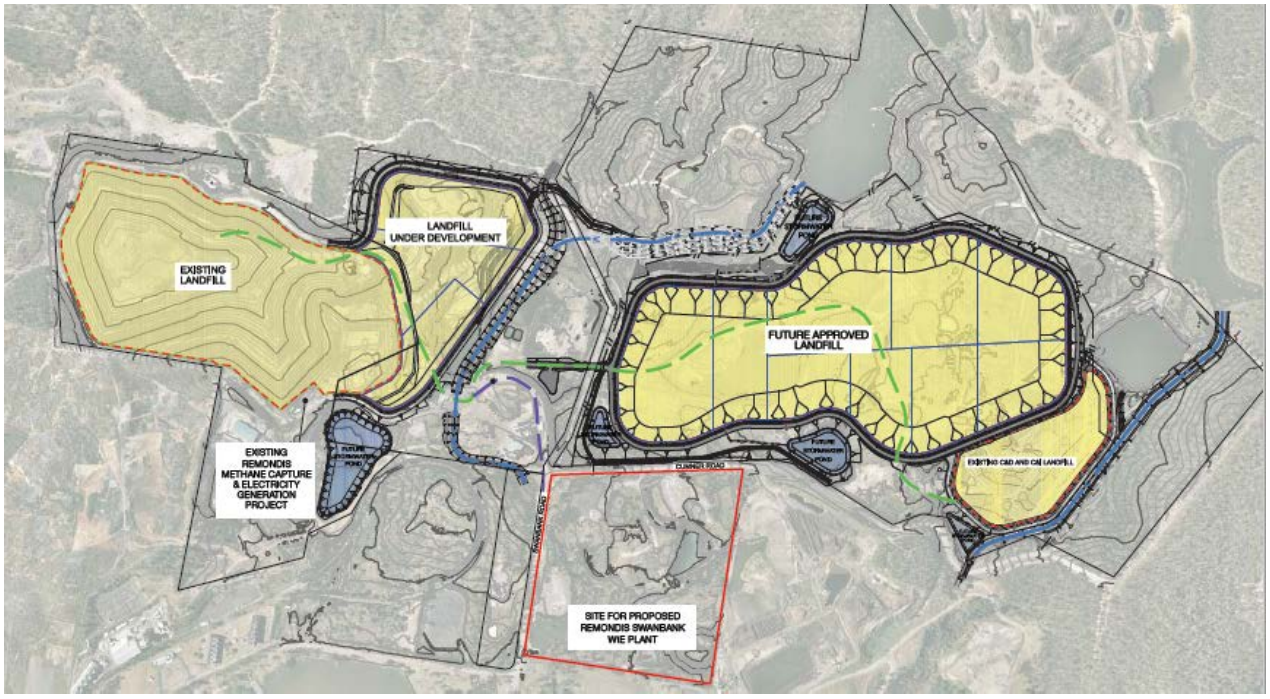

Figure 2: Swanbank Landfill – Approved Landfill Footprints – Stage 1 and 2

As identified in **Figure 3** below, the site falls within the Swanbank Approved Land Use Precincts (3 and 4) under the Ipswich City Plan for the following purposes:

1. Waste Processing, Treatment and Disposal (in accordance with Plan of Development No. 10556/001C).
2. Waste Recycling, Composting and Disposal, Land Rehabilitation, Truck Depot and Park with ancillary uses of Leachate Collection, Landfill, Gas Collection, Treatment, Storage and Disposal, Crushing of Spoil Pile Material, Vegetation Propagation for Rehabilitation and Caretakers Flat (Generally in Accordance with Plan of Development TP-61/90).

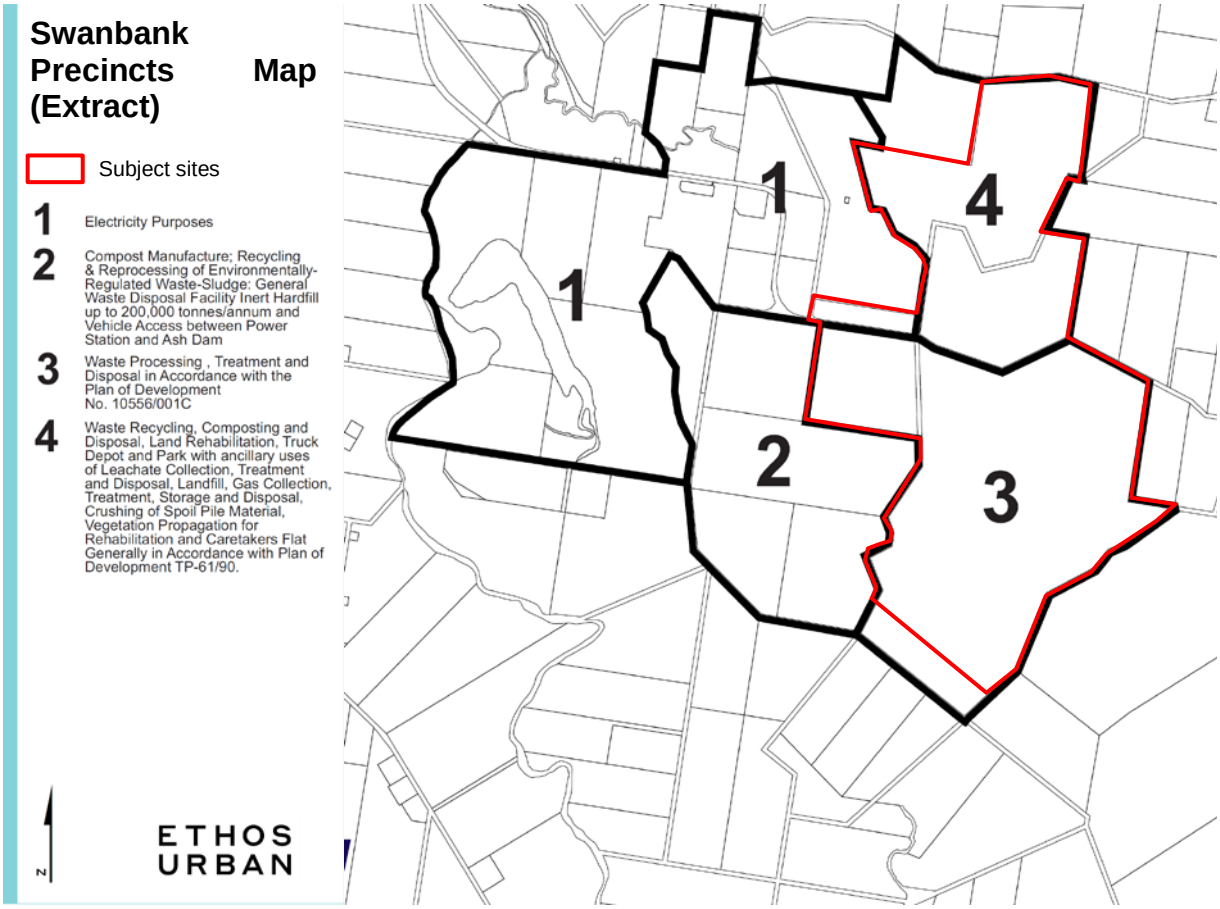

Figure 3: Swanbank Approved Land Use Precincts (Ipswich Planning Scheme)

1.2 Site Approvals

In 1990, the former Moreton Shire local government agency issued an approval for the rezoning of land identified as Stage 1 of the Swanbank site under the Moreton Shire Planning Scheme (TP-61/90).

Although subsequent planning schemes have changed zoning regimes, the wording of the original rezoning continues to be reflected in the current planning scheme. This wording indicates appropriate activities on the land as including:

- Waste recycling, composting and disposal;
- Leachate collection, treatment and disposal;
- Landfill gas collection, treatment and disposal; and
- Crushing of spoil pile material.

Land comprising of the Stage 2 of SREWMF area was granted zoning and development approval in 1990 by Ipswich City Council for activities of waste processing, treatment and disposal in accordance with plan of development 10556/001C.

The current environmentally relevant activities (ERA) approvals over the SREWMF site allow for a wide range of activities, including the following:

- Waste disposal;
- Soil conditioner manufacturing;
- Composting;
- Regulated waste storage;
- Regulated waste treatment; and
- Fuel burning.

The site has been subject to a number of planning approvals since it commenced operation as a Renewable Energy and Waste Management Facility with each extension, expansion and construction of the landfill cells requiring a subsequent approval.

It is noted that the proposed WtE facility will be located on Lot 101 on RP 839072 which forms Stage 2 of the SREWMF.

The subject site is identified within the Swanbank New Chum Land Use Concept Master Plan as shown in **Figure 4** below. The Swanbank New Chum master plan (as described within the ICC Planning Scheme Part 6.7D) is an indicative footprint for future development and is not intended to prescribe the precise boundaries of the indicative land use designations and structural elements.

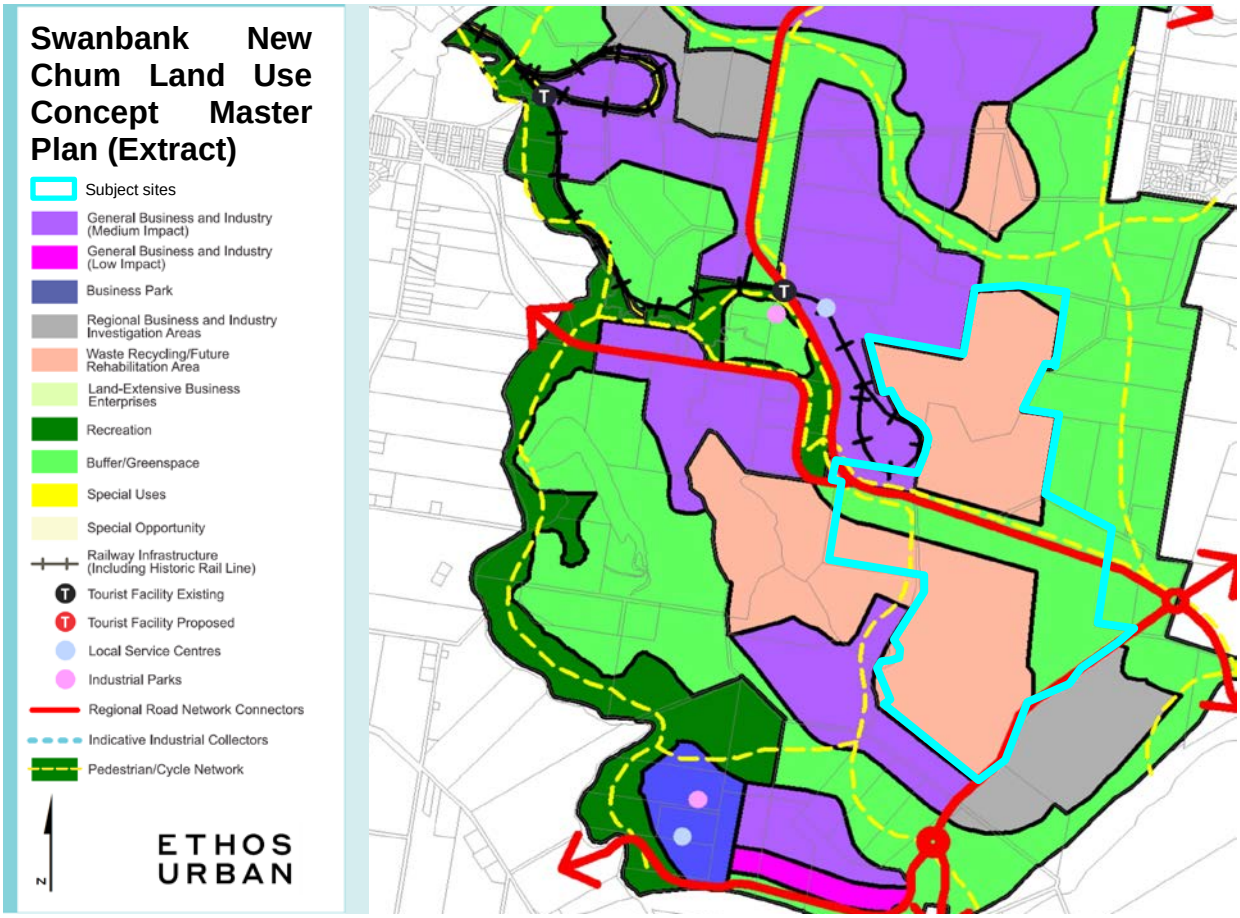

Figure 4: Swanbank New Chum Land Use Concept Master Plan (Extract)

1.3 Purpose and scope of Initial Advice Statement

The purpose of this Initial Advice Statement (IAS) is to assist the Coordinator General in determining whether the project should be declared a 'coordinated project' under Part 4 of the *State Development and Public Works Organisation Act 1971* (SDPWO Act) and the level of assessment required. The IAS identifies the potential Project impacts (positive and negative) to be investigated in detail in either the Project Impact Assessment Report (IAR) or Environmental Impact Statement (EIS).

Accordingly, the IAS provides the Project information to interested and affected stakeholders and the general public. It identifies additional approvals that may be required for the implementation of the Project once the Coordinator General assessment is complete.

1.4 Coordinated project declaration

Due to the importance of the Project, the need for a viable long term solution to waste management in South East Queensland and an alternative to traditional landfill waste management, REMONDIS believes the Project would benefit from declaration as a Coordinated Project by the Coordinator General under Part 4 of the SDPWO Act.

The proposed approach to build and operate the resource recovery WtE facility within the existing SREWMF site is expected to significantly reduce the environmental, social and economic impacts of the Project.

REMONDIS seeks confirmation from the Office of Coordinator General that the proposal's declaration as a 'Coordinated Project' is appropriate under section 27(2)(b) of the SDPWO Act as the IAS confirms that the Project will:

Require complex State or Commonwealth government approval requirements

A number of approvals from or referrals to local, State and the Commonwealth government will be required for the Project. This will require coordination of the input of a number of regulatory agencies, which are likely to include:

- Department of Natural Resources, Mines and Energy (DNRME);
- Department of Environment and Science (DES);
- Workplace Health and Safety, Queensland (WHSQ);
- Department of Transport and Main Roads (DTMR);
- Hazardous Industries and Chemicals Branch (HICB);
- Ipswich City Council (ICC); and
- Department of Environment and Energy (DoEE).

Further, SREWMF holds a current Environmental Authority (EA) for a number of Environmentally Relevant Activities (ERA's). The operation of a WtE facility at SREWMF (Lot 101) will require an application to amend an EA to include the following ERA's:

- ERA 14 – Electricity Generation (for all WtE technology operations);
- ERA 15 – Fuel Burning (for all WtE technology operations);
- ERA 55 – Regulated Waste Recycling or Reprocessing.

Be of Strategic significance to the locality, region or the State

As a major Resource Recovery Infrastructure and Energy project requiring an investment of approximately A$400 million, the Project is expected to deliver a range of positive socio-economic impacts targeting the region but extending to other population centres in South East Queensland. These include:

- Creation of employment opportunities during the planning, design, construction and operation of the Project – with current estimates of 200 Full Time Equivalent jobs during construction and up to 80 Full Time Equivalent jobs during operation;
- Project will assist the retention of jobs in the Ipswich LGA as a result of new investment and economic activity;
- Project is a strategically significant development for Ipswich in terms of supporting the city's industrial diversification;
- Facilitation of critical infrastructure to the State in advancing the resource recovery, recycling and waste management strategy;
- Assist to achieve the Queensland State Government target for 50 per cent renewable energy by 2030;
- Project adopts technology to ensure that wastes with recoverable value are not sent to landfill and, instead, are put to beneficial use; and
- Supply base load power to the domestic market.

There will be several key environmental matters that require focused assessment to fully identify impacts and develop appropriate mitigation measures.

On the basis that the Project's scale and extent is anticipated to have known environmental impacts that are able to be managed through well understood environmental risk mitigation measures, the use of an Impact

Assessment Report (IAR) process under the SDPWO Act is requested as the prudent coordinated project pathway.

Given the existing approval of the wider SREWMF, the current site operations, the infrastructure that currently caters to waste storage and treatment (both on site and within the locality) and the industrial nature of the Swanbank precinct, the proposal is well suited to progress under an IAR pathway.

The IAR pathway is also consistent with the assessment category that would be applicable to the proposal if approval were to be sought through the normal pathway under the Planning Act 2016. Under normal circumstances, the proposal would require only a code assessable application to Ipswich City Council, although that application would involve a number or referral triggers to the State as indicated above.

This code assessable status is established by Part 6, Division 5 of the Ipswich Planning Scheme, which contains the Assessment Categories and Relevant Assessment Criteria for Regional Business and Industry Investigation Zone (Table 6.4 – Making a Material Change of Use).

Table 6.4 identifies that any specified use listed in Table 6.1 for the specified precincts within Sub Area RBIA2, Swanbank New Chum have the following assessment category:

- Exempt, if located within an existing building approved or lawfully used for a specified use listed in Table 6.2 for the specified Sub Area.
- Code Assessable otherwise.

The site falls within the Swanbank Approved Land Use Precincts (3 and 4) under the Ipswich City Plan for the following purposes (as per Table 6.1 of the Ipswich Planning Scheme):

3. *Waste Processing, Treatment and Disposal (in accordance with Plan of Development No. 10556/001C).*
4. *Waste Recycling, Composting and Disposal, Land Rehabilitation, Truck Depot and Park with ancillary uses of Leachate Collection, Landfill, Gas Collection, Treatment, Storage and Disposal, Crushing of Spoil Pile Material, Vegetation Propagation for Rehabilitation and Caretakers Flat (Generally in Accordance with Plan of Development TP-61/90).*

This wording in the Ipswich Planning Scheme reflects longstanding approvals over the REMONDIS land at Swanbank which envisage a wide range of waste related activities.

Drawing upon their extensive international experience in building and operating WtE plants (described in greater detail in Section 2 of this report), REMONDIS can provide the Coordinator General with comfort that the WtE technology and process is well understood and with limited environmental effects, the Project should be considered suitable for the IAR pathway.

Although the proposed technology is new in the context of Queensland, based on existing operational experience, REMONDIS is in a unique position to be able to provide the Coordinator General with certainty regarding the concentrations and mixes of emissions associated with the technology to provide assurance that the performance of the facility will meet Industrial Emissions Directive (IED) emissions limits and nearby sensitive receivers will not be at any risk in terms of human health. The IED details rules for integrated prevention and control of pollution arising from industrial activities[15].

It also lays down rules designed to prevent or, where that is not practicable, to reduce emissions into air, water and land and to prevent the generation of waste, in order to achieve a high level of protection of the environment.

The proposal will be in a position to provide direct reference to fully operational facilities that incorporate the thermal treatment of the same type of waste feedstock proposed at Swanbank to provide the Coordinator General with certainty with regard to potential environmental impacts (such as air quality impacts and human risk estimates).

REMONDIS can demonstrate that the nominated waste streams will be separated. Higher order waste management opportunities (reduce, re-use and recycle) will be prioritised and that the processing of waste through the proposed technology will occur after alternative recovery opportunities have been undertaken.

REMONDIS has a proven track record in the Ipswich region in relation to resource recovery and waste management. When the proposal is considered in the context of the existing operation and the fact that

REMONDIS is one of Europe's largest privately owned operators of WtE plants, it is demonstrated that the proposal is a well-defined, low to medium risk project where the likely impacts are highly predictable. REMONDIS has a well-defined proposal to avoid, minimise, mitigate and/or offset those impacts that are accepted best-practice in the WtE industry. The proposal is therefore well suited to progress via the IAR pathway.

Justification for using the more targeted IAR process is summarised in Section 7.1 (potential project impacts) and Section 8.1 (Environmental Management and Mitigation Measures).

2.0 The proponent

REMONDIS is one of the world's largest waste, water and environmental management organisations, managing recyclable material, general waste, organic matter, liquids and more problematic wastes. It has been operating since 1934.

The company employs more than 30,000 staff in over 800 business locations across 30 countries and generates revenues valued at approximately AUD$11.5 billion per annum.

REMONDIS has a network of more than 800 plants and facilities that service more than 200,000 commercial and industrial customers and collect, process and market more than 30 million tonnes of recyclable materials every year.

Sustainability and the conservation of natural resources are the central features of the company's philosophy and directly influence all of REMONDIS' business activities. Across the world, REMONDIS promotes and advances efforts to sustainably improve living conditions.

REMONDIS Australia was founded in 1982 with its first operation in Penrith, NSW. Since then, REMONDIS Australia has grown steadily, with operations in Sydney, Melbourne, Brisbane, Adelaide, Perth and in regional Australia.

In Queensland, REMONDIS employs approximately 180 people, servicing more than 7,000 commercial customers, including 9 councils, and working with a network of domestic customers. REMONDIS is one of Europe's largest privately owned operators of WtE facilities that produce heat, steam and generate energy.

REMONDIS has extensive international experience in building and operating WtE plants. They own and/or operate large WtE plants that utilise various types of fuel including municipal waste, refused derived fuel and biomass. Examples of some of these plants include:

GMVA Oberhausen, Germany
The 720,000 tonnes per year WtE plant in Oberhausen Germany which produces up to 262 MW of thermal power input which is converted into electricity and additional heat production for heat supply from municipal solid waste.

Environmental control systems include SNCR, wet scrubber, entrained flow absorber.

RETA Staßfurt, Germany
The 300,000 tonnes per year WtE plant in Staßfurt Germany which produces up to 111 MW of thermal power in the form of electricity and additional heat production for heat supply from municipal solid waste.

Environmental controls include SNCR, semi-dry adsorption reactor, fabric filter.

AVG Cologne, Germany
The 700,000 tonnes per year WtE plant in Cologne Germany which produces up to 264 MW of thermal power in the form of electricity and additional heat production for heat supply from municipal solid waste.

Environmental control systems include spray drier, fabric filter, SCR catalytic reactor, wet scrubber, fixed bed hearth furnace coke filter.

BMK Biomass Plant in Lunen, Germany
A 150,000 tonnes per year biomass plant which produces 46 MW of

thermal power primarily from wood waste.

MHKW Frankfurt, Germany
525,000 tonnes per year WtE plant in Frankfurt City, Germany. The plant produces 250 MW of thermal power in the form of steam for district heating and power production for Frankfurt.

Environmental control systems include SNCR, entrained flow adsorption, fabric filter.

BEG Bremerhaven
300,000 tonnes per year plant treating MSW located near Bremerhaven, Germany. The plant produces up to 139 MW of thermal power for electricity and district heating.

Environmental control systems include SNCR, EP, quench, Entrained flow adsorption, wet scrubber, fabric filter.

In Germany, REMONDIS' Lippe Plant is the focal point and the hub of its recycling activities, where more than 330,000MWh of energy (electricity and steam) is produced each year, including 158,600MWh from a biomass-fired power plant. The Lippe Plant is Europe's largest recycling site, where annually more than one million tonnes of waste is recycled/recovered and converted into recycled raw materials, other products or energy. Along with exporting a large amount of energy, the Lippe Plant creates sufficient energy to power the whole site. Details of the Lippe Plant can be found at https://www.remondis-sustainability.com/en/acting/lippe-plant/

REMONDIS has engaged the services of Ethos Urban (Planning Consultants) to assist with the preparation of the IAS and Three Plus (Communications Consultants) to assist with the preparation of a Community and Stakeholder Engagement Plan.

The proponent's Queensland head office is located in Rocklea at the following address:

69 Grindle Road,
Rocklea QLD 4106

3.0 Nature of the proposal

3.1 Scope of the project

The project is proposed to comprise of an integrated waste receiving, processing, recovery, and power generation facility which includes a Waste to Energy (WtE) facility. WtE plants recover energy through the combustion of waste as the fuel for generating power, just as other power plants use coal or natural gas. The burning fuel creates steam to drive a turbine to create electricity. Unlike wind and solar systems, WtE plants can generate renewable baseload electricity for households and businesses irrespective of weather patterns.

At Swanbank, diverting suitable waste away from landfill (as shown in **Figure 2** below) and into a best-practice WtE facility, REMONDIS can generate up to 50MW of electricity and extend the life of constrained landfills.

REMONDIS' existing Swanbank landfill does not take any of the NSW waste streams that has been the subject of recent media coverage and public interest, and REMONDIS' WtE proposal does not rely on additional waste streams coming to the Swanbank site. Instead, REMONDIS will divert existing waste streams to a beneficial use (recovered energy).

The proposal does not seek or require further approval to the existing REMONDIS operations on site (as described in detail in Section 1.2 of this report).

Waste will be received to the facility either for recovery and recycling, or directly for use of suitable materials as a fuel source in a WtE plant. Residues from the plant's flue gas treatment system and the boiler will be processed in an on-site facility or disposed to a suitable landfill. Resulting bottom ash from the plant will be processed through a recovery facility to extract valuable resources such as metals and reused potentially as a construction material or disposed to a suitable landfill.

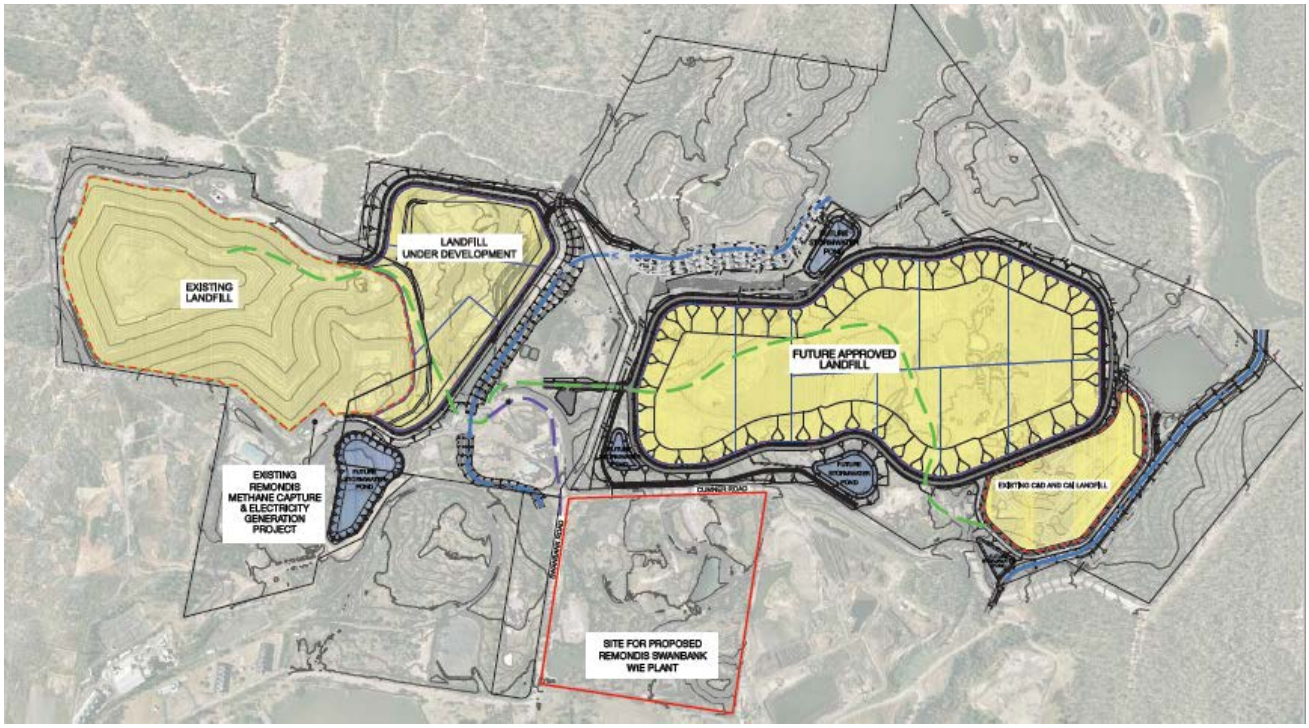

Figure 5: Swanbank landfill with proposed site for REMONDIS WtE facility shown in red

Figure 6: Artist's impression of the Waste to Energy Facility at Swanbank, Ipswich.

Figure 7: Artist's impression of the Waste to Energy Facility.

3.2 Land uses

Activities currently approved on the Stage 1 and 2 of the subject land include the following:

- Waste disposal;
- Resource recovery and recycling of waste;
- Waste volume reduction and separation;
- Biological treatment processing;
- Chemical waste treatment (including sewerage sludge treatment);
- Thermal treatment technologies; and
- Composting and organic processing.

3.3 Project need, justification and alternatives considered

The main objectives of the proposed facility are as follows:

- To manage or reduce the need/dependency for landfill in South East Queensland.
- To improve resource recovery from waste and to divert recyclables away from landfill.
- To help solve the energy and waste needs of South East Queensland.

South East Queensland faces a significant existing landfill challenge, with landfill disposal accounting for about 40% of total waste management in Australia. There are 11 landfills in South East Queensland which receive nearly four million tonnes of household rubbish, commercial and industrial waste, and construction and demolition waste a year.

The diversion of waste from landfill, reducing the potential for methane emissions, while also providing a form of low carbon, renewable energy, is now recognised by Government as making an important contribution to the targets for dealing with waste.

It is therefore considered that the 'Do Nothing' scenario is not appropriate given the established need for new energy generation, including a need for low carbon generation. The alternative to the proposed Development proceeding would be continued operation of traditional landfill waste management operations which have been found to be inefficient as a long term sustainable solution to South East Queensland's expanding population and waste generation.

The selection of the site for the proposed Development is directly related to its proximity to the Cunningham Highway, local electricity grid, and the direct synergies between the proposed Development and the adjoining REMONDIS SREWMF currently in operation which will provide a high percentage of the waste fuels.

The WtE facility does not rely on additional waste streams coming to the Swanbank site, instead it will divert existing waste streams to a beneficial use. REMONDIS does not take any of the NSW waste streams that were the subject of recent media coverage and public interest.

The Swanbank area is designated and zoned as a significant business and industrial area of the city of Ipswich and is identified as having preferred development outcomes for industry with high energy uses.

WtE technology is used across the world, with countries including Germany, France, Swiss, USA, Japan, China, Denmark, Norway and Finland using waste to generate electricity. Diverting thousands of tonnes of suitable waste away from landfill and into a best-practice WtE facility will extend the life of South East Queensland's constrained landfills and also provide an additional, baseload electricity source for Queensland residents and businesses. Queensland has the opportunity to benefit from successful European and UK experiences and incorporate WtE as part of the solution to sustainable, best practice waste management. Examples of plants operated by REMONDIS are provided in Section 2.0.

It should also be noted that other Australian States have WtE facilities progressing through the approval stages, with some facilities expected to be operational within the next few years. Examples of Australian facilities include:

Australian Paper

- Location: Latrobe Valley Victoria
- Proposal: 225MW thermal energy from waste
- Input: 650,000 tonnes per annum of MSW and C&I waste
- Status: Works approval application submitted with EPA Victoria.

Recovered Energy Australia

- Location: Laverton North, Victoria
- Proposal: 10MW gasification to energy plant
- Input: 200,000 tonnes per annum of MSW
- Status: Design and application stage.

Mt. Piper (Energy Australia and RE Group)

- Location: Portland, New South Wales
- Proposal: 27MW energy from waste
- Input: 200,000 tonnes per annum of waste
- Status: Planning / EPA decision pending. Expected 2019.

Phoenix Energy Australia

- Location: Naval Base, Western Australia
- Proposal: 36MW energy from waste
- Input: 400,000 tonnes per annum
- Status: Approved. Expected to be operational by 2021

New Energy Corporation Pty Ltd

- Location: East Rockingham, Western Australia
- Proposal: 27.8MW energy from waste
- Input: 300,000 tonnes per annum from MSW, C&I and C&D waste
- Status: Currently awaiting approval

New Energy Corporation Pty Ltd

- Location: Port Headland, Western Australia
- Proposal: 18.5MW energy from waste
- Input: 70,000-130,000 tonnes per annum
- Status: Approved. Operational 2019.

3.4 Components, developments, activities, and infrastructure that constitute the project to be declared coordinated

The proposed development involves the construction and operation of resource recovery infrastructure and WtE Facility on the REMONDIS SREWMF, in an area appropriately zoned for heavy industry and adjacent to the Swanbank power station and with the infrastructure in place to operate a power station.

WtE plants recover energy through the combustion of waste as the fuel for generating power, as shown in a simple process diagram in **Figure 8** below.

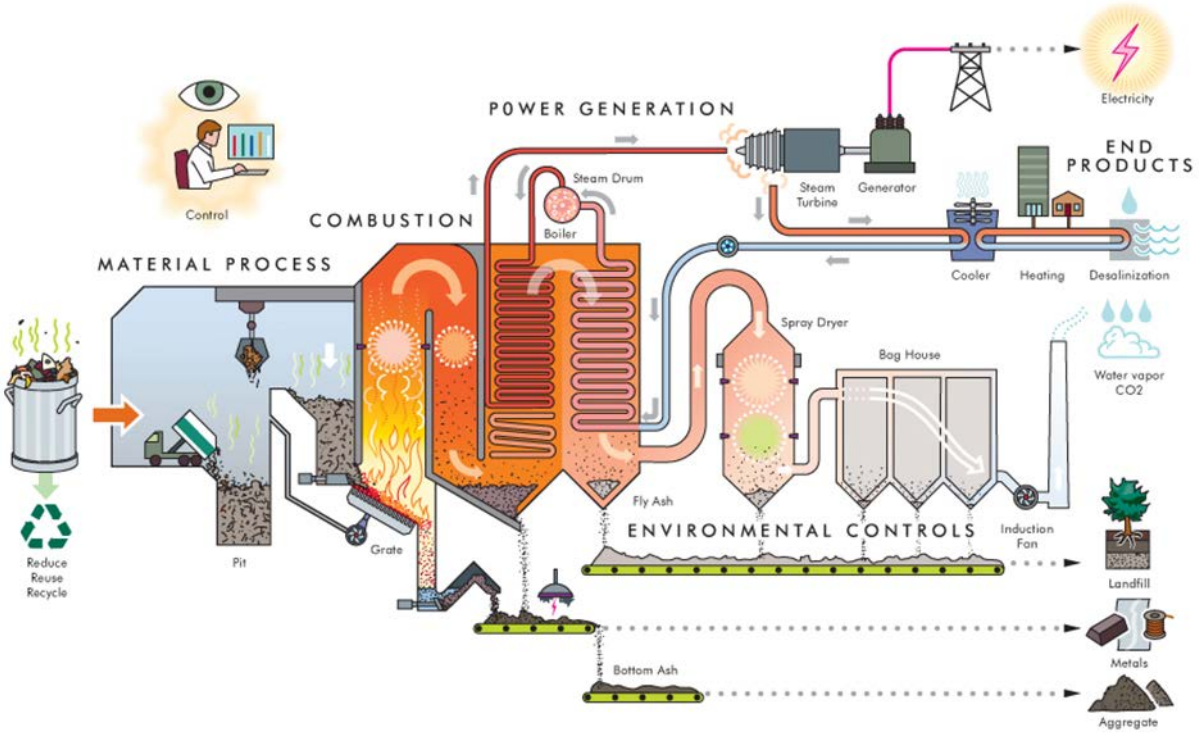

Figure 8: Simple Waste to Energy process

(Source:https://www.ct.gov/deep/lib/deep/waste_management_and_disposal/solid_waste/transforming_matls_mgmt/resources_recovery_task_force/crra_operational_review_report_110813.pdf)

3.5 Process Description

Resource Recovery / Sorting Facility

Waste received to site in a resource recovery / sorting area where the waste is sorted into recoverable and non-recoverable fractions. Recoverable waste will be collected and transported to suitable recycling facilities and non-recoverable wastes will be further sorted and transferred into the Receival / Tipping Hall.

Receival or Tipping Hall

Waste is received at the facility into the receiving or tipping hall. This hall is fully enclosed and maintained under negative pressure to minimise dust and odour emissions. The air in the tipping hall and waste bunker area is used as combustion air for the process to effectively prevent emissions.

Waste Bunker

The waste is tipped via multiple unloading bays into a large waste bunker which has enough capacity for storage of waste for several days. While no waste deliveries take place, the unloading bays are closed and sealed. Waste is fed directly by crane from this bunker into the combustion chamber.

Grate / Combustion Chamber

The combustion chamber is a highly specialised and large piece of equipment that utilises the reciprocating grate technology to move the waste through the combustion chamber while allowing combustion air to flow through the waste. Multiple combustion zones, that are separately controlled and supplied with combustion air, ensure an entire burnout of the waste. The hot flue gas from the combustion chamber goes through a secondary combustion chamber (post-combustion chamber) to finally ensure complete combustion.

Bottom Ash Conveyer

The entirely burned out waste falls as ash from the end of the combustion grate into the deslagger. The deslagger not only cools down the hot ash with water but also insulates the combustion chamber from the surrounding area, therefore preventing emissions. The bottom ash conveyer subsequently transports the ash out of the system, where it is taken away for re-processing and re-use.

Boiler or Heat Exchange Unit

This boiler unit (which comprises of a multi-pass heat exchanger system) takes the hot flue gas from the combustion chamber and transfers its thermal energy to the water-steam-cycle, where water evaporates and turns into steam. The steam is super-heated, normally to around 400 – 430ºC and high pressures of about 40 bar. The super-heated steam is then utilised in a steam turbine to generate electricity.

Flue Gas treatment

The flue gas, after passing through the boiler units, will pass through several treatment steps which include selective non catalytic reduction (SNCR) by utilizing urea or ammonia waster to remove NOx gases, injection of lime and activated carbon to remove acidic gases, heavy metals, dioxins / furans and other organic pollutants and a baghouse filter to remove reaction products and particulates. The flue gas treatment system will be fully compliant with current European emission limits for WtE plants. It will meet the requirements of the IED.

Water Steam Cycle with Steam Turbine

The turbine and generator units turn the super-heated steam into electricity. The steam is condensed back and re-used in the process. Depending on the design of the turbine, steam can be extracted in various pressure levels depending on the intended end use.

Stack

Purified flue gases will be emitted via a stack. The height of the stack will be determined by dispersion modelling.

Plant Outputs

Apart from electricity, steam and heat, there are three main outputs from the WtE process:

Bottom Ash

The bottom ash is processed to recover metals and the resulting aggregate is re-used in various applications (for example: road base). Bottom ash volumes are generally 16-22% of the input waste volumes.

Fly Ash

The fly ash is collected from the boiler and flue gas treatment system. The ash is stabilised, if required, and disposed to REMONDIS' licenced landfill. Fly ash volumes are generally 2-3% of the input waste volumes.

Flue Gas Emissions

The gas emissions leaving the stack will be monitored continuously by a computerised system that complies with IED regulations. They will also be spot tested as required by relevant regulations for various contaminants such as heavy metals, dioxins and furans. In Europe, it is best practice and common for real time gas emissions data to be transferred to the local Environmental Authority responsible for the regulatory supervision of the facility. It is also recommended to continuously measure mercury to obtain a best practice removal efficiency.

3.6 External infrastructure requirements

The SREWMF site can be accessed from the Cunningham Highway via Swanbank Road. Construction traffic will primarily occur via this road.

Existing power and water supply on site will suitably meet the requirements of construction activities.

The activities of the WtE facility will require connection to the existing power grid system. This connection will be negotiated with the relevant parties prior to project commencement as it will be required to finalise design plans.

These connections will be undertaken in line with all necessary state and federal guidelines and permit systems. It is expected that this connection will extend past the boundaries of the existing Swanbank facility as required by the infrastructure system.

3.7 Timeframes for the project

The proposed commencement and completion of the WtE facility is outlined in the table below.

Table 1: Timeframe

Activity	Timeframe
Coordinated project and DES approvals.	2018-2019
Detailed Design and Approvals.	2019-2020
Construction and quality control.	2021-2023
Implementation and site operations commence.	2024-2025

3.8 Construction and operational processes

Overview of key construction and operational requirements:

- Access to water supply;
- Road network;
- Waste feedstocks;
- Connection to power grid;
- Environmental testing and guidelines.

The key project components and activities required to provide the Resource and Recovery and WtE facility at Swanbank include:

- Construction and Enabling Works:
  - Site establishment;
  - Bulk earthworks;
  - Piling and foundations;
  - Services location and reticulation;
  - Internal and external road works; and
  - Car parking and other civil infrastructure.
- Main Construction Works:
  - Site layout and building works;
  - Structure works:
    - Resource Recovery / Sorting Facility;
    - Transport/loading infrastructure for the transport of recyclables;
    - Tipping hall;
    - Waste bunker;
    - Grate / Combustion Chamber;
    - Boiler and boiler house;
    - Flue Gas treatment;
    - Turbine / turbine hall;
    - Deslagger;
    - Ash conveyor belt;
    - Stack;
    - Ash processing.
- Weighbridges;
- Building Materials/Finishes;
- Office and amenities for staff and contractors;
- Parking and traffic management infrastructure;
- Landscaping and environmental development to support local ecosystems.

3.9 Workforce requirements during the construction and operation

Workforce numbers are estimated to be up to 200 Full Time Equivalent jobs during construction and up to 80 Full Time Equivalent jobs during operation.

3.10 Economic indicators

Based on concept design work undertaken to date, the Project's capital expenditure is approximately $400 million. The cost estimate will be further developed as part of the Project's detailed design process.

3.11 Financing requirements and implications

The proposed REMONDIS WtE facility will be a private sector investment. The project is not reliant on the Queensland State Government Resource Recovery Industry Development Program (RRIDP). REMONDIS has the necessary capacity to fund the project.

4.0 Location of the key project elements

4.1 Location

The SREWMF is located at 66-114 Blackheath Road SWANBANK QLD 4306 and is legally described as:

- Lot 101 on RP 839072;
- Lot 102 on RP 839072;
- Lot 103 on SP 189609;
- Lot 104 on RP 839073;
- Lot 3 on RP 214256.

The project area is located within the local context is shown below in **Figure 9.**

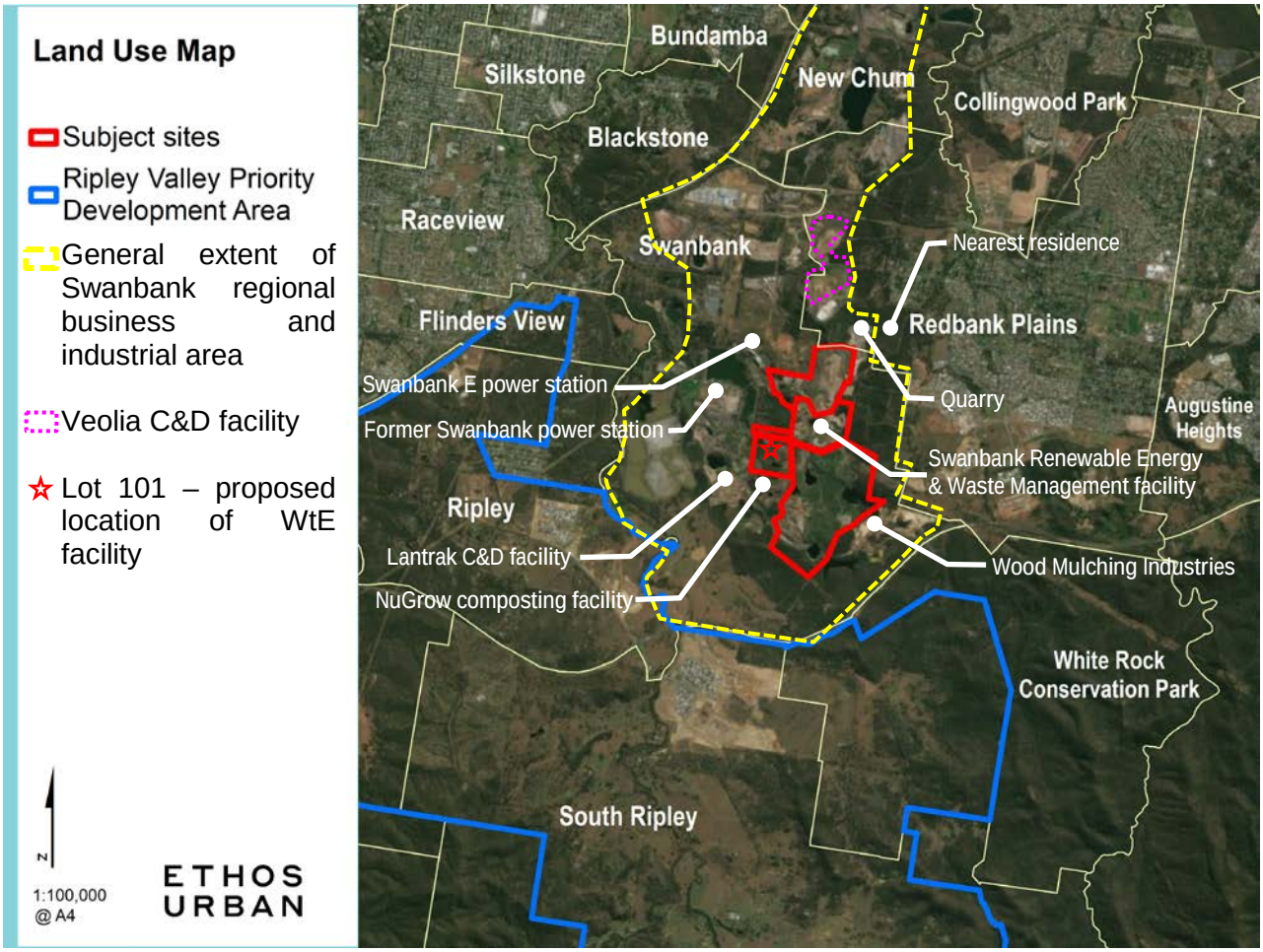

Figure 9: Surrounding features

4.2 Tenure

The proposed WtE facility is to be located on Lot 101 on RP 839072 however the proposal will include the wider SREWMF which includes Stage 1 (Lot 103 on SP 189609 and Lot 104 on SP 839073) and Stage 2 (Lot 101 and 102 on RP 839072 and Lot 3 on RP 214256).

The SREWMF is owned freehold by REMONDIS and is surrounded by freehold land. The site is zoned RBIA02 - Regional Business & Industry Investigation (New Chum) under the provisions of the Ipswich Planning Scheme, located within the City of Ipswich Local Government Area.

5.0 Description of the existing environment

5.1 Natural environment

5.1.1 Land

The SREWMF and the area around the Project site are located within the Swanbank regional business and industrial area as defined in the Ipswich City Plan and are characterised by disturbance from former coal mining operations and other ongoing industrial activities.

The entire site is included in the Regionally Significant Business Enterprise and Industry Area under the planning scheme. Within this area, Lots 101, 103 and 104 are located within the Regional Business and Industry Investigation Zone. Lot 102 is also partly included in this zone, with the eastern part of this lot included in the Regional Business and Industry Buffer Zone. Lot 3 is included in the Regional Business and Industry (Medium Impact Sub Area) Zone.

These areas primarily accommodate regional business enterprise and industry employment opportunities, as well as the buffer areas for these uses, that are generally compatible and create a high standard of amenity. Although the proposed land use is not typically associated with high amenity, it is consistent with and will form part of the existing on-site Swanbank landfill operations.

The zoning for the site, as shown below in **Figure 10**, is also consistent with the inclusion of the site in the Swanbank New Chum Land Use Concept Master Plan, where the site is identified as being part of the waste recycling/future rehabilitation, general business and industry (medium impact) and buffer/greenspace areas.

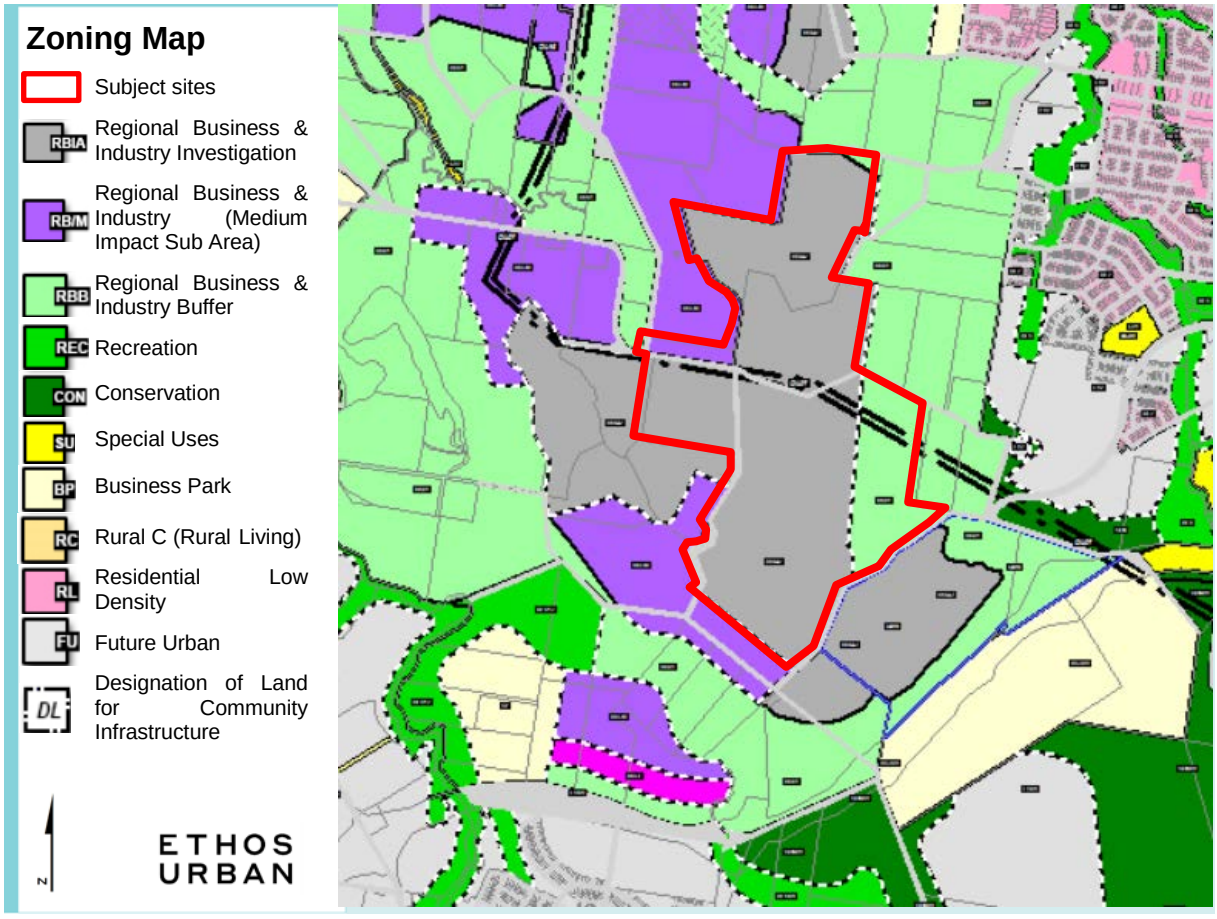

Figure 10: Zoning Map

Figure 11 Site Aerial with Approved Stages of SREWMF

The subject site is also included in the following planning scheme overlays:

- Key Resource Areas, Buffers and Haul Routes (OV02): The subject site includes key resource areas and haul routes/buffers;
- Mining Influence Areas (OV03): The subject site includes mining influence constrained areas, areas of surface disturbance (including open cut mining) and areas that have been affected by underground mining (including shafts and tunnels);
- Difficult Topography (OV04): The subject site includes slopes >25%;
- Defence (Area Control) Regulations and Obstruction Clearance Surfaces (OV7a): The subject site is included in the 45 and 90 metre maximum building height limitation areas;
- Operational Airspaces, Wildlife Attraction and Lighting Issues (OV07b);
- Swanbank Power Station Buffer (OV10);
- High Pressure Oil and Gas Pipeline (OV11): Lot 104 includes a gas pipeline and associated buffer area; and
- High Voltage Electricity Transmission Lines (OV13).

As previously identified, the site incorporates the following lots the form the existing operations:

- Lot 103 on SP 189609 – is currently used for landfill support operations including site offices, weighbridge and works depot;

- Lot 104 on RP 839073 – is currently used for Stage 1 operations, including waste disposal and landfill gas electricity generation;
- Lot 102 on RP 839072 - the location for the proposed Stage 2 landfill. Some Construction & Demolition (C&D) and Commercial and Industrial (C&I) waste disposal currently occurs within the Stage 2 Hardfill area;
- Lot 101 on RP 839072 – proposed location of the WtE facility;

The following key industrial features surround the SREWMF site:

- Swanbank E gas-fired power station to the west;
- the former Swanbank B coal power station and associated cooling pond is located to the west;
- a construction and demolition (C&D) waste management facility, operated by Lantrak, is located to the south west;
- a C&D waste management facility, operated by Veolia Environmental Services, is located to the north (no longer operational);
- a construction and demolition (C&D) landfill, operated by Biorecycle, is located to the west;
- a waste transfer station, operated by Biorecycle, is located to the west;
- a quarry is located to the northeast, owned by PGH;
- a composting facility, operated by Wood Mulching Industries, is located to the southeast;
- a composting facility, operated by NuGrow, is located to the southwest;
- extractive industries and other waste management operations;
- Other nearby major land uses include electricity generation at the Swanbank Power Station.

As demonstrated above, the proposal is entirely consistent with the nature of land uses within the locality.

The site is located on a low, north to south orientated ridge, which extends from a range of hills (up to 350 metres elevation) to the south of the site. The topography of the area can generally be described as low hills and includes patches of vegetation and several drainage paths, whilst being characterised by the mining activities that previously occurred on the site.

The site is currently connected to the local water reticulation network, electricity and telecommunications.

The SREWMF is separated from the nearest proposed residential areas by the Regional Business and Industry Buffer, which would help to reduce potential amenity impacts associated with industrial activities. The nearest existing and future residential locations are approximately 1,500m from the proposed WtE facility site.

The SREWMF is located within an area characterised by and planned for industrial land use under the planning scheme, as indicated in **Figure 12**.

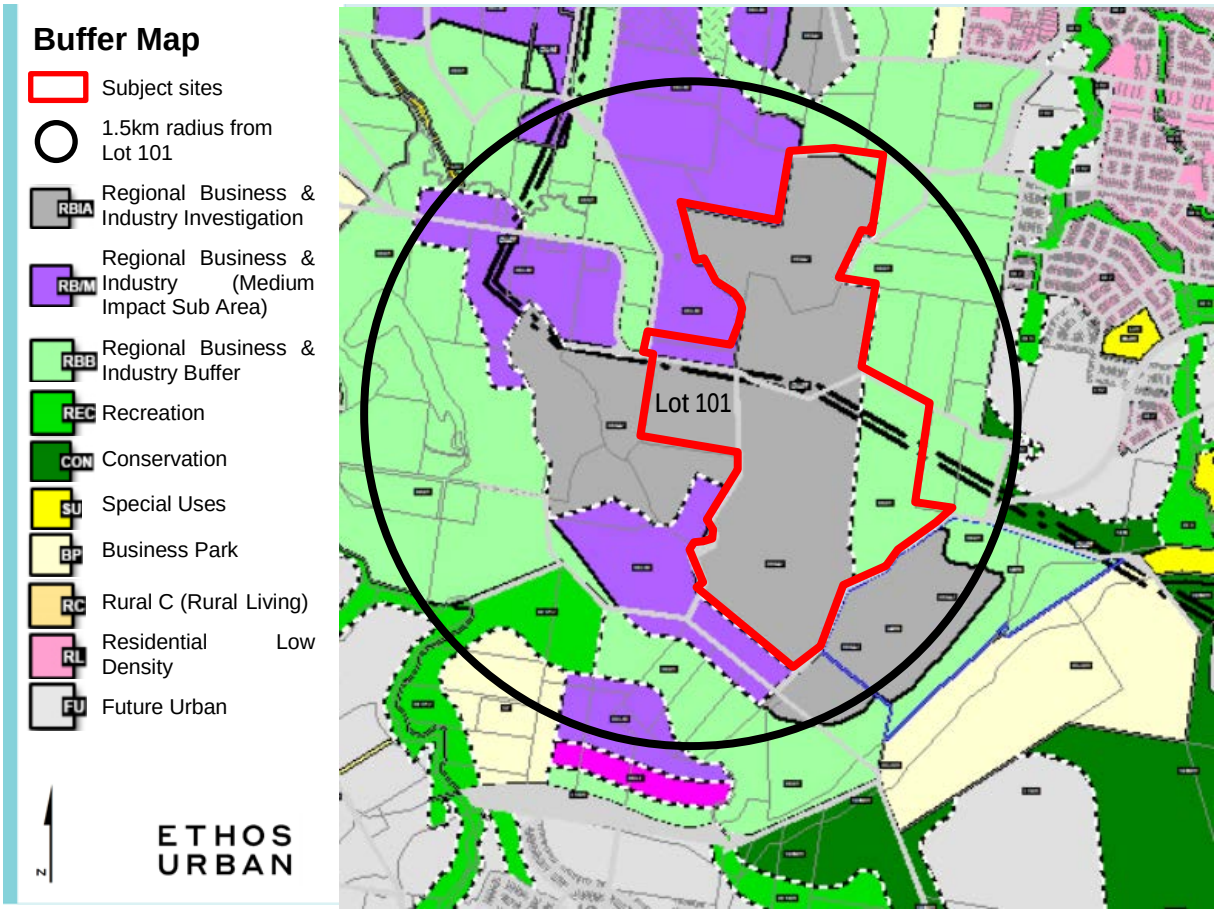

Figure 12: Buffer Map

Areas to the east of the SREWMF are zoned as an emerging community, and are forecast to be developed within the next ten years. The nearest residents are located approximately 1,500 m to the east of the Lot 101.

The Ripley Valley PDA is located to the south of the SREWMF as shown in and some areas of the PDA are expected to be developed over the next ten years.

The visual character and landscape of the SREWMF, located within the Swanbank industrial area, is characterised by former coal mining and more recent industrial activity.

The SREWMF is located at the end of Swanbank Road. Typically, traffic at the site is destined for the facility, and there would be minimal passing traffic. The existing landfill is visible from the end of Blackheath Road, which is a no-through road, and would not receive through traffic.

5.1.2 Water

Surface water features

The SREWMF site is located on a low, north-south running ridge, which extends from a mountain range (up to 350 m elevation) to the south of the site. The Bremer River is located approximately 8.5 km north of the site, and Bundamba Creek is approximately 2.5 km west of the site. The topography of the area can generally be described as low hills.

The site is located in the west-draining catchment of Oaky Creek; runoff form the site flows to the Swanbank Power Station cooling water dam located on Oaky Creek. Oakey Creek flows into Bundamba Creek approximately 1 km downstream of the cooling water dam, and Bundamba Creek flows into the Bremer River approximately 14.5 km downstream from there.

Bundamba Creek flows through a modified catchment consisting of grassland and sections of naturally vegetated channel through urban areas. Six Mile Creek is northeast of the existing SREWMF Stage 1 landfill, and does not receive runoff from the site.

Regional flooding regime

The site is located at the head of the Oaky Creek/Bundamba Creek catchments, and is outside the Bremer River floodplain. Flood modelling undertaken by Ipswich City Council indicates that Lot 101 is not affected by regional flooding from the Bremer River or other waterway.

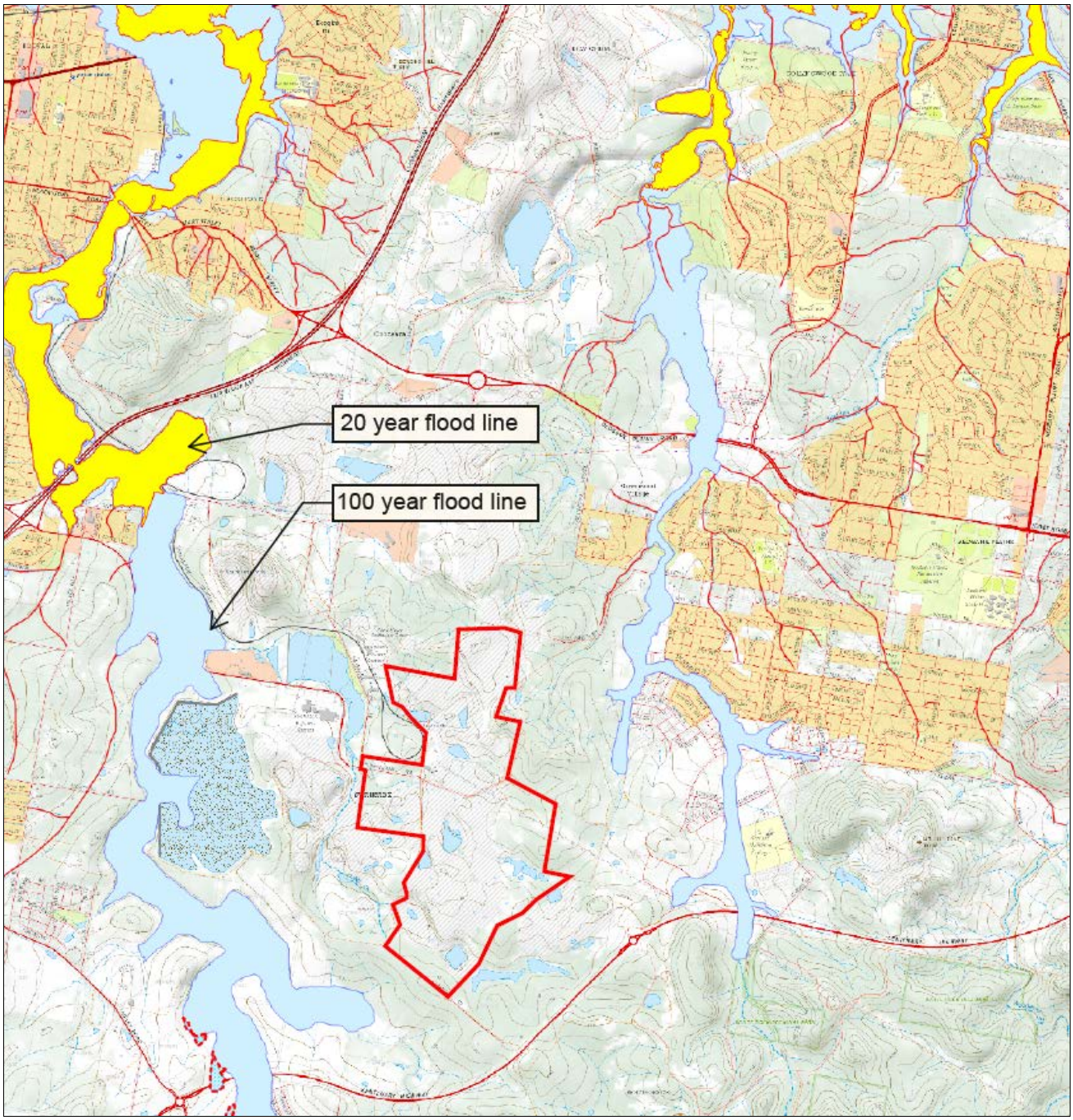

Figure 13: **Regional Flood Plan**

Climate and meteorology

This section describes the existing climate for the Swanbank area. Climate data is readily available from the Bureau of Meteorology (BOM) from the Amberley Allied Meteorological Office (AMO) weather station, situated 11 km west of the SREWMF. Records of climate data are available for the AMO weather station from 1941; this significant historical collection of data provides a reliable understanding of climatic averages.

Temperature

The Swanbank facility is located in a subtropical region of Australia and experiences varying climates over the year. Warm and humid summers are experienced with temperatures typically varying from approximately 19°C to 31°C, with highs reaching 44°C and lows reaching 19°C. Winters experienced in this area are typically mild and dry with temperature varying from 5°C to 22°C. Lows experienced during winter have been as low as -5°C and as high as 33°C. Recorded monthly temperatures are represented in **Figure 14**.

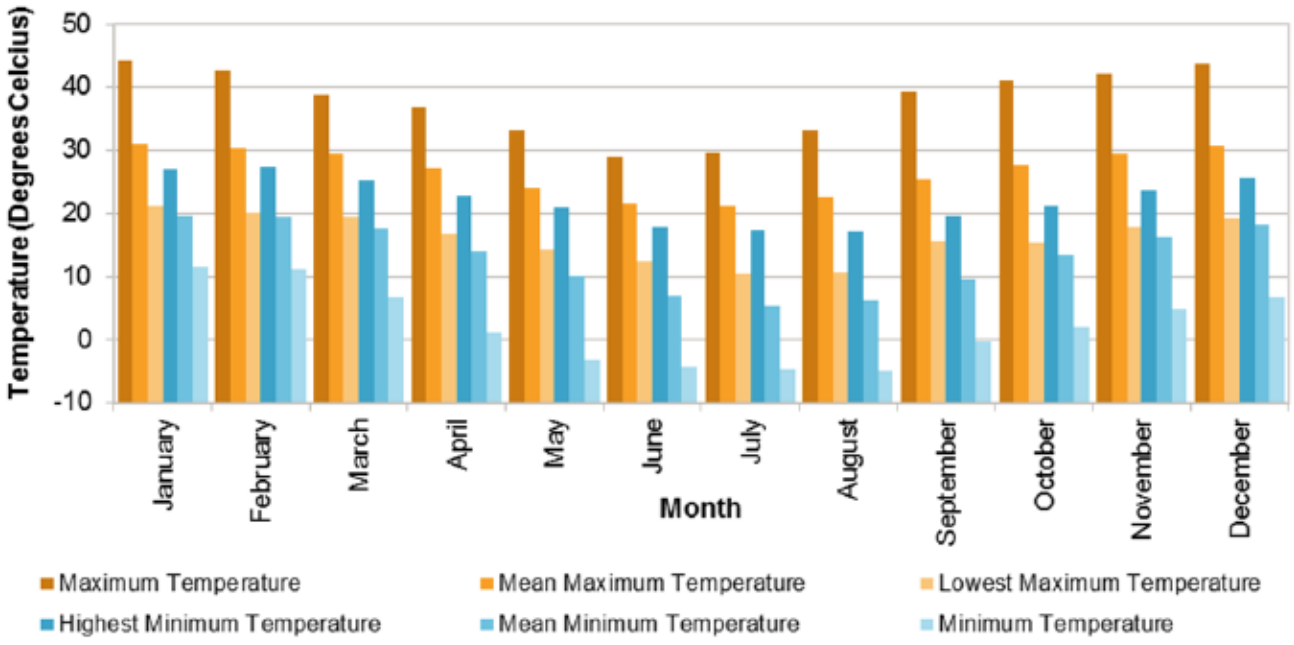

Figure 14 Monthly temperature statistics

Precipitation

The area receives greater volumes of rainfall in the warmer months and less in the cooler months, although this can vary and the cooler months can be known to produce wet periods, particularly in autumn. The warmer months in southeast Queensland typically produce a wetter climate because of the increased humidity in the atmosphere.

The highest daily rainfall for this region was in January 1974 with 240 mm. The monthly rainfall data for Amberley AMO is provided in **Figure 15**.

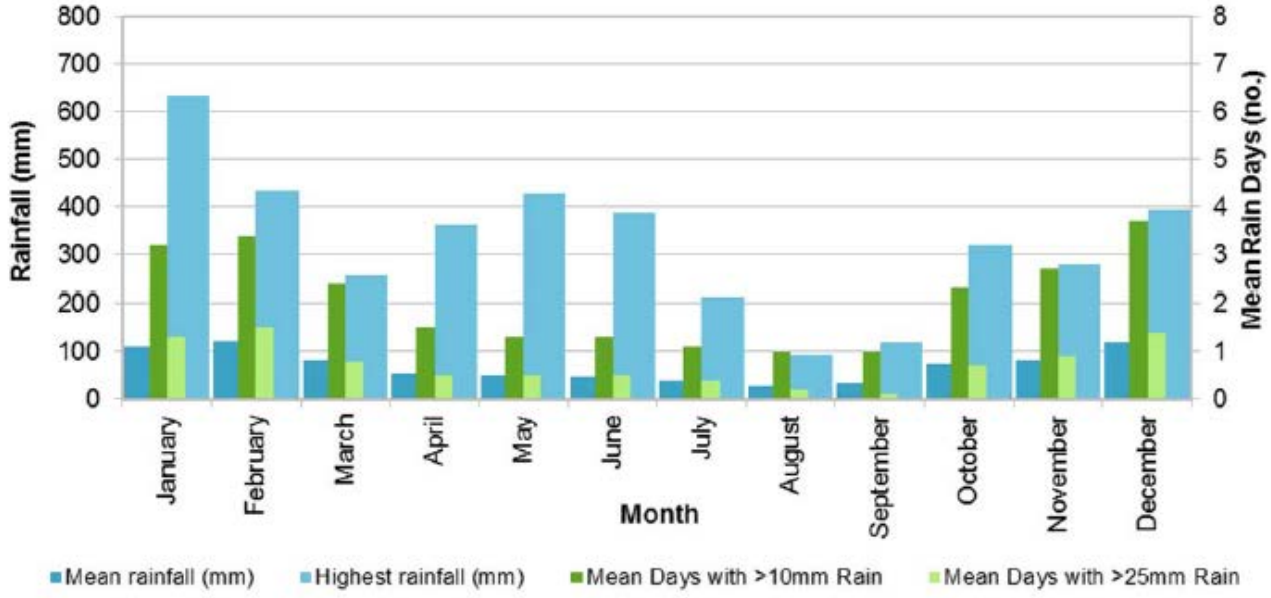

Figure 15 Monthly rainfall statistics

Wind

Wind speeds vary by season and throughout the day. The mean wind speeds for 9 am and 3 pm are provided in **Figure 16** to show the variation of wind speeds throughout the year and between morning and afternoon.

Afternoon wind speeds are typically 6 to 10 km/h greater than those in the morning, as shown in **Figure 17**. The historical records indicate a seasonal variation in wind speed, similar to temperature and rainfall. Typically east to south easterly winds are more dominant in the warmer months in the morning, shifting to east to north easterly in the afternoons. The cooler months receive more dominant winds from the south and west.

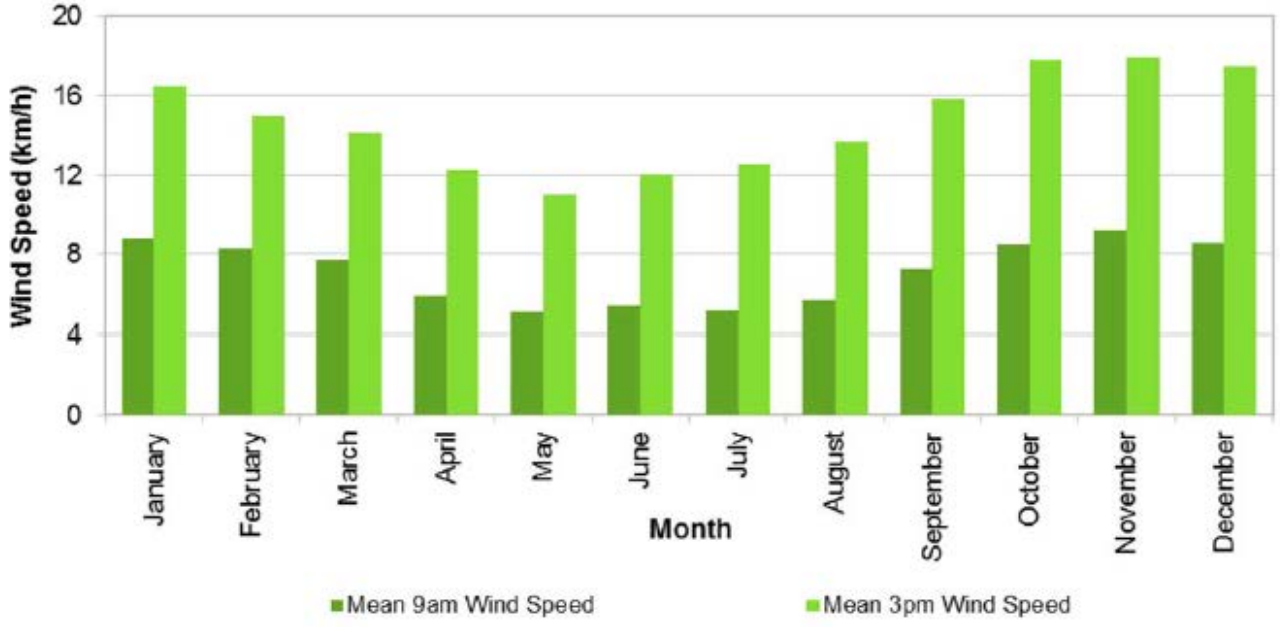

Figure 16 Monthly wind statistics

Noise / Vibration, light and air quality

A further Air Quality Impact Assessment will be prepared as part of the next phase of the application.

5.1.3 Flora and Fauna

A detailed Ecological Impact Assessment in relation to the proposed use of Lot 101 for the purpose of a WtE facility will prepared as part of the detailed documentation phase of the application.

5.2 Social and economic

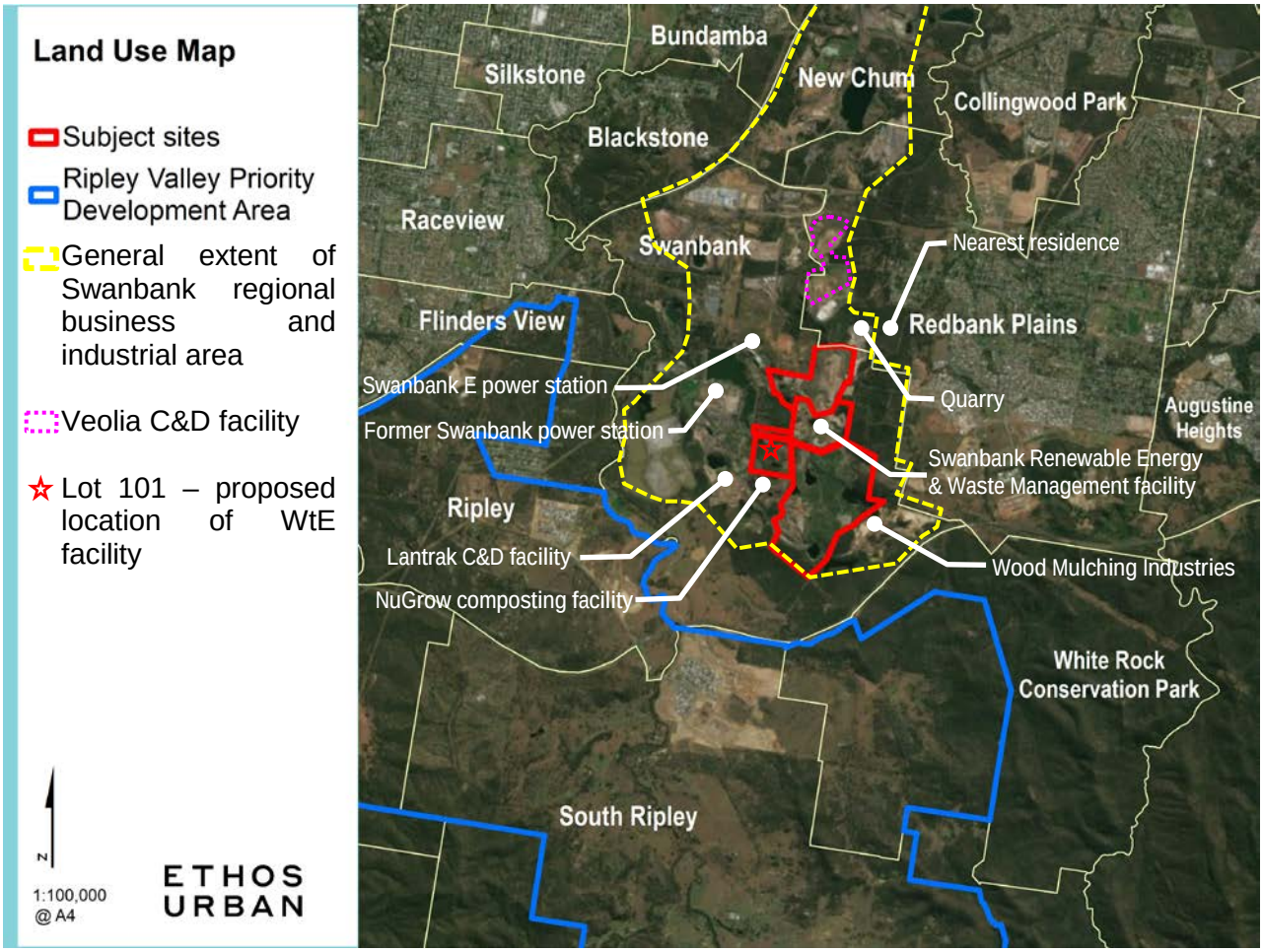

Figure 17 Surrounding features

Ripley Valley to the south, in its current form, exists as a small community of under 1,000 residents. The Ripley Valley Priority Development Area (PDA) has been identified by Economic Development Queensland (EDQ) is an opportunity to provide approximately 50,000 dwellings to house a population of approximately 120,000 people however the implementation plan for the does not envisage the forecast population to eventuate for upwards of 25-30 years.

The more established suburb of Redbank Plains is located to the east of the SREWMF, beyond the Regional Business and Industry Buffer zone to nearby sensitive land uses, as shown in **Figure 20** below.

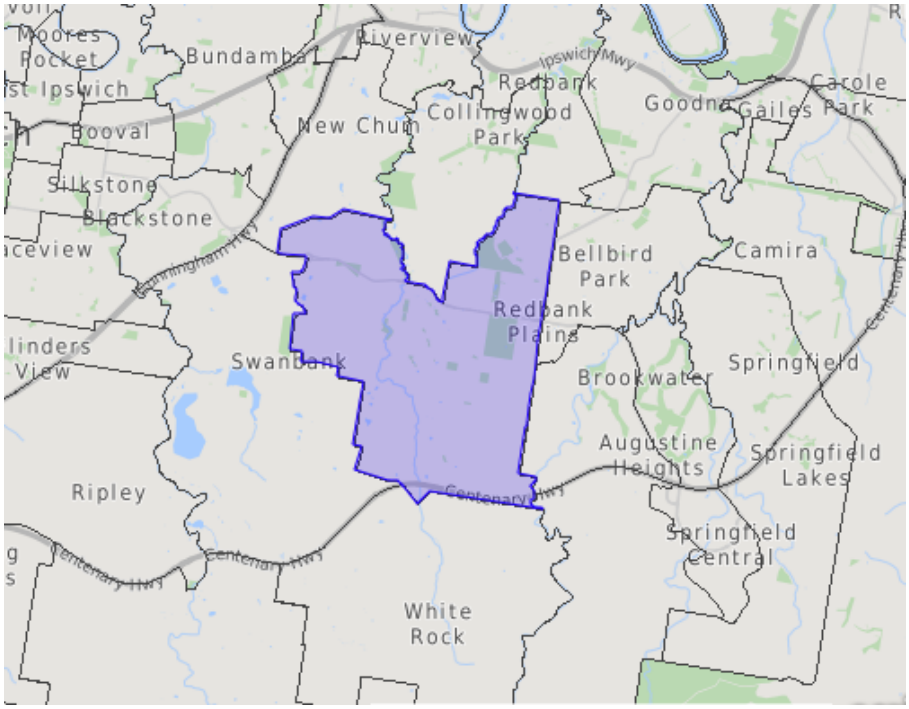

Figure 18: Redbank Plains ABS

In review of the 2016 Australian Bureau of Statistics Census Data for Redbank Plains:

- There were 19,299 people in Redbank Plains;
- The median age of people in Redbank Plains (State Suburbs) was 27 years;
- 6,367 private dwellings.

The Estimated Resident Population growth percentage in Redbank Plains has been 4.4% since 2011, marginally more than the 3.2% for the Ipswich City Local Government Area (LGA).

This population growth data, both for nearby impacted communities and the wider Ipswich LGA, indicates that there will be continued impacts associated with waste management unless an alternative to existing practices can be implemented. In preparation of this IAS, REMONDIS has reviewed the European Union's paper; '*The Role of Waste To Energy in the Circular Economy 2017'.* A circular economy is defined as 'one in which the value of products, materials and resources is maintained for as long as possible, minimising waste and resource use'. The paper recognises that WtE processes can play a role in the transition to a circular economy provided that the waste hierarchy is used as a guiding principle and that choices made do not preclude higher levels of prevention, reuse and recycling.

As demonstrated within this report, the proposed WtE facility will form a single component of the wider 'Swanbank Recycling Park' and REMONDIS is committed to ensuring that existing waste feedstock that is currently being transported to site will be separated that firstly, higher order waste management opportunities (reduce, re-use and recycle) will be prioritised and that the processing of waste through the proposed technology will only occur when all alternative recovery opportunities are exhausted.

Accommodation and housing

There is not anticipated to be any material impacts on accommodation and housing as a result of the Project. The Project is located within an identified Regional Business & Industry Investigation zone and will not result in a loss of accommodation or housing.

5.2.1 Cultural heritage (Indigenous and non-indigenous)

Aboriginal cultural heritage is recognised, protected and conserved under the provisions of the *Aboriginal Cultural Heritage Act 2003,* which is administered by the Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP).

A search of the DATSIP Cultural Heritage Database and Register did not identify any cultural heritage site points in proximity of the Subject Site.

The *Queensland Heritage Act 1992* provides for the conservation of Queensland's cultural (non-indigenous) heritage. No recorded places were identified within proximity to the Subject Site (i.e. that have achieved registration under the provisions of the *Queensland Heritage Act 1992*).A search of the Australian Heritage Register was also undertaken. There are no places of heritage significance recorded in proximity of the Subject Site.

5.3 Built environment

The proposal is entirely consistent with the nature of land uses within the locality. The Swanbank Regional Business and Industry Investigation Zone has been identified by Council for land uses consistent with the SREWMF and has applied an appropriate Regional Business and Industry Buffer zone to nearby sensitive land uses to help to reduce potential amenity impacts associated with industrial activities with he nearest future and proposed residential locations approximately 1,500 metres from the proposed site (Lot 101).

There are no existing declared coordinated projects within the Ipswich City Local Government Area.

5.4 Traffic and transport

The project area is serviced by a range of State controlled roads and Council roads as shown in **Figure 21** below.

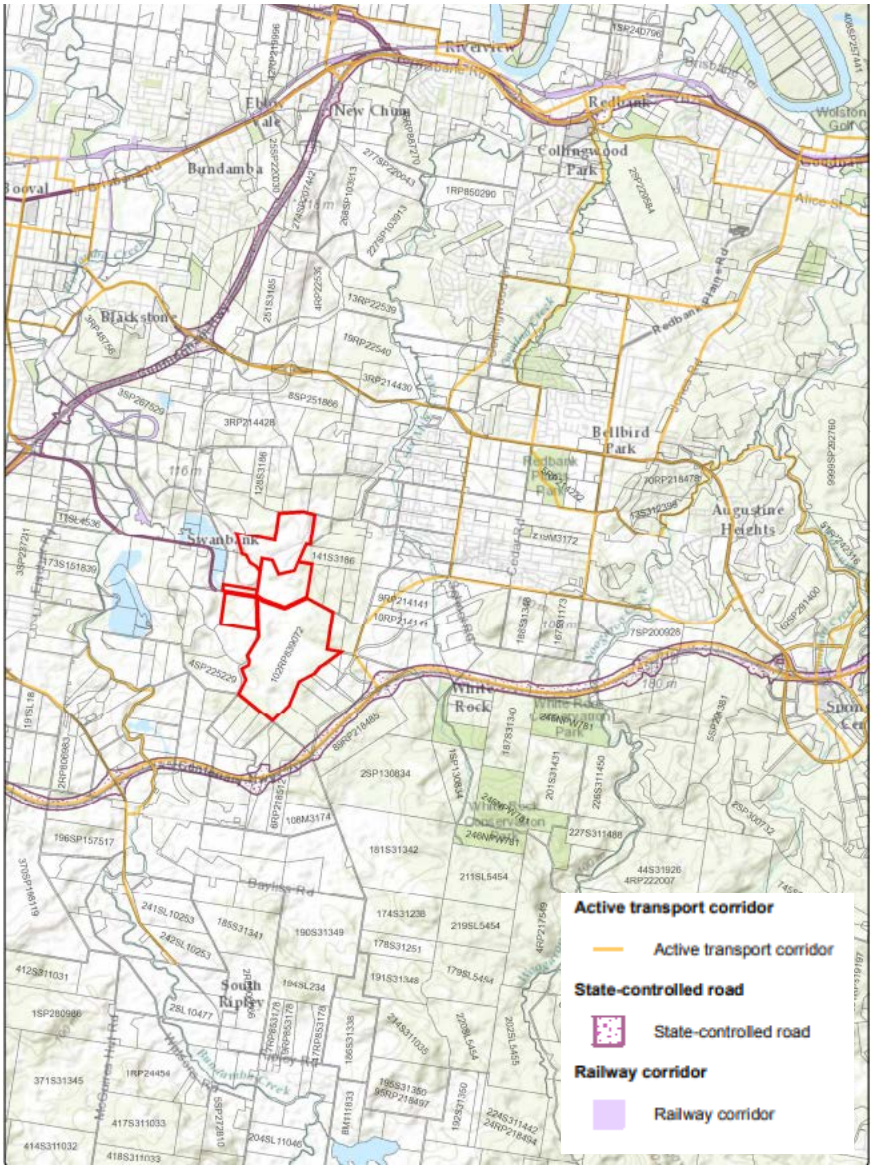

Figure 19: State controlled roads and council roads

Access to the site will continue to be via Swanbank Road and Cunningham Highway, with the proposal incorporating a new weighbridge and entry to Lot 101 on RP 839072.

Average Annual Daily Traffic (AADT) count data prepared by the Department of Transport and Main Roads (DTMR), indicates heavy vehicles accounted for approximately 33% of the 1,455 AADT estimated along Swanbank Road in 2013. This relatively high proportion of heavy vehicle traffic is largely due to the industrial nature of developments in the area. Since 2013, the coal-fired section of Swanbank Power Station was decommissioned. This is expected to have resulted in some reduction in AADT along Swanbank Road (GHD, 2015).

These vehicles use of Swanbank Road/Swanbank Coal Road and the Swanbank Road/Site Access/ Unnamed Road intersections and the associated numbers are not envisaged to change significantly as a result of the Project given the fuel for the WtE facility is from the same source as existing landfill waste.

5.5 Land use and tenure

5.5.1 Key local and regional land tenures

The Swanbank Renewable Energy and Waste Management Facility is freehold and is surrounded by freehold land as shown in **Figure 20** below.

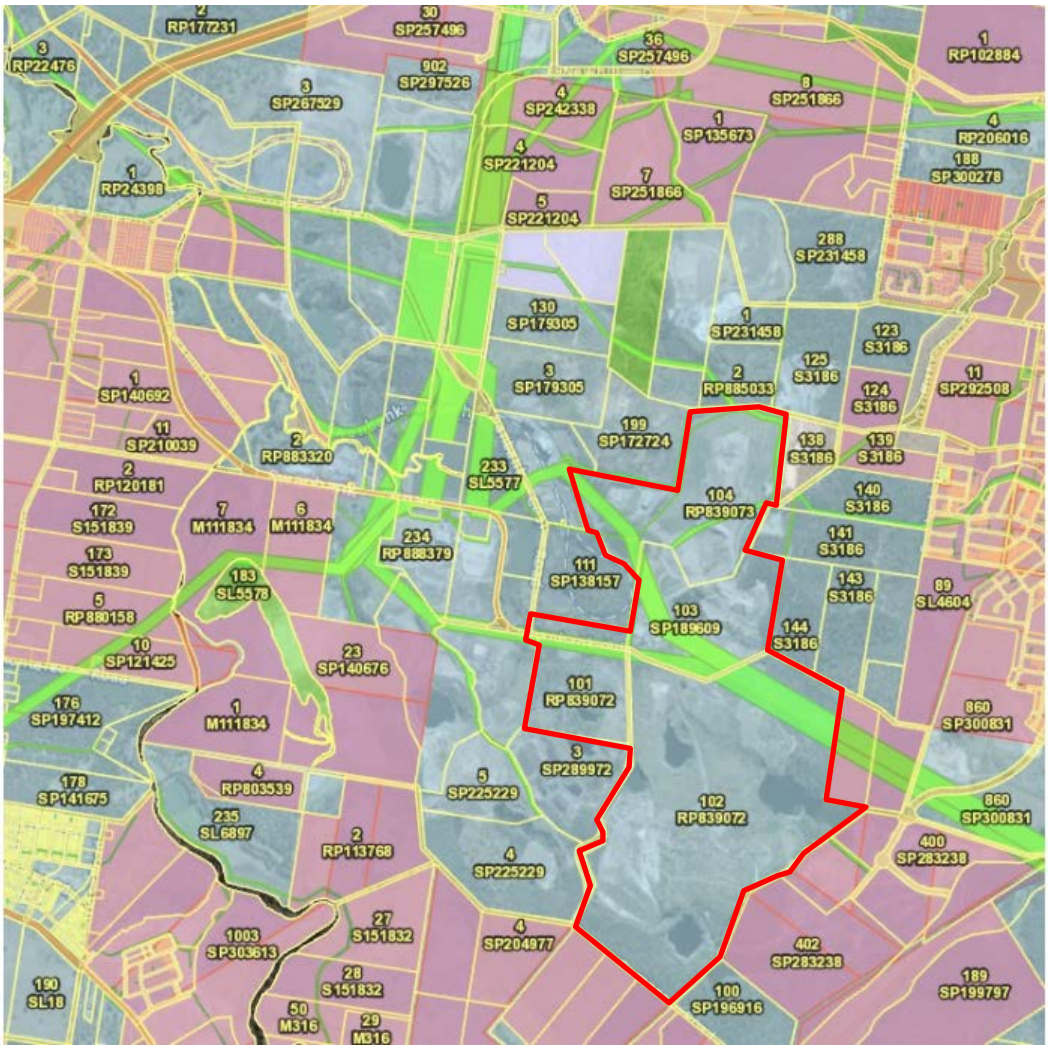

Figure 20: Tenure map for the Swanbank Renewable Energy and Waste Management Facility

The SREWMF is located within an area characterised by and planned for industrial land use under the planning scheme.

Areas of residential development exist and are proposed to the east and south, although most of this is more than 2 km from the SREWMF.

The footprint areas are zoned Regional Business and Industry Investigation under the Ipswich City planning scheme.

The SREWMF is separated from the nearest proposed residential areas by the Regional Business and Industry Buffer, which would help to reduce potential amenity impacts associated with industrial activities.

Areas to the east of the site are zoned as an emerging community, and are forecast to be developed within the next ten years.

The Ripley Valley PDA is located to the south of the SREWMF and some areas of the PDA are expected to be developed over the next ten years.

5.5.2 Native title

There is currently no registered Cultural Heritage Body for the subject site, on which the Project works will occur. The identified lots subject to the Project are all freehold title and are not identified as unallocated crown land.

5.6 Planning instruments, government policies

The following section provides an overview of the key legislation, policies and plans considered relevant to the Project. A detailed list of the likely project approvals, and the relevant legislation is provided at **Appendix A**.

5.6.1 Commonwealth

Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act (Cth) 1999* (EPBC Act) is the Commonwealth Government's central piece of environmental legislation. The EPBC Act protects nine Matters of National Environmental Significance (MNES) including:

- listed threatened species and communities;
- listed migratory species;
- Ramsar wetlands of international importance;
- Commonwealth marine environment;
- world heritage properties;
- national heritage places;
- the Great Barrier Reef Marine Park;
- nuclear actions;
- a water resource, in relation to coal seam gas development and large coal mining development.

The EPBC Act provides a process for environmental assessment and approval of proposed actions that may have a significant impact on MNES, known as 'controlled actions'.

Under the EPBC Act, proponents proposing an action that may impact upon a MNES must refer the proposal to the Commonwealth Department of the Environment and Energy (DEE). This referral is used by the Commonwealth Minister for Environment to assist in deciding whether the proposal requires assessment and approval under the EPBC Act.

If the Project is deemed to be a controlled action it will be assessed under the EPBC Act in accordance with the Bilateral Agreement between the Commonwealth and the State of Queensland under Section 45 of the EPBC Act relating to environmental assessment.

The application of the EPBC Act to this Project is discussed further in **Section 7.5**.

Native Title Act 1993

The *Native Title Act (Cth) 1993* (NT Act) provides for the recognition and protection of native title rights for Australia's Indigenous people, as well as providing a legislative approach to address issues concerning native title. The legislation provides for the determination of native title claims, the treatment of future acts, which may impact on native title rights, and consultation and/or notification of relevant native title claimants where future acts are involved.

Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The purpose of this act is to preserve and protect places, areas and objects of particular significance to Aboriginal people. This act is normally implemented through the provisions of the *Queensland Aboriginal Cultural Heritage Act 2003*.

5.6.2 State

The following Queensland state legislation could be triggered by the Project and will be considered in the approvals process.

Aboriginal Cultural Heritage Act 2003

The purpose of the *Aboriginal Cultural Heritage Act 2003* (ACH Act) is to provide for the effective recognition, protection and conservation of Aboriginal cultural heritage.

Biosecurity Act 2014

The *Biosecurity Act 2014* came into effect on 1 July 2016 and is designed to ensure consistent, modern, risk based and less prescriptive approach to biosecurity in Queensland.

Environmental Protection Act 1994

The *Environmental Protection Act 1994* (EP Act) is the principal environmental regulatory framework for environmental management and protection in Queensland. The EP Act objective is to protect the natural environment and associated ecological systems and processes while allowing for continued sustainable development.

The EP Act requires the Project's potential environmental impacts to be assessed and that measures be proposed to avoid or minimise any adverse impacts. To achieve this, the EP Act regulates activities that will or may have the potential to cause environmental harm.

Environmental Protection Regulation 2008

The EP Regulation supports and supplements the environmental assessment process outlined under the EP Act. It also specifies environmentally relevant activities (ERAs) that require approval, associated thresholds, specific approval details and reporting requirements.

Environmental Offsets Act 2014

The *Environmental Offsets Act 2014* (EO Act) coordinates the delivery of environmental offsets across jurisdictions. The EO Act purpose is to offset significant residual impact on prescribed environmental matters.

The *Environmental Offsets Regulation 2014* provides details on prescribed activities regulated under existing legislation and prescribed environmental matters to which the Act applies.

Land Act 1994

The Land Act 1994 (Land Act) provides the framework for State land, such as leasehold, roads and reserves and their subsequent management.

Under Chapter 4, Part 4 of the Land Act, a permit to occupy is required for the occupation of a reserve, road or area of unallocated State land. An application for a temporary road closure may also be required.

Local Government Act 2009

The purpose of the *Local Government Act 2009* (LG Act) is to outline the extent of local government responsibilities and powers within their respective jurisdictions. The Act provides local governments with the power to enact and enforce laws within the relevant local government area. These laws usually relate to the protection of amenity or other values important to communities including local roads, noise, light, waste management, vegetation, animals, parks and fencing.

Nature Conservation Act 1992

The *Nature Conservation Act 1992* (NC Act) is administered by EHP and regulates the environmental impacts on plants and animals through the protected plants framework and species management program requirements.

Developments in areas mapped as a Priority Koala Assessable Development Area or Koala Assessable Development Area need to be assessed under the *South East Queensland Koala Conservation State Planning Regulatory Provisions* which was developed under the *Sustainable Planning Act 2009.*

The subject site is not located within either of these priority area types, and as such the *South East Queensland Koala Conservation State Planning Regulatory Provisions* will not be triggered.

Nevertheless, requirements identified by the *Nature Conservation (Koala) Conservation Plan 2006* should be considered, including sequential clearing, having a koala spotter in attendance, and limits on the amount of habitat that can be cleared at any one time.

Planning Act 2016

The *Planning Act 2016* (Planning Act) establishes a system of land use planning (planning), development assessment and related matters that facilitates the achievement of ecological sustainability in Queensland. The Act coordinates development assessment in association with many of the other acts outlined below.

The Planning Act:

- manages the process by which development takes place, including ensuring the process;
- is accountable, effective and efficient and delivers sustainable outcomes;
- manages the effects of development on the environment (including managing the use of premises);
- coordinates and integrates planning at local, regional and state levels.

The assessment of the Project will consider the State Planning Policy (including the Queensland Plan) and South East Queensland Regional Plan, which applies to the area in which the Project is located.

South East Queensland Regional Plan 2017 – ShapingSEQ

The proposal will be assessed against the relevant aspects of the South East Queensland City Plan 2017 ShapingSEQ.

ShapingSEQ is the regions pre-eminent strategic land use plan given effect by the Planning Act 2016. The primary purpose of *ShapingSEQ* is to provide the regional framework for growth management, land use and development in South East Queensland (SEQ). The document sets the long-term planning direction for sustainable growth, a globally competitive economy, and high-quality living for SEQ.

ShapingSEQ provides the 50-year vision of the region and is supported by five (5) key themes which underpin the vision including, Growth, Prosper, Connect, Sustain and Live.

The subject site is within the urban footprint and as such will assist in meeting the needs of the Ipswich locality through the provision of critical infrastructure. The proposed infrastructure investment aligns with the Regional Plans desire to prioritise infrastructure investment and enhance regional infrastructure.

The proposal will be further assessed in greater detail against the relevant provisions of ShapingSEQ as part of the IAR process.

Queensland Heritage Act 1992

The *Queensland Heritage Act 1992* (Heritage Act) protects heritage areas that are considered to be of State significance and are placed on the Queensland Heritage Register, administered by the Queensland Heritage Council. Local heritage is also addressed in the Act, with local governments being required to establish their own heritage registers.

State Development and Public Works Organisation Act 1971

The *State Development and Public Works Organisation Act 1971* (SDPWO Act) provides a framework for coordinated and environmentally responsible infrastructure planning and development to support Queensland's economic and social progress. The SDPWO Act provides the Queensland Coordinator General with the power and responsibility to assess and authorise the most significant and complex projects.

Section 26 of the SDPWO Act permits the Queensland Coordinator General to declare a project to be a ‘coordinated project’ for the purpose of requiring the proponent to prepare an EIS or an IAR.

The preparation of an IAR or EIS in accordance with Part 4 of the Queensland SDPWO Act also satisfies the requirements of Section 8 of the Commonwealth EPBC Act.

Vegetation Management Act 1999

The *Vegetation Management Act 1999* (VM Act), in conjunction with the Planning Act, regulates the conservation and management of vegetation communities and clearing of vegetation. The VM Act provides a State-wide system for the management of native vegetation on freehold and leasehold land based on the concept of regional ecosystem (RE) areas. The conservation status of each RE is assigned as one of three categories: 'endangered', 'of concern' or 'least concern', based upon an estimate of the regional ecosystem's pre-clearing distribution, and how much of it remains.

Schedule 10, part 3 of the *Planning Regulation 2016* makes clearing of native vegetation on prescribed land assessable development which requires a development permit, unless the clearing is otherwise exempt.

Waste Reduction and Recycling Act 2011

The main objectives of the Act in relation to waste management are to: promote waste avoidance and reduction; reduce the overall impact of waste generation; promote resource recovery and efficiency actions; promote the sustainable use of natural resources; encourage the use of recovered resources; and ensure a shared responsibility between government, business and industry and the community.

The Act is supported by the Waste Reduction and Recycling Regulation 2011, which provides mechanisms to achieve the objectives of the Act.

Water Act 2000

The *Water Act 2000* (Water Act) provides a framework for the sustainable management of Queensland's non-tidal water resources and riverine quarry material.

With respect to the Project, the Water Act establishes systems for the planning, allocation and use of non-tidal water, including regulation of impoundments. Allocation of quarry material and riverine protection provided for by the Act will be of relevance.

5.6.3 Local

Temporary Local Planning Instrument No. 1 of 2018 (Waste Activity Regulation)

Ipswich City Council resolved to make a temporary local planning instrument (TLPI) which took effect, subject to the agreement of the Minister on 29 May 2018 (and amended on 31 August 2018).

This TLPI provides an interim policy response to address concerns raised by the Ipswich City Council and the local community in respect to landfill and waste industry uses occurring in the Swanbank / New Chum industrial area.

In accordance with section 9(3)(a) of the Planning Act 2016 (the Planning Act) the effective day for the TLPI is the day on which public notice of the TLPI is published in the Queensland Government Gazette. This TLPI will have effect in accordance with the Planning Act for a period not exceeding two years from the effective day or such longer period as may be permitted by law or unless otherwise repealed sooner.

The TLPI specifically relates to the regulation of a subset of waste management uses which it defines as a "waste activity use". Such a use would include:

a) *"Compost Manufacturing Enclosed";*
b) *"Compost Manufacturing Unenclosed";*
c) *"Landfill"; and*
d) *"Rehabilitating a mining void".*

Attachment C of the TLPI contains Table 1 – Table of Assessment and Relevant Criteria specifically states that any use not identified above will remain subject to the existing assessment category and assessment benchmarks under the Ipswich Planning Scheme. Accordingly, the TLPI is not directly relevant to REMONDIS' WtE facility. It will remain code assessable and subject to the normal provisions of the Ipswich Planning Scheme.

The TLPI does, however, show part of the subject land as falling within a waste activity buffer area in which the TLPI acts to preclude landfilling and composting activities. While the proposed facility does not cut across these new controls, REMONDIS is concerned this designation may cause some confusion to community stakeholders and unnecessarily complicate the assessment process.

The proposed WtE facility does not fall within the definition of *"Waste Activity Use"* as defined under the TLPI and as such the proposal will remain Code Assessable development as per Table 6.1 of the Ipswich Planning Scheme.

5.6.4 Also for Consideration

Queensland Waste Avoidance and Resource Recovery Productivity Strategy (2014-2024)

The Waste Avoidance and Recovery Productivity Strategy provides a high-level direction for waste management and resource recovery in Queensland over a 10 year period, and predominantly focuses on waste from all sectors, such as household, agricultural, mining, commercial and industrial waste and sold and liquid hazardous (or regulated) waste (DEHP, 2014).

The strategy sets a framework of guiding principles and objectives, and priority areas which underpin the development of action plans. The strategy is also informed by the waste and resource management hierarchy, which sets out an order of preference for options for managing waste – from avoiding, the reusing, recovering, treating and disposing of waste (DEHP, 2014).

While no specific incentives are stated in the strategy, it does acknowledge that Queensland has around 450 MW of installed WtE capacity, and included WtE as part of the waste resource management hierarchy.

The proposal is considered to align with the intent of the strategy and will be assessed against the strategy in greater detail as part of the future application should the project be declared.

Transforming Queensland's Recycling and Waste Industry Directions Paper

On 20 March 2018, the Queensland Government announced the development of a comprehensive waste management strategy underpinned by a waste disposal levy to increase recycling and recovery and create new jobs.

The Directions Paper outlined the directions for Queensland's new resource recovery, recycling and waste management strategy that will support the Government's Advance Queensland agenda by promoting growth and jobs in the resource recovery and recycling industry.

The strategy is intended to provide the waste and resource recovery sector with the policy certainty that has been lacking, resulting in significant under investment in new and expanded resource recovery infrastructure in Queensland.

The key principles of the strategy include:

- Attract industry investment and innovation;
- Create new jobs for our communities;
- Have no direct impact on Queensland households;
- Deliver long-term value to our environment; and
- Move Queensland towards a circular economy.

Part B of the paper outlines the direction the Government will take to reinvigorate Queensland's waste strategy. The development of a new waste strategy will fulfil the statutory requirement under the Waste Reduction and Recycling Act 2011 (the Act). The final comprehensive waste strategy will be released following the statutory consultation process required by the Act.

The Strategy identifies that the Queensland Government will explore the development of waste to-energy.

It is recognised that there are a range of technological solutions that are already available commercially, and a host of new and emerging innovative technologies.

There is also a significant body of literature on WtE reducing the amount of waste that goes to landfill, and the role that WtE plays in a transition towards a more circular economy.

The proposal aligns with the intent of the strategy to transition towards a more circular economy through the provision of a WtE facility at Swanbank. Given the extensive knowledge available to REMONDIS through their existing WtE operations, the proposal will take on board the lessons learned from other jurisdictions and to ensure the most appropriate types of waste are used for WtE.

REMONDIS are committed to continued engagement with the Department of Environment and Science (DES) as part of the application process should the project be declared to ensure the proposal aligns with the strategy as it continues to be refined.

6.0 Potential project impacts

6.1 Natural environment

6.1.1 Land

The impact on land based environmental values is anticipated to be minimal, given the sites location in an established Industrial Precinct. Any impacts on this environmental value will largely relate to construction activities, where the footprint of these activities is generally isolated to Lot 101 on RP 839072 and located on REMONDIS property with existing infrastructure, as well as some road reserve land also affected.

Soils and geology are not expected to be significant concerns because the Project will be largely constrained to the existing disturbed areas of the SREWMF.

Visual amenity will be minimal due to the significant buffer distance to nearby sensitive land uses and the site topography. The impact assessment undertaken as part of the IAR will identify key land values within the Project area and determine any associated potential impacts. Identified mitigation measures will be outlined in the IAR.

6.1.2 Water

Potential environmental impacts in relation to water, arising from Project activities, comprise:

- increased sediment in surface water bodies resulting from earthwork activities, leading to changes in surface water quality;
- inadvertent release of potential pollutants to surface water bodies from activities such as vehicle refuelling/wash-down and uncontrolled or controlled release of contaminated water or treated/untreated sewage leading to changes in surface water quality;
- potential effects to groundwater flow (although the site has a history of highly disturbed groundwater due mining activities),

Due to the nature of the Project, there may be a range of impacts on water values. These impacts will range from typical construction project impacts (e.g. construction impacts on water quality) to more complicated site-specific impacts. Based on the variety of potential impacts and complexity/unknowns around some areas, REMONDIS proposes focused assessment to inform mitigation measures.

6.1.3 Air

This environmental value is anticipated to be a key environmental concern that would require focused assessment as the Project has the potential to produce a number of air emissions through the processing and combustion of waste streams. The assessment of the air quality and suitable mitigation measures will be outlined in the Project IAR.

The flue gas treatment system involves several treatment steps which include scrubbing (for acidic gases and heavy metals), selective non catalytic reduction (to remove NOx gases), the utilisation of activated carbon (removing dioxin, furans, other organic pollutants and heavy metals – especially mercury) and a baghouse filter (removes particulates) to minimise emissions.

Flue gas treatment technologies have developed and improved significantly over the last 50 years and are now highly efficient in reliably meeting strict standards such as the EU IED.

In relation to potential greenhouse gas emissions from the WtE facility, the proposal offers the potential benefit of reducing the production of GHG emissions, based on waste being diverted from landfill (thereby reducing methane production).

The cumulative effect GHG emissions produced and avoided will be determined through the engagement of a GHG emissions assessment in the detailed assessment phase of the application.

6.1.4 Ecosystems

The Project will require localised vegetation removal for construction, which may include some vegetation mapped as Regional Ecosystem (RE), subject to localised assessment. Nevertheless, the area of vegetation removal will be minimal, constrained to REMONDIS existing land, and is unlikely to fragment any habitat or create isolated patches of vegetation in the area.

Detailed ecological and vegetation studies will be engaged by REMONDIS to determine potential impacts and suitable mitigation measures will be outlined in the detailed assessment.

6.1.5 Flora and Fauna

The proposal has the potential to result in the following environmental impacts:

- Vegetation clearing and fragmentation;
- Direct fauna injury and mortality during earthworks;
- Disturbance to fauna;
- Direct loss of habitat and breeding places;
- Importation and/or spread of weeds;
- Introduction and/or proliferation of pest fauna;
- Degradation of habitat through dust, sedimentation and erosion;
- Degradation of aquatic environments; and
- Impacts on adjacent bushland.

Direct impacts from the proposal will consist of clearing vegetation (subject to localised site investigations) has the potential to result in localised habitat fragmentation however the extent of any impact will need to be determined through detailed ecological and vegetation studies and outline suitable mitigation measures.

6.2 Amenity

Noise

The Project has the potential to have an impact on noise and vibration values as a result of:

- increased vehicular movements;
- foundation works, including piling;
- excavation works;
- earthworks;
- concrete batching;
- other construction activities.

The Project site is not located in proximity to sensitive receptors, and so construction noise is not anticipated to impact on receptors (however can be appropriately managed). The assessment of the Project's noise and vibration aspects and suitable mitigation measures will be outlined in the Project IAR.

Odour

The Project has the potential to be a source of odour from waste stored in the tipping hall and from opening and closing roller doors. The tipping hall will be operated under negative pressure to minimise possible odour emissions. Further the tipping hall air will be used as combustion air in the process. If the unlikely situation occurs where waste is still present in the tipping hall during shutdowns the air will pass via the negative pressure flow and through filters. Sophisticated and proven flue gas treatment systems prevent stack odour emissions. Stack height will be determined by dispersion modelling.

It should be added that the intensity of odour is very low, in particular, the offensiveness of odours is minimal in waste incineration plants compared to other waste treatment plants or especially landfill. Additionally, odour does not occur during normal operations of waste incineration, when a sophisticated flue gas treatment system is utilised.

Although, modern WTE plants have distinct advantages over other waste treatment processes in terms of odour emissions, cumulative impacts in relation to odour in the context of the existing SREWMF need to be carefully considered throughout the design and assessment phase of the proposal. Taking into account the location of the Project in an established Industrial Precinct, local climatic conditions and distance/buffer from the Project to nearby sensitive land uses, it is considered that the potential impacts associated with odour can be mitigated.

6.3 Social and economic impact

Social and Economic Impacts have been discussed here as these extend across the entire life of project. The economic and social impacts during the construction phase, which will attract a peak work force estimated at 200 persons to the Ipswich region over the construction phase, are significantly different from the operational impacts of a workforce likely to be sourced from personnel permanently settled to service the needs of this project.

A rigorous social impact assessment process will analyse potential social impacts in detail, with input from the community through ongoing consultation. This will identify how positive social impacts can be enhanced and negative impacts mitigated and/ or managed.

The REMONDIS SREWMF has a proven operational track record within the Swanbank locality for best practice waste management since commencement of site operations in 1998 which should provide comfort to nearby residents that the highest standards to mitigate impacts will be incorporated into the design and operation of the WtE facility.

REMONDIS know the local community well through their 20 year operations on site and has a good working relationship with nearby businesses within the Swanbank Regional Business and Industrial Precinct and residents of adjoining suburbs. REMONDIS will continue to consult with key stakeholders to ensure any community concerns are promptly addressed.

As a major industrial and waste management project, the Project is forecast to deliver a range of positive socio-economic impacts targeting the Ipswich LGA but extending to the wider South East Queensland population.

6.4 Built environment

The design of the facility with respect to building form and heights has largely evolved in response to operational nature of the technology.

Figure 21: Artist's impression of the Waste to Energy Facility at Swanbank, Ipswich

The building design has a graduated form and scale with the heights of various elements stepping up in height as they move into the site. This design approach overcomes the potential for adverse impacts associated with bulk and scale at the street and provides a site responsive design.

The assessment of the Project's visual aesthetics and suitable mitigation measures will be outlined in the Project IAR.

6.5 MNES under the EPBC Act

An EPBC Act Protected Matters search has been undertaken for the Project site (**Appendix B).** The search report indicates that MNES are likely to occur in the Project area and may be affected by the proposed works.

Matters of National Environmental Significance	Comment
World Heritage Property	None
National Heritage Places	None
Ramsar Wetlands of International Significance	None
Nuclear actions.	None
Commonwealth Marine Area	None
Listed Threatened ecological communities	3
Listed Threatened species	31
Listed Migratory Species	16

Table 2: EPBC Matters of National Environmental Significance

Based on the above, the proposed development is not considered to be a 'controlled action' pursuant to the *EPBC Act* however the construction and operational impacts will need to be assessed in greater detail by a suitably qualified ecologist as part of the IAR to confirm this position.

Should the potential for Project impacts warrant an EPBC Act referral to address legislative requirements in relation to MNES, REMONDIS will submit an EPBC referral for the project shortly after submission of the coordinated project application. Should the Project be declared a 'controlled action', REMONDIS requests the use of a bilateral assessment process.

7.0 Environmental management and mitigation measures

7.1 Natural environment

7.1.1 Land

Earthworks related to the Project will require an erosion and sediment control plan (ESCP) which will be a sub-plan of the CEMP.

The ESCP will be consistent with current practice for construction projects and align with International Erosion Control Association (IECA) guidance. Impacts on environmental values of land (soils and geology) are not expected to be a material issue during construction. Any impact mitigation measures are expected to be relatively typical of a construction project and conform to industry best practice.

7.1.2 Water

Focused assessment will be required to confirm the Project impacts on water values and appropriate mitigation measures, such as:

- Implementation of groundwater drainage system around the entirety of the proposed waste bunkers to assist groundwater re-entering the strata;
- Monitoring of groundwater surrounding the waste bunkers, by incorporation of inspection manhole to enable periodic inspection of groundwater levels surrounding the waste bunkers;
- A surface water quality monitoring program;
- The process will use demineralised water for steam production for the turbine. This water will be reused through the process and will incur minimal losses;
- Cooling water may be used for the plant. The options between using air cooling and water cooling will be considered for the project.

7.1.3 Air Quality

The primary emissions from the WtE facility, as defined by emission limits for waste incineration set by the European Union (EU) Industrial Emissions Directive (IED; Directive 2010/75/EU), are anticipated to be as follows:

- Particulate matter (PM), assumed to be emitted as PM10 and PM2.5a;
- Hydrogen Chloride (HCl);
- Hydrogen Fluoride (HF);
- Carbon Monoxide (CO);
- Sulfur Dioxide (SO_2);
- Oxides of nitrogen (NOx) (expressed as Nitrogen Dioxide (NO2);
- Heavy metals (including Mercury (Hg), Cadmium (Cd), Arsenic (As) and Chromium (Cr);
- Gaseous and vaporous organic substances (expressed as total organic carbon (TOC));
- Dioxins and furans.

In addition to the atmospheric emissions identified in the EU IED, other potential emissions that have been addressed include:

- Hydrogen sulfide (H_2S);
- Chlorine (Cl_2);
- Ammonia (NH_3);
- Polycyclic -aromatic hydrocarbons (PAHs).

A summary of the EU IED limits are listed in Table 3:

EU Industrial Emissions Directive 2010/75 - Emission Limits for Waste Incinerators				
Substance	**Unit**	**30 min Average**	**24 hour average**	**Periodic limit**
Total dust	mg/Nm3	30	10	none
Gaseous and vaporous organic substances, expressed as total organic carbon (TOC)	mg/Nm^3	20	10	none
Hydrogen chloride (HCl)	mg/Nm3	60	10	none
Hydrogen fluoride (HF)	mg/Nm3	4	1	none
Sulphur dioxide (SO2)	mg/Nm3	200	50	none
Nitrogen monoxide (NO) and nitrogen dioxide (NO2), expressed as NO2	mg/Nm^3	400	200	none
Carbon Monoxide	mg/Nm^3	100	50	none
Cadmium and its compounds (Cd)	mg/Nm^3	None	none	0.05
Thallium and its compounds (Tl)	mg/Nm^3	None	none	0.05
Mercury and its compounds (Hg)	mg/Nm^3	None	none	0.05
Arsenic and its compounds (As)	mg/Nm^3	None	none	0.5
Lead and its compounds (Pb)	mg/Nm^3	None	none	0.5
Chromium and its compounds (Cr)	mg/Nm^3	None	none	0.5
Cobalt and its compounds (Co)	mg/Nm^3	None	none	0.5
Copper and its compounds (Cu)	mg/Nm^3	None	none	0.5
Manganese and its compounds (Mn)	mg/Nm^3	None	none	0.5
Nickel and its compounds (Ni)	mg/Nm^3	None	none	0.5
Vanadium and its compounds (V)	mg/Nm^3	None	none	0.5
Dioxins & Furans	ng/Nm^3	None	none	0.1

Table 3: EU Industrial Emissions Directive 2010/75/EU (Annex VI – Technical provisions relating to waste incineration plants and waste co-incinerations plants)

Emissions from WtE facilities are primarily controlled by the flue gas treatment process. The flue gas treatment proposed is designed to safely meet the in-stack concentrations limits for waste incineration set by the European Union Industrial Emissions Directive.

Stack emissions will be continuously monitored by a computer controlled system for the following compounds:

- Carbon monoxide;
- Hydrogen chloride;
- Hydrogen fluoride;
- Nitrogen oxides;
- Ammonia;
- Volatile organic compounds (VOC's);
- Particulates;
- Sulphur dioxides.

Spot testing will take place at regulated frequencies for metals and dioxins/furans.

The proposed WtE Project is based on existing facilities in Europe and will incorporate best available technology for flue gas treatment, designed to meet the stringent in-stack concentrations limits for waste incineration set by the EU IED. REMONDIS operate numerous such facilities in Europe.

To manage air quality the following mitigations measures are proposed:

- Implement best practice monitoring processes;
- Implement an appropriate maintenance schedule to ensure that FGT systems operate appropriately;
- The facility shall be managed by a duly qualified specialist and trained personnel;
- Implement continuous monitoring system to ensure facility operates within optimal parameters;
- Management of incoming waste fuels received from external sources.

In addition, it is expected that human health risk studies will be conducted during the IAR process that will incorporate various relevant analyses based on normal and upset conditions scenarios on recognised sensitive receptors.

7.2 Flora and Fauna

Despite the identified impacts, the cumulative effect is considered acceptable in the context of the broader site that is used as an active industrial premises and is appropriately zoned for the intended development. In this circumstance, it is not possible to avoid the impact therefore measures such as the following will be developed to mitigate and offset impacts:

- Appointment of a project ecologist to undertake and oversee all flora and fauna pre-clearing, management and revegetation works;
- Preparation of a vegetation management plan;
- Measures to prevent tree impacts during construction and prevent clearing where possible;
- Revegetation where required.

7.3 Built environment

It is not envisaged, with the availability of existing infrastructure within the Swanbank Industrial Precinct and the existing SREWMF that the Project will have a significant effect on the built environment.

The existing Council and State Controlled Road network will continue to be the main mode of transporting machinery and infrastructure during construction and the vehicular movements associated with the operation and comparable to the current levels associated with the operation of the existing SREWMF.

7.4 Cultural heritage management plan (Indigenous)

The project will be assessed under the Cultural Heritage Duty of Care Guidelines (Queensland Aboriginal Cultural Heritage Act 2003).

It is not anticipated that a cultural heritage management plan (CHMP) will be required however will be undertaken should the findings of the assessment warrant its inclusion.

7.5 Non-Indigenous cultural heritage management

A non-indigenous cultural heritage survey of the Project site will be undertaken as part of the IAR process. No heritage listed sites are located in proximity to the site and due to the relatively modern age of the existing dam and water treatment structures, the heritage values of the site are expected to be negligible. However, any finds will be handled in accordance with the legislative requirements.

7.6 Greenhouse gas management plan

A greenhouse gas management plan will be developed as part of the proposal to ensure best practice standards are achieved in relation to GHG emissions.

- Use of Best Available Technology in flue gas treatment;
- Continuous emissions monitoring to ensure they are within acceptable limits;

- Reporting of emissions to Regulators.

The associated CO_2 emissions is reduced when generating power from WTE plants in comparison to using fossil fuels. Additionally, studies have shown that emissions of sulfur dioxide, particulate matter and nitrogen oxides were lower from WtE facilities than from coal-fired plants[12].

7.7 Hazard and risk, and health and safety

Hazard and risk and health and safety assessments and management plans will be developed as required for the construction and operation phase of the Project.

7.8 Environmental management

Several management plans will be developed as part of the Project's environmental assessment and approvals phase.

These management plans will reflect REMONDIS's ongoing commitment to environmental management during construction and will incorporate management measures identified during the assessment process.

As part of the construction phase of the Project, and as referred to throughout section 8, a Construction Environmental Management Plan (CEMP) will be developed and will form an important management tool for the Project's impacts and mitigation measures.

The CEMP will incorporate environmental and social mitigation measures from the IAR as a framework for the ongoing management, monitoring, reporting and improvement during construction. Its primary purpose will be to identify the environmental values potentially affected by the Project and detail measures to manage the risk of potential adverse impacts to these environmental values. For each component, the CEMP will outline the following:

- environmental values;
- potential impacts;
- environmental protection objectives;
- management controls;
- monitoring programs.

7.9 Public Concerns

It is acknowledged that stakeholders hold concerns regarding the proposed Project, in particular, the issues raised in a petition titled "*Rejection of incinerator to be built within city limits*". REMONDIS is committed to undertaking a thorough stakeholder engagement process as part of the approval process (refer to Section 10.0).

The following section provides an initial response to the concerns raised to date. Further information and management practices will be provided by REMONDIS as the approval process continues and as detailed reporting is undertaken as part of the IAR:

Issue/Concern	Initial Response
• Pollution control technologies have not proven capable of appropriately managing emissions • Uncertainty in relation to air quality and impacts of air quality and water quality • Uncertainty in relation to the human health risks and site suitability • Such a facility in urban areas contravene efforts of environmental regulations regarding air quality • Incinerators are primary sources of persistent organic pollutants, which contaminate food chains, building up dangerous levels in humans, and sources of lead, mercury, dioxins and furans.	REMONDIS has extensive experience in managing emissions from similar WtE plants. REMONDIS has in place technologies and processes which meet the EU IED. REMONDIS proposes to implement similar technologies and processes for the Project, resulting in positive and controlled emission and air quality outcomes. Further details on the process are available in section 7.1.3.
• The project is not in the public interests, 500,000 tonnes of waste per year is required to feed an incinerator for 24 hours operation, which means more trucks, more traffic and more pollution	REMONDIS currently operates the SREWMF at Swanbank. This facility is expected and approved to continue operating for many decades. It is proposed that the waste volumes that are currently received into the facility will be redirected for recycling and material that cannot be recycled will be used as a fuel source for the Project.
• Every four tonnes of waste create one tonne of toxic ash	Fly ash represents around 3% of the input fuel source. Please refer to section 3.6 for further details.
• Undermines genuine clean, safe renewable energy solutions; is not in line with a circular economy	The European Commission confirms that WtE has a role to play in a circular economy (refer to "*The role of Waste to Energy in a circular economy*").

Table 4: Public Concerns

8.0 Approvals required for the project

As per Section 34G (2) of the SDPWO Act, a draft IAR must contain a statement about whether or not any of the following approvals (each of which is notifiable approval) is required for the Project:

- a development approval if the development application for the approval would, under the Planning Act, require impact assessment;
- an environmental authority if the application for the authority would, under the Environmental Protection Act 1994, chapter 5, part 4, require public notification;
- another approval under an Act if—
  - the application for the approval requires, other than under the Planning Act or the Environmental Protection Act, chapter 5, an EIS or a similar statement to address the environmental effects of the approval; and
  - the application for, or the granting of, the approval requires public notification under the relevant Act.

The table at **Appendix A** provides a summary of approvals applicable to the project in accordance with these requirements. This will continuously be reviewed as the project is development and in consultation with the relevant State departments.

REMONDIS seeks declaration of the Project as a coordinated project pursuant to the SDPWO Act (Qld). As part of this declaration, REMONDIS seeks to utilise the IAR process. **Section 7.6** outlines the Acts and policies that were assessed as relevant to the Project.

Once the Project description has been sufficiently completed, following concept design optimisation and commencement of detailed design, a finalised list of required approvals will be presented as part of the IAR. As a result, further approvals may be identified, while others that were identified at the preliminary stage (**Appendix A**) may not be required.

The approvals that REMONDIS intends to be coordinated during the IAR process are identified in **Appendix A**. Note that these are based on the assessment of required approvals at the concept design stage of the Project. The required approvals are subject to change during detailed design development, as described above.

9.0 Cost and benefits summary

9.1 Local, state and national economies

An Economic Impact Assessment (EIA) will be submitted with the IAR. An EIA will assess benefits, values and potential impact areas resulting from the construction and operational phases of the Project.

The Project will bring some additional short term economic benefits to the regional economy during construction through the provision of construction and engineering services, along with long term cost benefits for Queensland households and businesses through the generation of up to 50MW of baseload renewable electricity.

9.2 Natural and social environments

The primary Project benefit is to provide an alternative waste management solution to landfilling. It is widely recognised that if Queensland maintains a “business as usual” approach to waste management, most of South East Queensland’s landfills will have no capacity by 2040. The project provides a direct solution to this key State issue and an opportunity to divert thousands of tonnes of suitable waste (non-recyclable wastes) away from landfill and into a best-practice WtE facility that will extend the life of south east Queensland’s constrained landfills.

The SREWMF is an integrated waste facility, comprising landfill, recycling and, in the future, the proposed WtE facility. Adopting WtE technology will ensure that wastes with recoverable value are not sent to landfill and, instead, are put to beneficial use. The world leader in waste management policy, the European Union, encourages construction of “state-of-the-art energy-efficient” WtE plants to “create new capacity for the treatment of residual waste” in member states.

It is the intention of the IAR process to investigate the possible impacts and define suitable environmental mitigation strategies to be incorporated into management protocols and plans in support of anticipated approvals.

REMONDIS will implement mitigation strategies as part of the construction and operation of the Project. Where impacts are unavoidable, the intent will be to offset such impacts to land-based and ecological values.

An assessment of the existing social environment and possible impacts associated with the Project will be submitted in the IAR. Most of the potential social impacts are anticipated to be positive for the area including economic diversification and increased economic, employment and training opportunities. The proponent believes that this will in turn raise the level of confidence in the region.

The social environments will benefit from increased local expenditure in Ipswich and the broader region due to additional expenditure. Strategies will be developed through the Social Impact Assessment conducted as part of the IAR process to avoid or mitigate against social impacts.

10.0 Community and stakeholder consultation

REMONDIS has commissioned specialist consultants, Three Plus, to draft a Community and Stakeholder Engagement Plan in preparation for an IAR process. The draft Plan will be reviewed and amended, as required, if the Project achieves Coordinated Project status.

As part of its early engagement activities, REMONDIS has activated a website to provide information on the proposed project and to provide opportunities for interested parties to review the proposal, register for updates and provide initial feedback.

Plan Structure

The Community and Stakeholder Engagement (C&SE) Plan is based on a four-stage approach:

- Stage 1: Active support for the draft TOR advertising phase (if required)
- Stage 2: IAR research and preparation, including technical investigations and community consultation
- Stage 3: Active support for the IAR public comment phase, and finalisation of the IAR
- Stage 4: Post-IAR stakeholder follow-up

The purpose of the consultation will be to engage stakeholders in informed discussion about what the project may mean to the local area and the region. This will require the provision of information about the project design and potential impacts, and the establishment of a number of opportunities and avenues for stakeholders to participate in consultation.

Objectives

The community and stakeholder engagement objectives for the IAR will be to:

- Add value to the study's decision-making process
- Inform stakeholders about the study objectives, drivers, processes and consultation opportunities
- Provide easy and accessible ways for stakeholders to participate in the consultation process, and
- Inform the IAR project team.

Principles

The following strategic principles will guide the IAR community and stakeholder engagement:

- Positioning: The IAR will be positioned in the context of investigating the environmental impacts (including social, cultural and economic) of the Project.
- Open and transparent: IAR stakeholder engagement will be in accordance with the International Association for Public Participation (IAP2) spectrum.
- Responsiveness: Stakeholders' ideas, issues and comments will be identified through consultation activities. To demonstrate an open, two-way process is being undertaken, the IAR team will close the loop with stakeholders to inform them how their views have been considered. The IAR team will also manage stakeholder expectations about what the IAR can deliver by effectively communicating the study negotiables and non-negotiables.
- Integration with related activities: The IAR team will recognise stakeholders' previous contributions by linking the IAR with submissions received during the public comment phase on the draft Terms of Reference.
- Issues management: The IAR team will identify as early as possible, and proactively manage, any issues that may influence the IAR.

Stage 1: Active support for the Office of Coordinator General draft Terms Of Reference advertising phase (if public input into TOR is required)

In addition to the community and stakeholder engagement activities planned for the IAR phase, REMONDIS has determined that it will support the public comment phase on the Coordinator General's draft Terms of Reference (TOR).

To help ensure comprehensive and well-supported Terms of Reference are developed, REMONDIS will undertake a dedicated round of stakeholder engagement to support the draft TOR public advertising period which will provide information about the project and encourage feedback on the draft TOR (to the Coordinator General).

Stage 2: Baseline Studies – IAR research and preparation, including technical investigations and community consultation

Should the project be declared a Coordinated Project, REMONDIS and its project team will commence the preparation of an IAR and documentation requirements nominated by the Office of Coordinator General.

During this stage, REMONDIS will continue with stakeholder engagement to update key stakeholders and provide additional information on the progress of the proposal. Potential issues and concerns raised during the engagement process will inform the detailed design and the documentation phase of the IAR.

Stage 3: Active support for the IAR public comment phase, and finalisation of the IAR

REMONDIS will support the IAR public comment phase by implementing a dedicated stakeholder engagement program to ensure stakeholders have an opportunity to inform themselves of the IAR outcomes and recommendations, and to provide comment via formal channels.

The specific methodologies for this phase will be determined during Stage 3 and provided to the Office of the Coordinator General for review prior to roll-out.

Stage 4: Post IAR stakeholder follow-up

Once the IAR has been finalised, REMONDIS will "close the loop" and inform stakeholders about final IAR, conditions of approval and project timelines. The appropriate methodologies will be determined, but may include briefings to summarise the IAR outcomes and to report on community and stakeholder engagement activities.

11.0 References and data sources

1. AECOM. (2008). *Swanbank Landfill Stage 1A and 1B - Flora and Fauna Assessment.*
2. Applied Ecology. (1998). *Swanbank Landfill Extension of the Facility - Environmental Report.*
3. DEE (2018). EPBC Act Protected Matters Report. Commonwealth Department of the Environment, Canberra. Report created: 25/09/18.
4. Department of State Development, Manufacturing, Infrastructure and Planning, *Social Impact Assessment Guideline*, March 2018.
5. KBR. (2012). *Bundamba Creek Flood Study and Risk Management Plan.* Ipswich: Ipswich City Council.
6. Sattler, P. S. and Williams, R.D. (Eds) (1999). The Conservation Status of Queensland's Bioregional Ecosystems, Environmental Protection Agency.
7. Vegetation Survey of Proposed Dump Site, Swanbank (Bostock and Forster, 1988)
8. Swanbank Landfill Stage 2 (Oxbow Consulting, 1998)
9. Swanbank Landfill Extension of the Facility – Environmental Report (Applied Ecology, 1998)
10. Swanbank Landfill Stage 1A and 1B - Flora and Fauna Assessment (AECOM, 2008)
11. Flinders Karawatha Corridor - Environmental Values and Land Use Data Report (EHP, 2013)
12. "Emissions from Waste-to-Energy: A comparison with Coal-fire Power Plants" (DOI: 10.1115/IMECE2003-55295)
13. https://www.researchgate.net/publication/242108296_Emissions_from_Waste-to-Energy_A_Comparison_with_Coal-fired_Power_Plants
14. "The role of waste-to-energy in the circular economy". Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Region.
15. Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control). Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32010L0075&from=AUS

Appendix A. Approvals required for the project

Legislation and Administering Authority	Approval Trigger	Approval	Relevance to the Project	Applicability
Commonwealth				
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) **DEE**	Actions that have, or are likely to have, a significant impact on a MNES	EPBC Act Referral – controlled action or not a controlled action	Due to the presence of High Value Koala Habitat and the potential occurrence of threatened species, the Project *may* need to be referred to DEE to determine if the proposed works constitute a 'controlled action' under the EPBC Act.	Unlikely Applicable
Native Title Act 1993 **Native Title (Queensland) Act 1993** **National Native Title Tribunal**	Works to be undertaken on land subject to Native Title	An Indigenous Land Use Agreement (ILUA) is required if works are to be undertaken on land subject to Native Title	The site consists of freehold titles not subject to Native Title	No
State				
Non-Planning Act and Regulation Approvals				
State Development and Public Works Organisation Act 1971 **Coordinator General**	A project with one or more of the following characteristics may apply to have it declared a 'Coordinated Project' under the *State Development and Public Works Organisation Act 1971*(SDPWO Act): • complex approval	Coordinated Project Declaration	As outlined within this Initial Advice Statement (IAS), the project is considered of strategic significance to the Region for the economic and social benefits, capital investment and employment opportunities it would provide. By obtaining 'coordinated project'	Yes

Legislation and Administering Authority	Approval Trigger	Approval	Relevance to the Project	Applicability
	requirements, involving local, state and federal governments • significant environmental effects • strategic significance to the locality, region or state, including for the infrastructure, economic and social benefits, capital investment or employment opportunities it may provide • significant infrastructure requirements		declaration from the Coordinator General, the project would benefit from: • a clear approvals framework for the Project; • coordinated and targeted whole-of-government advice with respect to scoping technical investigations and/or environmental assessments necessary to facilitate Project approvals. The Proponent considers the IAR process as suitable for the Coordinator General to assess the project in the event that the project is declared a 'Coordinated Project'. As outlined within this IAS, the potential environmental impacts of the project are well defined and low-medium risk and do not warrant an EIS. Furthermore, the project would	

Legislation and Administering Authority	Approval Trigger	Approval	Relevance to the Project	Applicability
			previously have been subject to code assessment under the Planning Act 2016, recognising its acceptance in principle. The Proponent has resolved, in any event, to adopt best practice measures to minimise and mitigate any potential environmental impacts associated with the project.	
Land Act 1994 DNRME	Temporary or permit road closure Permit to occupy	Road closure permit or permit to occupy	An application for a temporary road closure may be required to facilitate the works. Requirements will be confirmed through detailed design.	Yes, if required
Nature Conservation Act 1992 **DES**	Clearing protected plants or tampering with animal breeding places	Clearing Permit – Protected plants Permit to tamper with animal breeding places	A clearing permit may be required for clearing within a high risk area on the Protected Plants Flora survey trigger map. Clearing requirements will be determined through detailed design. Additionally the removal or disturbance of native animal breeding places by earthwork activities, requires	Yes, if required.

Legislation and Administering Authority	Approval Trigger	Approval	Relevance to the Project	Applicability
			a permit with approved species management programme.	
Aboriginal Cultural Heritage Act 2003 **Torres Strait Islander Cultural Heritage Act 2003** **DATSIP**	Duty of care to not harm cultural heritage sites or items of significance	Cultural Heritage Management Plan	All persons must take all reasonable and practicable measures to ensure their activities do not harm Aboriginal cultural heritage. The duty of care applies regardless of the tenure of the land and regardless of whether it has been identified or recorded in a database. Development may require assessment against the Duty of Care Guidelines. Additionally, if an EIS is required, an approved Cultural Heritage Management Plan (CHMP) is mandatory.	Unlikely applicable
Water Act 2000 **DNRME**	Taking of water	Licence to take water	Development may require a licence to take water. Requirements will be confirmed through detailed design.	Yes, if required
Waste Reduction and Recycling Act 2011 **Waste Reduction and**	Using a resource for an industrial activity	End of waste approval	A waste can be approved as a resource if it meets specified quality criteria for its specific use. As the project	Yes

Legislation and Administering Authority	Approval Trigger	Approval	Relevance to the Project	Applicability
Recycling Regulation 2011 **DNRME**			involves the use of waste as a resource for generating electricity it is considered that an end of waste approval is required.	
Electricity Act 1994 **Electricity Regulation 2006** **DNRME**	If the WtE plant exceeds 30MW in capacity a General Authority is required. If less than 30MW a Special Approval is required. A transmission authority is also required to connect the proposed plan to a transmitting grid	A General Authority Or A Special Approval permit (s130) And A Transmission Authority	The type of permit is contingent upon the capacity of the proposed WtE plant. A transmission authority is required irrespective of the capacity in order to connect to the grid.	Yes
Planning Act and Planning Regulation and associated Legislative Approvals				
Planning Act 2016 **DSDMIP**	Development Assessment (DA) Rules under Section 68(1) of the Planning Act		The assessment process in the DA Rules involves the following parts: • Part 1 – Application • Part 2 – Referral • Part 3 – Information Request • Part 4 – Public notification (if required) • Part 5 – Decision An Applicant is required to identify the development	Yes

Legislation and Administering Authority	Approval Trigger	Approval	Relevance to the Project	Applicability
			type, applicable assessment manager and relevant referral agencies as prescribed under the Planning Regulation.	
Planning Regulation 2017, Schedule 10, Part 3 **Vegetation Management Act 1999** **DNRME**	Clearing native vegetation	Development Permit – Operational Works for clearing native vegetation	A development permit for operational works may be required for clearing certain vegetation. Clearing requirements will be confirmed through detailed design.	Yes, if required
Planning Regulation 2017, Schedule 10, Part 4 **Environmental Protection Act 1994** **DES**	Material change of use on contaminated land	Development Permit – Material Change of Use on contaminated land	A development permit for material change of use may be required for the proposed use as the premises are listed on the contaminated land register/environmental management register and may involve an accessible underground facility. This will be confirmed through detailed design.	Yes, if required
Planning Regulation 2017, Schedule 10, Part 5 **Environmental Protection Act**	Material change of use for an environmentally relevant activity	Development Permit – Material Change of Use for an environmentally relevant activity	A development permit for a material change of use may be required for certain environmentally	Yes

Legislation and Administering Authority	Approval Trigger	Approval	Relevance to the Project	Applicability
1994 **DES**			relevant activities, including ERA 14 (electricity generation), ERA 15 (Fuel Burning), ERA 55 (regulated waste recycling or reprocessing), ERA 56 (regulated waste storage) and ERA 57 (regulated waste transport). The full list of applicable ERAs will be confirmed through detailed design.	
Planning Regulation 2017, Schedule 10, Part 19 **Water Act 2000** **DNRME**	Taking or interfering with water	Development Permit – Operational Works that involves taking or interfering with water	A development permit for operational works may be required for the project if it involves taking or interfering with a watercourse, lake or spring; or a dam ; underground water or taking overland flow water. The extent of taking or interfering with water will be confirmed through detailed design.	Yes, if required
Ipswich Planning Scheme 2006 **Ipswich City Council**	Material change of use assessable against the planning scheme	Development Permit – Material Change of Use	A development approval is required for a material change of use for Special Industry and Major Utility (full extent of land use definitions to be confirmed).	Yes

Appendix B. Desktop searches and mapping