Government of **Western Australia**
Development Assessment Panels

Metro South-West Joint Development Assessment Panel Agenda

Meeting Date and Time: 8 March 2019, 10:00 AM
Meeting Number: MSWJDAP/181
Meeting Venue: City of Rockingham
Boardroom Civic Boulevard
Rockingham

Attendance

DAP Members

Mr Tony Arias (Presiding Member)
Ms Lee O'Donohue (Deputy Presiding Member)
Mr Andrew Macliver (Specialist Member)
Cr Lee Downham (Local Government Member, City of Rockingham)

Officers in attendance

Mr David Banovic (City of Rockingham)
Mr Greg Delahunty (City of Rockingham)

Minute Secretary

Ms Nicole D'Alessandro (City of Rockingham)

Applicants and Submitters

Mr Jason Pugh (New Energy Corporation Pty Ltd)
Mr Miles Mason (New Energy Corporation Pty Ltd)
Mr Rajan Aggarwal (Tribe Infrastructure Group)

Members of the Public / Media

Nil

1. Declaration of Opening

The Presiding Member declares the meeting open and acknowledges the past and present traditional owners and custodians of the land on which the meeting is being held.

2. Apologies

Cr Deb Hamblin (Local Government Member, City of Rockingham)
Cr Chris Elliott (Local Government Member, City of Rockingham)
Cr Joy Stewart (Local Government Member, City of Rockingham)

3. Members on Leave of Absence

Nil

4. Noting of Minutes

Signed minutes of previous meetings are available on the DAP website.

5. Declarations of Due Consideration

Any member who is not familiar with the substance of any report or other information provided for consideration at the DAP meeting must declare that fact before the meeting considers the matter.

6. Disclosure of Interests

Nil

7. Deputations and Presentations

7.1 Mr Miles Mason presenting in support of the application at Item 8.1. The presentation will address the ERRRF project status, timelines and update on matters relating to environment and planning.

8. Form 1 – Responsible Authority Reports – DAP Applications

8.1	Property Location:	Lot 1 (26) Office Road, East Rockingham
	Development Description:	Proposed Waste to Energy Facility
	Applicant:	New Energy Corporation Pty Ltd
	Owner:	LandCorp (Western Australian Land Authority)
	Responsible Authority:	City of Rockingham
	DAP File No:	DAP/18/01524

9. Form 2 – Responsible Authority Reports – Amending or cancelling DAP development approval

Nil

10. Appeals to the State Administrative Tribunal

Current Applications		
LG Name	**Property Location**	**Application Description**
City of Rockingham	Lot 301 (2-6) Council Avenue, Rockingham	Proposed health studio, restaurant, showrooms and convenience store
City of Fremantle	Lot 1 (193) South Terrace, South Fremantle	Mixed Use Development

11. General Business / Meeting Closure

In accordance with Section 7.3 of the DAP Standing Orders 2017 only the Presiding Member may publicly comment on the operations or determinations of a DAP and other DAP members should not be approached to make comment.

Government of **Western Australia**
Development Assessment Panels

Form 1 – Responsible Authority Report

(Regulation 12)

Property Location:	Lot 1 (No.26) Office Road, East Rockingham
Development Description:	Proposed Waste to Energy Facility
DAP Name:	Metro South-West JDAP
Applicant:	New Energy Corporation Pty Ltd
Owner:	Western Australian Land Authority (LandCorp)
Value of Development:	$356 million
LG Reference:	DD020.2018.00000310.001
Responsible Authority:	City of Rockingham
Authorising Officer:	Bob Jeans, Director Planning & Development Services
DAP File No:	DAP/18/01524
Report Due Date:	27 February 2019
Application Received Date:	7 November 2019
Application Process Days:	90 Days
Attachment(s):	**Attachment 1** Development Application Plans (all date stamped 11 January 2019) **Attachment 2** Development Application Submission **Attachment 3** Additional Information **Attachment 4** Schedule of Submissions **Attachment 5** Waste to Energy and Recycling Facility - Development Approval (DAP/14/00530) **Attachment 6** Correspondence from Office of Appeals Convenor on behalf of the Minister for Environment

Officer Recommendation:

That the Metro South-West Joint Development Assessment Panel resolves to:

Approve DAP Application reference DAP/18/01524 and accompanying plans:

- Site Plan, Drawing No. ERH / 000 / PPL / 001, dated 10 January 2019;
- Elevations, Drawing No. ERH / 000 / PPL / 002, dated 10 January 2019;
- Admin Office, Drawing No. ERH / 000 / PPL / 003, dated 10 January 2019;
- Landscaping Plan, Drawing No. ERH / 000 / PPL / 004, dated 10 January 2019;
- Site Levels, Drawing No. ERH / 000 / PPL / 005, dated 14 May 2014

in accordance with Clause 68 of the Planning and Development (Local Planning Schemes) Regulations 2015 and the provisions of clause 68(2)(b) of the deemed provisions of the City of Rockingham Town Planning Scheme No. 2, subject to the following conditions as follows:

Conditions

1. This decision constitutes development approval only and is valid for a period of 2 years from the date of approval. If the subject development is not substantially commenced within the 2 year period, the approval shall lapse and be of no further effect.

2. Prior to the commencement of development, detailed civil engineering construction plans for the upgrade of Office Road in front of the site, including a channelised right turn treatment, an auxiliary left turn treatment within the road reserve and pavement widening at the intersection of Mandurah Road/Office Road must be submitted by a suitably qualified person to the City of Rockingham for approval.

   These works must be constructed, in accordance with the approved plans, prior to the occupation of the development.

3. Prior to the commencement of development, an Environmental Construction Management Plan must be prepared and approved to ensure appropriate management of construction related impacts. The approved plan must be implemented for the duration of construction works, to the satisfaction of the City of Rockingham.

4. Prior to the commencement of development, a Fauna Relocation Plan for the native fauna species within the site is to be prepared, approved and implemented to the satisfaction of the City of Rockingham, to ensure the protection and management of the site's environmental assets.

5. Prior to the commencement of development, the landowner/applicant shall prepare and implement as part of the development works a pipeline risk management plan/protection plan in accordance with Planning Bulletin 87 High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region. The risk mitigation measures/controls outlined within the pipeline risk management/protection plan are to be implemented by the landowner/applicant as part of the development works to the satisfaction of the City of Rockingham and to the specifications of APA Group.

6. Earthworks over the site associated with the development must be stabilised to prevent sand or dust blowing off the site, and appropriate measures shall be implemented within the time and in the manner directed by the City of Rockingham in the event that sand or dust is blown from the site.

7. Prior to commencement of development, a Dust Management Plan for the development must be prepared and approved by the City of Rockingham and all measures identified in the plan shall be implemented to the satisfaction of the City of Rockingham for the duration of the development.

8. Prior to commencement of development, a Stormwater Management Plan must be submitted detailing how stormwater will be appropriately contained on site or otherwise managed in accordance with the requirements contained in any licence or approval issued by the Department of Water and Environmental Regulation, to the satisfaction of the City of Rockingham.

9. Prior to occupation, the development must be connected to a reticulated water supply in accordance with the specifications of the Water Corporation in accordance with the recommendations of the Bushfire Management Plan prepared by Bushfire Prone Planning, dated 4 May 2018.

10. Prior to occupation, the development must be connected to an aerobic treatment unit (ATU) onsite effluent disposal system with nutrient retention capabilities.

    The ATU system must be implemented for the duration of the development.

11. A landscaping plan must be prepared and include the following detail, to the satisfaction of the City, prior to commencement of development:

    i. The Location, number and type of existing and proposes trees and shrubs, indicating calculations for the landscaping area;
    ii. Any lawns to be established;
    iii. Any natural landscape areas to be retained in $5m^2$ clusters with the 20m separation;
    iv. Those areas to be reticulated or irrigated;
    v. Verge areas;
    vi. Landscaping for a minimum depth of 10 metres from the property boundary; and
    vii. Landscaping along the eastern elevation of development to better screen the administration building and storage tanks.

    The landscaping must be completed prior to the occupation of the development, and must be maintained at all times to the satisfaction of the City of Rockingham and APA Group.

12. Grass tree plants (XANTHORRHOEACEAE family) must be retained (unless specifically identified for removal on the approved Landscaping Plan) and, during the construction period, measures for their retention must be taken in accordance with Australian Standard AS 4970—2009, Protection of trees on development sites. Arrangements must be made to the satisfaction of the City for all grass tree plants requiring removal to be relocated, prior to commencement of development.

13. Materials, sea containers, goods or bins must not be stored within the carpark at any time.

14. A bin storage area must be designed with a size suitable to service the development and screened from view of the street, to the satisfaction of the City of Rockingham, prior to commencement of development. It must be constructed prior to the occupation of the development and must be retained and maintained in good condition at all times.

15. A Sign Strategy must be prepared and include the information required by Planning Policy 3.3.1, *Control of Advertisements*, to the satisfaction of the City of Rockingham, prior to commencement of development and implemented as such for the duration of the development.

16. Three (3) long-term bicycle parking spaces must be designed in accordance with AS2890.3-1993, *Parking facilities, Part 3: Bicycle parking facilities,* prior to commencement of development.

    The bicycle parking scapes must be constructed prior to occupation of the development.

17. One (1) secure hot-water shower and change room must be designed in accordance with Planning Policy 3.3.14 - *Bicycle Parking and End-of-Trip facilities,* prior to commencement of development.

    The shower, change room and locker must be constructed prior to the occupation of the development, and must be retained and maintained in good condition at all times.

18. The access way must be constructed in accordance with the following requirements:

    i. minimum trafficable surface of 4 metres;
    ii. minimum horizontal clearance of 6 metres;
    iii. minimum vertical clearance of 4.5 metres;
    iv. maximum grade over <50 metres of 1 in 10;
    v. minimum weight capacity of 15 tonnes;
    vi. maximum crossfall of 1 in 33;
    vii. curves minimum inner radius of 8.5 metres;
    viii. turn around area for 3.4 fire appliance; and
    ix. all weather surface (i.e sealed).

    The accessway must be maintained in accordance with these requirements and in a good and safe condition at all times for the duration of the development.

19. The Carpark must:-

    i. Provide a minimum of 33 parking spaces;
    ii. be designed in accordance with Australian/New Zealand Standard AS/NZS 2890.1:2004, *Parking facilities, Part 1: Off-street car parking* unless otherwise specified by this approval, prior to commencement of development;
    iii. include minimum one (1) car parking space dedicated to people with disabilities designed in accordance with Australian/New Zealand Standard AS/NZS 2890.6:2009, *Parking facilities, Part 6: Off-street parking for people with disabilities*, linked to the main entrance of the development by a continuous accessible path of travel designed in accordance with Australian Standard AS 1428.1—2009, *Design for*

access and mobility, Part 1: General Requirements for access—New building work;

iv. Be constructed, sealed, kerbed, drained and marked prior to the development being occupied and maintained thereafter;
v. Have lighting installed, prior to the occupation of the development; and
vi. confine all illumination to the land in accordance with the requirements of Australian Standard AS 4282—1997, *Control of the obtrusive effects of outdoor lighting*, at all times.

The car park must comply with the above requirements for the duration of the development.

20. Prior to occupation of the development, the Bushfire Management Plan prepared by Bushfire Prone Planning, dated 4 May 2018 shall be updated to address comments made by Department of Fire and Emergency Services to the satisfaction of the City of Rockingham.

21. Prior to occupation of the development, the Asset Protection Zone (APZ), as depicted in the Bushfire Management Plan prepared by Bushfire Prone Planning, dated 4 May 2018, must be installed on the site in accordance with the Guidelines for Planning in Bushfire Prone Areas.

    The APZ must be maintained in accordance with these requirements and in a good and safe condition at all times.

22. There shall be no extraction or use of ground water from the property at any time, unless otherwise approved by the Department of Water and Environmental Regulations following chemical testing and an assessment of the risk to site users is undertaken to confirm it is suitability for its intended use.

23. The proponent shall make near to real time data on emissions publicly available by displaying emissions on the proponents website and at the site entrance.

24. Prior to occupation of the development, the proponent shall implement, and thereafter maintain for the life of the development, a public odour complaints register and resolution procedure to address any odour concerns raised by the public to the satisfaction of the City of Rockingham in consultation with the City of Kwinana. The applicant shall provide a copy of the register of complaints and resolution outcomes on a quarterly basis to the City of Rockingham and City of Kwinana.

25. A Waste Management Plan that addresses the management and maintenance of fugitive waste generated on site or from trucks entering / exiting the development shall be submitted to and approved by the City of Rockingham prior to occupancy of the development. Upon commencement of operations the Waste Management Plan shall be thereafter implemented and maintained for the life of the development to the satisfaction of the City of Rockingham.

26. Prior to occupation of the development, a Final Acoustic Assessment must be prepared and provided to the City of Rockingham which demonstrates to City's satisfaction, that the completed development complies with the *Environmental Protection (Noise) Regulations 1997.*

The Final Acoustics Assessment must include the following information:

I. Noise sources compared with the assigned noise levels as stated in the *Environmental Protection (Noise) Regulations 1997,* when the noise is received at nearest "noise sensitive premises" and surrounding residential area;
II. Tonality, modulation and impulsiveness of noise sources; and
III. Confirmation of the implementation of noise attenuation measures.

Any further works must be carried out in accordance with the Acoustic Report and implemented as such for the duration of the development.

Advice Notes

1. All works in the road reserve, including construction of a crossover, planting of street trees and other streetscape works and works to the road carriageway must be to the satisfaction of the City of Rockingham; the applicant should liaise with the City of Rockingham's Land Infrastructure and Development Services in this regard.

2. The proponent shall fulfil their obligations for obtaining from DWER a Works Approval prior to the commencement of works and a Licence prior to operation of the facility.

3. The development shall be compliant with the DWER Licence conditions and Ministerial Statement conditions at all times.

4. Any potential asbestos containing material on-site is to be disposed of at a site licensed to accept asbestos waste by the DWER under Part V of the *Environmental Protection Act 1986.*

5. The Site Drainage and Groundwater Management Plan prepared as part of the works approval and licence applications with DWER must be submitted to the City for review and comment.

6. The development must comply with the *Environmental Protection (Noise) Regulations 1997;* contact the City's Health Services for information on confirming requirements.

7. The proponent is to contact APA's Infrastructure, Planning and Protection team to arrange for the preparation of the pipeline risk management/protection plan and discuss any other practical elements of works in and around the pipeline. APA can be contacted on 180 103 452 or via email at APAProtection@apa.com.au.

8. If you are planning on undertaking any physical works on property containing or proximate to a pipeline, or are seeking details on the physical location of a pipeline, please contact Dial Before You Dig on 1100, or APA directly on APAProtection@apa.com.au.

9. With respect to noise emissions resulting from the operations, the proponent is advised to liaise with the Kwinana Industries Council (KIC) to include the noise emissions from the development into the KIC cumulative noise model.

10. It should be noted that any proposed modifications to the existing RAV access permissions are subject to third party Main Roads approval pursuant to the Road Traffic (Vehicles) Act 2012.

11. With respect to the identified amendments to the Traffic Impact Assessment, the applicant is to liaise with the Land Development and Infrastructure Services in this regard.

12. With respect to the Landscape Plan, the applicant is to liaise with the City's Land Devleopment and Infrastructure Services in this regard.

Where an development approval has so lapsed, no development shall be carried out without further approval having first been sought and obtained, unless the applicant has applied and obtained Development Assessment Panel approval to extend the approval term under regulation 17(1)(a) of the *Planning and Development (Development Assessment Panels) Regulations 2011.*

Background:

The subject site has an area of 10ha and is located on the northernmost boundary of the City of Rockingham. The subject site and surrounding land south of Office Road is vacant. The development is contained within LandCorp's 'Rockingham Industry Zone' which is part of the 'Western Trade Coast'.

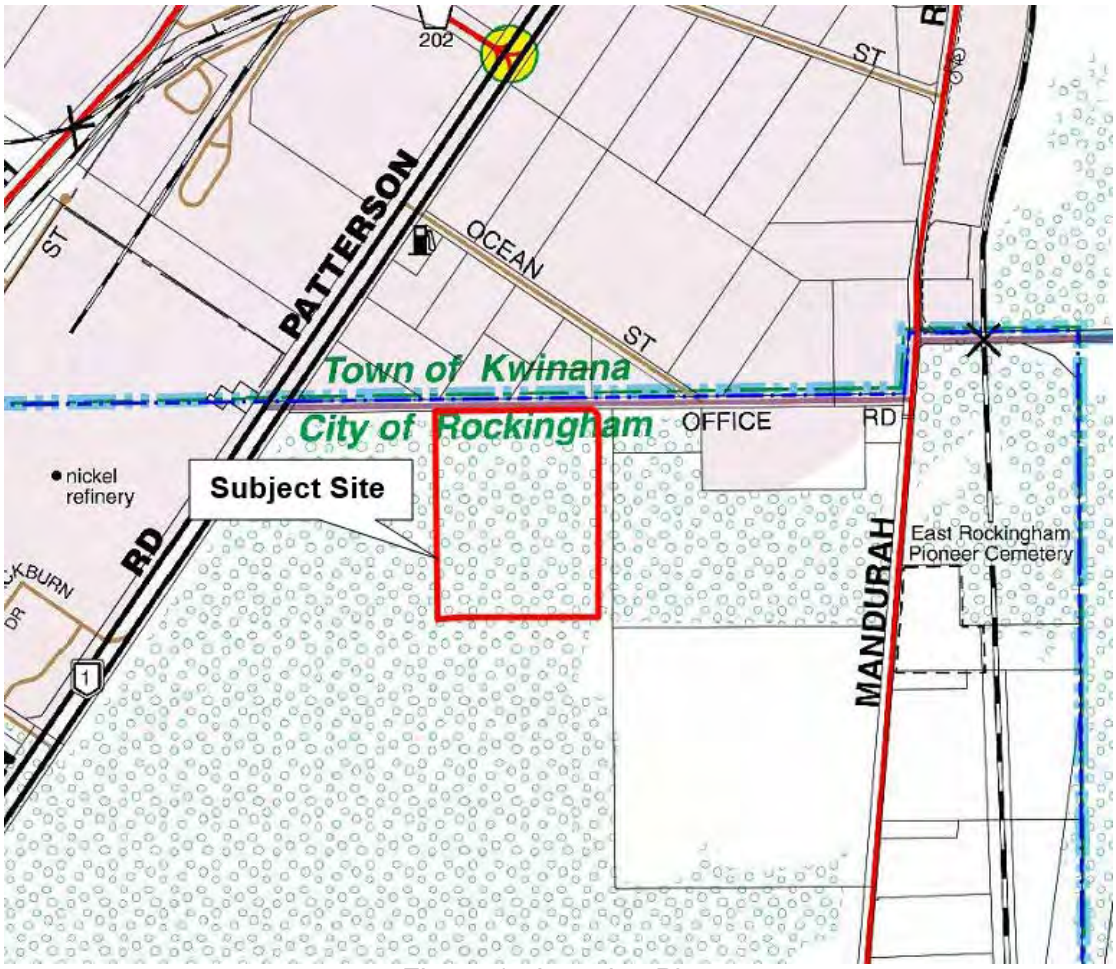


Figure 1 - Location Plan

Figure 2 - Aerial Photo

History

The Kwinana Industrial Area (KIA) (refer to Figure 3 below) is the primary location of heavy industry in Western Australia. KIA consists of a highly diverse range of industries from smaller service industries, such as fabrication and construction facilities, through to very large heavy process industries, such as alumina, nickel and oil refineries. The subject lot is located within the Rockingham Industrial Zone (RIZ), which is a sub-precinct of the KIA.

Improvement Plan 14 (IP14), initiated under the provisions of the Metropolitan Region Scheme (MRS) in 1988, was created to facilitate the planning, development and use of land for industrial purposes within the KIA. The Kwinana Regional Strategy (1988) identified that the majority of underutilised land in the region (approximately 1,150ha) was located in the East Rockingham locality. The East Rockingham Industrial Park IP14 Structure Plan was subsequently adopted by the Western Australian Planning Commission (WAPC) to coordinate the utilisation of industrial land in East Rockingham.

The site falls within Precinct Two - Environmentally Acceptable Heavy Industry of the East Rockingham Industrial Park IP14.

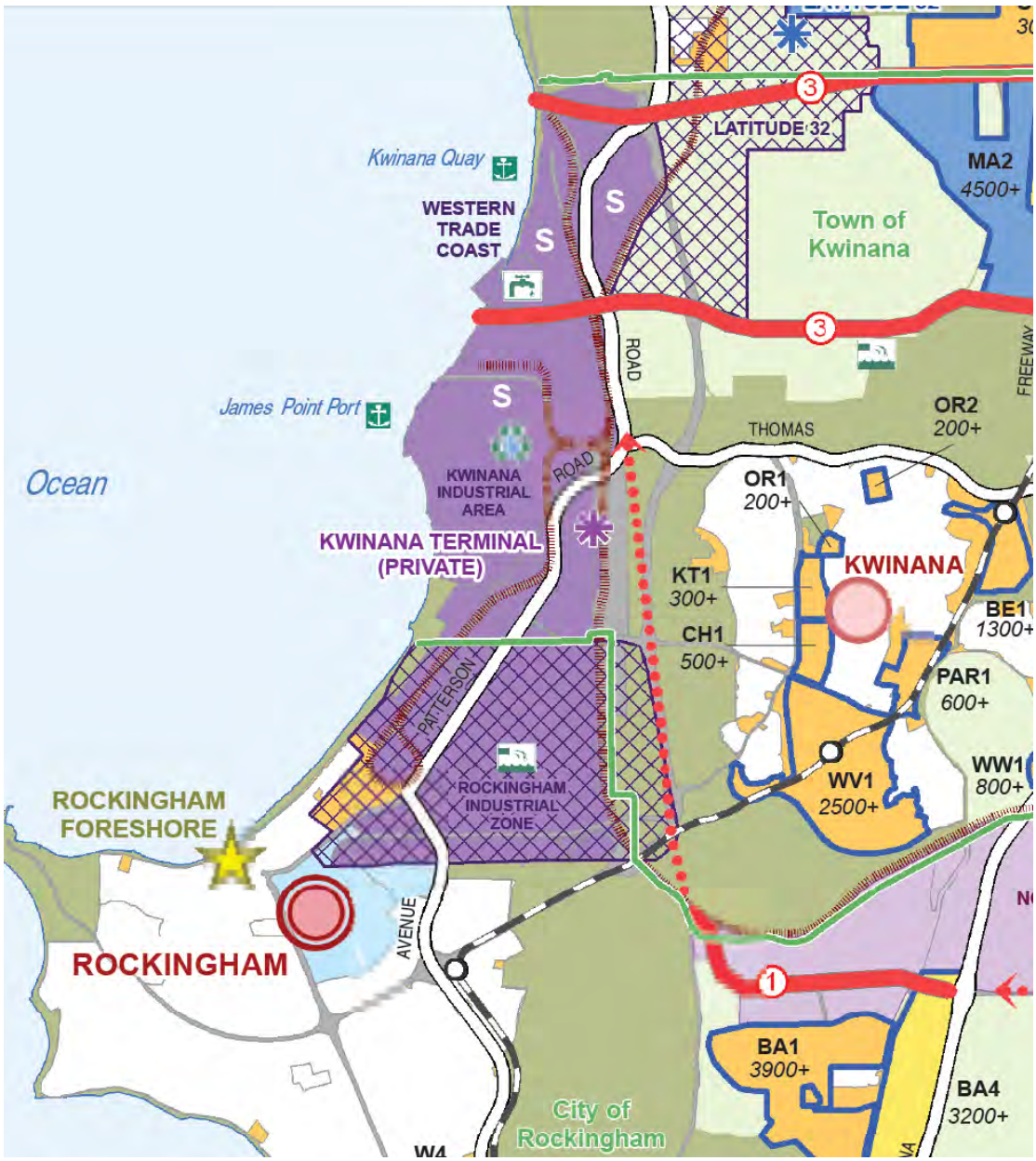


Figure 3 - Kwinana Industrial Area

Development Approvals

On 12 February 2015, the Metro South-West JDAP (MSWJDAP) approved a development proposal for a Waste to Energy and Recycling Facility (Form 1) on the subject site (DAP/14/00530). The development approval allowed for the construction and operation of a materials recovery facility and a gasification plant.

On 15 February 2017, an extension to the term of development approval was granted by City of Rockingham for the Waste to Energy and Recycling Facility (Form 2). As per Regulation 17A of the *Planning and Development (Development Assessment Panels) Regulations 2011,* the landowner applied to the responsible authority (Local Government in this instance) rather than the MSWJDAP, to determine the Form 2 application.

The Form 2 application proposed no changes to the approved plans that formed part of the original approval. The development approval for the Form 2 application lapsed on 15 February 2019.

Environmental Approval

Prior to the issue of the JDAP approval for the construction of the Waste to Energy and Recycling Facility (DAP/14/00530), the Minister for Environment issued a statement that the Waste to Energy and Recycling proposal may be implemented (Ministerial Approval) pursuant to the provisions of the *Environmental Protection Act 1986*, subject to various conditions. This approval is valid for a period of five (5) years, expiring on 20 January 2020.

The Environmental Protection Authority (EPA) has more recently considered a revised proposal, modified from 'gastrification technology' to 'moving grate technology' and have concluded that the proposal is environmentally acceptable, and may be implemented subject to conditions. In this regard, the subject application (DAP/18/01524) for consideration represents the next step of approval processes for the Waste to Energy Facility, and reflects the revised proposal approved by the EPA.

Details: outline of development application

Zoning	MRS:	Industrial
	TPS:	Special Industry
Use Class:		Industry - General (Licensed)
Strategy Policy:		*State Planning Policy 3.7 - Planning in Bushfire Prone Areas;* *State Planning Policy 4.1 - State Industrial Buffer;* *Planning Bulletin 87 - High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region;* *Planning Policy 3.3.8 - East Rockingham Design Guidelines;* *Planning Policy 3.3.14 - Bicycle Parking and End-of-Trip Facilities; and* *Planning Policy 7.1 - East Rockingham Industrial Park: Environmental Planning Policy.*
Development Scheme:		City of Rockingham Town Planning Scheme No.2
Lot Size:		100,000m^2
Existing Land Use:		Vacant

Development

A new development application to construct and operate a Waste to Energy Facility (Form 1) was lodged with the City on 7 November 2018.

The Facility comprises of an administration building, waste bunker, combustion system, boiler, bottom ash handling and treatment area and other associated infrastructure. The development occupies an approximate total area of 14,391m^2.

The maximum building height is 60.3 metres, which relates to the 'Stack', and is setback 176.5 metres from Office Road. The development provides for separate access points from Office Road to accommodate private vehicles and commercial vehicles. An automated gating system will be in operation for authorised vehicles using number plate recognition technology.

The Facility will generate on average 190 vehicle movements per day which include 65 B-Double trucks to deliver waste, 1 B-Double truck to deliver chemicals, 1 B-Double truck to transport materials and remove grate combustion unit residue for disposal and 28 light vehicle trips per day, assuming all staff drive individually.

The maximum capacity of the Facility is 101.8 Megawatt Thermal (MWt) which will result in the generation of 31.4 MW of electricity. Of this, 3.2 MW is parasitic electricity required to operate the plant and the remaining 28.2 MW will be exported to the grid when the power station is operating at maximum capacity. The energy produced is estimated to be sufficient to sustain over 36,000 homes per year.

The facility, including the combustion process, will operate seven days per week, 24 hours per day. It will be staffed with 20 employees at any one time based on a rotating 12 hour shift pattern.

The operation of the Facility comprises the following:

- Receiving of waste;
- Mixing of waste in the bunker and feeding into the feed hopper;
- 24/7 operation of combustion, power generation, air pollution control systems;
- Operation of associated support systems for combustion (water treatment, chemical preparation etc);
- Chemical and spare parts receival;
- Ash and residue dispatch; and
- Maintenance of all systems (routine and annual overhaul).

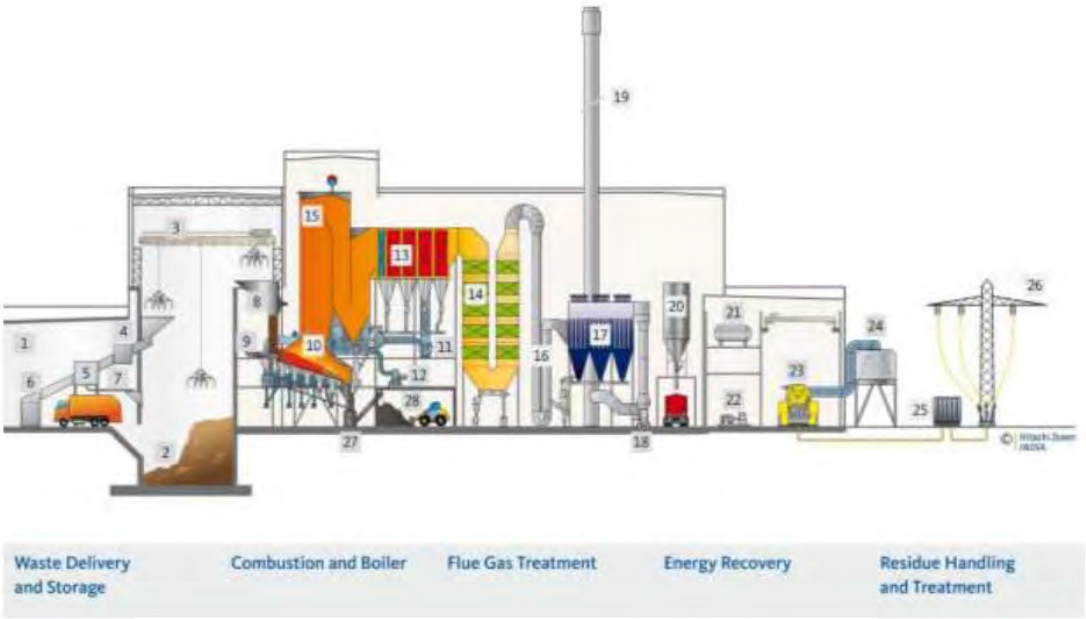


Figure 4 - Key process stages

The following waste will not be accepted for processing:

- Asbestos, explosive materials and radioactive wastes;
- Scheduled wastes such as Polychlorinated Biphenyls and Organochlorine Wastes;
- Highly corrosive or toxic liquids or gases such as strong acids, chlorine or fluorine; and
- Wastes which mechanically cannot be handled by the facility and other wastes which are identified by staff as potentially hazardous.

The applicant provides the following documents in support of the development application:

- Development overview;
- Report and recommendations of the Environmental Protection Authority (EPA);
- Traffic Impact Study;
- Bushfire Management Plan, Bushfire Emergency Plan and Risk Management Plan;
- Environmental Acoustic Assessment Report; and
- Project Implementation Schedule.

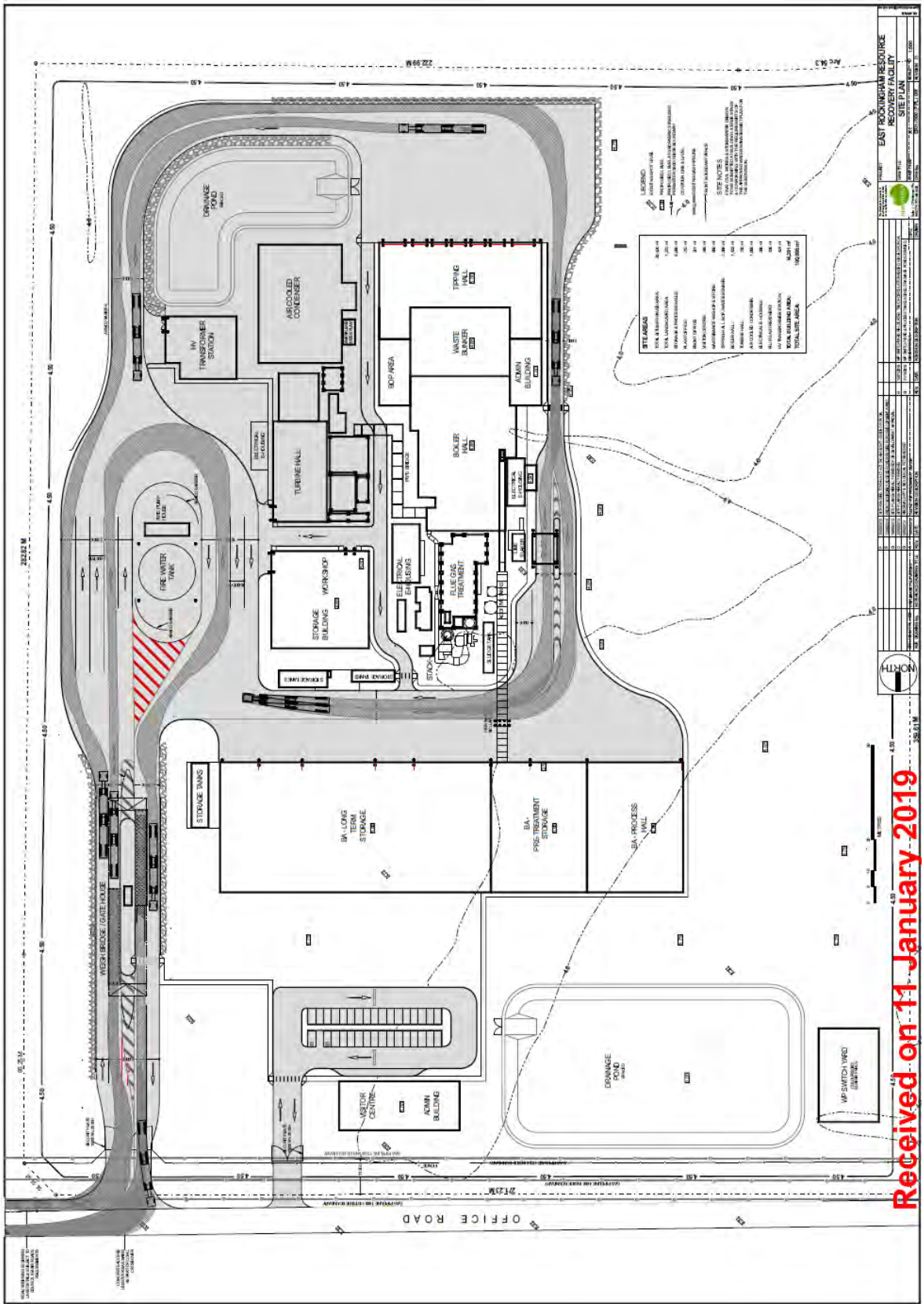


Figure 5 - Site Plan

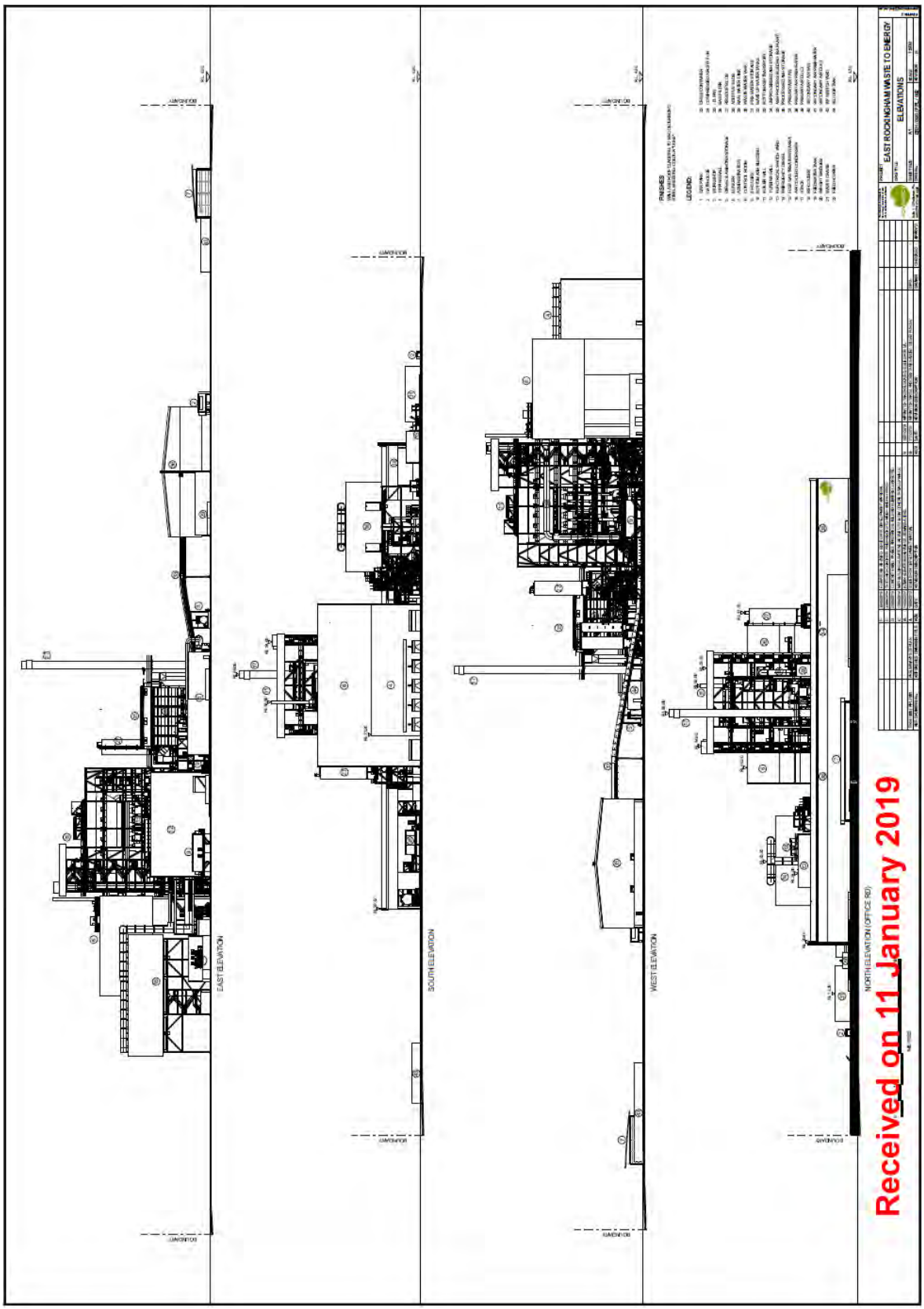


Figure 6 - Elevations

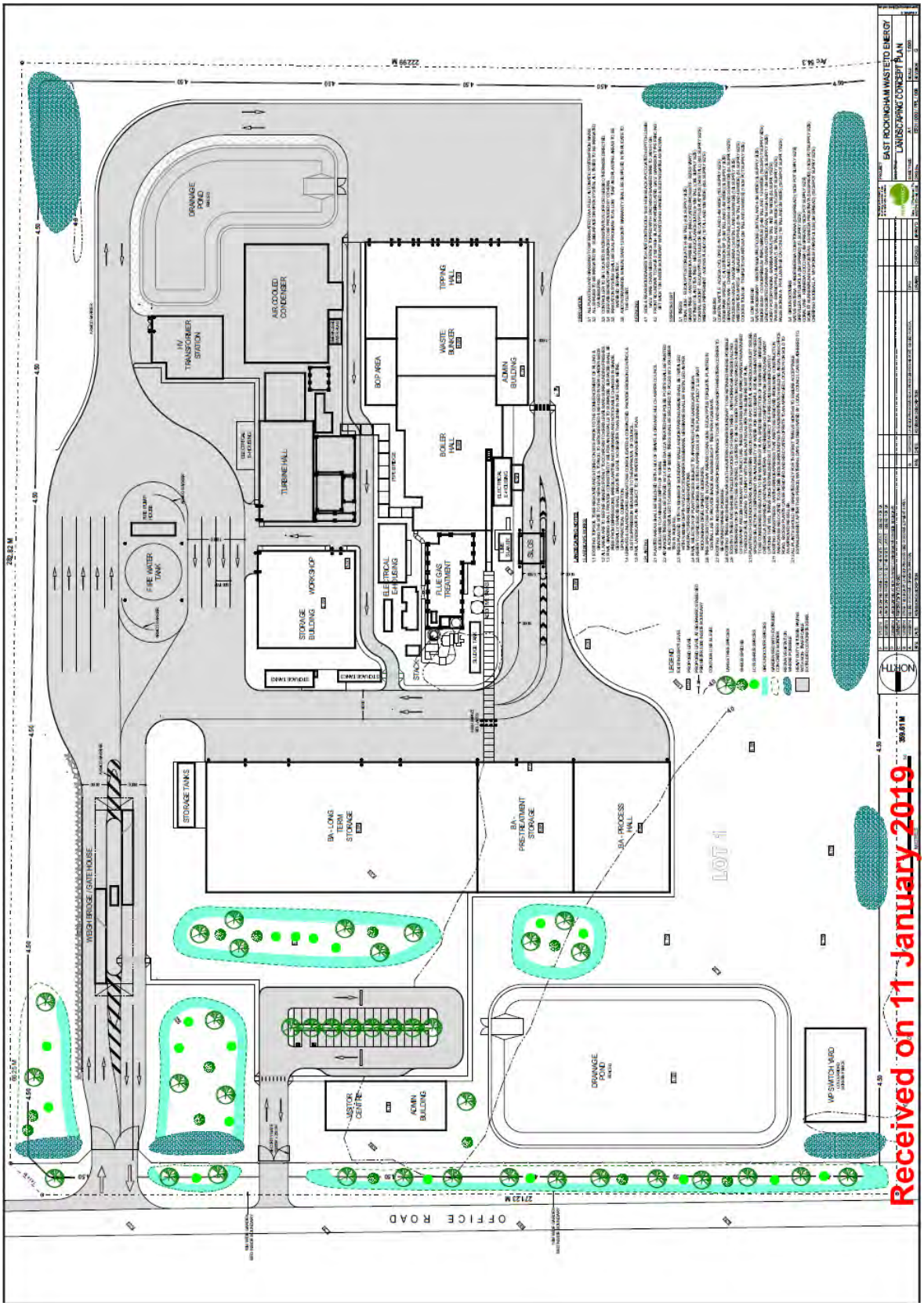


Figure 7 - Landscape Plan

Legislation and Policy:

The development has been assessed against the City's Town Planning Scheme No. 2 (TPS2) and the applicable Local and State Planning Policies. Given the number of Scheme elements and Planning Policies that are applicable to the proposed development, the Legislation and Policy assessment part of this report has been broken down into the following sections:

- City of Rockingham Town Planning Scheme No.2 - Assessment;
- Clause 67 Matters to be considered by Local Government – Planning and Development (Local Planning Scheme) Regulations 2015;
- State Government Policies - Assessment; and
- Local Policies - Assessment.

Legislation:

Planning and Development (Local Planning Schemes) Regulations 2015 (Regulations)

Clause 67 of Schedule 2 of the Regulations outlines the matters to which the Local Government is to have due regard when considering an application for development approval. Where relevant, these matters have been discussed throughout this Report.

City of Rockingham Town Planning Scheme No.2 (TPS2)

Clause 3.2 - Zoning Table
The subject site is zoned 'Special Industry' under TPS2. The proposed Industry - General (Licensed) use is classified as an 'A' listed use in the Special Industry zone, meaning that the use is not permitted unless the Local Government has exercised its discretion by granting development approval after advertising.

Clause 4.10.1 - Objectives
The objectives of the Industrial zoned land are:-

"(a) to provide for a range of industrial land uses by establishing guiding principles and policies that are environmentally and socially acceptable;
(b) to encourage and facilitate the establishment of attractive and efficient industrial areas ensuring that acceptable levels of safety and high standard of amenity are provided through the application of appropriate landuse, design and landscaping controls; and
(c) to ensure that industrial areas are developed in a manner which has due regard to potential industries and their infrastructure needs, and that adjacent urban areas are not subjected to pollution and hazards."

The City has a Local Planning Policy (PP7.1) relating to the environmental and social acceptability of proposed developments which the proposed development has been considered against within the Policy section of this report.

The design of the proposed development results in efficient use of the industrial land and required landscaping will serve to screen views of the development whilst softening its impact on the public realm. The applicant has committed to

implementing the findings of a risk assessment with regards to the proposed design, with the site being fenced off at all times (including during construction) and security lighting being provided. Entry to the site will also be restricted to authorised vehicles using number plate recognition technology.

The proposed development is a land use not previously developed in the area. The subject site is located centrally within the KIA, which is identified for heavy industrial land uses. The EPA has assessed the environmental impacts of the development through the Public Environmental Review (PER) process. By virtue of the EPA recommending approval to the Minister for Environment, it can be considered that the environmental impacts of the development are acceptable.

The proposed development is considered to be consistent with the objectives of the Industrial zones.

Clause 4.10.2 - Form of Development

The Local Government shall have regard to the following when considering an application for development approval on Industrial zoned land:-

"(a) promotion of a high standard of building development, landscaping and working environment;
(b) protection of the amenity of adjacent residential and open space areas;
(c) management of drainage systems and land uses to promote groundwater and conservation; and
(d) to ensure safe movement of vehicular and pedestrian traffic in the area."

The proposed development is compliant with PP3.3.8 in regards to the building design, landscaping and the working environment.

The proposed development is an industrial land use. The context of the surrounding locality is for a mix of general and heavy industrial land uses, with surrounding vacant land also zoned for industrial purposes. The proposed development is therefore considered compatible with the existing surrounding context of the locality.

The applicant, through Shawmac Consulting Civic & Traffic Engineers, conducted a Traffic Impact Assessment (TIA) to assess the impact the proposed development will have on the local road network in the context of the exiting capacity of the proposed haulage route. The TIA also included an assessment of the proposed carparking and access configuration to service the proposed development.

The TIA found that impacts on the operational performance associated with the proposed development are minimal and that the proposed development will only have a minor impact on the existing queuing and delay at local intersections, subject to minor road upgrades that include:

- A short Channalised Right turn treatment at the light vehicle crossover to allow through traffic on Office Road to bypass any vehicles turning right into this this crossover;
- A basic left turn treatment to provide at the heavy vehicle crossover in order to allow trucks to come off the through lane before entering the crossover; and
- Minor pavement widening in the south-west corner of the intersection to accommodate a B-Double turning left from Mandurah Road into Office Road.

The TIA concluded that there were no issues identified with regard to traffic operations of the proposed development. The City has assessed the TIA and has identified minor discrepancies in respect to swept path and general comments, however, the land use is unlikely to create traffic issues on the surrounding road network. The TIA will require minor amendments to address issues raised by the City. An advice note to such extent forms part of the recommended development approval.

Provision has been made for a carparking bay for the exclusive use of people with disability, however, a continuous accessible path of travel has not been provided from the carparking bay to the administration/education facility. It is recommended that a condition of Development Approval be included to provide a continuous accessible path of travel in accordance with *AS1428.1 - General Requirements for Access - New Building Work.*

4.10.3 - Parking

TPS2 requires the provision for the on-site parking of vehicles for all development on industrial zoned land in accordance with the provisions of Clause 4.15 and Table No.2. The proposed development is a land use that is not specified in Table No.2 and therefore no minimum car parking requirement is specified. In accordance with Clause 4.15.1.4, where land is proposed to be developed for a purpose which is not specified in Table No.2, the Council is to determine the number of car parking bays required in regards to the following:

"(i) The nature of the proposed development;
(ii) The number of employees likely to be employed on the site;
(iii) The anticipated demand for parking; and
(iv) The orderly and proper planning of the locality"

The development proposes 33 car parking bays including two accessible bays. The applicant has stated that up to 48 full time staff will operate from the facility on a shift basis (maximum of 20 staff at any one time), with access to the facility being restricted to authorised vehicles only. Given there are adequate bays to accommodate up to 13 visitor cars, the parking requirements of TPS2 are sufficiently addressed.

4.10.4 - General Development Provisions

Clause 4.10.4 provides for development provisions on all Industrial zoned land within the City. The provisions are outlines below and considered in relation to the proposed development.

General Development Provisions	Provided	Compliance
Facade		
The facades of all buildings visible from the primary road or open space area shall be of masonry construction or any other material approved by the Local Government in respect of the ground floor level, provided that if concrete panels are used, such panels must have an	The facade of the administration building visible from Office Road will be finished in precast concrete panel with textured paint finish to a height of 4.2 metres.	Yes

exposed aggregate or textured finished. The second floor level or its equivalent may be constructed of any other material in accordance with the Building Code of Australia and to the satisfaction of Local Government.		
Fencing		
No fence visible from a road or open space reserve shall be constructed of materials/colours which in the opinion of Local Government are unsightly or detract from the amenity of the locality, or be used for signage where the approval of the Local Government has not been granted. Any industrial (eg. chain wire) fencing forward of the street building setback line shall be landscaped to the satisfaction of the Local Government.	The front fence will have a 2.1m high black powder-coated galvanised 'garrison' fence with matching hinged sliding gates. Side and rear boundaries will have a 1.8m high black PVC coated galvanised wire chain mesh fenced topped with 3 rows of barbed wire to 2.4m high. The proposed fencing materials are considered acceptable.	Yes
Setback area		
No use of the area between the street alignment and the prescribed building setback line shall be permitted other than for landscaping, or for pedestrian and vehicular circulation and parking, except that not more than 20% of the setback area may be used for trade display purposes, to be approved at the discretion of the Local Government.	The front setback area (25m) is proposed to be used for landscaping and vehicular access only.	Yes

4.10.10 - Special Industry zone

Clause 4.10.10 provides for setback and landscaping requirements for developments within the Special Industry zone. The provisions are outlined below and considered in relation to the proposed development.

Required Element	Provided	Compliance
Setback		
A minimum front setback of twenty five (25) metres shall apply for major structures and a minimum front setback of fifteen (15) metres shall apply to offices, gatehouses and amenity buildings. Where a lot has frontage to two or more streets, the prescribed front setbacks of twenty five (25) metres	A minimum front setback of 20m has been provided to the administration building, with the main building achieving a 95.5m front setback.	Yes

and fifteen (15) metres shall apply to the primary street and the setback to the secondary street shall be determined by the Local Government, but shall not be less than the prescribed minimum landscaping setback requirement.		
Landscaping		
Landscaping shall be provided on all street frontages for a distance of not less than 10 metres from each property boundary. At the discretion of Local Government, additional landscaping may be required on the remainder of the site.	For the most part a 10m landscaping strip has been provided to Office Road. There are some blank areas on the Landscape Plan surrounding garden beds and it is unclear if this is to be landscaped. The City also considers that landscaping is required along the eastern elevation of the administration building and storage tanks in order to provide some visual screening of views from Office Road. A condition requiring landscaping for a minimum depth of 10 metres from the property boundary and additional landscaping along the eastern elevation of development is recommended should the application be approved.	Yes

State Government Policies

State Planning Policy 3.7 - Planning in Bushfire Prone Areas (SPP3.7)
SPP3.7 seeks to guide the implementation of effective risk-based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure.

The entire site have been designated bushfire prone under the *Fire and Emergency Services Act 1998 (as amended)* and therefore the requirements of SPP3.7 are applicable.

The objectives of SPP3.7 are to:

- "*Avoid any increase in the threat of bushfire to people, property and infrastructure. The preservation of life and the management of bushfire impact are paramount.*
- *Reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making at all stages of the planning and development process.*

- *Ensure that higher order strategic planning documents, strategic planning proposals, subdivision and development applications take into account bushfire protection requirements and include specified bushfire protection measures.*
- *Achieve an appropriate balance between bushfire risk management measures and, biodiversity conservation values, environmental protection and biodiversity management and landscape amenity, with consideration of the potential impacts of climate change."*

As the land is designated as a bushfire prone area and is classified as a 'high risk' land use, the applicant submitted a Bushfire Management Plan (BMP), Risk Management Plan (RMP) and Bushfire Emergency Plan (BEP) in support of the application, as per the requirements of SPP3.7. The proposal was referred to Department of Fire and Emergency Services (DFES), which supported the proposal subject to minor alterations to the BMP (refer to the Consultation with other Agencies or Consultants section of this report).

The BMP has been assessed and is considered acceptable. Requirements of the BMP are recommended as conditions of development approval.

Guidelines for Planning in Bushfire Prone Areas (GfPBPA)
The Department of Planning, Lands and Heritage's GfPBPA provide supporting information to assist in the interpretation of the objectives and policy measures outlined in SPP3.7. The following is an assessment against the relevant requirements of the GfPBPA.

Element 1 - Location
The development complies with the relevant Acceptable Solution for this Element, as the applicant has demonstrated through a Bushfire Attack Level (BAL) assessment and implementation of an Asset Protection Zone (APZ) that the maximum BAL level that buildings will be required to be constructed to will be BAL-29 of *Australian Standard 3959 - Construction of Buildings in Bushfire Prone Areas* (AS3959). A condition of development approval is recommended in this regard.

Element 2 - Siting and Development
The development complies with the relevant Acceptable Solution for this Element, as buildings on the lot can establish around it an APZ (of the required dimension), which is established fully within the lot boundaries. Conditions of development approval are recommended to ensure the APZ is provided prior to the occupation of the development, and buildings are constructed to the requirements of AS3959.

Element 3 - Vehicular Access
The development complies with the relevant Acceptable Solution for this Element, as Office Road provides alternative egress options from the site, to the east onto Rockingham Road and west onto Mandurah Road.

Element 4 - Water
The development complies with the relevant Acceptable Solution for this Element, as reticulated water supply is currently available to the site. A condition of approval is recommended in this respect to ensure the connection to reticulated water is maintained at all times.

The closest hydrant is located 18 metres north of the subject site on the opposite side of Office Road. Additionally, fire hydrants will be installed within the development, at a minimum spacing of 100 metres, along with a 1.42 megalitre Fire Water Storage Tank.

State Planning Policy 4.1 - State Industrial Buffer (SPP4.1)

The purpose of SPP4.1 is to provide a consistent State wide approach for the protection and long term security of industrial zones, transport terminals and other utilities and special uses. It also aims to provide for the safety and amenity of surrounding land uses, whilst having regard to the rights of landowner who may be affected by residential emissions and risk.

The objectives of SPP4.1 are as follows:-

- *To provide a consistent Statewide approach for the definition and securing of buffer areas around industry, infrastructure and some special uses;*
- *To protect industry, infrastructure and special uses from the encroachment of incompatible land uses;*
- *To provide for the safety and amenity of land uses surrounding industry, infrastructure and special uses; and*
- *To recognise the interest of existing landowners with buffer areas who may be affected by residual emissions and risk, as well as the interests, needs and economic benefits of existing industry and infrastructure which may be affected by encroaching incompatible land uses.*

The proposed development is within a defined environmentally acceptable heavy industry area and does not encroach into any specifically defined buffer areas, with the exception of the Parmelia Gas Pipeline (PGP) buffer area which traverses the front of the site and Water Corporation's Odour Buffer for the southern end of the lot. The owner/operator of the PGP as well as Water Corporation have raised no concerns with the encroachments. The proposed development is not considered to compromise any infrastructure, surrounding industry or special uses.

The proposed land use is considered compatible with existing industrial land uses in the area as the subject site is within an area that has been designated for heavy industrial land uses.

The safety and amenity of surrounding land uses is not considered to be compromised. Through the PER process, the assessment of emissions and air quality impacts were found to comply with the National Environment Protection Measure Standards, World Health Organisation Standards and criteria from relevant guidelines for standard operation and emergency shut-down scenarios.

By virtue of the PER, the proposed development is not considered incompatible to existing industry in respect to environmental and social impacts.

The proposed development is considered compliant with SPP4.1.

Planning Bulletin 87 - High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region (PB87)

The purpose of PB87 is to ensure planning mechanisms are implemented to confirm people and property are at an acceptable level of risk where town planning schemes, amendments, structure plans, developments and subdivisions are proposed within

the vicinity of pipeline corridor/easements and that the future potential of the pipeline corridor/easements are not constrained.

As previously mentioned, the PGP is situated within an easement on the northern edge of the subject site. The proposed development is located within the 60m recommended setback distance (Table 1) for industrial and commercial uses from the pipeline.

To mitigate risks associated with the reduced setback proposed, it is recommended that a condition be included requiring the applicant to prepare and implement a Pipeline Risk Management Plan in consultation with the pipeline operator.

Local Policies

Planning Policy 3.3.8 - East Rockingham Development Guidelines (PP3.3.8)
The purpose of PP3.3.8 is to guide the orderly development of serviced industrial land within the East Rockingham Industrial Park (IP14 Area).

The objectives of PP3.3.8 are:-
"(a) To achieve an attractive and unified development which acknowledges the goal of conserving and enhancing the natural environment by emphasising the retention of natural vegetation and the introduction of complementary quality landscaping and well designed buildings;

(b) To achieve a degree of consistency and compatibility in the built form and landscaping, whilst allowing for individuality and a well presented corporate or market image; and

(c) To avoid unsightly and poorly planned development and enhance and protect the investment of all owners within the East Rockingham Industrial Park and the investment of others in the region."

Natural vegetation on the site will be lost as a result of the proposed development, which was anticipated when the land was zoned for industrial purposes. Nevertheless, prior to this occurring the Landscape Plan will require updating to ensure compliance with APZ requirements as it currently provides insufficient information. There are large white areas on the plan surrounding garden beds and it is unclear if this is to be maintained grass, sand or hardstand. To conserve as much vegetation on site as possible, a condition requiring grasstrees identified for removal to be relocated and the protection of vegetation not identified for removal is recommended should the application be approved.

The building design along with the proposed landscaping improvements will meet the standard of built form already apparent in the East Rockingham Industrial Park (ERIP). The proposed development is well planned and is not considered to adversely impact the existing investment of owners within the ERIP.

Planning Policy 3.3.14 - Bicycle Parking & End-of-Trip Facilities (PP3.3.14)

PP3.3.14 facilitates the appropriate provision of secure, well designed and effective on site bicycle parking and end-of-trip facilities to encourage the use of bicycles as a means of transport and access to and within the City.

Bicycle Parking Requirement

The requirement for short-term parking is not considered to serve any benefit, and for that reason only the requirement for long-term parking is considered.

Land Use	Required	
	Rate	Number
Office (551m²)	1:200m²	3
Total	3	

No provision of bicycle spaces has been made. A condition of development approval requiring the provision of three (3) long-term bicycle parking spaces is recommended.

End-of-Trip Facilities

In terms of PP3.3.14, the provision of 3 long term parking spaces requires the provision of one showers. The shower is required to be provided in a change room in accordance with PP3.3.14. Should the application be approved, it is recommended that a condition be imposed requiring the provision of end-of-trip facilities as shown on Attachment 1 - Admin Floor Plan.

Planning Policy 7.1 - East Rockingham Industrial Park - Environmental Planning Policy (PP7.1)

The primary objective of PP7.1 is to establish guiding principles and policies for the environmental acceptability of industrial development on industrial zoned land within the City of Rockingham, predominantly within the IP14 area.

Supporting the primary objective are a number of principles drawn from established policies and principles at the state, national and international levels.

PP7.1 utilises the following categories for assessment against minimum requirements for development proposals:-

- Air Quality;
- Risks and Hazards;
- Noise;
- Water Quality; and
- Social Environment.

PP7.1 does not support the development of heavy industries unless it can be demonstrated that there is compliance with the *Environmental Protection Act 1986* (EP Act). Through the PER process, the applicant has been able to demonstrate that acceptable environmental standards can be met. The proposed development has been recommended for conditional approval by the EPA and the City is satisfied that continual monitoring of the facility, as required by the EPA, will require ongoing compliance with relevant standards and regulations.

Aurora Environmental prepared a letter to support the development application demonstrating compliance with PP 7.1. The letter summarises key elements of the

PER that demonstrates air quality, risks and hazards, noise, water quality and the social environment will be appropriately managed as part of the waste to energy development. The EPA's Report states that it is satisfied that emissions from the proposed facility will be manageable and environmentally acceptable. In addition, discharges and emissions will be regulated through DWER's works approval and licencing process. The letter prepared by Aurora demonstrates compliance with PP 7.1's key policy positions.

Consultation:

Public Consultation

The proposed land use is not permitted unless the Local Government has exercised its discretion following advertising.

The development application was advertised for public comment over a period of 35 days, commencing on 16 November 2018 and concluding on 21 December 2018. The nature of the 24hour development warranted comments from nearby owners and occupiers prior to Council providing its recommendation to the MSWJDAP.

Advertising was carried out in the following manner:

- Landowners and occupiers within the boundaries of the City (500 metres of the site) were notified in writing of the proposed development;
- A sign advertising the proposed development was erected on site;
- A notice appeared in the public notices section of the Weekend Courier on the 16 November 2018, 23 November 2018 and the 30 November 2018; and
- Copies of technical documents and plans of the proposal were made available for public inspection at the City's Administration Offices and placed on the City's website.

At the close of the public consultation period a total of five (5) submissions were received, which included one (1) objection and four (4) letters of support.

The objection received has been summarised in the table below as well as the applicant's and Officer's response to the issues.

Issue 1 - Location
Submission: There is already a waste to energy burner approved for the main Kwinana Industry Zone (the appropriate site for this type of industry) and for the Council to push for this type of proposal is just short-sighted.
Applicant's Response: The location for the project was identified by the Department of State Development and Landcorp and is located within the Kwinana Industrial Area. The site is appropriately zoned for this land use and adheres to the City of Rockingham Town Planning Scheme.
City's Comment: The Council must provide recommendation to the MSWJDAP on planning grounds taking into consideration impacts on the amenity of surrounding locality and does not take commercial competition into consideration. The application has been considered in accordance with City's TPS2 and applicable planning policies. Further, the application will ultimately be determined by MSWJDAP.

Issue 2 - Energy Alternatives
Submission: State Government and the City of Rockingham should be investing in 'proper' recycling such as solar/battery storage and lithium.
Applicant's Response: The primary purpose of this facility is to divert residual waste away from landfill. Energy generation is a benefit of this process. The electricity generated is base load energy and approximately 50% of the energy produced is deemed renewable energy. This definition of renewable energy is provided by the Australian Federal Government – Clean Energy Regulator. This type of generation fits well with more intermittent renewable sources such as wind and solar.
City's Comment: The City's role is to assess the impacts and land use acceptability of the proposed development, and to provide recommendations to the MSWJDAP on this basis.
Issue 3 - Health Impacts
Concerns regarding long term health implications from toxic gases and heavy metals.
Applicant's Response: The project has been thoroughly assessed by the EPA and recommended for approval. The key environmental factor in that assessment was air emissions.
City's Comment: All Health impacts form part of the environmental approvals process, which is one of the highest level of assessment allowable under the Environmental Protection Act 1986 at a Public Environmental Review. Additionally, Aurora Environmental, on behalf of the applicant has prepared a letter to support the development application, demonstrating compliance with the City's Planning Policy 7.1 - East Rockingham Industrial Park and addresses air quality, risks and hazards, noise, water quality and the social environment. The letter demonstrates that facility will be appropriately managed as part of the waste to energy development.

Consultation with other Agencies or Consultants

The following government departments and service agencies were consulted:

- Department of Biodiversity, Conservation and Attractions (DBCA);
- Department of Water and Environmental Regulations (DWER);
- Department of Fire and Emergency Services (DFES);
- Main Roads Western Australia (MRWA);
- Water Corporation;
- City of Kwinana (CoK); and
- APA Group.

The comments received are as follows:

1. Department of Biodiversity Conservation and Attractions (DBCA)
The Department of Biodiversity Conservation and Attractions has no comments on the application.
City's Comment: Noted.

2. APA Group - summarised
APA Group (APA) is Australia's largest natural gas infrastructure business and has direct management and operational control over its assets and investments. APA's gas transmission pipelines span across Australia, delivering approximately half of the nation's gas usage. APA owns and operates over 15,000km's of high pressure gas transmission pipelines across Australia. APA is the Pipeline Licensee for the Parmelia Gas Pipeline, which runs along the eastern boundary of the subject site. The proposal is for the use and construction of a Resource Recovery Facility. This involves the construction of two crossovers to Office Road, a number of buildings and associated structures and a 10 metre wide landscape strip along Office Road. Given the extent of works proposed APA seeks for a pipeline risk management/protection plan to be prepared in accordance with Planning Bulletin 87 and requires the following conditions/advisory notes to be included with any approval issued for this proposal. <u>Conditions:</u> 1. Prior to the commencement of development works, the landowner/applicant shall prepare and implement as part of the development works a pipeline risk management plan/protection plan in accordance with Planning Bulletin 87 High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region. The risk mitigation measures/controls outlined within the pipeline risk management/protection plan are to be implemented by the landowner/applicant as part of the development works to the satisfaction of the Western Australian Planning Commission and to the specifications of APA Group. 2. Prior to the development commencing, landscape plans depicting any planned landscaping, including the planting of vegetation, species, details, surface. <u>Advice Notes:</u> 1. The proponent is to contact APA's Infrastructure, Planning and Protection team to arrange for the preparation of the pipeline risk management/protection plan and discuss any other practical elements of works in and around the pipeline. APA can be contacted on 180 103 452 or via email at APAProtection@apa.com.au. 2. If you are planning on undertaking any physical works on property containing or proximate to a pipeline, or are seeking details on the physical location of a pipeline, please contact Dial Before You Dig on 1100, or APA directly on APAProtection@apa.com.au.
<u>City's Comment:</u> Noted, should the development be approved a condition requiring a Pipeline Risk Management Plan is recommended along with the associated Advice Notes. The City also recommends a Landscaping Plan condition be imposed to the satisfaction of the City of Rockingham and APA Group. The recommended condition is considered to address Condition 2 raised by APA Group.
3. Department of Water and Environmental Regulations (DWER) - summarised
The Department of Water and Environmental Regulation (DWER) has reviewed the application and wishes to advise it has no objections to the proposal.

City's Comment:

DWER in its submission provides for various Advice Notes relating to Stormwater Management, Sewerage, Native Vegetation, Prescribed Premises, Best Practice Management and Groundwater. A copy of the advice notes forms part of Attachment 4 - Schedule of Submissions.

The applicant has been provided with a summarised copy of the DWER submission.

4. Department of Fire and Emergency Services (DFES) - summarised

The development application and the BMP have adequately identified issues arising from the bushfire risk assessment and considered how compliance with the bushfire protection criteria can be achieved. However, modifications to the BMP are necessary to ensure it accurately identifies the bushfire risk and necessary mitigation measures. As these modifications will not affect the development design, these modifications can be undertaken without further referral to DFES.

The required modifications are listed below.

Policy Measure 6.5 a) Preparation of a BAL contour map

The BAL Contour Map provides indicative BAL ratings due to the location of the development being undetermined. It is unclear why reference is made to indicative BAL ratings given the proposal contains siting and design details of the proposed development within the development application.

Policy Measure 6.5 c) Compliance with the Bushfire Protection Criteria

It is unclear what inputs have been changed in the 'Method 2' calculation. Please clarify if the 'Method 2 BAL Calculation' within Appendix 4 of the BMP has been incorrectly included.

The Method 2 calculation has not been validated by DFES.

Applicant's Response:

Noted.

City's Comment:

Noted. Should the development be approved a condition requiring an updated BMP to the satisfaction of the City of Rockingham is recommended.

5. Water Corporation (WC) - summarised

WC offer the following comments in regard to this proposal:

- Reticulated water is currently available to the subject Lot to serve the proposed development.
- Reticulated sewerage is not available to serve the subject Lot, on site disposal will be required.
- This development is partially within the WC's Odour Buffer for the East Rockingham Water Treatment Plant, however this development is considered to be a compatible land use.

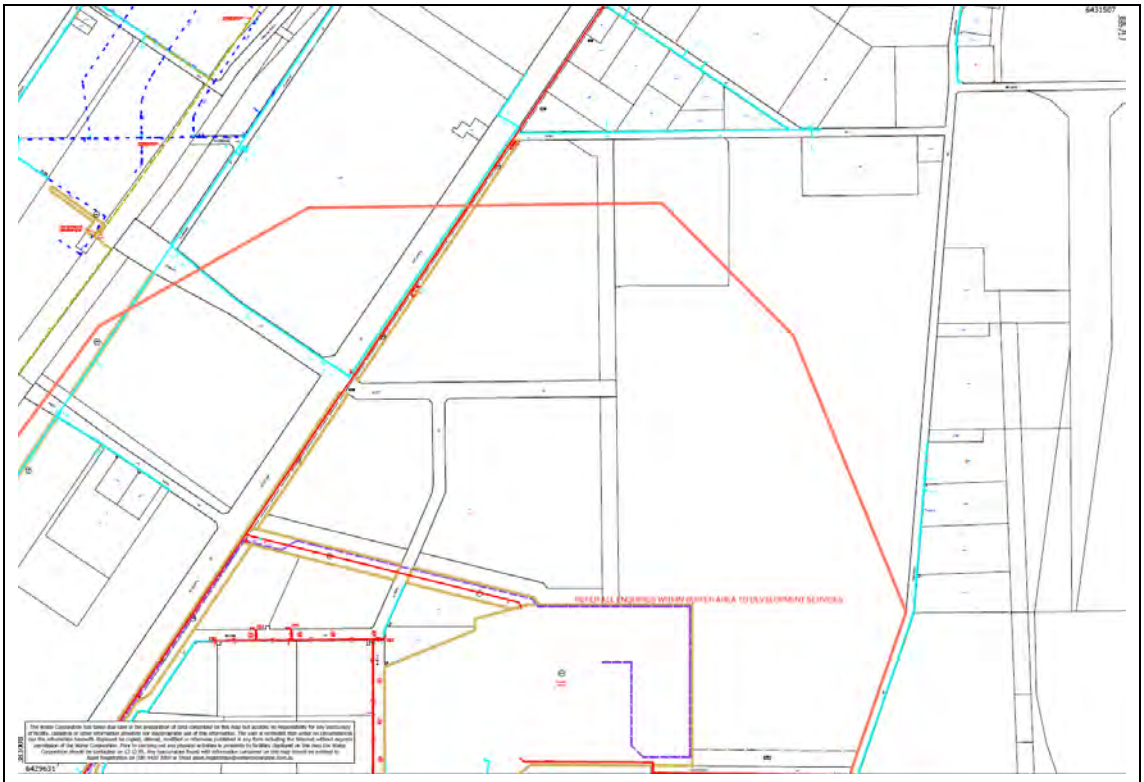


Figure 8 - Odour Buffer

Applicant's Response:

Noted. Septic tanks are included in the design.

City's Comment:

An application to install a system for the treatment of waste water must be approved by the City's Health Services prior to installation, to ensure the system complies with State legislation. Should the development be approved a condition requiring the development to be connected to an aerobic treatment unit is recommended.

6. Main Roads Western Australia (MRWA)

MRWA has reviewed the application and wishes to advise it has no objections to the proposal, subject to the following advice notes.

1. Main Roads advises that the route of departure outlined in the proposed route map included within the Transport Impact Assessment prepared by Transcore dated 26 April 2018 includes vehicle movements on Office Road and Dixon Road which are contrary to the currently permitted Restricted Access Vehicle (RAV) allowances on those roads.
2. Any RAV 4 classified vehicle departing from the proposed facility will be required to egress eastbound on Office Road, northbound onto Mandurah Road and utilise Thomas Road to access the Kwinana Freeway southbound as to remain compliant with existing RAV road classifications and conditions.
3. It should be noted that any proposed modifications to the existing RAV access permissions are subject to third party Main Roads approval pursuant to the Road Traffic (Vehicles) Act 2012. Therefore any condition issued as part of an approval which requires RAV permissions to be modified would be ambulatory in nature and lack finality.

4. The applicant should note that any RAV operator which utilises the western portion of Office Road which is not currently classified for RAV use, or Dixon Road contrary to the current conditional RAV classifications, will be subject to noncompliance penalties.

Applicant's Response:

The route of departure has been changed and detailed in the updated TIA.

City's Comment:

The RAV 4 roads within the locality are illustrated in Figure 9 below. As detailed in the updated TIA, truck outbound movement shall be via Mandurah Road north of Office Road, right onto Rockingham Road and then Thomas Road. The route of departure addresses Advice Notes 1 and 2 raised by MRWA.

Figure 9 - RAV 4 Network

MRWA Advice Note 3, in respect to the modification of the RAV Network is supported. In respect to Advice Note 4, this is a matter to be regulated by MRWA and cannot be sustained as a valid planning consideration. Consequently, Advice Note 4 is not supported by the City.

7. City of Kwinana (CoK) - summarised

I. Location

Whilst the City is cognisant to the fact that the East Rockingham Waste to Energy

Proposal has previously received an approval to operate a Waste to Energy Plant under the provisions of the Environmental Protection Act (EPA Report No. 1513 and Ministerial Statement 994), and has also received development approval under the City of Rockingham Local Planning Scheme (DAP/14/00530), the City of Kwinana hold concerns regarding the location of the facility and the potential air quality impacts it may generate for residents within the Calista, Leda and Medina localities.

As discussed in the EPA's report of June 2017, on the Mandogalup urban development buffer, the predominant winds in the region are typical of coastal environments in the Perth Metropolitan Region and are characterised by strong offshore breezes during the early morning to midday periods followed by strong onshore breezes in the afternoon to evening periods. The strong south-west to south-south-west breezes are of particular concern to the City especially during shut down periods for the plant (both scheduled and un-scheduled). The City are of the opinion that during these periods of shut down or facility down time, the proposal has the potential to negatively impact on the air quality of the residents of Calista, Medina and Leda through the release of fugitive gas and odour emissions. Additionally, the Public Environmental Review (PER) documents note that there are two residential premises located on Wellard Road approximately 1 kilometre to the east of the facility, however does not adequately address, nor give weight to, the potential impacts of the facility on these residences.

In this regard, it is the opinion of the City that the proposal location should be reconsidered and an alternative site be sought closer to the core of the Kwinana Industrial Area (KIA) where the prevailing wind direction will direct any fugitive emissions over the existing industrial areas and not residential zoned land.

Applicant's Comments:

These matters were raised by the Town of Kwinana as submissions on the Environmental Review Document and responses were provided by NEC to the EPA and accepted by the EPA.

City's Comment:

Given the applicant has demonstrated through the EPA process that impacts associated with the proposed development can be managed to an acceptable standard, the location of the proposed development is considered acceptable. The proposal has altered from an environmental technology point of view, however, it is considered the land use requirements from the City's TPS2 perspective has not changed. The proposed development is considered consistent with the intent of the area.

II. Air Quality Emissions

Whilst the Air Quality Impact Assessment provided as part of the PER appears to predict that the emissions from the facility will comply with the relevant standards, the City has concerns with aspects of the modelling, these concerns were raised as part of the PER process with the EPA also.

In this respect, the assessment assumes that the modelled emission rates will not be exceeded at any time, including during combustor start-ups and shutdowns. However, the assessment does not appear to have modelled any potential fugitive emissions during emergency shutdown scenarios. Under certain circumstances, the PER document stated remaining waste still smouldering on the grate may release some pollutants (CO, VOC) which are not treatable in the air pollution control system. These pollutants may be released untreated into the atmosphere and then subject to

the prevailing winds from the south west, blowing towards residential areas. The EPA have concluded in its report (EPA Report No. 1624) that air quality emissions from the plant could be managed. In this regard, the City consider that the following condition be included in the Responsible Authority Report recommendation to the Metro South West Joint Development Assessment Panel (JDAP):

'The proponent shall make near to real time data on emissions publicly available by displaying emissions on the proponents website or at the site entrance.'

A similar condition was adopted by the JDAP on the Phoenix Waste to Energy proposal located within the core of the Kwinana Industrial Area. The above recommended condition is considered appropriate given the uncertainty regarding the potential fugitive emissions during emergency shutdown scenarios. In this regard, by providing real time data to the broader community the proponent can be held to account for any exceedances of the EPA approved emissions levels.

Applicant's Comments:

These matters were raised by the Town of Kwinana as submissions on the Environmental Review Document and responses were provided by NEC to the EPA and accepted by the EPA.

NEC is committed to open and honest communication but there is a need to quality check data before release. We believe that the appropriate approach is as per the EPA condition in the EPA report as below:-
"Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), management plans and reports relevant to the assessment of this proposal and implementation of this Statement."
NEC sees no need for the condition recommended by the Town of Kwinana to be included.

City's Comment:

It is noted that the Air Quality Impact Assessment predict compliance with the relevant standards, and the EPA position that air quality emissions can be managed. The concerns raised from the City of Kwinana in respect to emergency shutdowns and smouldering material are considered relevant, and its recommended condition is supported.

III. Odour Management

Predicted odour levels during facility down time are of concern to the City, this concern was also referred to the EPA as part of the PER submission period. Whilst there are no residences within the predicted 2.5 odour unit contour (as per Figure 13 of the PER document) during system down times, odours beyond the boundary of the facility may cause a significant impact on the City of Kwinana.

The odour report provided as part of the Environmental review predicts that during periods of unplanned and planned shut downs, an odour contour of 2.5 odour units will be present up to 750 metres from the facility. In this regard, the City is aware of a number of cases where 2 odour units have caused significant impacts on sensitive receptors for up to 2 kilometres (from the odour source) - Biowise McLaughlin Road, Postans, and Wool Scourers East Rockingham are examples. These impacts have

occurred on many occasions that ultimately resulted in the closure of the Biowise operations. In addition, there are two dwellings located on Wellard Road approximately 1 kilometre to the east of the facility. Whilst these premises are not located within a residential zone, they are sensitive premises which should not be impacted by odour emissions from the facility.

As such, the City are of the opinion that an odour contour which exceeds 2.5 odour units beyond the boundary of the facility is unacceptable, and all measures should be undertaken to reduce this odour emission as far as possible so as not to cause any odour impacts on the surrounding areas. The EPA approval for the plant has recommended that the operator undertake additional odour modelling upon commissioning of the facility (with a view to implementing opportunities to further reduce odour emissions) and employ a public odour complaints and resolution register.

In regards to the above, the City recommend the following condition be considered for inclusion:

'Prior to occupation of the development, the proponent shall implement, and thereafter maintain for the life of the development, a public odour complaints register and resolution procedure to address any odour concerns raised by the public to the satisfaction of the City of Rockingham in consultation with the City of Kwinana. The applicant shall provide a copy of the register of complaints and resolution outcomes on a quarterly basis to the City of Rockingham and City of Kwinana.'

Applicant's Comments:

These matters were raised by the Town of Kwinana as submissions on the Public Environmental Review Document and responses were provided by NEC to the EPA and accepted by the EPA.

New Energy will have a complaints procedure that is consistent with industry practice in the Kwinana Industrial strip and compliant with DWER licence requirements. The procedure will include:-

- Any complaint will be investigated promptly (within 2 working days) and a response provided to the complainant;
- Complaints will be recorded in the register and the register kept on site and made available to DWER staff on request; and
- Complaints will be addressed in the annual compliance report.

NEC sees no need for the condition recommended by the Town of Kwinana to be included.

City's Comment:

The closest residential property to this facility within the City of Rockingham is over 2.6km from the development site. Odours are not expected to impact on the City's residents, however, it is noted that the City of Kwinana submission identifies two properties within its jurisdiction within 1km of the proposed facility. The City of Kwinana recommended condition is therefore supported.

IV. Noise Management

Noise emissions from the facility will have the potential to impact on residences located within the suburbs of Calista and Leda. In particular, residences in the vicinity of Westbrook Road, Wellard Road, Edmund Place, Coleman Road and Harrison Way

in Calista, as well as residents in Sloan Drive and Mercer Court in Leda are modelled as receiving sound level impacts in the range of 25 – 30 decibels. The aforementioned residential streets are located on elevated land which is less sheltered from noise originating in the Western Trade Coast (WTC) due to topographical undulations along the axis of Wellard Road. Noise modelling systems have design criteria that can attribute up to a 5 decibel "error margin" in predictions which is considered acceptable. However, in the case of the Calista and Leda residential streets listed above, an error of 5 dB (A) in combination with a 5 dB (A) tonal component (identified as part of the flu gas emissions but then discounted in the noise modelling), may result in exceedances of the Noise Regulations assigned night time levels.

With regard to Noise emissions from the facility, cumulative noise levels generated from the WTC have reached levels where they are affecting the surrounding residential areas within Medina and Calista. In this regard, the position of the City of Kwinana and Kwinana Industries Council is that noise levels generated from the WTC should continue to be improved upon through redevelopment and upgrade to existing industry, and new industry will be encouraged to reduce noise levels as far as possible. In this regard, the City recommend the following condition and advice:

Condition: 'Within 60 days of commissioning of the plant operations, the proponent shall provide to the City of Rockingham, certification from a suitably qualified acoustic consultant that the noise emissions resulting from the operations on the site comply with the Environmental Protection Act and Regulations. The certification shall demonstrate that the plant, at all times for the life of the development, will comply with the Environmental Protection Noise) Regulations 1997 from time of commencement of operations through to maximum throughput capacity.'

Advice: 'The proponent is advised to liaise with the Kwinana Industries Council (KIC) to include the noise emissions from the development into the KIC cumulative noise model.'

Applicant's Comments:

These matters were raised by the Town of Kwinana as submissions on the Environmental Review Document and responses were provided by NEC to the EPA and accepted by the EPA.

NEC has already committed to a noise assessment during commissioning to demonstrate compliance with predicted noise levels as part of the Part IV Environmental Approval. A copy of this commitment is attached to Attachment 3 - Additional Information.

NEC sees no need for the condition recommended by the Town of Kwinana to be included.

City's Comment:

The City of Kwinana's recommendations in respect to noise management are noted. The City has a standard noise nuisance condition which it generally applies to larger developments. Should the development be approved a condition requiring a Final Acoustics Assessment is recommended.

The City's standard condition is appropriate in this instance and is considered to sufficiently address noise related concerns raised by the City of Kwinana.
The recommended Advice Note is supported.

V. Traffic Modelling and Road Network

Traffic modelling for the proposal indicates that the plant will accept waste up to six days a week between 6:00 a.m. and 4:00 p.m. The traffic report estimates that the development will generate approximately 206 vehicular movements per day (50% inbound/ 50% outbound).

The traffic modelling has stated that all of the heavy vehicle traffic associated with the development will be originating from and destined to the south via Mandurah Road and Kulija Road to access Kwinana Freeway and of the light vehicle movements 50% originate from and are destined to the north and 50% originate from and are destined to the south. The proposed truck route accessing the development is to head north along Mandurah Road and turn onto Office Road to the development, trucks exiting the development will head west along Office Road and turn south onto Patterson Road, Ennis Avenue, Dixon Road then onto Kulija Road to the Kwinana Freeway.

The City has considered the traffic modelling for the proposal and consider that the surrounding road network has the capacity to accommodate the increase in traffic proposed by the development. In this regard however, the City notes that as a result of increased traffic, the standard of Office Road should be upgraded to cater for the increased heavy vehicle traffic. Office Road is currently a single carriageway with no kerbing, drainage or lighting. In this regard, the standard of Office Road should be increased to facilitate the proposed 24-hour operation of the proposed waste to energy facility. In addition, the Office Road / Patterson Road and Office Road / Mandurah Road intersections are not suitably designed to accommodate B-Double vehicles.

In regard to the above, the City recommends the following road upgrade conditions:

'The proponent shall upgrade the full length of Office Road to the satisfaction of the City of Rockingham in consultation with the City of Kwinana, and shall include the following requirements:

i. Kerbing, drainage, lighting and landscaping;
ii. Pavement widening in the vicinity of the proposed site crossovers to allow trucks to enter and exit the development lane correct and facilitate passing vehicle movements;
iii. Upgrading of the Office Road / Mandurah Road intersection to facilitate and accommodate the lane correct turning movements of B-Double trucks proposed to enter the development.'

'The proponent shall upgrade the intersection of Office Road and Patterson Road in accordance with the recommendations of the 'Transport Impact Statement – Proposed Materials Recovery and Waste Conversion Facility – Document #1308009-TIA-003 - Dated 26 April 2018 - Prepared by Shawmac Consulting Civil and Traffic Engineers' to the satisfaction of the City of Rockingham on advice of Main Roads Western Australia. All works and associated costs shall be at the proponent's expense with construction to be completed prior to occupation of the site.'

Applicant's Comments:

The proponent agrees that no trucks will be exiting onto Patterson Road. An alternative exit has been considered and accepted with trucks exiting Office Road to Mandurah Road.

The revised Traffic Impact Assessment concludes that there is no need to upgrade

Office Road or the Intersection at Patterson Road and Office Road.

City's Comment:

The City has reviewed the traffic modelling for the proposal and considers that the existing surrounding road network has the capacity to accommodate the increase in traffic generated by the proposed development.

With regard to road upgrades, the City requires that a short Channelised Right (CHR(S)) turn treatment is provided at the light vehicle crossover to allow through traffic on Office Road to bypass any vehicles turning right into this crossover. It has also been agreed that a Basic Left (BAL) turn treatment be provided at the heavy vehicle crossover in order to allow trucks to come off the through lane before entering the crossover.

Findings of the 'swept path analysis' for the proposed B-Double movements through Mandurah Road/Office Road intersection indicate that minor pavement widening is required in the south-west corner of the intersection to accommodate a B-Double turning left from Mandurah Road into Office Road.

No further development contributions for road upgrades are considered to be appropriate, as there is no identified nexus between the requirement for full road upgrade and the proposal. The City of Kwinana's recommendations in respect to the road upgrades are noted, however, cannot be sustained and are therefore not supported.

VI. Waste Management

Whilst the development application addresses the plant waste acceptance criteria to ensure all wastes processed through the facility comply with the requirements of the EPA approvals, the application does not address how any wind-blown or fugitive waste on-site will be managed. The City has considered the development application supporting documentation and hold concerns that there may be the potential for rubbish to become wind-blown or prematurely released from waste vehicles entering and exiting the development. In this regard, the City recommend the following condition to address the management of waste on site.

'A Waste Management Plan that addresses the management and maintenance of fugitive waste generated on site or from trucks entering I exiting the development shall be submitted to and approved by the City of Rockingham prior to occupancy of the development. Upon commencement of operations the Waste Management Plan shall be thereafter implemented and maintained for the life of the development to the satisfaction of the City of Rockingham.'

Applicant's Comments:

All trucks bringing rubbish will be covered and will be offloading in an enclosed hall. As such there is very low risk for windblown litter from the facility.

NEC is happy to provide a Waste Management Plan as a condition to this approval.

City's Comment:

The City of Kwinana's recommendations in respect to the management of windblown rubbish are noted, and the recommended condition is supported.

Conclusion:

The proposed development is an industrial land use. The context of RIZ is for a mix of heavy industrial and general industry land uses, with surrounding vacant land also zoned for industrial purposes. The proposed development is therefore considered compatible with the existing context of the locality and would not adversely impact on the amenity of the locality and the broader community.

Although the proposal has changed from an environmental technology point of view, it is considered the land use requirements from the City's TPS2 perspective has not changed. The proposed development is considered compatible with existing and future industrial land uses. The proposed development is considered consistent with the quality built form and landscaping of existing developments within the ERIP.

The proposed development is compliant with TPS2, Policy requirements and represents effective use of currently vacant industrial land within the RIZ.

Granting Development Approval consents to the proposed land use and location of buildings. Should an approval be granted, the applicant is still subject to further approvals (Building Permits and Department of Water and Environmental Regulation licences) that must be obtained prior to development commencing.

It is recommended that the application be conditionally approved.

Council Recommendation:

The application was referred to the 26th February 2019 Ordinary Council Meeting, where the officer’s recommendation to support the development was adopted by the Council.

ROAD WIDENING &TURNING LANE DETAILS SUBJECT TO COUNCIL & MAIN ROADS REQUIREMENTS

CONCRETE ACCESS LIDS OVER GAS MAINS AS PART OF CONC. CROSSOVER

66.25 M

282.82 M

14.14 M

SECURITY GATE 15000W x 2500H

WEIGH BRIDGE / GATE HOUSE

ARMCO BARRIER

FIRE WATER TANK

FIRE PUMP HOUSE

HV TRANSFORMER STATION

DRAINAGE POND
FENCED

ELECTRICAL E-HOUSING

TURBINE HALL

AIR COOLED CONDENSER

DEMINERALISED WATER PLANT

STORAGE TANKS

STORAGE BUILDING

WORKSHOP

BOP AREA

PIPE BRIDGE

STACK

FLUE GAS TREATMENT

BOILER HALL

WASTE BUNKER

TIPPING HALL

SLUDGE TANK

ADDITIVE TANKS

LIME SLAKER

SILOS

ADMIN BUILDING

VISITOR CENTRE

BA - LONG TERM STORAGE

BA - PRE-TREATMENT STORAGE

BA - PROCESS HALL

HIGH IMPACT BOLLARDS

WP SWITCH YARD
COLOURBOND SCREEN FENCE

OFFICE ROAD

GAS PIPELINE 1600 OUTSIDE BOUNDARY

GAS PIPELINE T1200 INSIDE BOUNDARY

GAS PIPELINE 4800 INSIDE BOUNDARY

GAS PIPELINE 11200 INSIDE BOUNDARY

FENCE

271.23 M

222.99 M

Arc 54.3

METRES

SITE AREAS

TOTAL BITUMEN PAVED AREA:	20,420 m²
TOTAL LANDSCAPED AREA:	1,372 m²
STORAGE & PROCESS HALLS:	6,050 m²
PLANT OFFICE:	212 m²
FRONT OFFICE:	201 m²
VISITOR CENTRE:	348 m²
MAINTENANCE W/SHOP & STORE:	950 m²
TIPPING HALL, BOP, WASTE BUNKER:	2,369 m²
BOILER HALL:	1,433 m²
TURBINE HALL:	735 m²
AIR COOLED CONDENSER:	1,065 m²
ELECTRICAL E-HOUSING:	266 m²
FLUE GAS TREATMENT:	338 m²
HV TRANSFORMER STATION:	424 m²
TOTAL BUILDING AREA:	**14,391 m²**
TOTAL SITE AREA:	**100,006 m²**

LEGEND

- EXISTING SPOT LEVEL
- PROPOSED LEVEL
- PROPOSED LEVEL AT GEOFABRIC STABILISED PERIMETER 5500 INSIDE BOUNDARY
- CONTOUR LINE & LEVEL
- EXISTING GAS PIPELINE
- FRONT BOUNDARY FENCE

SITE NOTES

FINAL CIVIL WORKS & STORMWATER DESIGN TO BE SUBMITTED AT BUILDING LICENSE STAGE & CONFORMING WITH THE REQUIREMENTS OF THE APPROVED WATER MANAGEMENT PLAN FOR THE SUBDIVISION.

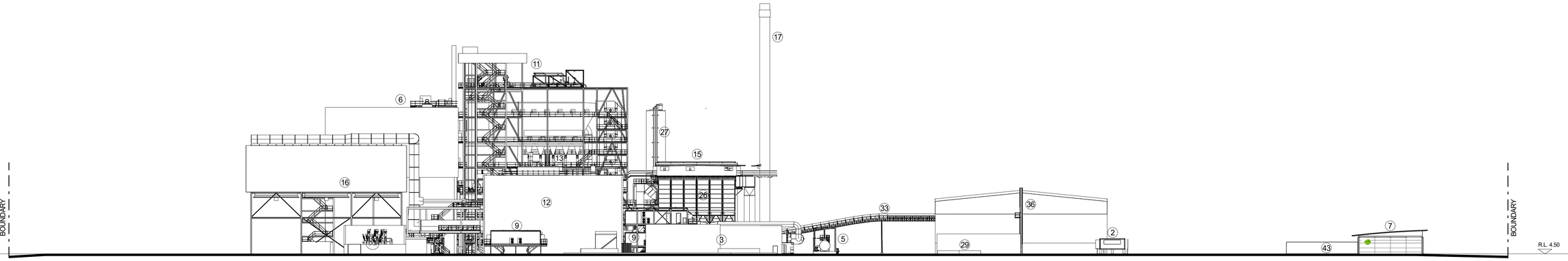
NORTH

		F	30/05/2018	SITE REVISED TO REFLECT HZI TECHNOLOGY - ISSUED FOR DA.					
		E	12/06/2014	FRONT BOUNDARY ACCESS ROAD REVISED FOR DEVELOPMENT APPVL.					
		D	18/09/2013	SITE PLAN GENERALLY REVISED FOR DEVELOPMENT APPROVAL.					
		C	20/08/2013	SITE PLAN GENERALLY REVISED.	H	10/01/2019	WP SWITCHYARD RELOCATED. TRUCK CIRCULATION ADDED. ISSUED FOR DA.		
		B	5/05/2013	RECEIVALS PIT & BIOLOGICAL FILTER ADDED	G	31/10/2018	WP SWITCH YARD & PROCESS TANKS ADDED. DRAINAGE PONDS REVISED.		
ERH / 000 / PPL / 002	PRELIMINARY ELEVATIONS	A	16/04/2013	ISSUED FOR PRELIMINARY DESIGN			ISSUED FOR DA.	DPG	
REF. DRAWING No.	REFERENCE DRAWING TITLE	REV.	DATE	REVISION DESCRIPTION	REV.	DATE	REVISION DESCRIPTION	DRAWN	

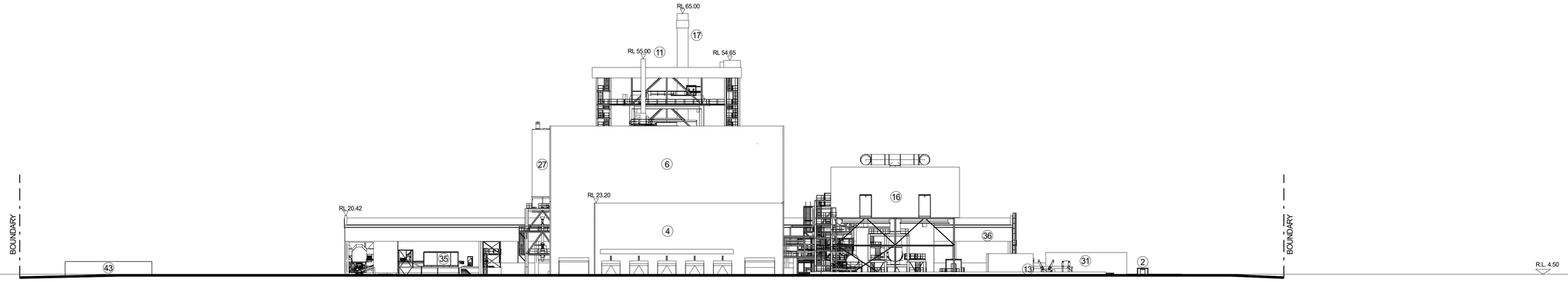
NEW ENERGY
Suite 1, 12 Parliament Plc
WEST PERTH WA 6005

PROJECT	EAST ROCKINGHAM RESOURCE RECOVERY FACILITY
DRG TITLE	SITE PLAN
SHEET SIZE	A1
SCALE	1:500
DRG No.	ERH / 000 / PPL / 001
REVISION	H

GRAPHICS jpmcdougall@iinet.net.au



EAST ELEVATION



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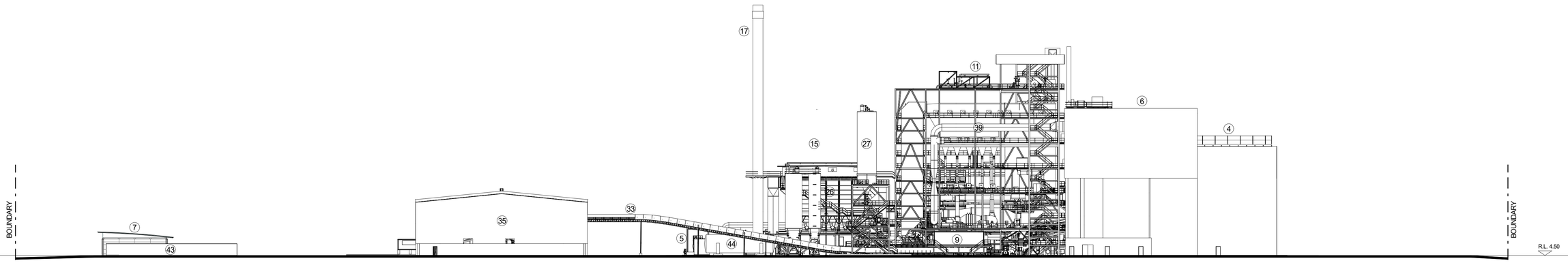

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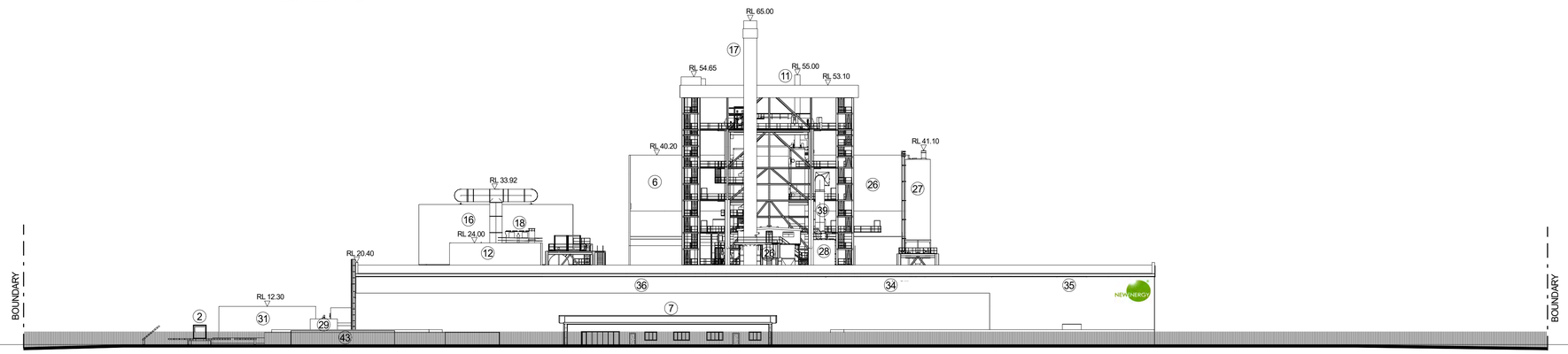


NORTH ELEVATION (OFFICE RD)

FINISHES

WALL AND ROOF CLADDING TO BE COLOURBOND STEEL SHEETING COLOUR "DUNE".

LEGEND:

1	CAR PARK	23	CEMS CONTAINER
2	GATEHOUSE	24	COMPRESSED AIR STATION
3	WORKSHOP	25	I.D. FAN
4	TIPPING HALL	26	BAG FILTER
5	DIESEL & AMMONIA STORAGE	27	RESIDUE SILOS
6	BUNKER	28	ADDITIVE SILOS
7	ADMINISTRATION	29	RAIN WATER TANK
8	CONTROL ROOM	30	WASTE WATER TANK
9	E-HOUSES	31	FIRE WATER STORAGE
10	BOTTOM ASH BUILDING	32	MAKE UP WATER TANKS
11	BOILER HALL	33	BOTTOM ASH TRANSPORT
12	TURBINE HALL	34	UNPROCESSED ASH STORAGE
13	ELECTRICAL SWITCH YARD	35	ASH PROCESS BUILDING (BA PLANT)
14	EMERGENCY DIESEL	36	PROCESSED ASH STORAGE
15	FLUE GAS TREATMENT AREA	37	PRIMARY AIR FAN
16	AIR COOLED CONDENSER	38	PRIMARY AIR PREHEATER
17	STACK	39	PRIMARY AIR DUCT
18	RE-COOLER	40	SECONDARY AIR FAN
19	FEEDWATER TANK	41	SECONDARY AIR PREHEATER
20	WEIGHT BRIDGES	42	SECONDARY AIR DUCT
21	WASTE CRANE	43	WP SWITCH YARD
22	FEED HOPPER	44	SLUDGE TANK

R.L. 4.50

0 5 METRES

REV.	DATE	REVISION DESCRIPTION
F	30/05/2018	ELEVATIONS REVISED - ISSUED FOR DEVELOPMENT APPROVAL.
E	23/06/2014	TEXTURED CONCRETE FINISH ADDED TO WEIGH BRIDGE OFFICE.
D	20/06/2014	CONCRETE WALL PANELS RENDERED & BUILDING NUMBERS CORRECTED.
C	12/06/2014	MRF BUILDING ELEVATIONS REVISED TO SHOW CONCRETE WALL PANELS.
B	14/05/2014	ADMIN ELEVATIONS REVISED & SIGNAGE ADDED.
A	18/09/2013	ISSUED FOR DEVELOPMENT APROVAL.

REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPR'D
H	10/01/2019	WP SWITCH YARD RELOCATED. ISSUED FOR DA.			
G	1/11/2018	WP SWITCH YARD & PROCESS TANKS ADDED. ISSUED FOR DA.	DPG		

REF. DRAWING No.	REFERENCE DRAWING TITLE
ERH / 000 / PPL / 001	PRELIMINARY SITE PLAN

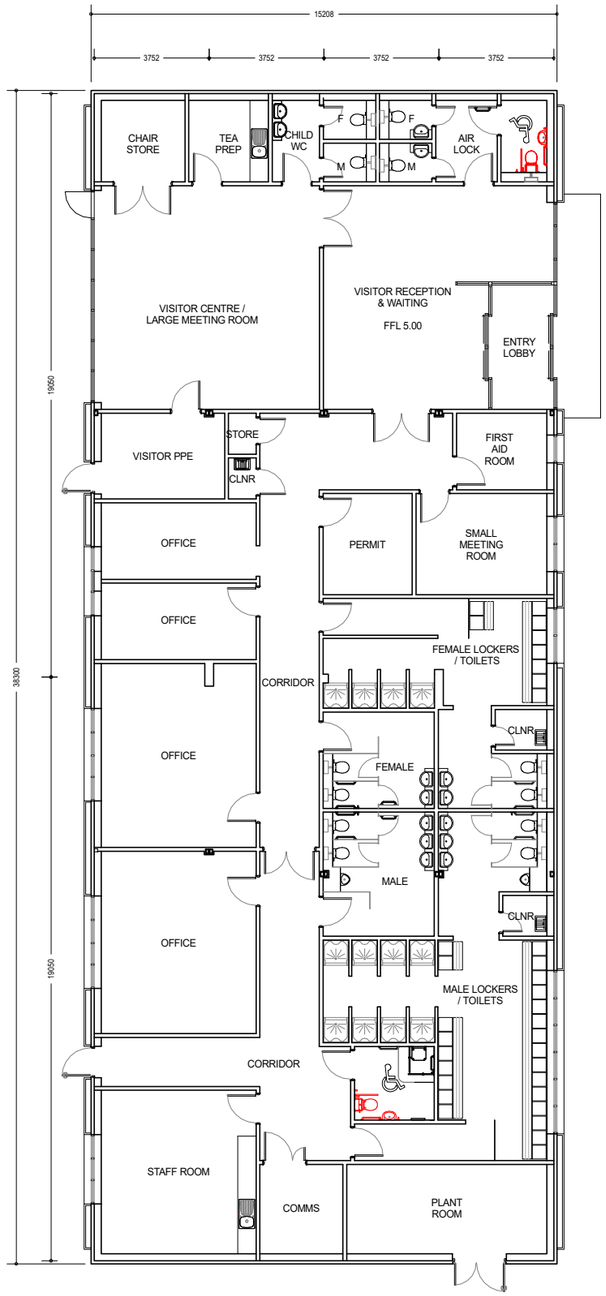
NEW ENERGY
Suite 1, 12 Parliament Plc
WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY

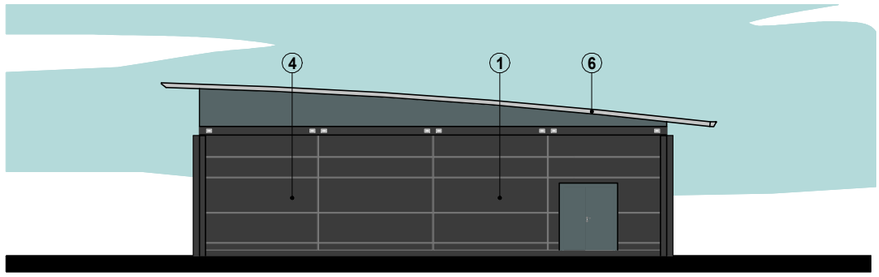
DRG TITLE: ELEVATIONS

SHEET SIZE	A1	SCALE	1:500
DRG No.	ERH / 000 / PPL / 002	REVISION	H

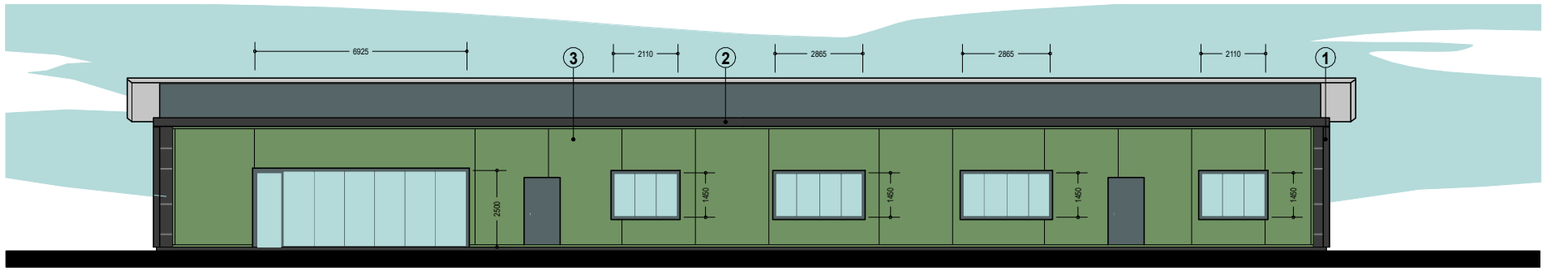
GRAPHICS



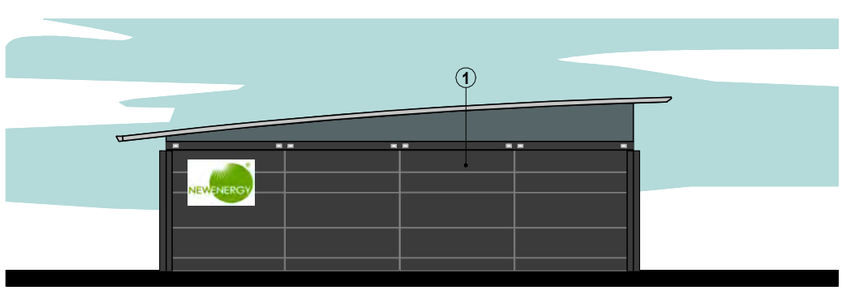
FLOOR PLAN



WEST ELEVATION



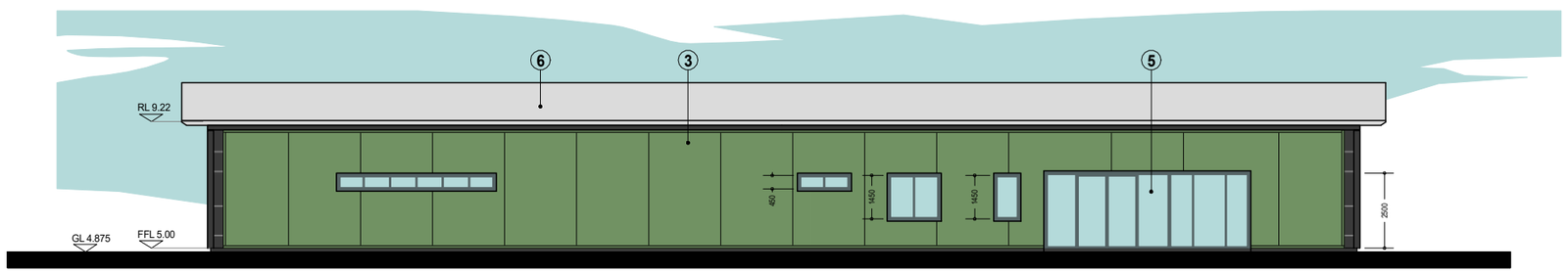
NORTH ELEVATION



EAST ELEVATION

FINISHES

1. COMPOSITE CLADDING - COLOUR ANTHRACITE (RAL 7016).
2. POWDER COATED METAL FLASHING & CAPPING - COLOUR ANTHRACITE (RAL 7016).
3. PRECAST CONCRETE PANEL WITH TEXTURED PAINT FINISH - COLOUR RESEDA GREEN (RAL 6011).
4. STEEL FACED EXTERNAL DOORS - COLOUR MERLIN GREY (RAL 180 40 05).
5. ALUMINIUM FRAMED CURTAIN WALLING & GLAZING - COLOUR MERLIN GREY (RAL 180 40 05).
6. COLORBOND CUSTOM ORB ROOF SHEETING - COLOUR SHALE GREY.



SOUTH ELEVATION

Received on 11 January 2019

REF. DRAWING No.	REFERENCE DRAWING TITLE	REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPR'D
		D	10/01/2019	ROOF & FINISHES REVISED. ISSUED FOR DA.			
		C	1/11/2018	POLYCARBONATE WALLS CHANGED TO PRECAST CONCRETE. ISSUED FOR DA.			
		B	30/05/2018	REVISED & REISSUED FOR DEVELOPMENT APPROVAL			
ERH / 000 / PPL / 001	SITE PLAN	A	14/05/2014	ISSUED FOR DEVELOPMENT APPROVAL	DPG		

NORTH

NEWENERGY

Suite 1, 12 Parliament Plc
WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY

DRG TITLE: ADMIN OFFICE / EDUCATION CENTRE

SHEET SIZE	A1	SCALE	1:100
DRG No.	ERH / 000 / PPL / 003	REVISION	- D

GRAPHICS
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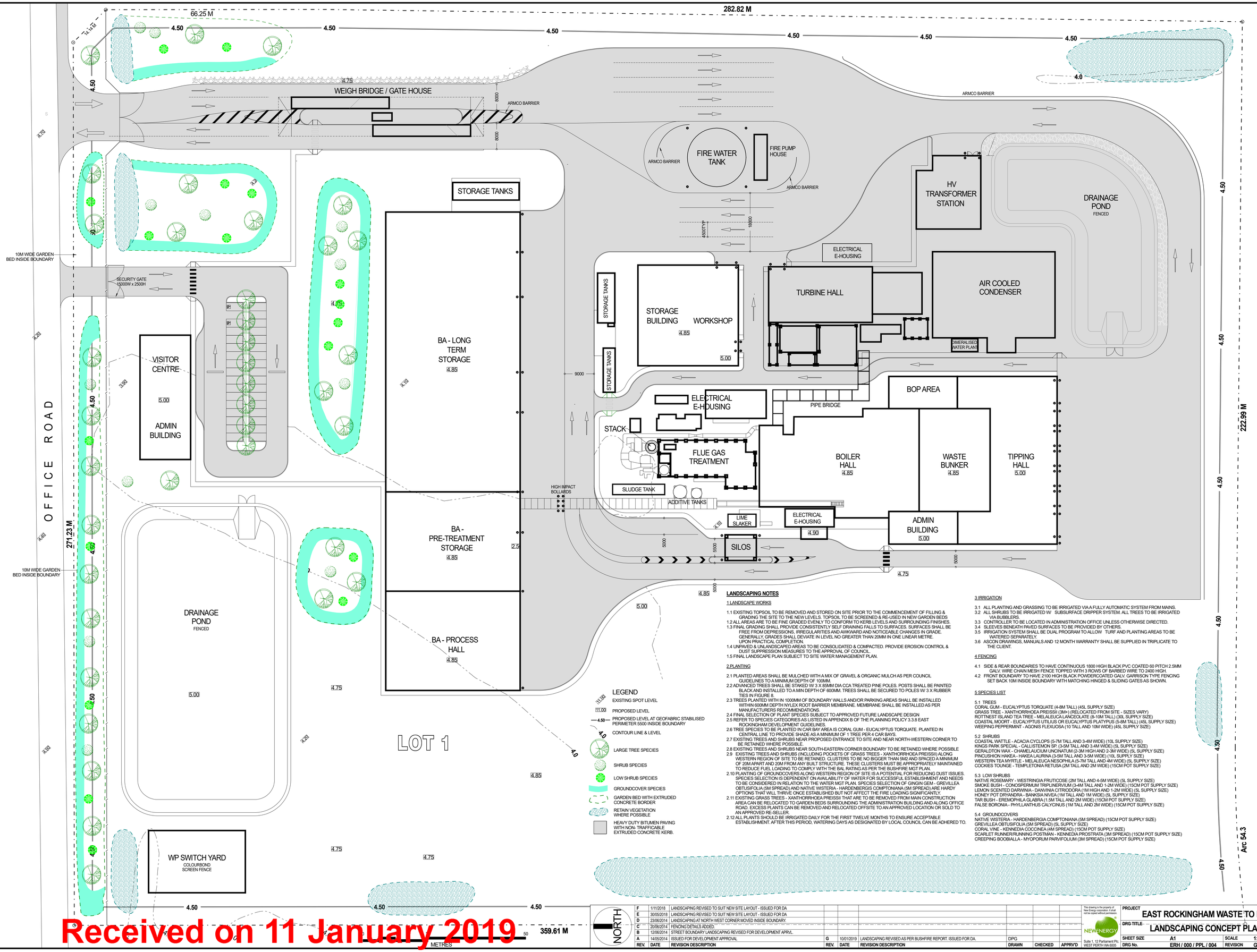

LANDSCAPING NOTES

1 LANDSCAPE WORKS

1.1 EXISTING TOPSOIL TO BE REMOVED AND STORED ON SITE PRIOR TO THE COMMENCEMENT OF FILLING & GRADING THE SITE TO THE NEW LEVELS. TOPSOIL TO BE SCREENED & RE-USED IN NEW GARDEN BEDS
1.2 ALL AREAS ARE TO BE FINE GRADED EVENLY TO CONFORM TO KERB LEVELS AND SURROUNDING FINISHES.
1.3 FINAL GRADING SHALL PROVIDE CONSISTENTLY SELF DRAINING FALLS TO SURFACES. SURFACES SHALL BE FREE FROM DEPRESSIONS, IRREGULARITIES AND AWKWARD AND NOTICEABLE CHANGES IN GRADE. GENERALLY, GRADES SHALL DEVIATE IN LEVEL NO GREATER THAN 20MM IN ONE LINEAR METRE. UPON PRACTICAL COMPLETION.
1.4 UNPAVED & UNLANDSCAPED AREAS TO BE CONSOLIDATED & COMPACTED. PROVIDE EROSION CONTROL & DUST SUPPRESSION MEASURES TO THE APPROVAL OF COUNCIL
1.5 FINAL LANDSCAPE PLAN SUBJECT TO SITE WATER MANAGEMENT PLAN.

2 PLANTING

2.1 PLANTED AREAS SHALL BE MULCHED WITH A MIX OF GRAVEL & ORGANIC MULCH AS PER COUNCIL GUIDELINES TO A MINIMUM DEPTH OF 100MM
2.2 ADVANCED TREES SHALL BE STAKED W/ 3 X 85MM DIA CCA TREATED PINE POLES. POSTS SHALL BE PAINTED BLACK AND INSTALLED TO A MIN DEPTH OF 600MM. TREES SHALL BE SECURED TO POLES W/ 3 X RUBBER TIES IN FIGURE 8.
2.3 TREES PLANTED WITH IN 1000MM OF BOUNDARY WALLS AND/OR PARKING AREAS SHALL BE INSTALLED WITHIN 600MM DEPTH NYLEX ROOT BARRIER MEMBRANE. MEMBRANE SHALL BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS.
2.4 FINAL SELECTION OF PLANT SPECIES SUBJECT TO APPROVED FUTURE LANDSCAPE DESIGN
2.5 REFER TO SPECIES CATEGORIES AS LISTED IN APPENDIX B OF THE PLANNING POLICY 3.3.8 EAST ROCKINGHAM DEVELOPMENT GUIDELINES.
2.6 TREE SPECIES TO BE PLANTED IN CAR BAY AREA IS CORAL GUM - EUCALYPTUS TORQUATE. PLANTED IN CENTRAL LINE TO PROVIDE SHADE AS A MINIMUM OF 1 TREE PER 4 CAR BAYS.
2.7 EXISTING TREES AND SHRUBS NEAR PROPOSED ENTRANCE TO SITE AND NEAR NORTH-WESTERN CORNER TO BE RETAINED WHERE POSSIBLE.
2.8 EXISTING TREES AND SHRUBS NEAR SOUTH-EASTERN CORNER BOUNDARY TO BE RETAINED WHERE POSSIBLE
2.9 EXISTING TREES AND SHRUBS (INCLUDING POCKETS OF GRASS TREES - XANTHORRHOEA PREISSII) ALONG WESTERN REGION OF SITE TO BE RETAINED. CLUSTERS TO BE NO BIGGER THAN 5M2 AND SPACED A MINIMUM OF 20M APART AND 20M FROM ANY BUILT STRUCTURE. THESE CLUSTERS MUST BE APPROPRIATELY MAINTAINED TO REDUCE FUEL LOADING TO COMPLY WITH THE BAL RATING AS PER THE BUSHFIRE MGT PLAN.
2.10 PLANTING OF GROUNDCOVERS ALONG WESTERN REGION OF SITE IS A POTENTIAL FOR REDUCING DUST ISSUES. SPECIES SELECTION IS DEPENDENT ON AVAILABILITY OF WATER FOR SUCCESSFUL ESTABLISHMENT AND NEEDS TO BE CONSIDERED IN RELATION TO THE WATER MGT PLAN. SPECIES SELECTION OF GINGIN GEM - GREVILLEA OBTUSIFOLIA (5M SPREAD) AND NATIVE WISTERIA - HARDENBERGIS COMPTONIANA (5M SPREAD) ARE HARDY OPTIONS THAT WILL THRIVE ONCE ESTABLISHED BUT NOT AFFECT THE FIRE LOADING SIGNIFICANTLY
2.11 EXISTING GRASS TREES - XANTHORRHOEA PREISSII THAT ARE TO BE REMOVED FROM MAIN CONSTRUCTION AREA CAN BE RELOCATED TO GARDEN BEDS SURROUNDING THE ADMINISTRATION BUILDING AND ALONG OFFICE ROAD. EXCESS PLANTS CAN BE REMOVED AND RELOCATED OFFSITE TO AN APPROVED LOCATION OR SOLD TO AN APPROVED RE-SELLER.
2.12 ALL PLANTS SHOULD BE IRRIGATED DAILY FOR THE FIRST TWELVE MONTHS TO ENSURE ACCEPTABLE ESTABLISHMENT. AFTER THIS PERIOD, WATERING DAYS AS DESIGNATED BY LOCAL COUNCIL CAN BE ADHERED TO.

3 IRRIGATION

3.1 ALL PLANTING AND GRASSING TO BE IRRIGATED VIA A FULLY AUTOMATIC SYSTEM FROM MAINS.
3.2 ALL SHRUBS TO BE IRRIGATED W/ SUBSURFACE DRIPPER SYSTEM. ALL TREES TO BE IRRIGATED VIA BUBBLERS.
3.3 CONTROLLER TO BE LOCATED IN ADMINISTRATION OFFICE UNLESS OTHERWISE DIRECTED.
3.4 SLEEVES BENEATH PAVED SURFACES TO BE PROVIDED BY OTHERS.
3.5 IRRIGATION SYSTEM SHALL BE DUAL PROGRAM TO ALLOW TURF AND PLANTING AREAS TO BE WATERED SEPARATELY.
3.6 ASCON DRAWINGS, MANUALS AND 12 MONTH WARRANTY SHALL BE SUPPLIED IN TRIPLICATE TO THE CLIENT.

4 FENCING

4.1 SIDE & REAR BOUNDARIES TO HAVE CONTINUOUS 1800 HIGH BLACK PVC COATED 60 PITCH 2.5MM GALV. WIRE CHAIN MESH FENCE TOPPED WITH 3 ROWS OF BARBED WIRE TO 2400 HIGH.
4.2 FRONT BOUNDARY TO HAVE 2100 HIGH BLACK POWDERCOATED GALV. GARRISON TYPE FENCING SET BACK 10M INSIDE BOUNDARY WITH MATCHING HINGED & SLIDING GATES AS SHOWN.

5 SPECIES LIST

5.1 TREES
CORAL GUM - EUCALYPTUS TORQUATE (4-8M TALL) (45L SUPPLY SIZE)
GRASS TREE - XANTHORRHOEA PREISSII (3M+) (RELOCATED FROM SITE - SIZES VARY)
ROTTNEST ISLAND TEA TREE - MELALEUCA LANCEOLATE (8-10M TALL) (30L SUPPLY SIZE)
COASTAL MOORT - EUCALYPTUS UTILIUS OR EUCALYPTUS PLATYPUS (5-8M TALL) (45L SUPPLY SIZE)
WEEPING PEPPERMINT - AGONIS FLEXUOSA (10 TALL AND 10M WIDE) (45L SUPPLY SIZE)

5.2 SHRUBS
COASTAL WATTLE - ACACIA CYCLOPS (5-7M TALL AND 3-4M WIDE) (10L SUPPLY SIZE)
KINGS PARK SPECIAL - CALLISTEMON SP. (3-5M TALL AND 3.4M WIDE) (5L SUPPLY SIZE)
GERALDTON WAX - CHAMELAUCIUM UNCINATUM (2-3M HIGH AND 2-3M WIDE) (5L SUPPLY SIZE)
PINCUSHION HAKEA - HAKEA LAURINA (3-5M TALL AND 3-5M WIDE) (10L SUPPLY SIZE)
WESTERN TEA MYRTLE - MELALEUCA NESOPHILA (5-7M TALL AND 4M WIDE) (5L SUPPLY SIZE)
COCKIES TOUNGE - TEMPLETONIA RETUSA (2M TALL AND 2M WIDE) (15CM POT SUPPLY SIZE)

5.3 LOW SHRUBS
NATIVE ROSEMARY - WESTRINGIA FRUTICOSE (2M TALL AND 4-5M WIDE) (5L SUPPLY SIZE)
SMOKE BUSH - CONOSPERMUM TRIPLINERVIUM (3-4M TALL AND 1-2M WIDE) (15CM POT SUPPLY SIZE)
LEMON SCENTED DARWINIA - DANVINIA CITRIODORA (1M HIGH AND 1-2M WIDE) (5L SUPPLY SIZE)
HONEY POT DRYANDRA - BANKSIA NIVEA (1M TALL AND 1M WIDE) (5L SUPPLY SIZE)
TAR BUSH - EREMOPHILA GLABRA (1.5M TALL AND 2M WIDE) (15CM POT SUPPLY SIZE)
FALSE BORONIA - PHYLLANTHUS CALYCINUS (1M TALL AND 2M WIDE) (15CM POT SUPPLY SIZE)

5.4 GROUNDCOVERS
NATIVE WISTERIA - HARDENBERGIA COMPTONIANA (5M SPREAD) (15CM POT SUPPLY SIZE)
GREVILLEA OBTUSIFOLIA (5M SPREAD) (5L SUPPLY SIZE)
CORAL VINE - KENNEDIA COCCINEA (4M SPREAD) (15CM POT SUPPLY SIZE)
SCARLET RUNNER/RUNNING POSTMAN - KENNEDIA PROSTRATA (3M SPREAD) (15CM POT SUPPLY SIZE)
CREEPING BOOBIALLA - MYOPORUM PARVIFOLIUM (3M SPREAD) (15CM POT SUPPLY SIZE)

LEGEND

- EXISTING SPOT LEVEL
- PROPOSED LEVEL
- PROPOSED LEVEL AT GEOFABRIC STABILISED PERIMETER 5500 INSIDE BOUNDARY
- CONTOUR LINE & LEVEL
- LARGE TREE SPECIES
- SHRUB SPECIES
- LOW SHRUB SPECIES
- GROUNDCOVER SPECIES
- GARDEN BED WITH EXTRUDED CONCRETE BORDER
- RETAIN VEGETATION WHERE POSSIBLE
- HEAVY DUTY BITUMEN PAVING WITH NON- TRAFFICABLE EXTRUDED CONCRETE KERB.

REV.	DATE	REVISION DESCRIPTION
F	1/11/2018	LANDSCAPING REVISED TO SUIT NEW SITE LAYOUT - ISSUED FOR DA
E	30/05/2018	LANDSCAPING REVISED TO SUIT NEW SITE LAYOUT - ISSUED FOR DA
D	23/06/2014	LANDSCAPING AT NORTH WEST CORNER MOVED INSIDE BOUNDARY.
C	20/06/2014	FENCING DETAILS ADDED.
B	12/06/2014	STREET BOUNDARY LANDSCAPING REVISED FOR DEVELOPMENT APRVL.
A	14/05/2014	ISSUED FOR DEVELOPMENT APPROVAL

REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPRV'D
G	10/01/2019	LANDSCAPING REVISED AS PER BUSHFIRE REPORT. ISSUED FOR DA.	DPG		

NEWENERGY
Suite 1, 12 Parliament Plc
WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY
DRG TITLE: LANDSCAPING CONCEPT PLAN
SHEET SIZE: A1 | SCALE: 1:500
DRG No.: ERH / 000 / PPL / 004 | REVISION: G
GRAPHICS

OFFICE ROAD

66.25 M

14.14 M

282.82 M

222.99 M

271.23 M

359.61 M

LOT 1

Arc 54.3

4.50

4.0

2.50

4.75

5.00

4.90

4.85

LEGEND

EXISTING SPOT LEVEL

11.00 PROPOSED LEVEL

4.50 PROPOSED LEVEL AT GEOFABRIC STABILISED PERIMETER 5500 INSIDE BOUNDARY

4.0 CONTOUR LINE & LEVEL

0 5 10 20 50

METRES

NORTH

REF. DRAWING No.	REFERENCE DRAWING TITLE	REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPRVD
ERH / 000 / PPL / 001	SITE PLAN	A	14/05/2014	ISSUED FOR DEVELOPMENT APPROVAL	DPG		

NEWENERGY
Suite 1, 12 Parliament Plc.
WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY

DRG-TITLE: EXISTING & PROPOSED SITE LEVELS

SHEET SIZE	A1	SCALE	1:500
DRG No.	ERH / 000 / PPL / 005	REVISION	A

GRAPHICS
graphicdesign@planet.net.au

WESTERN AUSTRALIA

REGISTER NUMBER	
1/D62220	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
N/A	N/A

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

VOLUME 1608 FOLIO 741

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 1 ON DIAGRAM 62220

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

INDUSTRIAL LANDS DEVELOPMENT AUTHORITY OF 12 SAINT GEORGE'S TERRACE, PERTH
(A C276798) REGISTERED 22/12/1981

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. D050561 EASEMENT BURDEN SEE SKETCH ON VOL 1608 FOL 741. REGISTERED 24/6/1985.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	1608-741 (1/D62220)
PREVIOUS TITLE:	1417-787
PROPERTY STREET ADDRESS:	26 OFFICE RD, EAST ROCKINGHAM.
LOCAL GOVERNMENT AUTHORITY:	CITY OF ROCKINGHAM
RESPONSIBLE AGENCY:	WESTERN AUSTRALIAN LAND AUTHORITY

Government of Western Australia
Development Assessment Panels

DAP FORM 1

Notice of Development Application to be Determined by a Development Assessment Panel

Planning and Development Act 2005
Planning and Development (Development Assessment Panel) Regulations 2011 – regulations 7, 10 and 21

Application Details

To	*Name of local government and/or Western Australian Planning Commission* City of Rockingham	
Planning Scheme(s)	*Name of planning scheme(s) that applies to the prescribed land* City of Rockingham Town Planning Scheme No 2 (TPS2)	
Land	*Lot number, street name, town/suburb* Lot No. 1, Office Road, East Rockingham	
Certificate of Title (provide copy)	*Volume Number* 1608	*Folio* 741
	Location Number	*Plan / Diagram Number* 62220
Details of development application made to responsible authority	*Summary of Proposal* Waste to Energy Facility	
Development Use	*Residential / Commercial / Industrial / Rural / Mixed Use / Other* Commercial	
Estimated cost of development (GST Exc)	$ 356m	

Part A – Acknowledgement by Applicant and Landowner

Mandatory Application	☒ I give notice that I understand that this is a mandatory Development Assessment Panel application *(regulation 5)*
Optional Application	☐ I give notice that I have elected to have the development application that accompanies this form determined by a Development Assessment Panel *(regulation 6)*
Delegated Application	☐ I give notice that I understand that this is an application of a class delegated to a Development Assessment Panel for determination *(regulation 9)*

Applicant Details (to be completed and signed by applicant)

- By completing this notice, I declare that all the information provided in this application is true and correct.
- I understand that the information provided in this notice, and attached forming part of the development application will be made available to the public on the Development Assessment Panel and local government websites.

Name	Jason Pugh	
Company	New Energy Corporation Pty Ltd	
Address	*Street Number/PO Box number, street name, suburb, state, postcode* PO Box 1036, West Perth, WA, 6008	
Contact Details	*Email* jason.pugh@newenergycorp.com.au	*Phone* 0448 777 733
Signature		*Date* 6/11/2018

Landowner Details (to be completed and signed if landowner is different from applicant)

- By completing this notice, consent is provided to submitting this application.
- If there are more than two landowners, please provide all relevant information on a separate page.
- Signatures must be provided by all registered proprietors or by an authorised agent as shown on the Certificate of Title.
- Alternatively, a letter of consent, which is signed by all registered proprietors or by the authorised agent, can be provided.
- Companies, apart from sole directors, are required to provide signatories for two directors, a director and the company seal or a director and a company secretary.

Company (if applicable)	LandCorp (Western Australian Land Authority)	
Contact Details	*Email* landcorp@landcorp.com.au	*Phone* 0894827499
Address	*Street Number/PO Box number, street name, suburb, state, postcode* Level 6, Westfarmers House, 40 The Esplande, Perth, WA, 6000	
Name/s	Mr Tony Milne	Mr David Liewis
Title/s	*Landowner/Sole Director/Director (2 signatures required)* Leasing Manager	*Additional Landowner/Director/Secretary (if applicable)* General Manager Industrial
Signature/s		
Date	6/11/2018.	6/11/2018

tony.milne@landcorp.com.au

Part B – Acknowledgement by Local Government

Responsible Authority	☑ Local Government ☐ Western Australian Planning Commission ☐ Dual – Local Government and Western Australian Planning Commission ☐ Building Management and Works (Department of Finance) – *Public Primary School Applications*
Fees for applications *(DAP Regulations - Schedule 1)*	$10,486.00 Amount that has been paid by the applicant $ Amount to be paid by local government *(delegated applications only - regulation 22)*
Statutory Timeframe *(regulation 12)*	☐ 60 days (advertising not required) ☑ 90 days (advertising required or other scheme provision)
LG Reference Number	20-2018-310-1
Name of planning officer *(Report Writer)*	David Banovic
Position/Title	Senior Planning Officer
Contact Details	*Email* david.banovic@rockingham.wa.gov.au *Phone* 95280374
Planning Officer's Signature	*Date* 7/11/18

Please refer to the Development Assessment Panel's "Guidance Note: Lodging a DAP Application" for further information.

APPLICATION FOR DEVELOPMENT APPROVAL

OWNER DETAILS

Name : LandCorp (Western Australian Land Authority)

ABN (if applicable) 34 868 192 835

Address : Level 6, Westfarmers House, 40 The Esplande, Perth, WA

Postcode: 6000

Phone: Work: 08 9482 7499 Home: _____ Mobile: _____

Fax: _____ Email: landcorp@landcorp.com.au

Contact Person for correspondence: Mr Tony Milne (Leasing Manager)

Signature TONY MILNE Date 06/08/2018.

Signature _____ Date _____

The signature of the owner(s) is required on all applications. This application will not proceed without that signature. For the purposes of signing this application an owner includes the persons referred to in the Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 clause 62(2).

APPLICANT DETAILS (if different from owner)

Name: New Energy Corporation Pty Ltd

Address: Po Box 1036, West Perth, WA

Postcode 6008

Phone: Work: 08 9226 0722 Home: _____ Mobile 0448 777733

Fax: _____ Email: jason.pugh@newenergycorp.com.au

Contact person for correspondence: Mt Jason Pugh (CEO)

The information and plans provided with this application may be made available by the City of Rockingham for public viewing in connection with the application. Yes ☑ No ☐

Signature: _____ Date: _____

PROPERTY DETAILS

Lot No. 1 House/ Street No. _____ Street Name Office Road

Suburb East Rockingham Nearest Street Intersection Old Mandurah Rd

Title Encumbrances (eg. Easements, Restrictive Covenants) None

Certificate of Title Vol. No: 1608 Folio 741 Diagram/Plan No: 62220

PROPOSED DEVELOPMENT

Nature of development: Works ☐

Use ☐

Works and Use ☑

Is an exemption from development claimed for part of the development? Yes ☐ No ☑

If Yes, is the exemption for: Works ☐

Use ☐

Description of proposed works and/or land use: Waste to Energy Facility

Description of exemption claimed (if relevant) _____

Nature of any existing buildings and/or land use: _____

Approximate cost of proposed development (exclusive of GST): $ _____

Estimated time of completion: 31/12/2021

OFFICE USE ONLY

Acceptance Officer's Initials: _____ Date Received: _____

Application Reference No. _____

Parcel No. _____ File No. _____

Application Fee $_____ Date Sought _____ Date Received _____

Receipt No. _____ Planning Account No. 711 (Application Planning Fee)

FEE STRUCTURE FOR DEVELOPMENT APPLICATIONS

ITEM	APPLICATION TYPE	FEE
1	Determination of an Application for Development Approval (other than an Extractive Industry) where the estimated cost of the development is:-	
	(a) not more than $50,000	$147
	(b) more than $50,000 but not more than $500,000	0.32% of the estimated cost of the development
	(c) more than $500,000 but not more than $2.5M	$1,700 + 0.257% for every $1 in excess of $500,000
	(d) more than $2.5M but not more than $5M	$7,161 + 0.206% for every $1 in excess of $2.5M
	(e) more than $5M but not more than $21.5M	$12,633 + 0.123% for every $1 in excess of $5M
	(f) more than $21.5M	$34,196
2	Determining a Development Application (other than for an Extractive Industry) where the development has commenced or been carried out	The fee in Item 1 plus, by way of a penalty, twice that fee.
3	Determining an application to amend or cancel Development Approval	$295
4	Determining a Development Application for an Extractive Industry, where the development has not commenced or has not been carried out.	$739
5	Determining a Development Application for an Extractive Industry, where the development has commenced or has been carried out.	The fee in Item 4 plus, by way of a penalty, twice that fee.
6	Determining an application for approval of a **Home Occupation** or **Home Business** where the home occupation or home business has not commenced	$222
7	Determining an initial application for approval of a **Home Occupation** or **Home Business** where the home occupation or home business has commenced	The fee in Item 6 plus, by way of a penalty, twice that fee.
8	Determining an application for renewal of a Home Occupation or Home Business where the application is made before the approval expires	$73
9	Determining an Application for a **change of use** or for an **alteration or extension or change of a non-conforming use** to which Item 1 does not apply, where the change or the alteration, extension or change has not commenced or been carried out	$295
10	Determining an Application for a **change of use** or for an **alteration or extension or change of a non-conforming use** to which Item 1 does not apply, where the change or the alteration, extension or change has commenced or been carried out	The fee in Item 9 plus, by way of a penalty, twice that fee.
11	Building Envelope Variation	$500

GENERAL INFORMATION REQUIRED FOR DEVELOPMENT APPLICATIONS

1. A completed **Application for Development Approval** (copy attached), signed by the landowner or party acting under written authority from the landowner.

2. The relevant **Development Application Fee**, as detailed above.

3. A **written explanation** of the proposal that expands on the information in the Application for Development Approval, including for example the proposed hours of operation, numbers of employees and clients at any one time.

4. Two (2) hard copies and one (1) electronic copy (PDF format) of plans at a scale of 1:100 or 1:200 including:

   (i) **Site Plan**, which shows the following:

      (a) street names, lot number(s), north point and the dimensions of the site;

(b) the existing and proposed ground levels over the whole of the land the subject of the application and the location, height and type of all existing structures, as well as any structures and vegetation to be removed;

(c) the existing and proposed use of the site;

(d) dimensioned position of proposed buildings and structures to be erected on the site;

(e) the existing and proposed means of access for pedestrians and vehicles to and from the site;

(f) the location, number, dimensions and layout of all car parking spaces intended to be provided in accordance with Australian/ New Zealand Standard AS/NZS 2890.1:2004, *Parking facilities, Part 1: Off-street car parking* and Australia/ New Zealand Standard AS/NZS 2890.6:2009, *Parking facilities, Part 6: Of-street parking for people with disabilities*;

(g) the location and dimensions of any area proposed to be provided for the loading and unloading of vehicles carrying goods or commodities to and from the site and the means of access to and from those areas;

(h) the location, dimensions and design of any open storage or trade display area and particulars of the manner in which it is proposed to develop the same;

(i) the nature and extent of any open space and landscaping proposed for the site;

(j) existing and proposed walls and fences;

(k) existing and proposed sealed areas;

(l) stormwater drainage and method of on-site disposal;

(m) existing and proposed levels, embankments and retaining walls (where the proposed development involves alterations to the natural level of the ground); and

(ii) **Floor Plans, and Sections** of any building proposed to be erected or altered and any building that is intended to be retained which must also show dimensions of the buildings and setbacks from boundaries.

(iii) **Elevation Plans**, which show natural ground levels, proposed ground levels, finished floor levels, finished ceiling levels and ridge heights.

(iv) **Streetscape Elevation Plan**

(v) **Landscape Plan**

(vi) **Report** on any specialist studies in respect of the development that the City requires the applicant to undertake, such as a Bushfire Management Plan, Transport Impact Statement and Transport Impact Assessment, Heritage Impact Statement, Signage Strategy, site survey, environmental, engineering or urban design study; and

(vii) **Heritage** – Where the application relates to a place entered onto the City's Heritage List other information may be required as set out in the Planning and Development (Local Planning Schemes) Regulations 2015 (Regulation 63(3).

(viii) Written justification where any variations to the R Codes 'Deemed to Comply' criteria are proposed.

6. Any other information that the City reasonably requires to enable the application to be determined.

PRE LODGMENT CONSULTATION (Optional)

If you have had any pre-lodgment discussions with a City Planning Officer prior to the submission of this Development Application, please confirm the following:

Planning Officer: _____ Date (if known) _____

Matters Discussed _____

_____

Form of communication: Email ☐ Phone ☐ Meeting ☐ Letter ☐

Should you require further assistance, please call the City's Planning Services on 9527 0748.

Development Application -
East Rockingham Resource Recovery Facility

Prepared For:	City of Rockingham
Prepared By:	New Energy Corporation Pty Ltd 12 Parliament Place West Perth, Perth November 2018

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EXECUTIVE SUMMARY

The East Rockingham Resource Recovery Facility is a State Significant Project being developed in the Rockingham Industrial Zone. The Project represents the best available technology in the world today in the waste to energy market and will deliver a sustainable waste and energy solution to the people of Perth for the next 30 years.

New Energy Corporation Pty Ltd (New Energy) is a privately owned Australian company whose core business is the processing of waste into energy. New Energy offers its waste treatment facilities on the basis of a complete project package that incorporates feasibility studies, securing of regulatory approvals, project finance, technology delivery, operation and maintenance, as well as marketing of the process outputs of electricity and both recovered and recycled materials.

In Australia over 21 million tonnes of waste is sent to landfill each year, losing the embodied energy of these wastes and increasing our greenhouse gas emissions by producing methane (CH_4). New Energy is proposing an approach that will recover this energy and return it to industry and the community, 'closing the loop' on this valuable resource and reducing Australia's greenhouse gas emissions, while offering a substantial improvement to the waste management services currently being provided in the Perth Metropolitan region.

In 2015, New Energy secured Development Approval from the City of Rockingham and approval from the Minister for the Environment to construct a waste to energy facility at its East Rockingham site (Lot 1 (No. 26) Office Road, East Rockingham) using gasification technology (EPA Report No. 1513 and Ministerial Statement 994). Since securing this approval, New Energy appointed an EPC contractor and completed a front end engineering and design study. The Company has also worked hard to secure waste contracts from local and regional Perth Councils that are needed to underpin a project of this nature. This has included participating in tenders, providing project briefings and conducting site visits to see the nominated gasification technology overseas. It is clear from these activities and lack of interest from Perth councils that:

Perth Councils want the most proven waste to energy technology available with several reference facilities operating at large scale on municipal solid waste.

They want sorting of MSW to occur on the kerbside through a three bin system rather than a dedicated dirty materials recovery facility as previously offered by New Energy.

In light of this feedback and with several large waste processing tenders over the last 12 to 18 months, New Energy is cognisant that it must be able to provide proven technology. For this reason, New Energy has partnered with Hitachi Zosen Inova (HZI) to revise its project design to utilise best practice grate combustion in order to be able to compete effectively with other players in the market. HZI will act as the EPC contractor and operator for the facility.

The proposed change in technology has undergone an Environmental Review with a four week public review period which concluded in Jan 2018. Only 17 submissions were received with several being supportive or neutral towards the project. The EPA has recommended that the project be approved and this recommendation is attached in Annexure 3.

Location

This Public Environmental Review (PER) considers the proposal to establish a waste to energy plant at 1 Office Road (Attachment 1) in the Rockingham Industrial Zone (RIZ). This 10ha site was selected after extensive site analysis and consultation with the Department of State Development and LandCorp. The RIZ is near major haulage routes and existing power transmission infrastructure. In addition, the RIZ is

zoned to allow for Industry and incorporates significant buffer distances to sensitive land uses, including residential areas.

Lot 1 Office Road and surrounding areas are zoned "Industrial". Surrounding areas are zoned "Special Industrial" with areas reserved for various purposes such as "Port Installations", "Railways" and "Parks and Recreation". Importantly, the RIZ is protected from urban encroachment by the "Industrial" zoning and reserved areas so there is a minimum distance 2.5km between the subject land and sensitive receptors.

The site proposed for the facility abuts an area that has been assessed by the EPA as being environmentally acceptable for heavy industry through a Strategic Environmental Assessment (SEA) in 2011 (Assessment No. 1390). The subject area for this proposal was not included in the SEA as it was considered that the environmental values of the land did not present a significant risk associated with the establishment of the industrial area.

Project Overview

New Energy Corporation proposes to establish a waste to energy facility at East Rockingham (Figure 1) using state of the art combustion technology which will take waste material that would otherwise be directed to landfill and convert the waste to electricity for use in the South West Interconnected System (SWIS) power grid. World best grate combustion technology will be used to ensure that noise, odour and exhaust emissions are within International guidelines.

The maximum capacity of the plant is 101.8 Megawatt Thermal (MWt) which will result in the generation of 31.4 MW of electricity. Of this, 3.2 MW is parasitic electricity required to operate the plant and the remaining 28.2 MW will be exported to the grid when the power station is operating at maximum capacity. The energy produced will be enough electricity to sustain more than 36,000 homes per year.

The maximum throughput of the plant is a function of the thermal capacity of the plant and the calorific value of the residual waste fed into the combustion system. Therefore, the actual volumes may vary somewhat. However it is expected that the plant will receive 300,000 tonnes per annum (tpa) of residual waste and up to 30,000tpa of bio-solids. The main waste streams to be accepted will be residual waste from households, Materials Recycling Facilities, Commercial & Industrial wastes, Construction & Demolition wastes, Mechanical Biological Waste Plants and Bio-solids.

The following wastes will not be accepted for processing at East Rockingham:

Scheduled wastes such as Polychlorinated Biphenyls (PCBs) and Organochlorine Wastes;

Asbestos;

Highly corrosive or toxic liquids or gases such as strong acids or chlorine or fluorine;

Explosive materials;

Radioactive wastes; and

Wastes which mechanically cannot be handled by the facility.

Any other wastes which are identified by staff as potentially hazardous to health or the environment will also be quarantined.

The Plant will operate seven days per week, 24 hours per day. Wastes from the general public will not be accepted at the facility. An automated gating system will be in operation for authorised vehicles using number plate scanning technology. Vehicles not authorized in the New Energy system will require authorisation prior to being granted access.

The combustion process will operate 7 days per week, 24 hours per day. It will be staffed with permanent employees based on a rotating 12 hour shift pattern.

The operation includes:

- Receiving of waste;
- Mixing of waste in the bunker and feeding into the feed hopper;
- 24/7 operation of combustion, power generation, air pollution control systems;
- Operation of associated support systems for combustion (water treatment, chemical preparation etc.);
- Chemical receival;
- Spare parts receival;
- Ash and residue dispatch; and
- Maintenance of all systems (routine and annual overhaul)

The HZI air-cooled grate design is proven technology as it has been used in more than 600 plants internationally.

The furnace is designed for continuous waste combustion in the range between 60% and 100% of the thermal design load. Short-term peaks caused by the non-homogeneity of the waste are absorbed by the system.

The combustion control is fully automatic. The operator selects the desired set point and all control devices are handled by the control system. This ensures that the plant operates at optimum efficiency at all times, achieving desired environmental quality standards and maximising the life expectancy of the equipment.

The flue gas passes through a water tube boiler where it is cooled while the water of the closed water-steam cycle is transformed into superheated steam. The superheated steam is expanded in the turbine that drives a generator producing 31.4 MW of electricity. Almost 90% of the produced electrical power is exported to the Western Australian grid. The exhaust steam from the turbine condenses in the air-cooled condenser.

The proposed facility will use a dry flue gas cleaning system downstream of the boiler to control the air emissions. Hydrated lime is injected into the flue gas where it neutralises acidic components such as hydrogen chloride, hydrogen fluoride and sulphur dioxide. At the same injection point activated carbon is added to the flue gas that adsorbs dioxins and furans, gaseous mercury, and other components.

Downstream of the injection of the reactants, the flue gas passes through a fabric filter (bag filters) which trap fine particulates. Some of the spent lime is recycled to optimize the consumption of the reactants. Periodically, the fabric filters are cleaned by a reverse pulse of air, and the flue gas residues collected for disposal to an appropriate facility.

An induced draught fan maintains the flue gas flow through the process overcoming the pressure loss through the system. Before the cleaned gas is released to the atmosphere at the stack the emissions are monitored in the continuous emission monitoring system (CEMS). A further hot standby CEMS will also be provided to provide backup monitoring capabilities if there is a problem with the duty CEMS.

The energy from waste process is required to meet the emission criteria specified in the European Union's Industrial Emissions Directive (IED).

The bottom ash generated from the combustion of the waste will be transported to an undercover processing area via a covered conveyor. The initial storage area has approximately five days of storage

capacity, where the stored ash will go through a process which sorts the aggregate according to fraction size and removes ferrous and non-ferrous metals. The recovered metals will be directed to an off-site metal recycling facility.

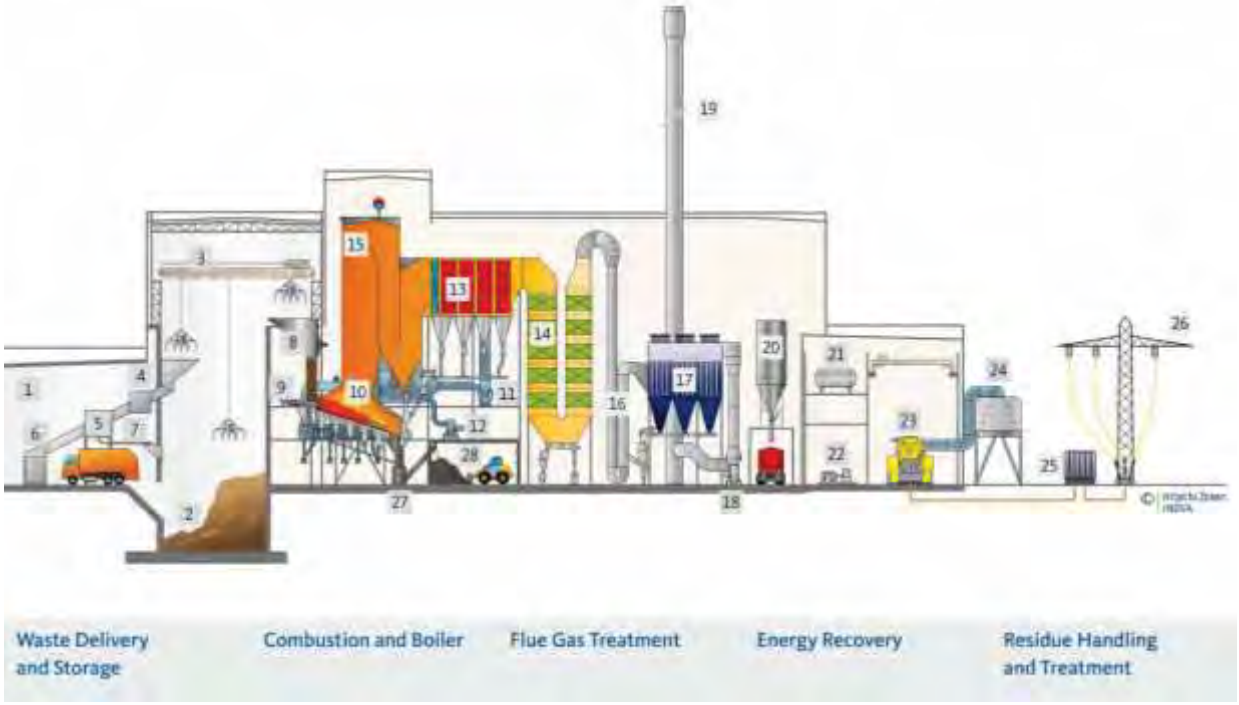


Figure 1 – HZI plant key process stages

Management

New Energy is committed to the development of a company-wide Environmental Management System (EMS) consistent with the ISO 14001 framework. A compatible EMS will be developed for the East Rockingham Resource Recovery Facility (RRF) with careful consideration given to ensuring that the relevant management responsibilities between the company wide EMS and Plant EMS are integrated.

New Energy is proposing a comprehensive monitoring framework that will operate throughout the life of the project. The framework will be developed in the context of the New Energy EMS to ensure that responsibility for implementation is clearly defined and changes to the monitoring program over the life of the project are correctly endorsed by management and approved by regulatory agencies. The key areas of monitoring and reporting identified by New Energy are:

- Monitoring airborne emissions from the RRF;
- Assessing and recording all waste feedstock inputs to the RRF;
- Assessing and recording all waste outputs (Solid and Liquid) to ensure they are managed appropriately; and
- Surveillance monitoring of ground and surface waters in the vicinity of the RRF.

Environmental

The project was initially referred to the EPA in September of 2011 and was assessed by through a "Public Environmental Review" (PER), which is the highest level of assessment under the EPA Act with a 6 week public comments period.

The PER process assessed the environmental impact on the following items and if those impacts can be managed to meet the EPA environmental objectives;

- Flora and vegetation
- Fauna
- Surface and ground water
- Noise
- Air Quality
- Greenhouse gas emissions
- Waste Management.

The project received Ministerial Approval in July 2015.

Following the decision to change technology in 2016, the project was referred to the Environmental Protection Authority (EPA) under Section 38 of the *Environmental Protection Act 1986*. The EPA assessed the referral and determined that a new assessment was warranted, with the assessment being set as Environmental Review with a four week public review period.

The environmental footprint is no greater than the previous project and after thoroughly reviewing our responses to submissions and commissioning a Health Impact Report, on 22nd October 2018 the EPA recommended the project for approval. The final Ministerial approval based on recommendations from the Office of the EPA is expected to be received by New Energy by December 2018.

The City of Rockingham and the Development Assessment Panel can be reassured that from an environmental perspective the project has been examined in detail by the EPA to ensure any environmental impacts are minimised and properly managed and has concluded that the project should be approved.

Project Benefits

The project offers many benefits for the community, local government and industry, including the following:

- The project will manage the risk of increasing volumes and types of waste being generated in the Perth metropolitan region from adversely impacting the environment by diverting waste away from landfills.
- The facility will recover energy in the form of electricity from waste streams that are currently landfilled. The facility will produce enough electricity to cater for around 36,000 households per annum.
- The facility will generate renewable energy to help reduce the State's dependence on fossil fuels.
- Greenhouse gas emissions will be reduced by producing electricity from waste instead of landfilling the waste.

- The renewable energy produced will be available 24/7 regardless of the time of day or weather conditions. A project of this nature provides genuine base load renewable energy.
- The project provides private investment in much needed waste infrastructure.
- The project will provide a recycling asset equal to any in Western Australia.
- The world-leading HZI technology will be showcased at the site as an example of how to reduce the environmental impact of waste around Australia.
- The project will create 39 full-time jobs locally.
- The project will diversify the generation of power in the Perth metropolitan area. This will be achieved by using waste as a fuel for the electricity and by providing non-mining generation of electricity.

DETAILS OF THE PROPOSED USE

Background

New Energy is a privately owned Australian company whose core business is the processing of waste into energy. New Energy offers its waste treatment facilities on the basis of a complete project package that incorporates feasibility studies, securing of regulatory approvals, project finance, technology delivery, operation and maintenance, as well as marketing of the process outputs of electricity and both recovered and recycled materials. New Energy has partnered with Hitachi Zosen Inova (HZI) the world leader supplier of waste to energy combustion technology with over 600 WtE plants worldwide. HZI will act as the EPC contractor and operator for the facility.

New Energy has identified the need for additional renewable power generation capacity in the Perth metropolitan region and proposes to develop the East Rockingham Waste to Energy Facility; a 28 megawatt (MW) power station to supply additional power to the South West Interconnected System (SWIS). The power station is fired by the combustion of residual wastes which is supplied to the facility from regional and local council areas and other commercial businesses. The use of residual waste in the combustion process will significantly reduce the volume of waste being disposed to landfill in the region.

New Energy proposes to construct and operate the facility with the aim of supplying the ERRRF with waste at the rate of 108 megawatt thermal (MWt). Residual waste accepted on site will be delivered to the bunker which is then fed to the moving grate. New Energy anticipates that the facility will receive and treat up to 330,000 tonnes per annum (tpa) of waste with approximately 300,000tpa of solid residual waste and 30,000tpa of bio-solids being used in the combustion process to generate 28.2 MW of electricity to be fed into the SWIS (3.2 MW to be used by the facility). This is enough energy to sustain 36,000 south-west homes for a year. The maximum throughput of the plant is a function of the thermal capacity of the plant and the calorific value of the residual waste.

Location

New Energy selected its preferred site, 26 (Lot 1) Office Road, East Rockingham after extensive consultation with the Department of State Development and Landcorp. The proposed site is located within the Rockingham Industrial Zone (RIZ). It is approximately 5km north-east of the Rockingham Town Centre, approximately 22km south of Fremantle and 34km from the Perth City Centre (Figure 1) in the locality of East Rockingham. The subject land is 1.7km east of the coast.

The site proposed for the facility abuts an area that has been assessed by the EPA as being environmentally acceptable for heavy industry through a Strategic Environmental Assessment (SEA) in 2011 (Assessment No. 1390). The subject area for this proposal was not included in the SEA as it was considered that the environmental values of the land did not present a significant risk associated with the establishment of the industrial area.

The RIZ has been planned to support the growth of industry in the Rockingham/Kwinana area. Appropriate zoning and infrastructure plans are in place to allow environmentally approved projects to be located in the estate, which has ready access to roads, water, natural gas, power and port facilities.

The close proximity of the site to power transmission infrastructure and ready access to major road haulage routes were key factors in site selection as this will reduce the environmental and economic costs of operating the facility.

The nearest residential areas (Medina and Leda) are located approximately 2.5km to the east of the site. Other residential areas include East Rockingham (2.5km to the south-west and Hillman (2.7km to the south) (Refer Attachment 1).

The subject land is zoned "Industrial" under the Metropolitan Region Scheme, with nearby areas zoned "Industrial" and "Special Industry" or reserved for various purposes including "Railway" and "Parks and Recreation" (Refer Attachment 1).

Statutory Planning Framework

The subject site is contained within the area covered by the City of Rockingham Town Planning Scheme No 2 (TPS2) and Planning and Development (Development Assessment Panels), Regulation 2011.

Zoning

Lot 1 Office Rd in the Rockingham Industrial Zone is zoned "Special Industry". New Energy's proposal will meet the general objectives of the Industrial Zones as set out in Section 4:10 of the TPS2.

a) *Land use that is socially and environmentally acceptable*: the land use proposed by New Energy has already been subject to a formal assessment by the EPA and was granted approval in 2015. The EPA set the highest level of assessment for this type of project under the EP Act at "Public Environmental Review".

   The EPA would apply a Public Environmental Review (PER) level of assessment to proposals which meet any one of the following criteria:

   - The proposal is of regional and/or State-wide significance.
   - The proposal has several significant environmental issues or factors, some of which are considered to be complex or of a strategic nature.
   - Substantial and detailed assessment of the proposal is required to determine whether, and if so how, the environmental issues could be managed.
   - The level of interest in the proposal warrants a public review period

   The public had a review period of 6 weeks to provide comments on the proposal to the EPA so the question of social acceptance or a "social licence to operate" was addressed. The environmental impacts of the project were reviewed in detail to ensure they meet the environmental objectives of the State. In summary the project demonstrated social and

environmental acceptance through the comprehensive PER process and the Council has already relied that this objective was met under TPS2 by granting Development Consent in 2015.

The proposed change in technology was referred to the Environmental Protection Authority (EPA) under Section 38 of the *Environmental Protection Act 1986*. The EPA assessed the referral and determined that a new assessment was warranted, with the assessment being set as Environmental Review with a four week public review period.

New Energy is confident that the EPA will grant approval as the environmental impact is no greater than what was in the previous PER.

b) *Attractive an efficient industrial areas ensuring a high level of safety and high standards of amenity*: New Energy is confident that this objective will be met. The project will be delivered using appropriate Australian Design Codes and all attention will be given to Local Council requirements in regards to building materials, site setbacks, parking and landscaping. The project will be operated under the auspice of Environmental Standards ISO 14001.

Land Use

Under TPS2 the New Energy waste to energy plant would be classified as "Industry Licensed" which is an industry subject to licensing as "prescribed premises" under the environmental Protection Regulations 1987 (as amended).

Industry Licensed is an "A" use in the TPS2 Section 3, Table 1 Zoning Table which states "that the use is not permitted unless Council has exercised its discretion by granting Planning Approval after advertising the proposal".

Section 6.3 of TPS2 outlines Advertising of Applications. 6.3.1 states "*where an application is made for planning approval to commence a use or carry out development which involves an "A" use, the Council is not to grant approval to the application unless notice of the application is first given in accordance with clause 6.3.3".*

6.3.3 outlines that the Council may give notice or require the applicant to give notice of an application for planning approval in one or more of the following ways:

a) Notice of the proposed development served on nearby owners and occupiers who, in the opinion of the Council, are likely to be affected by the granting of a planning approval, stating that the submission may be made to the Council by a specified date being not less than fourteen (14) days from the day the notice is published.
b) Notice of the proposed use of the development published in a newspaper circulating in the scheme area stating that submissions may be made to the Council by a specified day being not less than fourteen (14) days from the day the notice is published.
c) A sign or signs displaying notice of the proposed use or development to be erected in a conspicuous position on the land for a period of not less than fourteen (14) days from the date of publication of the notice referred to in paragraph (b) of this clause.

PROJECT JUSTIFICATION

This chapter describes the rationale for the establishment of a waste to energy facility in East Rockingham. The chapter discusses:

- Demand for waste management infrastructure in the south-west of WA (WA);
- Demand for power in the south-west of WA;
- Alternative options for waste to energy technology and location of the facility;
- Project benefits; and
- Australian and WA government policy supporting the conversion of waste to energy.

Demand for Waste Management Infrastructure

In Western Australia there continues to be a strong demand for waste management infrastructure to divert waste from landfill, with 3.6 million tonnes still being sent to landfill (Waste Authority, 2015).

The Waste Authority's Waste Strategy 2015 Targets indicate that despite increasing diversion of waste from landfill over the last five years, the targets for all three major waste streams (MSW, C&I and C&D) are not being met as summarised in Table 2.

Table 1: Landfill diversion

Recovery rate	Metropolitan MSW	C&I	C&D
2010-11	39%	28%	31%
2011-12	39%	40%	38%
2012-13	45%	45%	40%
2013-14	41%	45%	38%
2014-15	41%	52%	42%
Strategy Targets 2015	50%	55%	60%

Recent increases in the landfill levy are encouraging the recovery of some "easy to recover" materials, but without the corresponding investment in significant waste infrastructure there will be a plateau in diversion rates. This point is recognised in the Waste Authority's (2014) *Strategic Waste Infrastructure Planning Project* which states that "*the current waste and recycling infrastructure capacity is not sufficient to process the projected amounts of waste necessary to meet the waste diversion targets in the Waste Strategy."*

The Report also states:

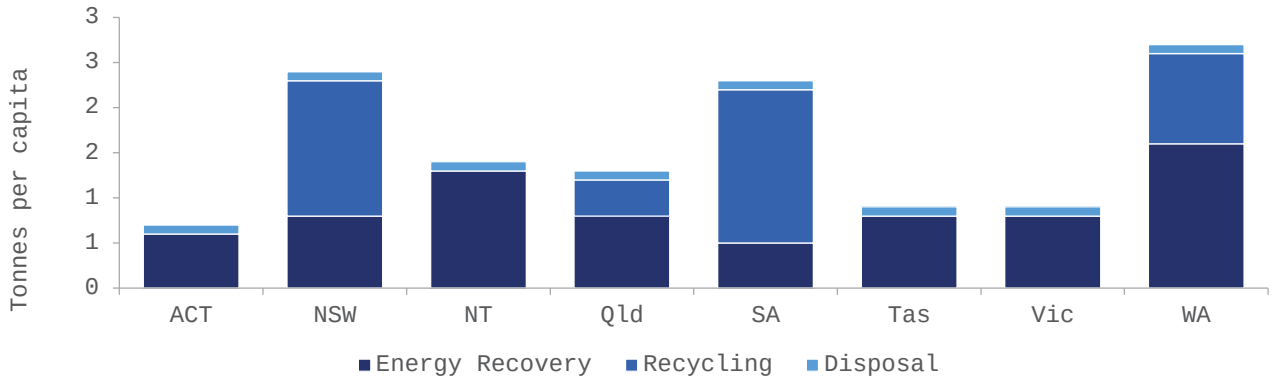
"The population of the Perth metropolitan and Peel regions is projected to increase from an estimated 1.93 million in 2012/13 to around 2.20 million by 2019/20. The population of these regions could reach 3.5 million around the middle of the century. Assuming that the per capita generation rate remains static, it is projected that the total waste generation in the Perth metropolitan and Peel regions will be 5.5 million tonnes in 2014/15, increasing to around 6 million tonnes in 2020/21. When the population of Perth and Peel reaches 3.5 million people, waste generation could be over 9 million tonnes per year. The

consequent increase in total waste generation will increase pressure on the capacity of existing waste management infrastructure and create a need for new waste infrastructure to meet future demand.

Achieving the waste diversion targets in the Waste Strategy will need a significant increase in recycling and recovery of waste, from a projected overall Perth and Peel landfill diversion rate of around 39% in 2011/12 to 56% in 2014/15 and 71% in 2019/20."

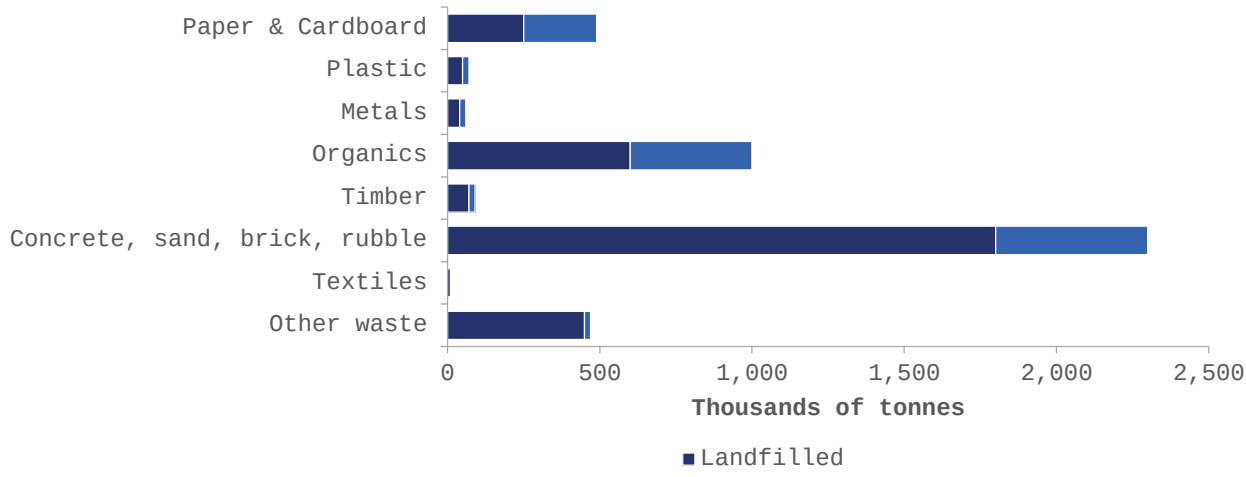
The total quantity of total waste generated in Western Australia has been relatively stable between 2011 and 2015, from around 6 million tonnes to 6.2 million tonnes (Waste Authority, 2012 and 2016). However, Western Australia has the highest rate of waste generation in the country at approximately 2.5 tonnes per capita per annum as per Chart 1 (Blue Environment, 2014).

Chart 1: Comparison of waste generated and recycling by Australian state/territory 2010/11



A breakdown of the wastes by material that are recovered or landfilled is shown in (Chart 2). The Waste Authority of Western Australia has identified that waste disposal to landfill is a poor use of resources and that the current waste and recycling infrastructure is insufficient to meet the future population's need in the medium to long-term (EPA, 2013). The utilisation of these materials (either via recycling or use in a waste to energy process) will significantly reduce the volume of waste going to landfill and reduce reliance on fossil fuels.

Chart 2: Estimated landfill disposal and recycling by material (2006/07)



Source: Waste Authority, 2010.

WA Local Government is responsible for the management of municipal solid waste (MSW) generated from Perth households. This sector has the poorest landfill diversion results with a mere 36% of waste collected diverted from landfill. The facts show MSW is made up of waste that simply cannot be recycled or reused. Local Government has recognised waste to energy as a preferential disposal

outcome to landfill. The four largest regional councils (RRC, EMRC, MRC and SMRC) have all let tenders for waste to energy disposal services. This is a strong justification for this projects establishment.

The Western Australian Waste Strategy aims to reduce the volume of materials going to landfill through increased recycling and other forms of recovery. When recycling is not an option, recovery of materials for production of energy is a desirable outcome in comparison to the disposal of waste to landfill. The Waste Strategy (Waste Authority, 2012) indicated that there would be potential strains on waste infrastructure in the next ten years unless there is less material sent to landfill. In addition, the number and capacity of facilities for sorting and managing recyclable materials are a limiting factor which contributes to materials being unnecessarily being sent to landfill (Waste Authority, 2012).

In response to the amount of carbonaceous waste being directed to landfill and the priorities identified in the Western Australia Waste Strategy (Waste Authority, 2012), New Energy is proposing to establish a waste to energy facility on land in the RIZ. In developing the project, New Energy has concentrated on:

Adopting International Best Practice technology and management;

Selecting reliable waste streams for which there is currently no economic alternative besides landfill;

Maximising resource recovery via metals recycling and reuse of the bottom ash; and

Minimising environmental impacts at each stage of the project.

Power from Renewable Energy South-West WA

Energy and power generation globally are undergoing a generational transformation, as historically reliable and cost effective coal generation, providing base load energy for the past five decades, is being displaced by intermittent sources of generation such as solar and wind.

While these sources reduce greenhouse emissions and are generally a welcome addition to the generation mix in the State of Western Australia, these 'greener' sources of energy provide for a challenge in terms reliability of energy and the impact they have on the distribution and transmission systems given their intermittent nature.

The experience in South Australia and the east coast has been that as additional renewable is added to the grid, the base load energy generators have tended to become uneconomic and shut-down. The most significant of these generators is the Hazelmere power station, which shut down in July 2017. The flow on effect of this has been increased power outages, such as an outage of the entire stage of South Australia in February 2017 and significantly increased power prices on the east coast.

The Finkel review, commissioned by the Federal Government, in response to the South Australian power outage, has made clear recommendations to ensure the focus remains on reliable generation while slowly transitioning to cleaner sources of energy.

The West Australian experience is not as dramatic as South Australia, but renewable energy is being added at a significant pace in the State and it is likely to be the next phase of challenges faced in Western Australia in terms of energy. Synergy has announced in early 2017 that it will be retiring 380 MW of existing generation by 2019. The remainder of Synergy's coal generation is likely to be retired between 2020 and 2030 given the age of the existing plant.

Waste to energy represents a rare ability to mix generation from "green" generation given much of the energy is derived from biomass and waste while providing stable, base load generation and the associated renewable energy credits. This form of generation appears to provide the perfect bridge and ability for current retailers as they transition to a cleaner energy future.

PROJECT DEFINITION

Project Key Characteristics

The following table provides a snapshot of the key characteristics for the project. A detailed description of the individual components within the project can be found on the New Energy website.

KEY CHARACTERISTICS TABLE

ELEMENT	DESCRIPTION
GENERAL	
Proponent	New Energy Corporation Pty Ltd 12 Parliament Place West Perth WA 6005
Proposal Description	Construction and operation of a waste to energy
Project Location	1 Office Road, East Rockingham
Thermal Capacity[1]	108 MW Notional
Generation Capacity	31.4 MW An estimated 28.2 MW fed into the SWIS
Construction Period	Approximately 36 months
Life of Plant	Notionally 30 years
FOOTPRINT	
Native Vegetation Clearing	10ha
INPUTS	
Power	3.2 MW parasitic load
Water	Approximately 100,000 kilolitres (kL)/annum from scheme water
Waste	330,000 tpa nominal to be received on-site
FEEDSTOCK WASTE SPECIFICATIONS	
Waste Receival for Combustion	300,000 tpa of MSW and residual wastes (processed C&I and C&D waste and residuals from MBT and MRF) as well as up to 30,000 tpa of sewage sludge for a total of up to 330,000 tpa.
Waste Disposal – off-site, recycling or re-use	Up to 68,800 tpa of bottom ash (wet) aggregate
Waste Classification	The facility will predominantly receive residual wastes from construction and demolition (C&D), commercial and industrial (C&I), municipal solid waste (MSW) and green

ELEMENT	DESCRIPTION
	wastes. Most wastes accepted will have contaminant concentrations much less than or equivalent to Class II. Wastes with contaminant concentrations up to Class III will be accepted on a load by load basis.
PROCESS WASTES	
Flue gas treatment residues	9,920 tpa (dry) or 11,704 tpa (wet) disposed to landfill.
Wastewater	• Estimated 2.5 kL/day of wash down water. • Approximately 15 kL/day of reject water from the reverse osmosis plant which will be used for the bottom ash extractor. • Boiler feed water circuit blow down to be recycled. • The final disposal options will be determined at Works Approval Stage from following options: • Re-use in the bottom ash handling circuit; • Off-site disposal; • Evaporation; or • Thermal evaporation using waste heat.
Sewerage / grey water	On-site disposal via an aerobic treatment unit – to be approved by the City of Rockingham.
DESIGN SPECIFICATIONS	
Scrubbing System	The key emissions will be air emissions from the stack. Off-gases from the plant are discharged to atmosphere after treatment in a gas cleaning system consisting of a dry reagent scrubbing system with absorbent injection system followed by a compartmentalised pulse jet fabric filter baghouse filtration (FFB). NOx emissions are controlled using a HZI's own SNRC technology.
Exhaust Stack	One operational stack - 60m steel stack.
AIR EMISSION PERFORMANCE SPECIFICATIONS	
Proposed Statutory Emission Limits	The scrubbing system and combustion control will result in emission levels that will be fully compliant with the requirements of the European Union IED. The ambient concentrations due to these emissions are shown through modelling (refer ERD) that they comply with relevant standards and will not contribute to a detrimental effect on the environment in the Rockingham and Kwinana air shed.

Traffic and Transport

New Energy engaged engineering consultants Shawmac Consulting Civil & Traffic Engineers to undertake a Traffic Impact Assessment. In accordance with Council guidelines the report was undertaken using SIDRA computer simulation modelling.

"The SIDRA results indicate that the changes in operational performance of the Patterson Rd/Office Rd and Mandurah/Office Rd intersections associated with the proposed development are minimal in the context of the existing performance of the intersections".

A full copy of the report including traffic impact as a result of the project is appended as Attachment 4.

Bushfire

New Energy engaged Bushfire Prone Panning (BPP), a Level 3 assessor to provide a Bushfire Management Plan (BMP) suitable for a planning application. The BMP provides the required information to address State Planning Policy No. 3.7: Planning in Bushfire Prone Areas – December 2015 (SPP 3.7), the associated Guidelines for Planning in Bushfire Prone Areas – WAPC 2017 v1.3 (Guidelines) and any additional information as directed by the WA Planning Commission (WA Department of Planning, Lands and Heritage).

BPP also completed a Bushfire Risk Management Plan (BRMP) and a Bushfire Emergency Plan (BEP). All three documents – BMP, BRMP & BEP are attached in Attachment 5.

Site Security

Access to the project site will be provided from the Office Road. A cyclone mesh security fence will be installed around the site boundary at the commencement of site works. The site will be lit at night for security and safety reasons. Lighting will be designed and installed to comply with the *Australian Standard (AS) 4282-1997 - Control of the Obtrusive Effects of Outdoor Lighting*.

Entry to a majority of the site will be restricted to New Energy employees and approved contractors (such as fuel supply companies, security patrol etc.).

Crime Prevention through Environmental Design

New Energy has reviewed the WA Planning document "Designing Out Crime Planning Guidelines – June 2006". The objective of this review was to understand the fundamental principles of crime prevention through thoughtful design. These principles will continue to be used as the project advances to the detailed design phase.

New Energy has completed the first step by identifying designing out crime principles. New Energy will shortly hold a risk assessment workshop to determine the priority given to designing out crime principles in the mix of planning and design considerations.

New Energy commits to implementing the findings of the risk assessment into the overall plant design where appropriate.

Rubbish Collection Statement

New Energy commits to detailing a construction site management plant prior to commencement of works. This plan will include management and disposal of waste.

Construction Site management Plan

New Energy acknowledges that a Construction Site Management Plan must be submitted to the Council prior to lodgment of the Building Permit.

Workforce

During construction the workforce on-site will peak at around 300 personnel. Once the plant is commissioned, the facility will provide employment for approximately 39 personnel.

Project Schedule

Construction for the project is scheduled to begin in the 1st quarter of 2019 with commercial operations commencing by the 1st quarter of 2022. The proposed construction scheduled is provided in Attachment 6.

ATTACHMENT 1 – Regional Location & Surrounding Land Use

ATTACHMENT 2 – Metropolitan Regional and RIZ Structured Plan

ATTACHMENT 3 – EPA Recommendation for Approval

ATTACHMENT 4 – Level 2, State Significant Project
Letter from the Premier

ATTACHMENT 5 – Traffic Impact Study

ATTACHMENT 6 – Bushfire Plans

ATTACHMENT 7 – Acoustic Report

ATTACHMENT 8 – Compliance with Planning Policy 7.1

ATTACHMENT 9 – Construction Schedule

PROPOSED RESOURCE RECOVERY FACILITY
FOR NEW ENERGY CORPORATION PTY LTD
AT PART LOT 1 OFFICE RD EAST ROCKINGHAM

SCHEDULE OF DRAWINGS
ISSUED FOR DEVELOPMENT APPROVAL

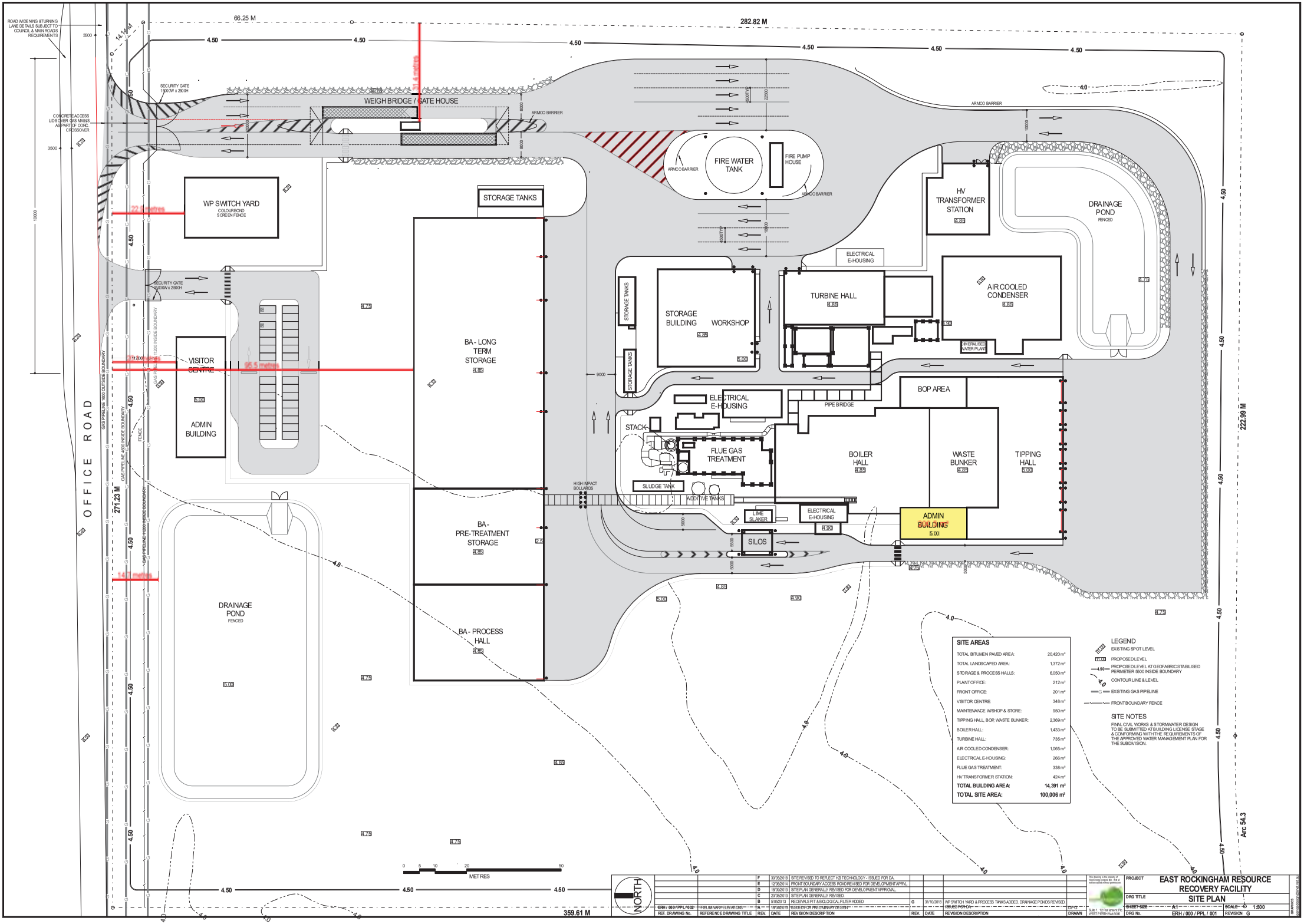
ERH / 000 / PPL / 001 REV G: SITE PLAN

ERH / 000 / PPL / 002 REV G: ELEVATIONS

ERH / 000 / PPL / 003 REV C: ADMIN / STAFF FACILITY

ERH / 000 / PPL / 004 REV F: LANDSCAPING CONCEPT PLAN

ERH / 000 / PPL / 005: EXISTING SITE LEVELS



SITE AREAS

TOTAL BITUMEN PAVED AREA:	20,420 m²
TOTAL LANDSCAPED AREA:	1,372 m²
STORAGE & PROCESS HALLS:	6,050 m²
PLANT OF FICE:	212 m²
FRONT OFFICE:	201 m²
VISITOR CENTRE:	348 m²
MAINTENANCE W/SHOP & STORE:	950 m²
TIPPING HALL, BOP, WASTE BUNKER:	2,369 m²
BOILER HALL:	1,433 m²
TURBINE HALL:	735 m²
AIR COOLED CONDENSER:	1,065 m²
ELECTRICAL E-HOUSING:	266 m²
FLUE GAS TREATMENT:	338 m²
HV TRANSFORMER STATION:	424 m²
TOTAL BUILDING AREA:	**14, 391 m²**
TOTAL SITE AREA:	**100,006 m²**

LEGEND

- EXISTING SPOT LEVEL
- PROPOSED LEVEL
- PROPOSED LEVEL AT GEOFABRIC STABILISED PERIMETER 8500 INSIDE BOUNDARY
- CONTOUR LINE & LEVEL
- EXISTING GAS PIPELINE
- FRONT BOUNDARY FENCE

SITE NOTES

FINAL CIVIL WORKS & STORMWATER DESIGN TO BE SUBMITTED AT BUILDING LICENSE STAGE & CONFORMING WITH THE REQUIREMENTS OF THE APPROVED WATER MANAGEMENT PLAN FOR THE SUBDIVISION.

REF. DRAWING No.	REFERENCE DRAWING TITLE	REV.	DATE	REVISION DESCRIPTION
ERH / 000 / PPL / 002	PRELIMINARY ISSUE	A	18/06/2013	ISSUED FOR PRELIMINARY DESIGN
		B	5/05/2013	RECEIVALS PIT & BIOLOGICAL FILTER ADDED
		C	20/08/2013	SITE PLAN GENERALLY REVISED.
		D	19/09/2013	SITE PLAN GENERALLY REVISED FOR DEVELOPMENT APPROVAL
		E	12/06/2014	FRONT BOUNDARY ACCESS ROAD REVISED FOR DEVELOPMENT APPRL
		F	30/05/2018	SITE REVISED TO REFLECT H2 TECHNOLOGY - ISSUED FOR DA
		G	31/10/2018	WP SWITCH YARD & PROCESS TANKS ADDED. DRAINAGE PONDS REVISED.
		H	19/06/2019	ISSUED FOR DA

REV.	DATE	REVISION DESCRIPTION	DRAWN
			DC

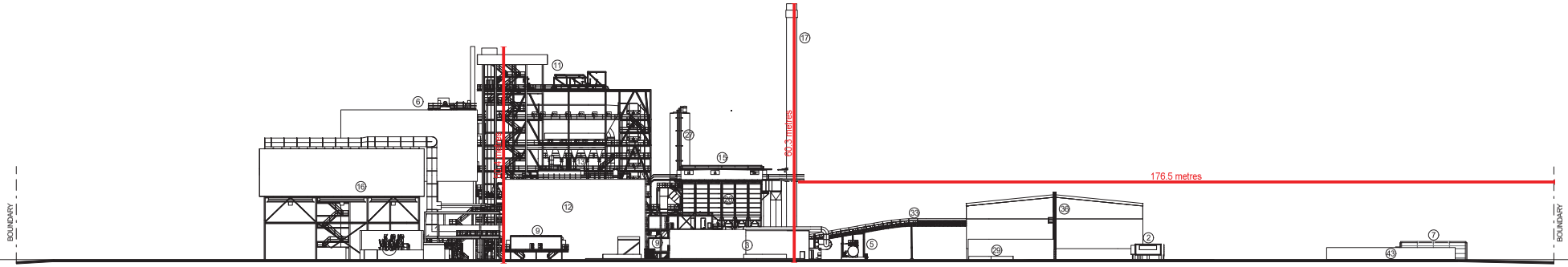
Suite 1, 12 Parliament Pl, WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM RESOURCE RECOVERY FACILITY

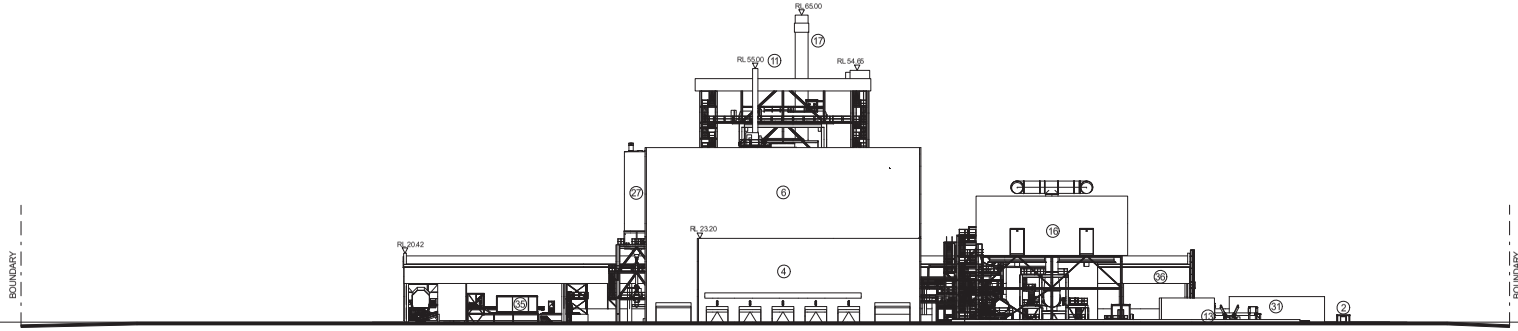
DRG TITLE: SITE PLAN

SHEET SIZE: A1 — SCALE: 1:500

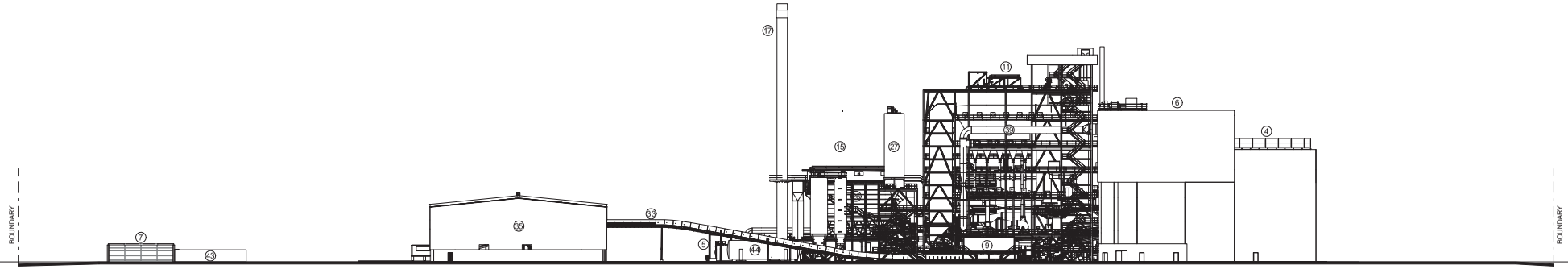
DRG No.: ERH / 000 / PPL / 001 — REVISION: G



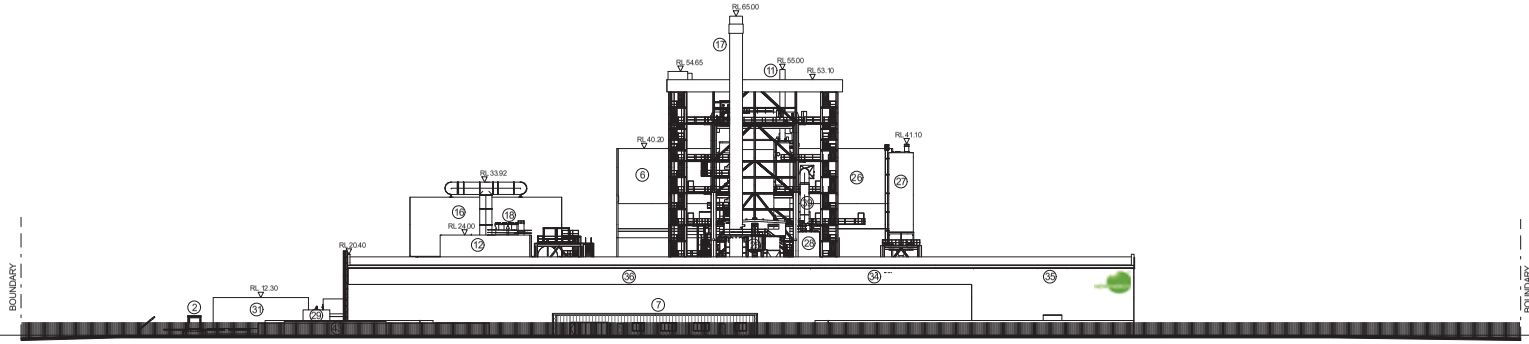
EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION



NORTH ELEVATION (OFFICE RD)

FINISHES

WALL AND ROOF CLADDING TO BE COLOURBOND STEEL SHEETING COLOUR "DUNE".

LEGEND:

1	CAR PARK	23	CEMS CONTAINER
2	GATEHOUSE	24	COMPRESSED AIR STATION
3	WORKSHOP	25	I.D. FAN
4	TIPPING HALL	26	BAG FILTER
5	DIESEL & AMMONIA STORAGE	27	RESIDUE SILOS
6	BUNKER	28	ADDITIVE SILOS
7	ADMINISTRATION	29	RAW WATER TANK
8	CONTROL ROOM	30	WASTE WATER TANK
9	E-HOUSES	31	FIRE WATER STORAGE
10	BOTTOM ASH BUILDING	32	MAKE UP WATER TANKS
11	BOILER HALL	33	BOTTOM ASH TRANSPORT
12	TURBINE HALL	34	UNPROCESSED ASH STORAGE
13	ELECTRICAL SWITCH YARD	35	ASH PROCESS BUILDING (BA PLANT)
14	EMERGENCY DIESEL	36	PROCESSED ASH STORAGE
15	FLUE GAS TREATMENT AREA	37	PRIMARY AIR FAN
16	AIR COOLED CONDENSER	38	PRIMARY AIR PREHEATER
17	STACK	39	PRIMARY AIR DUCT
18	RE-COOLER	40	SECONDARY AIR FAN
19	FEEDWATER TANK	41	SECONDARY AIR PREHEATER
20	WEIGHTBRIDGES	42	SECONDARY AIR DUCT
21	WASTE CRANE	43	WP SWITCH YARD
22	FEED HOPPER	44	SLUDGE TANK

0 5 10 20 60

METRES

REF. DRAWING No.	REFERENCE DRAWING TITLE	REV.	DATE	REVISION DESCRIPTION
ERH / 000 / PPL / 001	PRELIMINARY SITE PLAN	G	30/05/2016	ELEVATIONS REVISED - ISSUED FOR DEVELOPMENT APPROVAL.
		F	23/09/2014	TEXTURED CONCRETE FINISH ADDED TO WEIGH BRIDGE OFFICE.
		E	20/09/2014	CONCRETE WALL PANELS RENDERED & BUILDING NUMBERS CORRECTED.
		D	12/09/2014	MRF BUILDING ELEVATIONS REVISED TO SHOW CONCRETE WALL PANELS.
		C	14/05/2014	ADMIN ELEVATIONS REVISED & SIGNAGE ADDED.
		B	19/09/2013	ISSUED FOR DEVELOPMENT APPROVAL

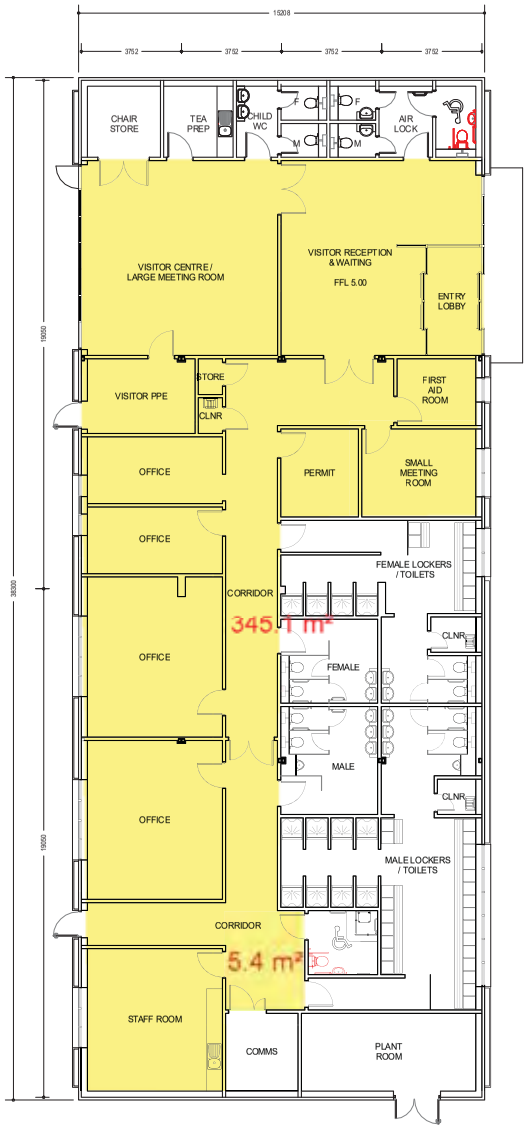
REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APP'RVD
G	31/10/2018	WP SWITCHYARD & PROCESS TANKS ADDED.	DPG		

Suite 1, 12 Parliament Pl, WEST PERTH WA 6005

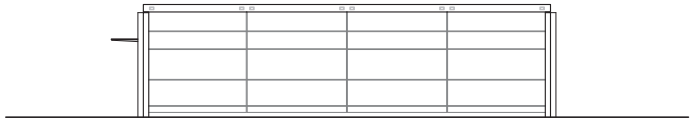
PROJECT: EAST ROCKINGHAM WASTE TO ENERGY

DRG TITLE: ELEVATIONS

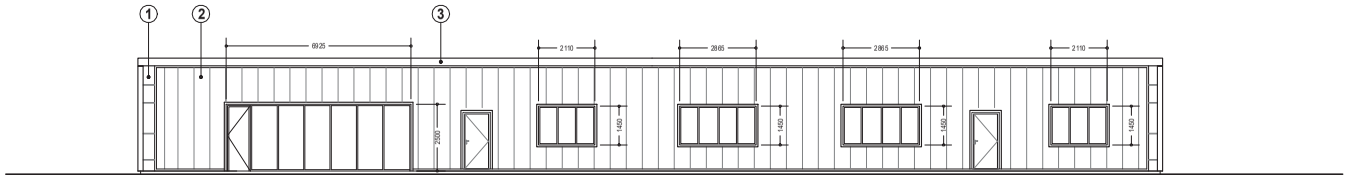
SHEET SIZE	A1	SCALE	1:500
DRG No.	ERH / 000 / PPL / 002	REVISION	G



FLOOR PLAN



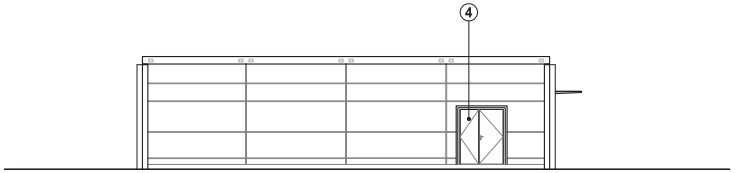
WEST ELEVATION



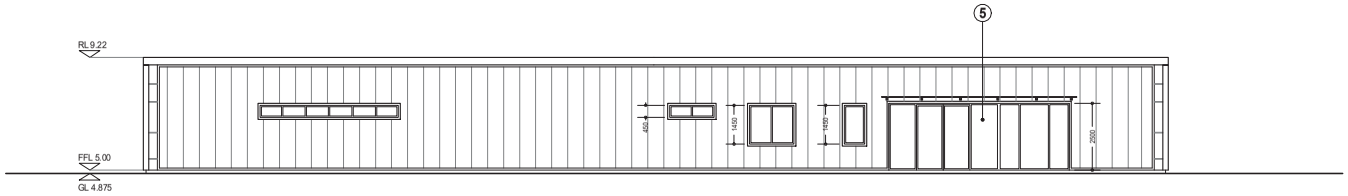
SOUTH ELEVATION

FINISHES

1. COMPOSITE CLADDING - COLOUR ANTHRACITE (RAL 7016).
2. PRECAST CONCRETE PANEL WITH TEXTURED PAINT FINISH.
3. POWDER COATED METAL FLASHING & CAPPING - COLOUR ANTHRACITE (RAL 7016).
4. STEEL FACED EXTERNAL DOORS - COLOUR MERLIN GREY (RAL 180 40 05).
5. ALUMINIUM FRAMED CURTAIN WALLING & GLAZING - COLOUR MERLIN GREY (RAL 180 40 05).



EAST ELEVATION



SOUTH ELEVATION

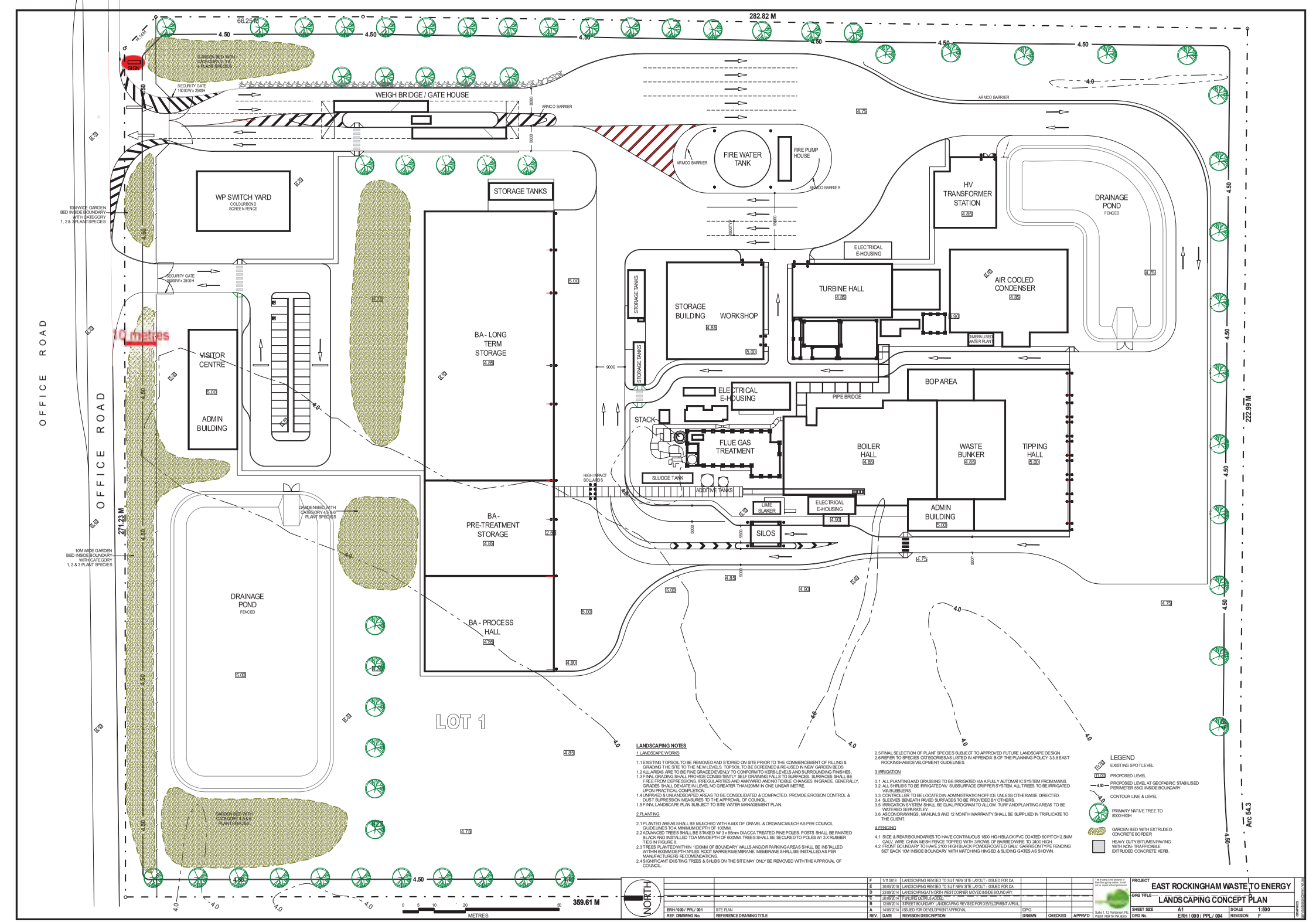
NORTH

REV	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPRVD
C	1/11/2018	POLYCARBONATE WALLS CHANGED TO PRECAST CONCRETE. ISSUED FOR DA			
B	30/05/2018	REVISED & REISSUED FOR DEVELOPMENT APPROVAL	DPG		
A	14/05/2018	ISSUED FOR DEVELOPMENT APPROVAL	DPG		

ERH / 000 / PPL / 001 SITE PLAN
REF. DRAWING No. REFERENCE DRAWING TITLE

Suite 1, 12 Parliament Pl, WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY
DRG TITLE: ADMIN OFFICE / EDUCATION CENTRE
SHEET SIZE: A1 | SCALE: 1:100
DRG No.: ERH / 000 / PPL / 003 | REVISION: C



LANDSCAPING NOTES

1 LANDSCAPE WORKS

1.1 EXISTING TOPSOIL TO BE REMOVED AND STORED ON SITE PRIOR TO THE COMMENCEMENT OF FILLING & GRADING THE SITE TO THE NEW LEVELS. TOPSOIL TO BE SCREENED & RE-USED IN NEW GARDEN BEDS
1.2 ALL AREAS ARE TO BE FINE GRADED EVENLY TO CONFORM TO KERB LEVELS AND SURROUNDING FINISHES.
1.3 FINAL GRADING SHALL PROVIDE CONSISTENTLY SELF DRAINING FALLS TO SURFACES. SURFACES SHALL BE FREE FROM DEPRESSIONS, IRREGULARITIES AND AWKWARD AND NOTICIBLE CHANGES IN GRADE. GENERALLY, GRADES SHALL DEVIATE IN LEVEL NO GREATER THAN 20MM IN ONE LINEAR METRE.
UPON PRACTICAL COMPLETION.
1.4 UNPAVED & UNLANDSCAPED AREAS TO BE CONSOLIDATED & COMPACTED. PROVIDE EROSION CONTROL & DUST SUPPRESSION MEASURES TO THE APPROVAL OF COUNCIL.
1.5 FINAL LANDSCAPE PLAN SUBJECT TO SITE WATER MANAGEMENT PLAN.

2 PLANTING

2.1 PLANTED AREAS SHALL BE MULCHED WITH A MIX OF GRAVEL & ORGANIC MULCH AS PER COUNCIL GUIDELINES TO A MINIMUM DEPTH OF 100MM.
2.2 ADVANCED TREES SHALL BE STAKED W 3 x 85mm DIACCA TREATED PINE POLES. POSTS SHALL BE PAINTED BLACK AND INSTALLED TO A MIN DEPTH OF 600MM. TREES SHALL BE SECURED TO POLES W/ 3 X RUBBER TIES IN FIGURE 8.
2.3 TREES PLANTED WITHIN 1000MM OF BOUNDARY WALLS AND/OR PARKING AREAS SHALL BE INSTALLED WITH A 600MM DEPTH NYLEX ROOT BARRIER MEMBRANE. MEMBRANE SHALL BE INSTALLED AS PER MANUFACTURERS RECOMENDATIONS.
2.4 SIGNIFICANT EXISTING TREES & SHUBS ON THE SITE MAY ONLY BE REMOVED WITH THE APPROVAL OF COUNCIL.
2.5 FINAL SELECTION OF PLANT SPECIES SUBJECT TO APPROVED FUTURE LANDSCAPE DESIGN
2.6 REFER TO SPECIES CATEGORIES AS LISTED IN APPENDIX B OF THE PLANNING POLICY 3.3.8 EAST ROCKINGHAM DEVELOPMENT GUIDELINES.

3 IRRIGATION

3.1 ALL PLANTING AND GRASSING TO BE IRRIGATED VIA A FULLY AUTOMATIC SYSTEM FROM MAINS.
3.2 ALL SHRUBS TO BE IRRIGATED W/ SUBSURFACE DRIPPER SYSTEM. ALL TREES TO BE IRRIGATED VIA BUBBLERS.
3.3 CONTROLLER TO BE LOCATED IN ADMINISTRATION OFFICE UNLESS OTHERWISE DIRECTED.
3.4 SLEEVES BENEATH PAVED SURFACES TO BE PROVIDED BY OTHERS.
3.5 IRRIGATION SYSTEM SHALL BE DUAL PROGRAM TO ALLOW TURF AND PLANTING AREAS TO BE WATERED SEPARATELY.
3.6 AS CON DRAWINGS, MANUALS AND 12 MONTH WARRANTY SHALL BE SUPPLIED IN TRIPLICATE TO THE CLIENT.

4 FENCING

4.1 SIDE & REAR BOUNDARIES TO HAVE CONTINUOUS 1800 HIGH BLACK PVC COATED 60 PITCH 2.5MM GALV. WIRE CHAIN MESH FENCE TOPPED WITH 3 ROWS OF BARBED WIRE TO 2400 HIGH.
4.2 FRONT BOUNDARY TO HAVE 2100 HIGH BLACK POWDERCOATED GALV. GARRISON TYPE FENCING SET BACK 10M INSIDE BOUNDARY WITH MATCHING HINGED & SLIDING GATES AS SHOWN.

LEGEND

- EXISTING SPOT LEVEL
- PROPOSED LEVEL
- PROPOSED LEVEL AT GEOFABRIC STABILISED PERIMETER 5500 INSIDE BOUNDARY
- CONTOUR LINE & LEVEL
- PRIMARY NATIVE TREE TO 8000 HIGH
- GARDEN BED WITH EXTRUDED CONCRETE BORDER
- HEAVY DUTY BITUMEN PAVING WITH NON- TRAFFICABLE EXTRUDED CONCRETE KERB.

REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPR'D
F	1/11 2018	LANDSCAPING REVISED TO SUIT NEW SITE LAYOUT - ISSUED FOR DA			
E	30/05/2018	LANDSCAPING REVISED TO SUIT NEW SITE LAYOUT - ISSUED FOR DA			
D	23/06/2014	LANDSCAPING ATH ORTH WEST CORNER MOVED INSIDE BOUNDARY.			
C	20/06/2014	FENCING DETAILS ADDED.			
B	12/06/2014	STREET BOUNDARY LANDSCAPING REVISED FOR DEVELOPMENT APPVL			
A	14/05/2014	ISSUED FOR DEVELOPMENT APPROVAL	DPG		

ERH / 000 / PPL / 001 — SITE PLAN
REF. DRAWING No. — REFERENCE DRAWING TITLE

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Urbis Pty Ltd
Level 1, 12 Parliament Place
WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY
DRG TITLE: LANDSCAPING CONCEPT PLAN
SHEET SIZE: A1 — SCALE: 1:500
DRG No.: ERH / 000 / PPL / 004 — REVISION: F

CONFIDENCE

OFFICE ROAD

LOT 1

282.82 M

66.25 M

14.14 M

271.23 M

369.61 M

Arc 54.3

222.99 M

LEGEND

EXISTING SPOT LEVEL

PROPOSED LEVEL

PROPOSED LEVEL AT GROUNDING OF INSULATED PROTECTIVE COVER ON ELBOW/ADAPTOR

CONTOUR LINE & LEVEL

NORTH

METRES

0 5 10 20 30

DRAWINGS

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY

DRAWING: EXISTING & PROPOSED SITE LEVELS

SHEET SIZE: A1

SCALE: 1:500

DRG No.: ERH / 600 / PPL / 005

REVISION: A

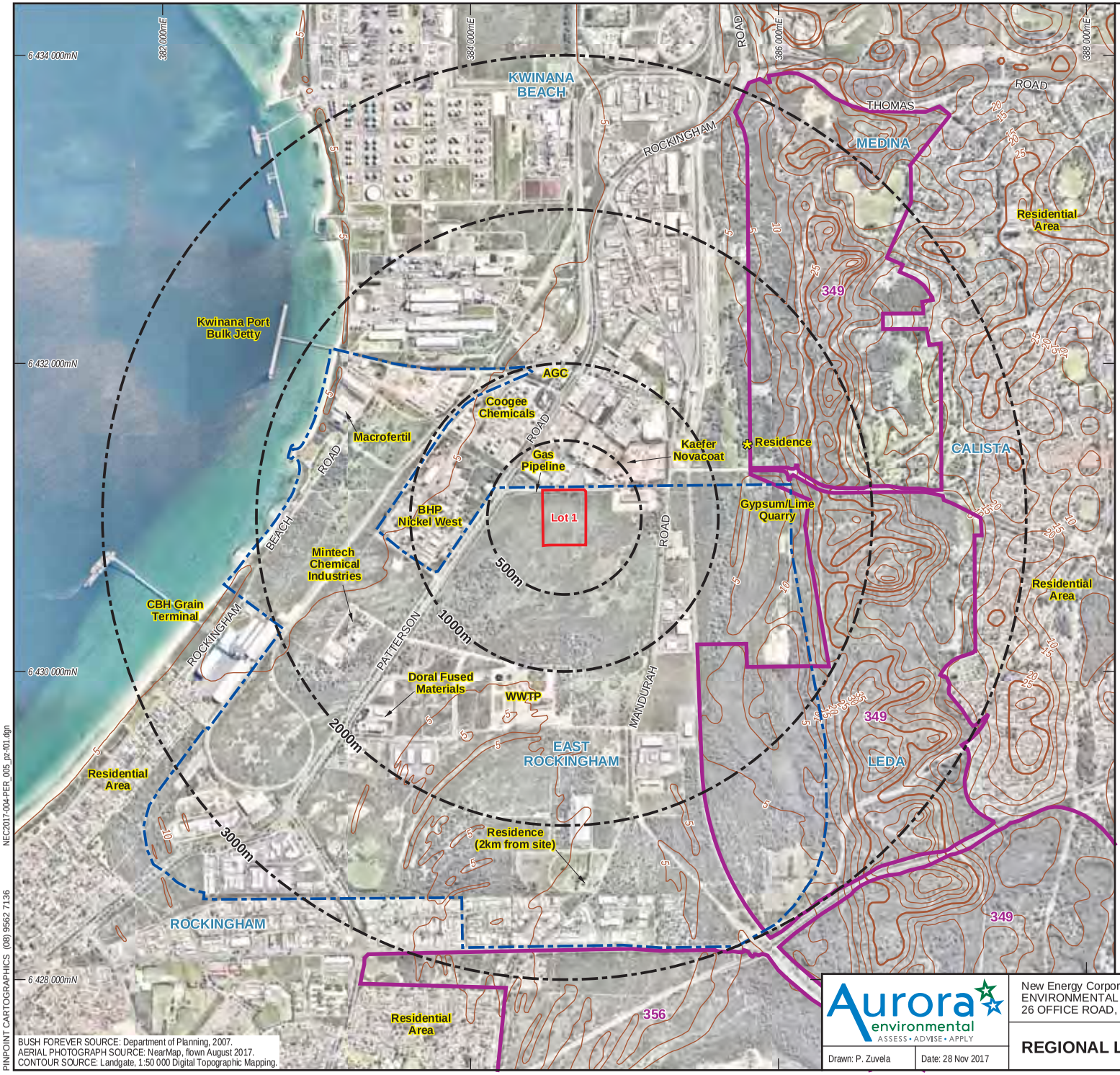
REV.	DATE	REVISION DESCRIPTION	DRN	CHECKED	APPROVD
A	14/02/2014	ISSUED FOR DEVELOPMENT APPROVAL	DPD		

ERH / 600 / PPL / 005

SITE PLAN

REFERENCE DRAWING TITLE

REF DRAWING No.



BUSH FOREVER SOURCE: Department of Planning, 2007.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown August 2017.
CONTOUR SOURCE: Landgate, 1:50 000 Digital Topographic Mapping.

N

0 250 500 750 1000m

SCALE 1 : 25 000 at A3 (MGA)

Legend

- Site Boundary
- Rockingham Industrial Zone Boundary
- Topographic Contour (m AHD)
- Bush Forever Site Boundary
- 349 Bush Forever Site Number

REGIONAL LOCATION

Aurora environmental
ASSESS • ADVISE • APPLY

Drawn: P. Zuvela | Date: 28 Nov 2017

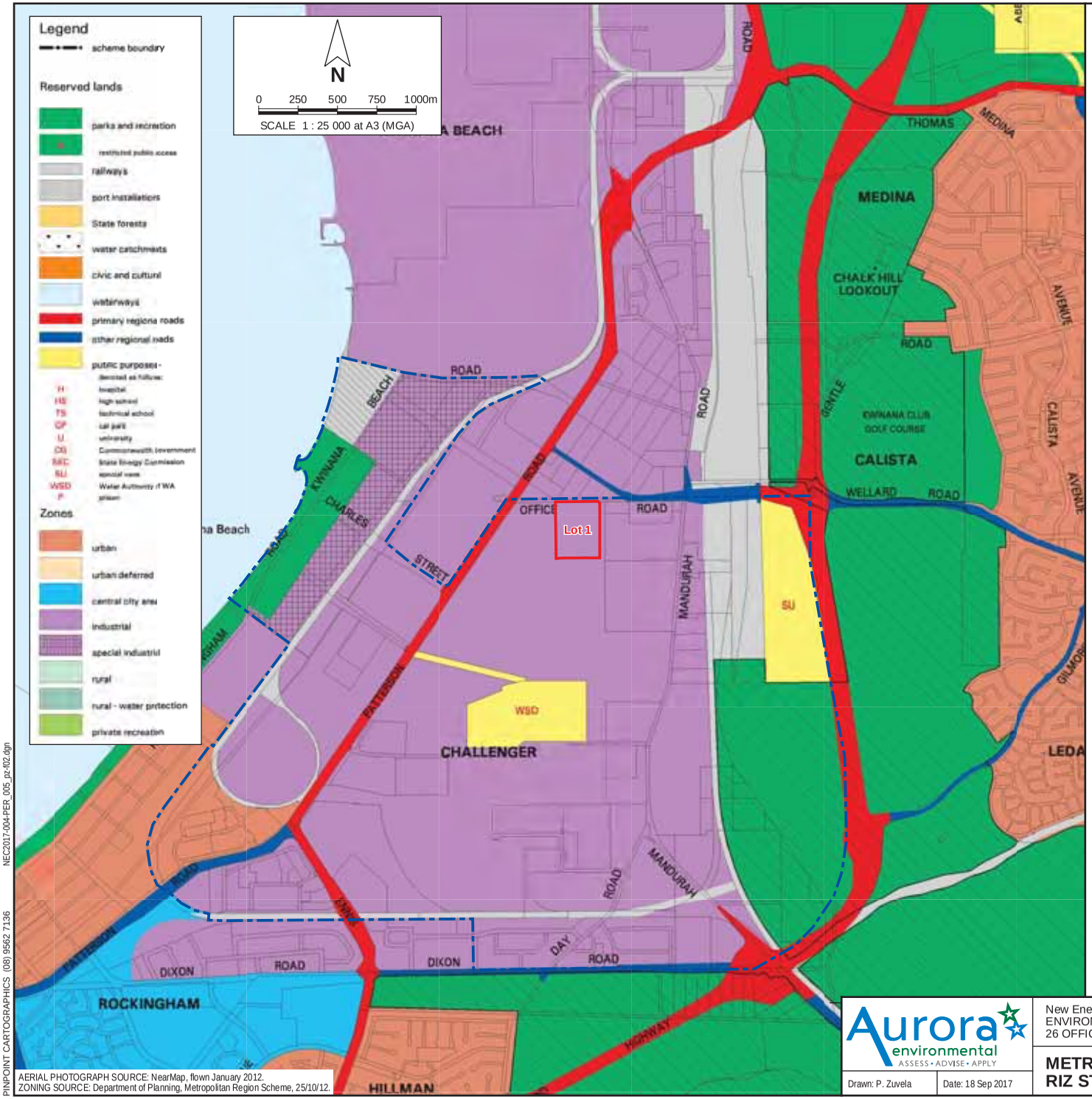
New Energy Corporation
ENVIRONMENTAL REVIEW DOCUMENT - NEW ENERGY WASTE TO ENERGY
26 OFFICE ROAD, EAST ROCKINGHAM

REGIONAL LOCATION & SURROUNDING LANDUSE

Figure 1

Job: NEC2017-004

PINPOINT CARTOGRAPHICS (08) 9562 7136 NEC2017-004-PER_005_pz-f01.dgn



STRUCTURE PLAN SOURCE: Taylor and Burrell.

Legend

- Site Boundary
- Rockingham Industrial Zone Boundary

AERIAL PHOTOGRAPH SOURCE: NearMap, flown January 2012.
ZONING SOURCE: Department of Planning, Metropolitan Region Scheme, 25/10/12.

Aurora environmental
ASSESS • ADVISE • APPLY

Drawn: P. Zuvela | Date: 18 Sep 2017

New Energy Corporation
ENVIRONMENTAL REVIEW DOCUMENT - NEW ENERGY WASTE TO ENERGY
26 OFFICE ROAD, EAST ROCKINGHAM

METROPOLITAN REGION SCHEME AND RIZ STRUCTURE PLAN

Figure 2

Job: NEC2017-004

PINPOINT CARTOGRAPHICS (08) 9562 7136 NEC2017-004-PER_005_pz-f02.dgn

Report and recommendations of the Environmental Protection Authority

East Rockingham Waste to Energy revised proposal

New Energy Corporation Pty Ltd

Report 1624

October 2018

Environmental impact assessment process timelines

Date	Progress stages	Time (weeks)
08/03/2017	EPA decides to assess – level of assessment set	
27/07/2017	EPA approved Environmental Scoping Document	20
12/01/2018	EPA accepted Environmental Review Document	24
22/01/2018	Environmental Review Document released for public review	1
19/02/2018	Public review period for Environmental Review Document closed	4
18/07/2018	EPA accepted Proponent Response to Submissions	21
05/10/2018	EPA received final information for assessment	11
15/10/2018	EPA completed its assessment	1
17/10/2018	EPA provided report to the Minister for Environment	2 days
22/10/2018	EPA report published	3 days
05/11/2018	Close of appeals period	2

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the Environmental Protection Authority met its timeline objective to complete its assessment and provide a report to the Minister.

Dr Tom Hatton
Chairman

17 October 2018

ISSN 1836-0483 (Print)
ISSN 1836-0491 (Online)
Assessment No. 2116

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1. Introduction

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for Environment on the outcomes of the EPA's environmental impact assessment of the proposal by New Energy Corporation Pty Ltd (NEC). The proposal is to construct and operate a Waste to Energy (WTE) facility in the Rockingham Industrial Zone (RIZ) at Lot 1, 26 Office Road, East Rockingham.

The EPA has prepared this report in accordance with section 44 of the *Environmental Protection Act 1986* (EP Act). This section of the EP Act requires the EPA to prepare a report on the outcome of its assessment of a proposal and provide this assessment report to the Minister for Environment. The report must set out:

- what the EPA considers to be the key environmental factors identified during the assessment
- the EPA's recommendations as to whether or not the proposal may be implemented and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may also include any other information, advice and recommendations in the assessment report as it thinks fit.

The proponent referred the proposal to the EPA on 27 January 2017. On 8 March 2017, the EPA decided to assess the proposal and set the level of assessment at Public Environmental Review with a four-week public review period. The EPA approved the Environmental Scoping Document (ESD) for the proposal on 27 July 2017. The Environmental Review Document (ERD) was released for public review from 22 January 2018 to 19 February 2018.

1.1 EPA procedures

The EPA followed the procedures in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) administrative procedures 2016* and the *Environmental Impact Assessment (Part IV Divisions 1 and 2) procedures manual 2016*.

1.2 Strategic advice on waste to energy technologies

In April 2013, the EPA and the Waste Authority released their strategic review entitled *Environmental and health performance of waste to energy technologies* (Report 1468, EPA 2013) under section 16(e) of the EP Act.

The review concluded that it had been demonstrated internationally that modern WTE plants could operate within strict emission standards with acceptable environmental and health impacts to the community if a plant is designed and operated using best practice technologies and processes. The EPA supports the establishment of WTE plants in Western Australia subject to proposals

demonstrating adherence to a number of principles outlined in the EPA's section 16(e) advice.

2. The proposal

2.1 Proposal summary

The proponent, NEC, proposes a change (referred to in this report as the 'proposal') to its approved project to construct and operate a WTE and materials recovery facility (MRF) in the RIZ at Lot 1, 26 Office Road, East Rockingham (figures 1 and 2). The EPA had previously assessed the RIZ as a Strategic Environmental Assessment to identify an appropriate development footprint for future industrial development, while retaining an area as a conservation reserve.

The approved project consists of the existing approved proposal:

- East Rockingham Waste to Energy and Materials Recovery Facility (Ministerial Statement 994, 20 January 2015) to build and operate a WTE and MRF on Lot 1, Office Road, 3 km north-east of Rockingham.

The proposed change includes changing the technology from WtGas-Res gasification to Hitachi Zosen Inova (HZI) grate combustion. The waste would be transported to the facility by truck and passed through to the HZI combustion grate. Flue gas produced through the combustion line then passes through a water tube boiler where it is cooled while the water of the closed water steam cycle is superheated. The superheated steam is expanded through a turbo generator to produce electricity (Figure 3).

The maximum capacity of the plant is 101.8 Megawatt Thermal (MWt), which will generate 31.4 Megawatts (MW) of electricity. Of this, 3.2 MW is required to operate the plant and the remaining 28.2 MW will be exported to the South West Interconnected System. It is proposed that the facility would operate for 30 years.

The grate combustion system is designed for mixed wastes and 10 per cent sewage sludge. The facility would accept residual municipal solid waste (MSW) from a two- or three-bin kerbside collection system; residual waste from point-of-origin collection programs and off-site facilities that process municipal solid waste; recyclables; commercial and industrial (C&I) waste; construction and demolition (C&D) waste; and sewage sludge.

The revised proposal includes an increase to the waste throughput, and removal of the MRF. It also adds a bottom ash treatment plant. Bottom ash generated from the combustion of waste would be treated for reuse in the construction industry or as cover material. Should the treated materials not be suitable for aggregate use, it would be disposed at an appropriately licensed Class III landfill.

The proposed change comprises the following additional activities and/or elements:

- changing the technology from WtGas-Res gasification to HZI grate combustion
- increasing the waste throughput from 225 000 tonnes per annum (tpa) to 300 000 tpa
- accepting up to 30 000 tpa of sewage sludge for processing

- increasing the thermal capacity of the plant from 72 MWt to 101.8 MWt
- removal of the MRF for the sorting of MSW
- construction and operation of a bottom ash treatment plant to treat up to 68 880 tpa of bottom ash.

The key characteristics of the revised proposal (i.e. the amalgamation of the existing approved project and the proposed change) are summarised in tables 1 and 2 below. A detailed description of the proposed change in relation to the existing approved project is provided in Section 2 of the ERD (Aurora Environmental 2017).

In undertaking this assessment, the EPA has assessed the impacts of the proposed change in the context of the approved project, considering the cumulative impacts of the entire revised proposal where appropriate.

Table 1: Summary of the proposal

Proposal title	East Rockingham Waste to Energy revised proposal
Short description	The proposal is for the construction and operation of a WTE facility at Lot 1, 26 Office Road, East Rockingham. The WTE facility comprises: • a reception hall • waste bunker • combustion system • boiler • bottom ash handling and treatment area • other associated infrastructure.

Table 2: Location and proposed extent of physical and operational elements

Element	Location	Existing approval (Ministerial Statement/s and other regulatory approvals)	Proposed change (this proposal)	Proposed extent (revised proposal)
Physical elements				
Waste to energy facility	Figure 2	Clearing of no more than 10 ha of native vegetation within the development envelope	No change	No change

Element	Location	Existing approval (Ministerial Statement/s and other regulatory approvals)	Proposed change (this proposal)	Proposed extent (revised proposal)
Operational elements				
Thermal capacity		No more than 72 MWt	Up to an additional 29.8 MWt	No more than 101.8 MWt
Waste receival volume		Up to 225 000 tpa	Up to an additional 75 000 tpa and up to 30 000 tpa of sewage waste	Up to 300 000 tpa and up to 30 000 tpa of sewage waste
Emissions outputs		Shall not exceed the emissions limits specified in Annex V of the European Union Waste Incineration Directive 2000/76 or its updates	European Union Waste Incineration Directive 2000/76 has been superseded by the European Union Industrial Emissions Directive 2010/75/EC	Shall not exceed the emissions limits specified in Annex VI of the European Union Industrial Emissions Directive 2010/75/EC or its updates
Waste types permitted to be processed		• Construction and demolition waste • Commercial and industrial waste • Municipal solid waste • Green waste • Non-recyclable residues from material recycling facilities, waste transfer stations/depots and biological waste treatment facilities	Biosludge/ biosolids now included and green waste removed	• **Biosludge/ biosolids** • Construction and demolition waste • Commercial and industrial waste • Municipal solid waste • Non-recyclable residues from material recycling facilities, waste transfer stations/depots and biological waste

Element	Location	Existing approval (Ministerial Statement/s and other regulatory approvals)	Proposed change (this proposal)	Proposed extent (revised proposal)
				treatment facilities
Waste types not permitted to be processed		• Scheduled wastes, as defined by ANZECC for the *National Strategy for the Management of Scheduled Waste (1992)* • Medical waste • Radioactive waste • Asbestos • Liquid and oily wastes • Contaminated soils • Tyres • Animal carcasses • Waste with a halogen content greater that 1% • Highly corrosive or toxic liquids or gases such as strong acids or chlorine or fluorine • Explosive materials	Clarification on the restriction of hazardous waste with more than 1% of halogenated organic substances	• Scheduled wastes, as defined by ANZECC for the *National Strategy for the Management of Scheduled Waste (1992)* • Medical waste • radioactive waste • Asbestos • Liquid and oily wastes • Contaminated soils • Tyres • Animal carcasses • **Hazardous** waste with a halogen content greater that 1% • Highly corrosive or toxic liquids or gases such as strong acids or chlorine or fluorine • Explosive materials

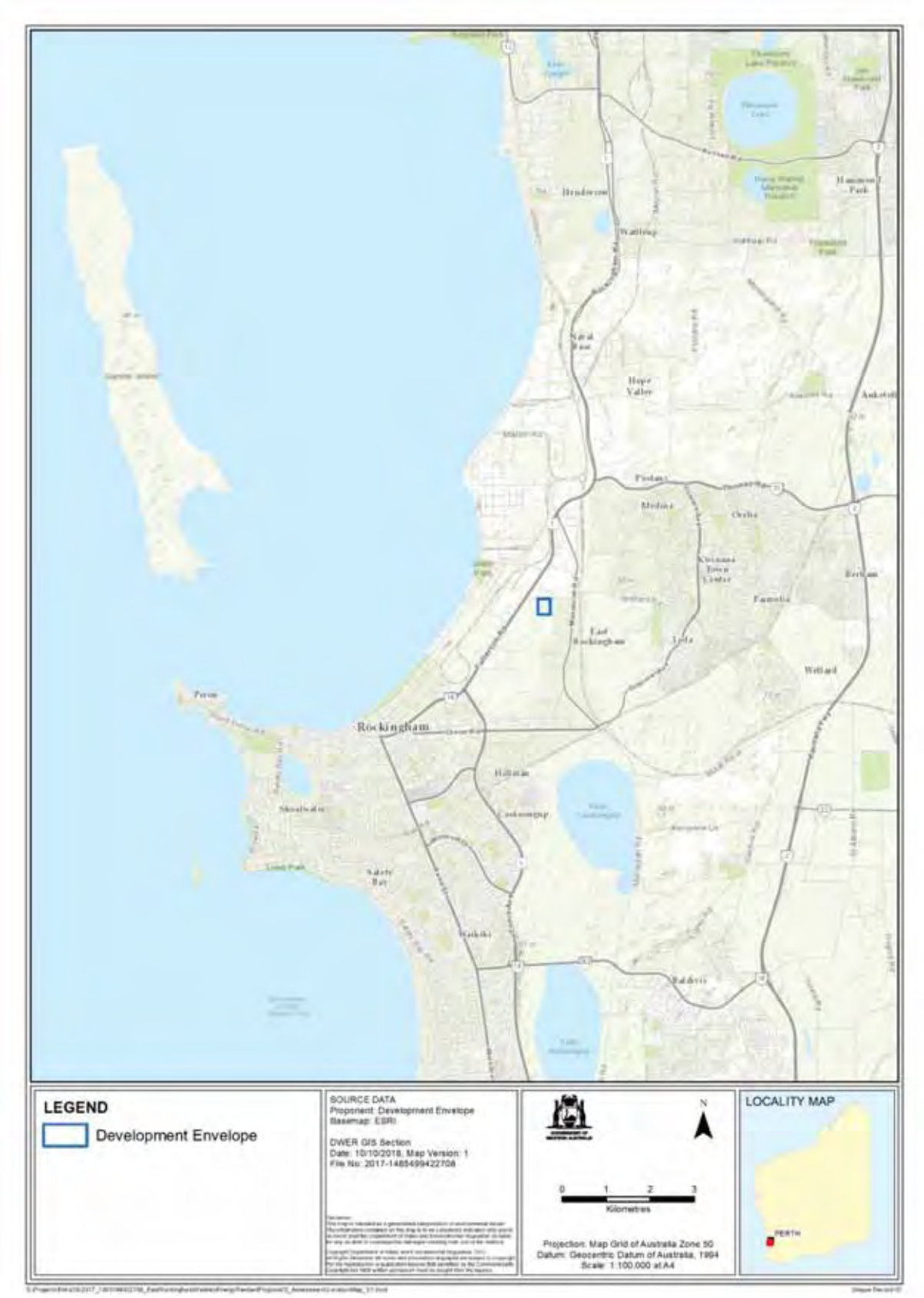

Figure 1: Regional location

Figure 2: Development envelope

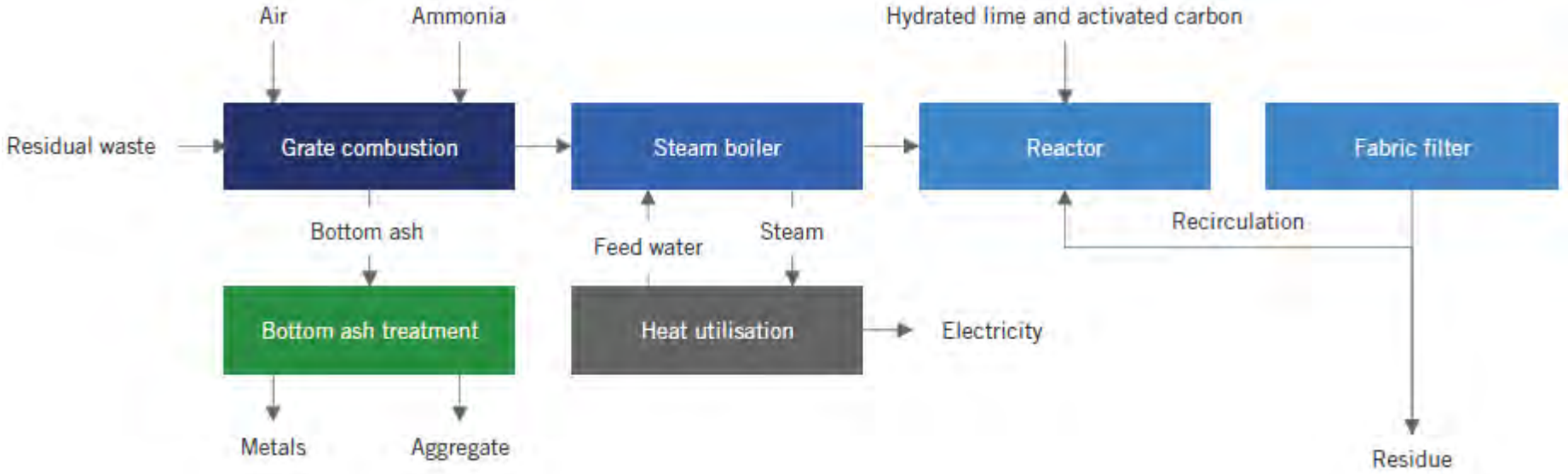

Figure 3: Process flow

2.2 Context

Change from original proposal

Since environmental approval of the original proposal in January 2015, there have been changes in waste management practice and the demand for commercially proven technology from local councils. Consequently, the proponent has requested to change the proposal from the Entech gasification technology to the HZI grate combustion technology.

The HZI grate combustion technology is proven and is in commercial operation around the world, with more than 500 reference plants. The HZI technology has been used at numerous facilities of a similar and larger scale than the proposal. This is consistent with the EPA and Waste Authority's strategic advice on WTE technologies (2013) that only proven technology components should be accepted for commercially operating WTE plants.

NEC advised that local councils have indicated a preference for MSW to be sorted on the curbside through a three-bin system, rather than a dedicated MRF. Consequently, the revised proposal no longer includes a MRF.

The EPA notes that not all local governments currently have a three-bin system in place, and consequently NEC has proposed to receive residual MSW through either a two- or three-bin collection system.

The state government's Better Bins Program supports local governments to improve source separation and material recovery rates, and the EPA notes that the three-bin system is likely to be adopted by additional councils in the future.

In November 2017, the Minister for Environment directed the EPA to undertake an inquiry under section 46 of the EP Act, into the waste feedstock of approved WTE proposals, specifically in relation to the acceptance of genuine 'residual waste' in accordance with the waste hierarchy as defined in the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act). The EPA has considered the findings of the inquiry during this assessment.

New South Wales decision for Eastern Creek Energy from Waste Facility

On 19 July 2018, the New South Wales (NSW) Department of Planning and Environment refused Next Generation NSW Pty Ltd's proposal to construct and operate the Eastern Creek Energy from Waste Facility. The EPA notes that the Eastern Creek proposal intended to use the same HZI grate combustion technology as the East Rockingham WTE revised proposal.

The EPA has considered the key elements of the Eastern Creek proposal and notes that various elements differed from the East Rockingham revised proposal. The Eastern Creek proposal is for processing up to 1.105 million tpa of residual waste, is located 900 m from the nearest residential sensitive receptors, and would be processing some hazardous waste streams including floc waste. The NSW

government also determined that the waste feedstock was inconsistent with the WARR Act and its policy on energy from waste.

The East Rockingham proposal, on the other hand, would process up to 330 000 tonnes of residual waste and sewage sludge, is located 2.3 km from the nearest residential sensitive receptors, and would not be processing hazardous waste streams. The EPA has also considered the proposal in the context of a circular economy and ensuring that only genuine residual wastes are accepted, consistent with the waste hierarchy described in the WARR Act.

3. Consultation

The EPA advertised the referral information for the proposal for public comment in January 2017 and received five submissions, all of which requested 'Assess – Public Environmental Review'.

The proponent consulted with government agencies and key stakeholders during the preparation of the ERD. The agencies and stakeholders consulted, the issues raised and the proponent's responses are detailed in Table 21 of the proponent's ERD (Aurora Environmental, December 2017).

Eight agency submissions and 11 public submissions were received during the public review period. The key issues raised relate to the following:

- appropriateness of the proposal location
- consistency with the government's waste management policy
- potential contamination risk to groundwater
- impacts to human health from air emissions
- potential noise and odour impacts on sensitive receptors
- adequacy of the consultation process.

Issues raised were addressed by the proponent in the Response to Submissions document (Aurora Environmental 2018).

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders about the proposed development. Relevant significant environmental issues identified from this process were taken into account by the EPA during its assessment of the proposal.

4. Key environmental factors

In undertaking its assessment of this proposal and preparing this report, the EPA had regard for the object and principles contained in s4A of the EP Act to the extent relevant to the particular matters that were considered.

The EPA considered the following information during its assessment:

- the proponent's referral information and ERD (Aurora Environmental 2017)
- public comments received on the referral, stakeholder comments received during the preparation of the proponent's documentation and public and agency comments received on the ERD
- the proponent's response to submissions raised during the public review of the ERD (Aurora Environmental 2018)
- the EPA's own inquiries
- the EPA's *Statement of environmental principles, factors and objectives*
- the relevant principles, policy and guidance referred to in the assessment of each key environmental factor in sections 4.1 to 4.2.

Having regard to the above information, the EPA identified the following key environmental factors during the course of its assessment of the proposal:

- **Air Quality** – impacts to air quality from the generation of emissions during operation of the facility.
- **Social Surroundings** – potential noise and odour impacts from construction and operation activities associated with the proposal.

The EPA considered other environmental factors during the course of its assessment of the proposal. These factors, which were not identified as key environmental factors, are discussed in the East Rockingham WTE revised proposal ERD (Aurora Environmental 2017). Appendix 4 contains an evaluation of why these other environmental factors were not identified as key environmental factors.

Having regard to the EP Act principles, the EPA considered that the following principles were particularly relevant to its assessment of the proposal:

1. **The principle of intergenerational equity** – the proposal would be contributing to future waste management outcomes.
2. **Principles relating to improved valuation, pricing and incentive mechanisms** – ongoing management of the proposal, including decommissioning, would be the responsibility of the proponent.
3. **The principle of waste minimisation** – the proposal would be recovering wastes that would otherwise be disposed of into landfill to generate electricity.

Appendix 3 provides a summary of the principles and how the EPA considered these principles in its assessment.

The EPA's assessment of the proposal's impacts on the key environmental factors is provided in sections 4.1 to 4.2. These sections outline whether or not the EPA considers that the impacts on each factor are manageable. Section 6 provides the EPA's conclusion as to whether or not the proposal as a whole is environmentally acceptable.

4.1 Air Quality

EPA objective

The EPA's environmental objective for this factor is 'maintain air quality and minimise emissions so that environmental values are protected'.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental factor guideline – Air Quality* (EPA 2016a)

The considerations for EIA for this factor are outlined in *Environmental factor guideline – Air Quality* (EPA 2016a).

EPA assessment

Existing environment

The proposal is located within the RIZ in East Rockingham. The nearest residential sensitive receptor includes an isolated dwelling located 1.1 km to the north-north-east of Wellard Road. Other residential premises are located 2.3 km east of the site in Medina and Leda, 2.5 km south-west of the site in East Rockingham, and 2.7 km south of the site in Hillman.

Impacts

The proposal has the potential to impact on the air shed through the generation of emissions during operations. Emissions would be released into the atmosphere through the 60 m main stack during normal operations or shutdown and maintenance. The key air pollutants include:

- oxides of nitrogen (NO_X)
- carbon monoxide (CO)
- carbon dioxide (CO_2)
- heavy metals
- acid gases (including hydrochloric acid and sulfur oxides)
- particulates, metals and volatile and semi-volatile organics
- formaldehyde and other hazardous air pollutants, including dioxins and furans and other complex organic compounds.

The proponent commissioned ENVALL (2017) to undertake air dispersion modelling to predict potential impacts from the facility, which included modelling the key air pollutants. Background concentrations for criteria pollutants were obtained from the ambient monitoring report from the Department of Water and Environmental Regulation (DWER) (2017). The nearest monitoring station measuring nitrogen dioxide and sulfur dioxide were from the Rockingham air quality monitoring station, approximately 3 km south-west of the site. The nearest monitoring station for carbon monoxide and particulate matter was the South Lakes air quality monitoring station, approximately 16 km north-north-east of the site.

Table 3 shows the predicted cumulative emissions of some of the key pollutants. The maximum predicted concentration relative to the criterion is the annual average of $PM_{2.5}$ at 92.9 per cent. However, the EPA notes that the proposal would only contribute to 0.4 per cent of the background concentration.

The model results for direct emissions predicted no exceedances of the air quality criteria for ground-level concentrations at the nearest sensitive receptor.

Table 3: Predicted cumulative emissions of common pollutants at sensitive receptors

Emission	Assessment criteria averaging period	Assessment criteria (µg/m^3)	Direct emissions at sensitive receptors		Cumulative emissions at sensitive receptors	
			Max predicted GLC (µg/m^3)	% of assessment criteria for GLC	Max predicted GLC (µg/m^3)	% of assessment criteria for GLC
Nitrogen dioxide (NO_2)	1-hour	246	53.8	21.9%	138	56.1%
Sulfur dioxide (SO_2)	1-hour	570	33.8	5.9%	68.4	12%
Carbon monoxide (CO)	8-hour	10 000	21.9	0.2%	837	8.4%
PM_{10}	24-hour	50	2.17	4.3%	26.5	52.9%
$PM_{2.5}$	1-year	8	0.0338	0.4%	7.43	92.9%

WTE facilities are required to meet the emission criteria specified in the European Union's Industrial Emissions Directive (2010/75/EC) (IED). The EPA notes that the modelling data predicts that emissions from the facility would comply with the IED.

To provide further certainty that emissions generated from the facility would meet the EPA's objective, the EPA engaged with CDM Smith to commission a human health risk assessment (CDM Smith 2018). The assessment considered the likely health risks from the proposed facility and concluded that based on the emissions estimates and emissions controls in place, the proposal is unlikely to impact on the health and wellbeing of sensitive subpopulations or the general public.

Greenhouse gas (GHG) emissions would be produced from the proposed facility. The facility is predicted to produce up to a total of 2 120 522 tonnes equivalent carbon dioxide over 30 years. The EPA notes that comparably, GHG emissions from landfill would produce 11 958 801 tonnes equivalent carbon dioxide.

Monitoring and mitigation

To ensure that emissions meet the relevant air quality standards, the facility would need to incorporate an air pollution control system. Hence the proposed facility is designed with a furnace equipped with a non-catalytic deNOx system to control the emissions of nitrogen oxides, as well as a dry flue-gas cleaning system downstream of the boiler. The dry flue-gas cleaning system involves the injection of hydrated lime into the flue gas, where it neutralises acidic components such as hydrogen chloride, hydrogen fluoride and sulfur dioxide, and injects activated carbon to adsorb dioxins and furans, gaseous mercury and other components. The facility would also have bag filters to trap fine particulate matter.

A Continuous Emissions Monitoring System (CEMS) would be implemented to monitor key emissions, including particulates, carbon monoxide, sulphur dioxide, hydrogen chloride, oxygen, nitrogen oxides, and volatile organic compounds. In the first year of operation, routine stack testing for other compounds would also be done on a quarterly basis, including nitrous oxide, hydrofluoric acid, cadmium, thalium, mercury, antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel, vanadium, dioxins and furans.

Other regulation

The proposal will be a prescribed premises under Part V (Environmental Regulation) of the EP Act as described in the Environmental Protection Regulations 1987. The proponent would be required to hold a works approval before commencing any works on site, and to hold a licence before any operations begin. Works approvals and licences can include conditions relating to the design and construction of facilities, the installation of pollution control equipment, the emissions criteria or limits that must be complied with, monitoring requirements, waste disposal, and reporting.

Summary

The EPA has paid particular attention to:

- relevant EPA principles, guidance and policy pertaining to Air Quality
- predicted emissions from the air dispersion model, including consideration of cumulative impacts, meeting the relevant air quality standards
- the proposed pollution control measures and monitoring, including the use of a CEMS.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Air Quality, that the impacts to this factor are manageable and would no longer be significant, provided that implementation of the proposal is consistent with the elements and authorised extent in schedule 1 of the Recommended Environmental Conditions, including:

- limiting the quantity of feedstock to 300 000 tpa of residual waste and 30 000 tpa of sewage sludge

- limiting emissions outputs as specified in Annex VI of the European Union IED (2010/75/EC) or its updates.

The EPA also notes that a works approval and licence is a statutory requirement under Part V of the EP Act. (See other advice in Section 6 below.)

4.2 Social Surroundings

EPA objective

The EPA's environmental objective for this factor is 'to protect social surroundings from significant harm'.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental factor guideline – Social Surroundings* (EPA 2016b)
- *Guidance statement no. 3 – Separation distances between industrial and sensitive land uses* (EPA 2005)

The considerations for EIA for this factor are outlined in *Environmental factor guideline – Social Surroundings* (EPA 2016b).

EPA assessment

Existing environment

The proposal is located within the RIZ, where numerous industrial sources already exist. An isolated dwelling is located 1.1 km east of the site, and other residential areas are located approximately 2.3 km to its east, south-west and south.

Potential impacts

The proposal has the potential to impact on Social Surroundings during construction and operation. This includes noise generated by operation of the plant and equipment, dust produced from construction, and odour generated from the handling of putrescible waste materials.

Noise

Noise within the building (during operations) is expected to come from the residual reception facility, the generators, and the bottom ash treatment and storage area. The facility is expected to be operating 24 hours a day, seven days a week.

The proponent commissioned Herring Storer Acoustics (2017) to undertake noise modelling for the facility. The modelling predicts that the proposal would be compliant with the allowable limits in the Environmental Protection (Noise) Regulations 1997, including night times.

Odour

The proposal will be handling putrescible waste materials including MSW, which can produce odour as the waste decomposes. The main source of odour would be the tipping hall when doors are used during waste delivery, and through the 48 m shutdown stack used to vent internal odours from the waste bunkers when the combustion system is not operating.

ENVALL (2017) undertook an odour emissions assessment for the facility using the CALPUFF model to predict ground-level concentrations of odour emissions from the receival hall and the shutdown stack.

The model predicts that during normal operations, the residential criteria for odours would not be exceeded outside of the site. During normal operations, air is taken from the bunker and fed into the combustion system, where odorants from the waste are completely oxidised. Odour emissions are considered to be negligible and to meet the relevant residential criterion for odours.

During combustion system shutdown, the model predicts that the residential criteria is exceeded approximately 748 m from the site; however, the residential criteria is not exceeded at any actual residential areas located 2.3 km from the site. During both planned and unplanned system shutdown, the auxiliary forced ventilation system is activated and truck doors will be periodically open for continued waste deliveries. The EPA notes that unplanned shutdowns are expected to occur less than 9 per cent of the time.

Dust

The proponent expects that impacts from dust during construction would be temporary, localised and have a low impact on local amenity. Dust impacts during operation are likely to be negligible as operations would occur within an enclosed building.

Mitigation and management

Noise

To ensure that noise is appropriately managed, the proponent would be restricting construction work from 7am to pm on Monday to Saturday (excluding public holidays).

A noise survey would be done during commissioning to demonstrate compliance with predicted noise levels. Noise monitoring would then be conducted using a handheld noise monitor at predetermined locations across the site on a quarterly basis.

A noise complaints register would also be established. Should there be any noise complaints, the incident would be recorded and appropriately addressed within 24 hours.

Odour

To ensure a minimal risk of fugitive odour emissions from the facility, the proponent will be ensuring that waste delivery is to occur in enclosed vehicles, and provide an enclosed waste bunker with an airlock design for the doors to the waste receival area. It will maintain the waste receival area under negative air pressure by drawing air from this area for injection into the combustion chamber to oxidise odorous gases. During shutdown times, the auxiliary fan would extract odorous air to the shutdown stack for dispersal.

The proponent would undertake odour testing during commissioning, including testing the bunker building and reception hall for air tightness, and odour emissions from the shutdown stack.

The proponent has considered contingency actions in the event that odour levels are higher than predicted. These include installing an atomiser to suppress odour and dust inside the waste bunker during combustion system shutdowns, constructing a semi-porous wind fence along the southern boundary, upgrading the capacity of the shutdown air extraction system, and repositioning the air extraction intake vents in the bunker.

The proponent would also implement an odour complaints register and resolution procedure to address any concerns raised by the public.

Dust

The facility would have fabric filters and an atomiser system within the facility to minimise dust impacts.

To further ensure that dust is appropriately managed, the proponent would use water trucks and crusting agents, install wind fencing to reduce surface winds, restrict the size of stockpiles and manage traffic over cleared areas to control dust.

The proponent would use visual and handheld instrumentation to assess the effectiveness of the dust controls.

Summary

The EPA has paid particular attention to:

- relevant EPA principles, guidance and policy pertaining to Social Surroundings
- results from the noise and odour emissions modelling
- advice from DWER that the proposed technology is relatively quieter than the previously proposed gasification technology
- the proposed management and mitigation measures for noise, odour and dust.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Social Surroundings, that the impacts to this factor are manageable and would not be significant.

The EPA also notes that a works approval and licence is a statutory requirement under Part V of the EP Act. (See other advice in Section 6 below.)

5. Conclusion

The EPA considers the principle of waste minimisation to be a relevant consideration in this assessment, and notes that the proposal would be processing residual waste that would otherwise be disposed of in landfill.

Having assessed the proposal against the EPA's objective for the key environmental factors of Air Quality and Social Surroundings, the EPA recognises that the proposal could contribute to impacts on air quality, including odour, and noise emissions.

Application of mitigation hierarchy

Consistent with relevant policies and guidance, the proponent has addressed the mitigation hierarchy by identifying measures to avoid, minimise and rehabilitate environmental impacts including:

- choosing a site within an industrial zone
- the use of proven and best practice technology
- ensuring the WTE plant has the ability to accept residual waste only
- an air pollution control system incorporating backups for key systems to minimise fugitive emissions
- the provision of an enclosed building, including fast-acting doors to the waste receival area to reduce noise and odour emissions.

Conclusion

The EPA has taken the following into account in its assessment of the proposal as a whole, including the:

- impacts to all the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- relevant EP Act principles and the EPA's objectives for the key environmental factors
- EPA's view that the impacts to the key environmental factors are manageable, provided the recommended conditions are imposed.

Given the above, the EPA has concluded that the proposal is environmentally acceptable and therefore recommends that the proposal may be implemented subject to the conditions recommended in Appendix 5.

6. Other advice

Regulation under Part V of the EP Act

The EPA notes that a works approval and licence is a statutory requirement under Part V of the EP Act, and that any requirement for air emissions monitoring is best regulated through this process. The EPA recommends that continuous monitoring should be required for key pollutants, particularly for nitrogen dioxide and particulate matter (PM_{10} and $PM_{2.5}$). The EPA also recommends that consideration be given to regulating odour through the licensing process, including provision of a Complaints Management System, under Part V of the EP Act.

Inquiry under Section 46 of the EP Act

The EPA has considered the findings from the section 46 inquiry to investigate the types of waste feedstocks of WTE plants and ensure that they are restricted to genuine 'residual waste', in accordance with the waste hierarchy as defined in the WARR Act. In considering the findings, the EPA has provided for a condition to be applied across all WTE facilities to ensure that the facility has the ability to operate on 'residual waste' only and to monitor the waste the facilities are receiving (condition 7). The EPA notes that DWER would be responsible for assessing the management plan required by this condition and would need to review and update the management plan, as and when required, to allow for continuous improvement and changes to waste management practices.

NSW decision

The EPA has considered the decision on the Eastern Creek Energy from Waste Facility in NSW and notes that the proposal is different from the East Rockingham WTE proposal, including size and scale, proximity to sensitive receptors, and waste feedstocks accepted. The EPA considers that the East Rockingham WTE proposal can be managed to be environmentally acceptable, provided that the recommended environmental conditions are implemented.

7. Recommendations

That the Minister for Environment notes:

1. The proposal assessed is for the construction and operation of a WTE plant located 3 km north-east of Rockingham in the RIZ.
2. The key environmental factors identified by the EPA in the course of its assessment are Air Quality and Social Surroundings, as set out in Section 4.
3. The EPA has concluded that the proposal may be implemented, provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Appendix 5. Matters addressed in the conditions include the following:
    a) ensuring non-permissible waste types are restricted at the WTE facility
    b) ensuring only genuine residual wastes are processed.
4. Other advice provided by the EPA, as set out in Section 6.

References

Aurora Environmental 2017, *East Rockingham Waste to Energy Facility Environmental Review Document*, prepared for New Energy Corporation, West Perth, WA.

Aurora Environmental 2018, *East Rockingham Waste to Energy Facility response to submissions*, prepared for New Energy Corporation, West Perth, WA.

CDM Smith 2018, *Human health risk assessment proposed East Rockingham Waste to Energy Facility*, Richmond, Vic.

DWER 2017, *2016 Western Australia air monitoring report*, Department of Water and Environmental Regulation, Perth, WA.

ENVALL 2017, *Air quality impact assessment of proposed waste power station in East Rockingham, Western Australia*, Environmental Alliances Pty Ltd, Perth, WA.

EPA 2005, *Guidance statement no. 3 – Separation distances between industrial and sensitive land uses*, Environmental Protection Authority, Perth, WA.

EPA 2013, *Environmental and health performance of waste to energy technologies*, Report 1468, EPA, Perth, WA.

EPA 2018, *Statement of principles, factors and objectives*, Environmental Protection Authority, Perth, WA.

EPA 2016a, *Environmental factor guideline – Air Quality*, Environmental Protection Authority, Perth, WA.

EPA 2016b, *Environmental factor guideline – Social Surroundings*, Environmental Protection Authority, Perth, WA.

Herring Storer Acoustics 2017, *Waste to Energy power station, East Rockingham: environmental acoustic assessment*, Herring Storer Acoustics, Perth, WA.

Appendix 1: List of submitters

Organisations:

Alliance for a Clean Environment
City of Kwinana
City of Rockingham
Department of Biodiversity, Conservation and Attractions
Department of Health
Department of Water and Environmental Regulation
Economic Regulation Authority
Kwinana Industries Council
Landcorp
Waste Authority

Individuals:

Nine private submitters

Appendix 2: Consideration of principles

EP Act Principle	Consideration
1. The precautionary principle *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In application of this precautionary principle, decisions should be guided by –* *a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *b) an assessment of the risk-weighted consequences of various options.*	In considering this principle, the EPA notes that Air Quality and Social Surroundings could be significantly impacted by the proposal. The assessment of these impacts is provided in this report. Site specific studies, including air emissions, odour and noise modelling, have been undertaken for the proposal. Predictions show that the impacts on the surrounding environment would meet relevant standards and are unlikely to have a significant impact. From its assessment of this proposal the EPA has concluded that there is no threat of serious or irreversible harm.
2. The principle of intergenerational equity *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*	This principle is a relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors of Air Quality and Social Surroundings. The EPA notes that the proponent has identified measures to avoid or minimise impacts. The EPA has considered these measures during its assessment. The project would contribute to current and future waste management outcomes, being higher in the waste hierarchy then landfill, and would not have a negative impact on health, diversity and productivity.
3. The principle of the conservation of biological diversity and ecological integrity *Conservation of biological diversity and ecological integrity should be a fundamental consideration.*	In considering this principle, the EPA notes that Air Quality and Social Surroundings could be significantly impacted by the proposal. The assessment of these impacts is provided in this report. The proposal is located in the Rockingham Industrial Zone. Site specific studies have been sourced or undertaken to determine the presence of Threatened and Priority flora, fauna and ecological communities.

EP Act Principle	Consideration
	From its assessment of this proposal, the EPA has concluded that the proposal would not compromise the biological diversity and ecological integrity of the affected areas.
4. Principles relating to improved valuation, pricing and incentive mechanisms *(1) Environmental factors should be included in the valuation of assets and services.* *(2) The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.* *(3) The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.* *(4) Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solution and responses to environmental problems.*	This principle is a relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factor of Air Quality. In considering this principle, the EPA notes that the proponent is consistent with the polluter pays principle, where those who generate pollution and waste should bear the cost of containment, avoidance and abatement. The EPA has had regard to this principle during the assessment of the proposal.
5. The principle of waste minimisation *All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.*	This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors of Air Quality and Social Surroundings. The proponent recognises the demand for waste management infrastructure in Western Australia, and the proposal addresses the waste hierarchy by diverting waste that would otherwise be sent to landfill. Condition 7 requires the proponent to ensure the facility has the ability to operate on residual waste only, as well as monitoring of the waste the facility receives.

Appendix 3: Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
LAND			
Flora and Vegetation	The proposal would involve clearing approximately 10 ha of native vegetation.	**Department of Biodiversity, Conservation and Attractions** There is no change to the footprint nor the impact of the proposal on *Conservation and Land Management Act 1984* and *Wildlife Conservation Act 1950* related matters. **City of Rockingham** The vegetation surveys were undertaken in 2002, 2004 and 2005, and are considered to be outdated. A revised flora and vegetation survey should be undertaken consistent with the EPA's latest guidance.	Flora and Vegetation was previously considered in the original proposal. It was not identified as a preliminary key environmental factor when the EPA decided to assess the revised proposal. The vegetation on the site is in a relatively degraded condition. The vegetation on the site is found to belong to Beard's vegetation association Rockingham System 3048. The current extent of the vegetation association is estimated to have 25.39% of its pre-European extent remaining and 7.03% occurs within International Union for Conservation of Nature reserves. The proposal is expected to directly impact on less than 0.3% of the remaining extent. Two Threatened Ecological Communities (TECs) have been identified as *potentially* occurring in the vicinity of the site, including the FCT19b and the 'Banksia woodlands of the Swan Coastal Plain'. Neither were found to occur on the site.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			The Priority 3 Ecological Community (PEC) 'Acacia shrublands on taller dunes' is known from 13 locations over a range of 175 km between Seabird and Preston Beach. The community is reasonably extensive and is known to occur in excellent condition. The maximum extent likely to be cleared in good to degraded condition is 0.5 ha. This is unlikely to represent a significant impact to the PEC. The EPA considers that the impacts are not different to those considered in the original proposal. The EPA notes that the potential impacts are not likely to be significant due to the modified state of the site and limited amount of clearing required. Accordingly, the **EPA did not consider Flora and Vegetation to be a key environmental factor** at the conclusion of its assessment.
Terrestrial Fauna	The proposal has potential to impact on fauna habitat from clearing of approximately 10 ha of native vegetation.	**Department of Biodiversity, Conservation and Attractions** There is no change to the footprint nor the impact of the proposal on *Conservation and Land Management Act 1984* and *Wildlife Conservation Act 1950* related matters.	Terrestrial Fauna was previously considered in the original proposal. It was not identified as a preliminary key environmental factor when the EPA decided to assess the revised proposal.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
		City of Rockingham The fauna surveys were undertaken in 2005 and 2008, and are considered to be outdated. The fauna survey should be updated and revised.	Three habitat types have been recorded at the proposal site and will be directly impacted. These include *Xanthorrhoea preisii*, *Acacia rostellifera* and *A. saligna* degraded shrubland, *Acacia* and *Xanthorrhoea* shrubland, and *Melaleuca* and Banksia woodland (although no Banksia are present in this fauna habitat type). The vegetation condition has been recorded as ranging between 'highly degraded' and 'disturbed'. Desktop reviews undertaken for the site found a limited potential for conservation significant fauna to utilise the site. The EPA notes that the impacts to fauna would not be different to the original proposal. Due to the degraded quality of the habitat to be impacted and the 92 ha of better quality habitat protected in the RIZ, a significant impact to terrestrial fauna is not expected. Accordingly, the **EPA did not consider Terrestrial Fauna to be a key environmental factor** at the conclusion of its assessment.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
WATER			
Inland Waters	Potential impacts on surface water and groundwater during construction activities. There is also potential for contamination to the environment from the handling of liquid wastes, and spills of hydrocarbons and chemicals.	**Department of Water and Environmental Regulation** The ash that is produced from the incineration of waste materials has the potential to cause soil and groundwater contamination without careful management. **Public** Public raised concerns about potential impacts on the water quality at Cockburn Sound, and the handling and disposal of wastewater produced on site. There are also concerns about wastewater generated from the incinerator wet scrubbers.	No natural surface water features exist within 1 km of the site. The nearest surface water features are man-made sumps and basins associated with industrial sites about 500 m to the north. Groundwater in this area comprises an unconfined superficial aquifer, the Rockingham Sand aquifer, Leederville aquifer, and Yarragadee aquifer. The maximum groundwater level associated with the site is 1.15 m Above Height Datum. Should dewatering be required during construction, it is likely the volume of dewater generated would be limited. A 5C licence under the *Rights in Water and Irrigation Act 1914* would be obtained before construction if required. Waste would be transported within contained vehicles to enclosed buildings with impervious walls and floors. No wastewater would be discharged from the waste to energy process. Sewage generated onsite will be directed to an onsite aerobic treatment unit.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			Potential significant impacts on groundwater quality are considered low due to the nature of operations requiring limited, if any, groundwater; design of the facility with impervious floors/walls; and lack of discharge of wastewater from the waste to energy plant. Accordingly, the **EPA did not consider Inland Waters Environmental Quality to be a key environmental factor** at the conclusion of its assessment.
AIR			
Air Quality	The proposed plant would generate emissions and impact on air quality. An isolated residence is located 1.1 km from the site, with residential premises located 2.3 km from the site. There are also industrial premises surrounding the site.	**Department of Water and Environmental Regulation** DWER considers a stack emissions verification program should be undertaken for all point sources. **City of Kwinana** There are residential premises located approximately 1 km east of the facility, but potential impacts on these residences are not adequately addressed. **Public** The proposal would be increasing air toxins to the Kwinana air shed, and potentially Rockingham from burning noxious chemicals. Emissions would impact on residents in	The EPA considers Air Quality to be a key environmental factor at the conclusion of its assessment. This is further discussed in Section 4.1.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
		neighbouring suburbs, and represents a major long-term air quality risk to the region.	
PEOPLE			
Social Surroundings	Construction and operation activities would generate noise and odour emissions.	**City of Kwinana** The City is concerned that part of the access routes will be affected by odour, with the potential to adversely affect the amenity of people accessing the city. The proposal location should be reconsidered and an alternative site be sought closer to the core of the Kwinana Industrial Area where the prevailing wind direction will direct any fugitive emissions over the existing industrial areas and not residential zoned land. **Department of Water and Environmental Regulation** Most equipment items proposed for this plant using grate combustion technology are relatively quieter than those of the previously proposed gasification technology. It is recommended that procedures for managing odour complaints be established and that complaints act as a trigger for an odour emissions investigation and implementation of mitigation actions. **Department of Health**	The EPA considers Social Surroundings to be a key environmental factor at the conclusion of its assessment. This is further discussed in Section 4.2.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
		Considering the nearest residential property is located 1 km east and that other residential areas are located within 3 km of the Special Industry Zone, it may be prudent to establish a resident-based complaint system and include this as an operation condition. **Public** Submitters are concerned about noise, dust and odour. There is also concern about increased traffic.	
Human Health	Potential impacts associated with emissions from the plant, such as those from air quality and noise emissions, are assessed under the key environmental factors of Air Quality and Social Surroundings. Other potential impacts to human health from the plant, such as from radiation, are limited.	**Public** Submitters are concerned about the impacts on health from the proposal. Particular concerns are associated health risks from air emissions.	Human Health was not identified as a preliminary key environmental factor when the EPA decided to assess the proposal. EPA consideration of emissions to air are considered through impacts to the physical environment. This is dealt with under the key environmental factor Air Quality, which is discussed in Section 4.1. Accordingly, the **EPA did not consider Human Health to be a key environmental factor** at the conclusion of its assessment.

Appendix 4: Proposed changes to conditions for revised proposal

Proposed Implementation Agreement (Ministerial Statement)

The EPA recommends that the proposal may be implemented and further recommends that the implementation of the proposal be subject to the Implementation Agreement (Ministerial Statement) set out in Appendix 6.

The recommended Ministerial Statement has been developed in accordance with the *Environmental Impact Assessment (Part IV Divisions 1 and 2) procedures manual 2016* and includes a review of the following implementation conditions:

- Ministerial Statement 994: East Rockingham Waste to Energy and Materials Recovery Facility of MS 994, issued on 20 January 2015.

Proposed changes

The main changes between the proposed new Ministerial Statement (Appendix 6) and the existing Ministerial Statement relate to:

- A change in technology from gasification to the more widely proven HZI grate combustion technology and removal of the originally approved materials recovery facility.
- A condition requiring the proponent to demonstrate that the proposal has the ability to accept residual wastes only, consistent with the waste hierarchy as defined in the *Waste Avoidance and Resource Recovery Act 2007*.

Recommended environmental conditions

The EPA notes the following:

- Condition 6 of the recommended conditions requires the proponent to ensure non-permitted wastes would not be processed at this facility.
- Condition 7 of the recommended conditions requires the proponent to implement a Waste Acceptance System Plan to ensure the facility has the ability to accept only genuine residual wastes.

Recommended proposal details (Schedule 1)

The revised proposal details contained in Schedule 1 (Appendix 6) have been amended to include an updated description which reflects the EPA's contemporary approach to project descriptions described in the EPA's Procedures Manual.

Changes include the following:

- revising the operational elements in Table 2 including:
    - increasing the waste throughput from 225 000 tonnes per annum (tpa) to 300 000 tpa and up to 30 000 tpa of sewage sludge

  - increasing the thermal capacity of the plant from 72 Megawatt thermal (MWt) to 101.8 MWt
- change to waste types accepted and restricted
- removal of the materials recovery facility
- the addition of a bottom ash handling and treatment area
- updating the maps and the figures.

Appendix 5: Identified decision-making authorities and recommended environmental conditions

Identified decision-making authorities

Section 44(2) of EP Act specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This Appendix contains the EPA's recommended conditions and procedures.

Section 45(1) requires the Minister for Environment to consult with decision-making authorities (DMAs) and, if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following decision-making authorities have been identified:

Decision-making authority	Legislation (and approval)
1. Department of Water and Environmental Regulation	*Environmental Protection Act 1986* Works approval and licence
2. Metro South-West Joint Development Assessment Panel	*Planning and Development Act 2005* Planning approval
3. Economic Regulation Authority	*Electricity Industry Act 2004* Licence for electricity generation works
4. City of Rockingham	*Building Act 2011* Building permit

Statement No. xxx

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A REVISED PROPOSAL MAY BE IMPLEMENTED
(*Environmental Protection Act 1986*)

EAST ROCKINGHAM WASTE TO ENERGY FACILITY

Proposal: Proposal to amend the East Rockingham Waste to Energy and Materials Recovery Facility the subject of Statement No. 994 dated 20 January 2015.

Proponent: NEW ENERGY CORPORATION PTY LTD
Australian Company Number 139 310 053

Proponent Address: Suite 1, 12 Parliament Place
WEST PERTH WA 6005

Assessment Number: 2116 and 2159

Report of the Environmental Protection Authority: 1624

Previous Assessment Number: 1910

Previous Report of the Environmental Protection Authority: 1513 and 1623

Previous Statement Number: 994 and XXX

Pursuant to section 45, read with section 45B of the *Environmental Protection Act 1986,* it has been agreed that:

1. the Proposal described and documented in Table 2 of Schedule 1 may be implemented; and

2. the implementation of the Revised Proposal, being the East Rockingham Waste to Energy and Materials Recovery Facility as amended by this Proposal, is subject to the following revised implementation conditions:

1 Proposal Implementation

1-1 When implementing the Revised Proposal, the proponent shall not exceed the authorised extent of the Revised Proposal as defined in Table 2 in Schedule 1, unless amendments to the Revised Proposal and the authorised extent of the Revised Proposal have been approved under the EP Act.

2 Contact Details

2-1 The proponent shall notify the CEO of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

3 Time Limit for Proposal Implementation

3-1 The proponent shall not commence implementation of the proposal after five (5) years from the date on this Statement, and any commencement, prior to this date, must be substantial.

3-2 Any commencement of implementation of the proposal, on or before five (5) years from the date of this Statement, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of five (5) years from the date of this Statement.

4 Compliance Reporting

4-1 The proponent shall prepare, and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 4-6, or prior to implementation of the proposal, whichever is sooner.

4-2 The Compliance Assessment Plan shall indicate:

(1) the frequency of compliance reporting;

(2) the approach and timing of compliance assessments;

(3) the retention of compliance assessments;

(4) the method of reporting of potential non-compliances and corrective actions taken;

(5) the table of contents of Compliance Assessment Reports; and

(6) public availability of Compliance Assessment Reports.

4-3 After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 4-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 4-1.

4-4 The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 4-1 and shall make those reports available when requested by the CEO.

4-5 The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.

4-6 The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO.

The Compliance Assessment Report shall:

(1) be endorsed by the proponent's CEO or a person delegated to sign on the CEO's behalf;

(2) include a statement as to whether the proponent has complied with the conditions;

(3) identify all potential non-compliances and describe corrective and preventative actions taken;

(4) be made publicly available in accordance with the approved Compliance Assessment Plan; and

(5) indicate any proposed changes to the Compliance Assessment Plan required by condition 4-1.

5 Public Availability of Data

5-1 Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), management plans and reports relevant to the assessment of this proposal and implementation of this Statement.

5-2 If any data referred to in condition 5-1 contains particulars of:

(1) a secret formula or process; or

(2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

6 Waste Acceptance Monitoring and Management

6-1 The proponent shall manage the implementation of the proposal to meet the following environmental objectives:

Demonstrate that waste types not permitted for processing, detailed in Table 2 of Schedule 1, are not processed at the East Rockingham Waste to Energy Facility by implementing conditions 6-2 to 6-8.

6-2 Prior to commissioning, the proponent shall develop (or revise) and submit a Waste Acceptance Monitoring and Management Plan to meet the objective specified in condition 6-1, which includes the following:

(1) detail the proposed monitoring methodology to:

(a) identify the supplier of each waste load;

(b) record all waste loads, including the quantities, received on site;

(c) describe the types of residual waste accepted on the site, including the source separation process for those waste types;

(d) record waste types disposed offsite; and

(2) detail a procedure to summarise the results of monitoring outlined in condition 6-2(1).

6-3 Prior to commissioning, and after receiving notice in writing from the CEO that the Waste Acceptance Monitoring and Management Plan satisfies the requirements of condition 6-2, the proponent shall:

(1) implement the approved Waste Acceptance Monitoring and Management Plan; and

(2) continue to implement the approved Waste Acceptance Monitoring and Management Plan, unless and until the CEO has confirmed by notice, in writing, that implementation is no longer required.

6-4 The proponent shall demonstrate compliance with condition 6-1 by:

(1) providing the summary required by condition 6-2(2) of the monitoring results in accordance with the requirements of the Waste Acceptance Monitoring and Management Plan, every six months from the date of commissioning, until the CEO has confirmed by notice, in writing, that monitoring is no longer required.

6-5 The proponent will retain the results of monitoring required by condition 6-4 and shall make those results available when requested by the CEO.

6-6 The proponent may review and revise the Waste Acceptance Monitoring and Management Plan.

6-7 The proponent shall review and revise the Waste Acceptance Monitoring and Management Plan as and when directed by the CEO.

6-8 The proponent shall implement the latest revision of the Waste Acceptance Monitoring and Management Plan, which the CEO has confirmed by notice, in writing, satisfies the requirements of condition 6-2.

7 Residual Waste

7-1 The proponent shall manage the implementation of the proposal to meet the following environmental objective:

Ensure that the East Rockingham Waste to Energy Facility has the ability to accept residual waste only as defined in Table 3 in Schedule 1 by implementing conditions 7-2 to 7-4.

7-2 Prior to commissioning and thereafter by 31 October each year, the proponent shall develop (or revise) and submit a Waste Acceptance System Plan to apply the objective specified in condition 7-1, which includes the following:

(1) a description of the waste types that the facility could accept, if it only operated on residual waste;

(2) a description of the source separation processes, as provided by the generator of the waste, for the waste streams that are accepted at the facility;

(3) details of, and justification for, the procedures and measures that the proponent has implemented to achieve the objectives specified in condition 7-1; and

(4) a detailed description of the learnings from the previous year(s) on how the objective specified in condition 7-1 and the Waste Acceptance System Plan can be better achieved and/or improved.

7-3 Prior to commissioning, and after receiving notice in writing from the CEO that the Waste Acceptance System Plan satisfies the requirements of condition X-2, the proponent shall immediately:

(1) implement the approved Waste Acceptance System Plan; and

(2) continue to implement the approved Waste Acceptance System Plan unless and until the CEO has confirmed by notice, in writing, that implementation is no longer required.

7-4 The proponent shall demonstrate compliance with condition 7-1 by annually undertaking an independent review of the Waste Acceptance System Plan, and

reporting it to the CEO in the Annual Compliance Report required by condition 4-6.

Schedule 1

Table 1: Summary of the Proposal

Proposal Title	East Rockingham Waste to Energy Facility
Short Description	The proposal is for the construction and operation of a waste to energy facility at Lot 1, 26 Office Road, East Rockingham. The waste to energy facility includes a reception hall, waste bunker, combustion system, boiler, bottom ash handling and treatment area, and other associated infrastructure.

Table 2: Location and authorised extent of physical and operational elements

Column 1	Column 2	Column 3
Element	**Location**	**Authorised Extent**
Physical elements		
Waste to energy facility	Figure 2	Clearing of no more than 10 ha of native vegetation within the development envelope
Operational elements		
Thermal capacity		No more than 101.8 MW thermal
Waste receival volume		Up to 300 000 tpa and 30 000 tpa of sewage waste
Emissions outputs		Shall not exceed the emissions limits specified in Annex VI of the European Union Industrial Emissions Directive (2010/75/EC) or its updates
Waste types permitted to be processed		• Bio-sludge/biosolids • Construction and demolition waste • Commercial and industrial waste • Municipal solid waste • Non-recyclable residues from material recycling facilities, waste transfer stations/depots and biological waste treatment facilities
Waste types not permitted to be processed		• Scheduled wastes, as defined by ANZECC for the *National Strategy for the Management of Scheduled Waste (1992)* • Medical waste • Radioactive waste • Asbestos

		• Liquid and oily wastes • Contaminated soils • Tyres • Animal carcasses • Hazardous waste with a halogen content greater that 1% • Highly corrosive or toxic liquids or gases such as strong acids or chlorine or fluorine • Explosive materials

Table 3: Abbreviations and Definitions

Acronym or Abbreviation	Definition or Term
ANZECC	Australian and New Zealand Environment and Conservation Council
CEO	The chief executive officer of the department of the public service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or his delegate.
ha	Hectare
MW	Megawatt
Residual waste	Waste that remains after the application of a best practice source separation process and recycling systems, consistent with the waste hierarchy as described in section 5 of the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act), and the Waste Strategy approved or revised from time to time under the WARR Act.
tpa	Tonnes per annum

Figures (attached)

Figure 1 East Rockingham Waste to Energy Facility development envelope (this map is a representation of the co-ordinates shown in Schedule 2)

Figure 1: East Rockingham Waste to Energy Facility development envelope

Schedule 2

Coordinates defining the development envelope are held by the Department of Water and Environmental Regulation, document reference number 2018-1530086426460.

Premier of Western Australia

Our Reference: 59-031990

Jason Pugh, Chief Executive Officer,
New Energy Corporation Pty Ltd,
ENicholas@TribelG.com

Dear Mr Pugh

Thank you for your letter of 19 September 2017 regarding the East Rockingham Resources Recovery Facility.

I am pleased to advise that the project has been considered and accepted for facilitation by the Department of Jobs, Tourism, Science and Innovation at Level 2, under the Lead Agency Framework.

Ms Marzia Zamir has been assigned as the Project Manager to assist with government related aspects of project definition, infrastructure, industrial land and regional issues.

The Department will also provide:

- Advice and support through an appointed project officer;
- Referral and introduction to relevant agencies;
- High level and officer level coordination and interaction, as necessary, with other agencies in relation to key statutory approvals.

Please contact Ms Zamir on 9222 0494 should you require any further information.

Yours sincerely

Mark McGowan MLA
PREMIER; MINISTER FOR STATE DEVELOPMENT, JOBS & TRADE

4 OCT 2017

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Transport Impact Statement

Project:	Proposed Materials Recovery & Waste Conversion Facility Lot 1, Office Road, East Rockingham
Client:	New Energy Corporation
Author:	Rian McIlduff
Date:	26 April 2018
Document #	1308009-TIA-003

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Document Status

Version	Prepared By	Reviewed By	Approved By	Date
1	P. Nguyen	H. Lansdell	H. Lansdell	17/09/13
2	P. Nguyen	H. Lansdell	H. Lansdell	19/09/13
3	R. McIlduff	L. Dawson	L. Dawson	26/04/18

File Reference: \\shawsvr01\ArchiveData\Jobs Active 2013\T&T - Transport & Parking Studies\New Energy_Lot 1 Office Road_1308009\Report\New Energy Corporation_Lot 1 Office Road_TIA_V3.docx

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1. Introduction

1.1. Background

Shawmac has been commissioned to prepare a detailed Transport Impact Statement for the proposed materials recovery facility and associated waste-to-energy conversion facility to be located at Lot 1 Office Road, East Rockingham, in the City of Rockingham. This Transport Impact Statement has been prepared in accordance with the Western Australian Planning Commission (WAPC) document *Transport Assessment Guidelines for Development: Volume 4 – Individual Developments*.

The Transport Impact Statement will include the following:

- Assessment of future traffic generation from the site;
- Assignment of predicted traffic flows onto the road network;
- Modelling of intersection and midblock road performance under predicted traffic conditions where increased flows from the development warrant;
- Review and assessment of access and egress requirements for the site;
- Review of heavy vehicle permit networks in the area (i.e. MRWA RAV networks etc.);
- Review and assessment of parking provisions to ensure they meet the government requirements and are in line with Australian Standard 2890;
- Review of relevant crash history associated with the boundary road network; and
- Identification of any unacceptable risks and prescription of remedial actions required to moderate risk.

1.2. Transport Impact Statement Objective

This assessment aims to quantify and review the anticipated traffic operations impacts associated with the proposed development, including the impact of increased vehicle numbers and movements at links to existing roads. The assessment also includes assessment of the proposed car parking arrangements in the context of the required supply and demand.

2. Location

The development is to be located at Lot 1 Office Road, East Rockingham, in the City of Rockingham, approximately 34km south of the Perth CBD and approximately 4km north-east of Rockingham. The subject site is located on the southern side of Office Road halfway between Patterson Road and Mandurah Road Street and is bound by existing industrial development to the north and vacant land to the south, east and west. Figure 1 shows the contextual location of the proposed development. Figure 2 shows the location of the site in the context of the existing adjacent urban layout. Office Road is the boundary with the City of Kwinana.

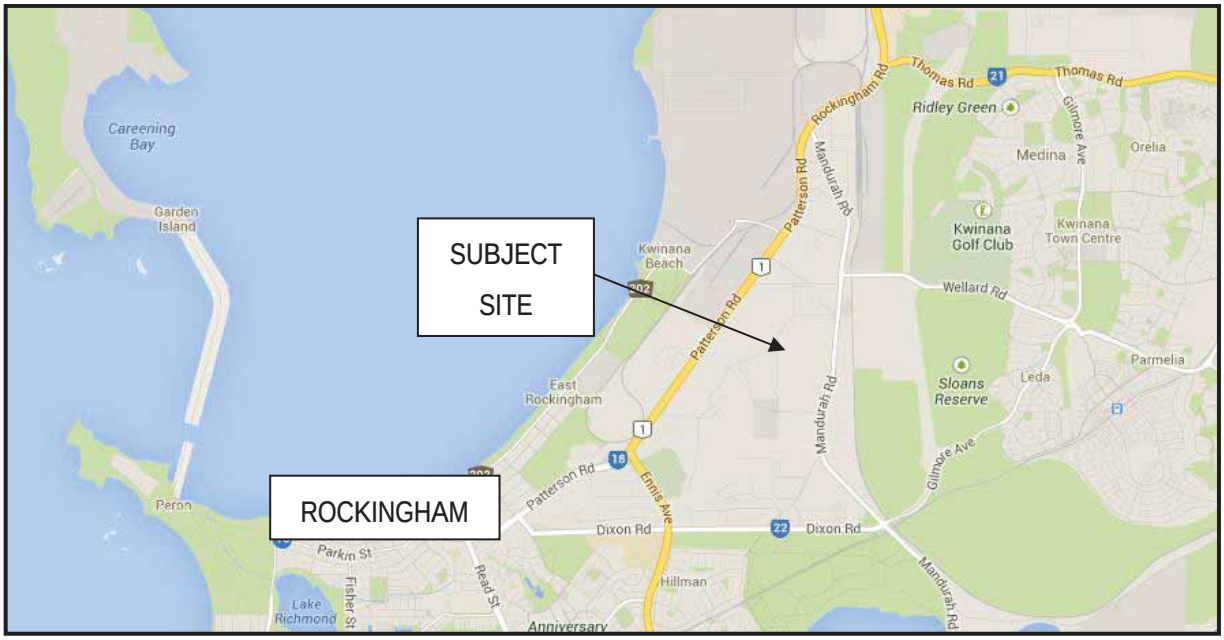


Figure 1: Regional Context

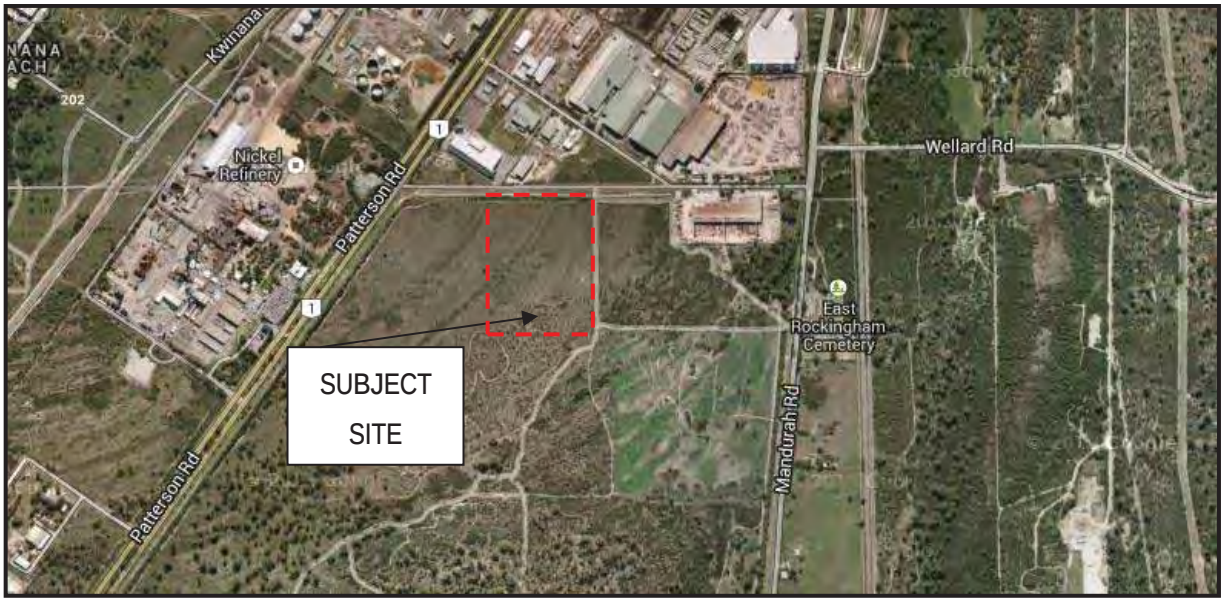


Figure 2: Local Context

3. Development Proposal

3.1. Proposed Land Use

The proposal consists of the construction of a materials recovery facility and a waste-to-energy project facility. The facility will operate six days per week between 6:00 a.m. and 4:00 p.m. The proposed transport metrics are as follows:

- Approximately 65 trucks will arrive at the facility per day to deliver waste which equates to approximately 6.5 trucks per hour attending the weighbridge;
- Up to seven (7) trucks will enter and depart the facility each week to transport materials and remove gasification unit residue for disposal;
- The proposed development will generate up to 72 daily vehicle movements through deliveries and removals; and
- Trucks up to B-doubles with a maximum length of 27.5m will be used to transport waste and materials.

4. Existing Situation

4.1. Existing Site Use

The site is currently vacant and undeveloped.

4.2. Existing Parking Provision

There is currently no on-site car parking provision.

4.3. Existing Site Traffic Generation

The site currently generates no vehicular traffic under the existing uses.

4.4. Existing Surrounding Land Uses

Surrounding land use is primarily industrial development including a nickel refinery, fertiliser suppliers, construction companies and workplace needs suppliers. Additional uses include the East Rockingham Cemetery located on the eastern side of Mandurah Road.

4.5. Existing Surrounding Road Network

4.5.1. Road Hierarchy

Mandurah Road

Mandurah Road is a north-south aligned road to the east of the subject site. In the vicinity of the proposed development, Mandurah Road has been constructed as a two-lane single carriageway and currently operates under a 70 km/h posted speed limit. Under the Main Roads Western Australia (MRWA) *Road Hierarchy,* Mandurah Road, north of Office Road is classified as a *District Distributor A* road. District Distributor A roads are those which *"Carry traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government."* Mandurah Road, south of Office Road is classified as a *Regional Distributor* road. Regional Distributors are *"Roads that are not Primary Distributors but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government."*

Patterson Road

Patterson Road is a north-south aligned road to the west of the subject site. In the vicinity of the proposed development, Patterson Road has been constructed as a four-lane dual carriageway, with a central median approximately 17m wide and sealed shoulders on both sides of each carriageway. A speed limit of 90km/h applies on Patterson Road to the south of Office Road reducing to 80km/h to the north of Office Road. Under the Main Roads Western Australia (MRWA) *Road Hierarchy,* Patterson Road is classified as a *Primary Distributor* road. Primary Distributor roads are those which *"Provide for major regional and inter-regional traffic movement and carry large volumes of generally fast-moving traffic. Some are strategic freight routes and all are State Roads.*

They are maintained by Main Roads Western Australia." It should also be noted that Patterson Road is designated as a *Primary Regional Road* (PRR) or a 'red road' in the context of the Metropolitan Region Scheme and therefore any proposed changes to the road cross-section and/or access arrangement will fall under the review of the WAPC.

Office Road

Office Road runs along the northern boundary of the site between Patterson Road and Mandurah Road. Office Road has been constructed as a two-lane single carriageway and currently operates under a 70 km/h posted speed limit. Under the Main Roads Western Australia (MRWA) *Road Hierarchy*, Office Road is classified as a *Local Distributor* road. Local Distributor roads are "*Roads that carry traffic within a cell and link District Distributors or Regional Distributors at the boundary, to access roads. The route of Local Distributors should discourage through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to, or serving the area. In built-up areas, these roads should accommodate buses, but discourage trucks. They are managed by Local Government."* It should also be noted that the portion of Office Road to the east of Ocean Street is designated as an *Other Regional Road* (ORR) or a 'blue road' in the context of the Metropolitan Region Scheme and therefore any proposed changes to the road cross-section and/or access arrangement will fall under the review of the WAPC.

Figure 3 shows the existing road classification under the MRWA *Road Mapping System* for roads in the vicinity of the site.

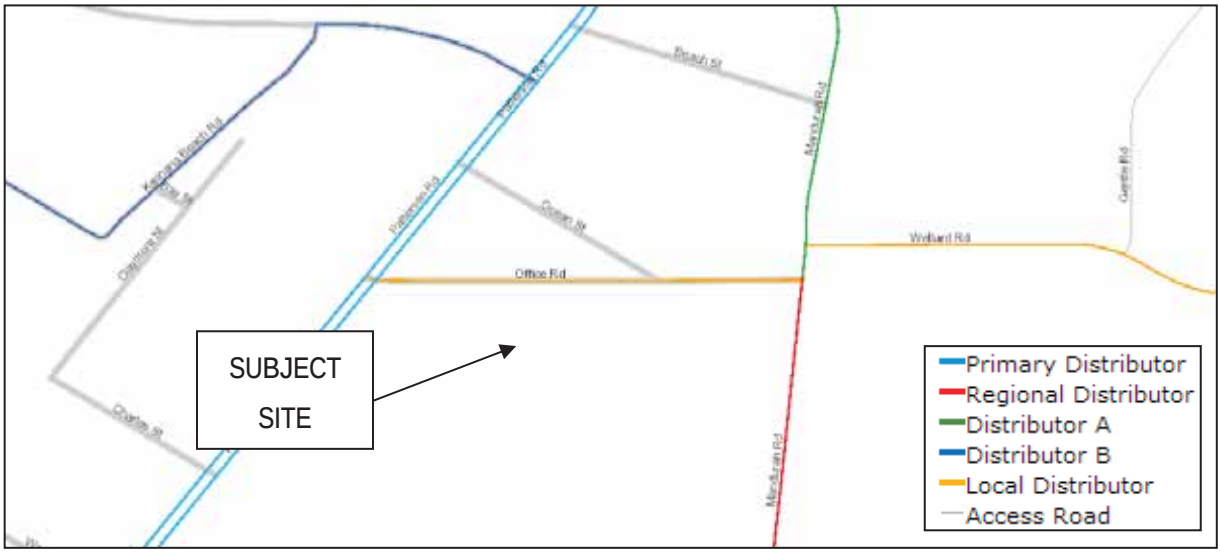


Figure 3: Main Roads WA Road Hierarchy - Local Road Network

4.5.2. Intersections

Patterson Road/Office Road

This is priority-controlled unsignalised T-intersection with Office Road as the terminating road. There is a right-

turn pocket for vehicles turning from Patterson Road onto Office Road.

Mandurah Road/Office Road

This is priority-controlled unsignalised T-intersection with Office Road as the terminating road. There is a right-turn pocket for vehicles turning from Mandurah Road onto Office Road.

4.5.3. RAV Network

Patterson Road, Mandurah Road, Ocean Street and the portion of Office Road to the east of the Summit Fertiliser driveway are Restricted Access Vehicles (RAV) Network 4 roads as illustrated in Figure 4. The Mandurah Road/Office Road intersection has the condition that restricts right-turning movements from Office Road onto Mandurah Road.

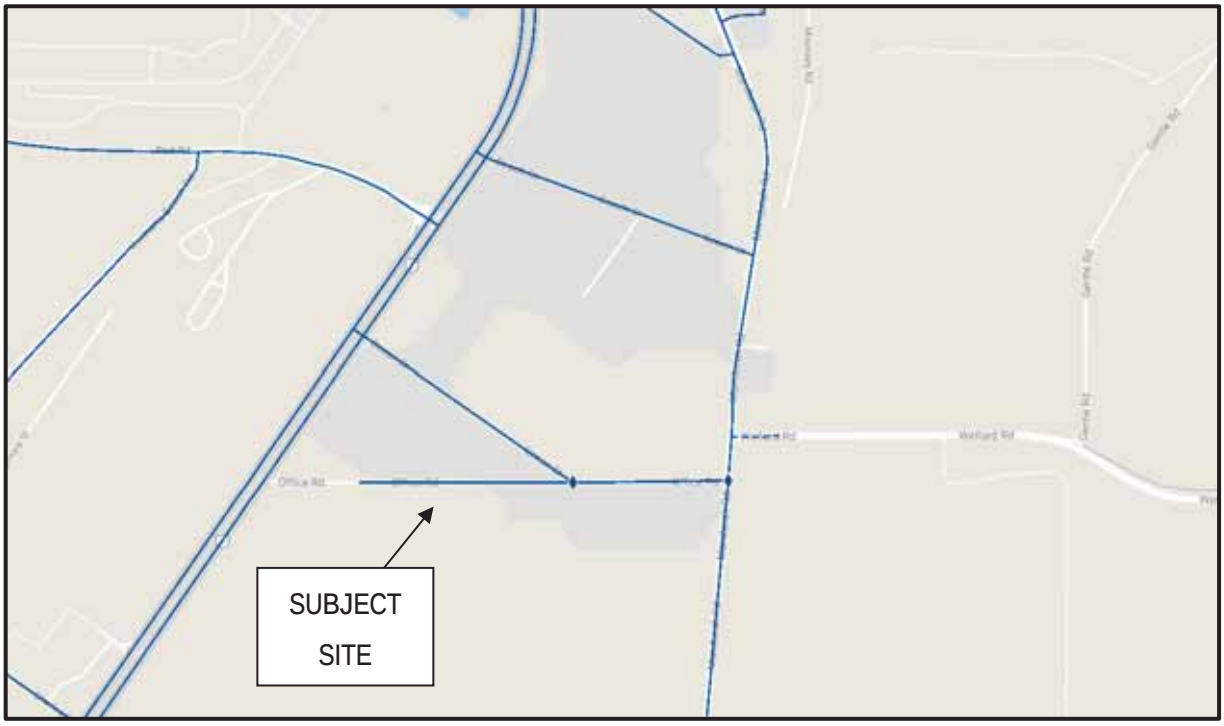


Figure 4: RAV Network 4 Roads

4.6. Existing Traffic Volumes

The latest traffic data sourced from MRWA indicates that the average existing weekday daily traffic volume is in the order of 9,917 vehicles per day (vpd) on Mandurah Road south of Office Road, 11,694 vpd on Mandurah Road north of Office Road, 4,360 vpd on Office Road and 31,391 vpd on Patterson Road south of Office Road.

Manual traffic counts were undertaken in August 2013 to determine the existing peak hour traffic movements at the Patterson Road/Office Road and the Mandurah Road/Office Road as illustrated in Figure 5 and Figure 6.

Figure 5: Patterson Road / Office Road AM & PM Peak Hour Intersection Movements

Figure 6: Mandurah / Office Road AM & PM Peak Hour Intersection Movements

4.7. Crash History

The number of crashes occurring at mid-block locations and intersections in the vicinity of the proposed development site within the five-year period ending December 2016 was sourced from the MRWA *Reporting Centre* as illustrated in Figure 7.

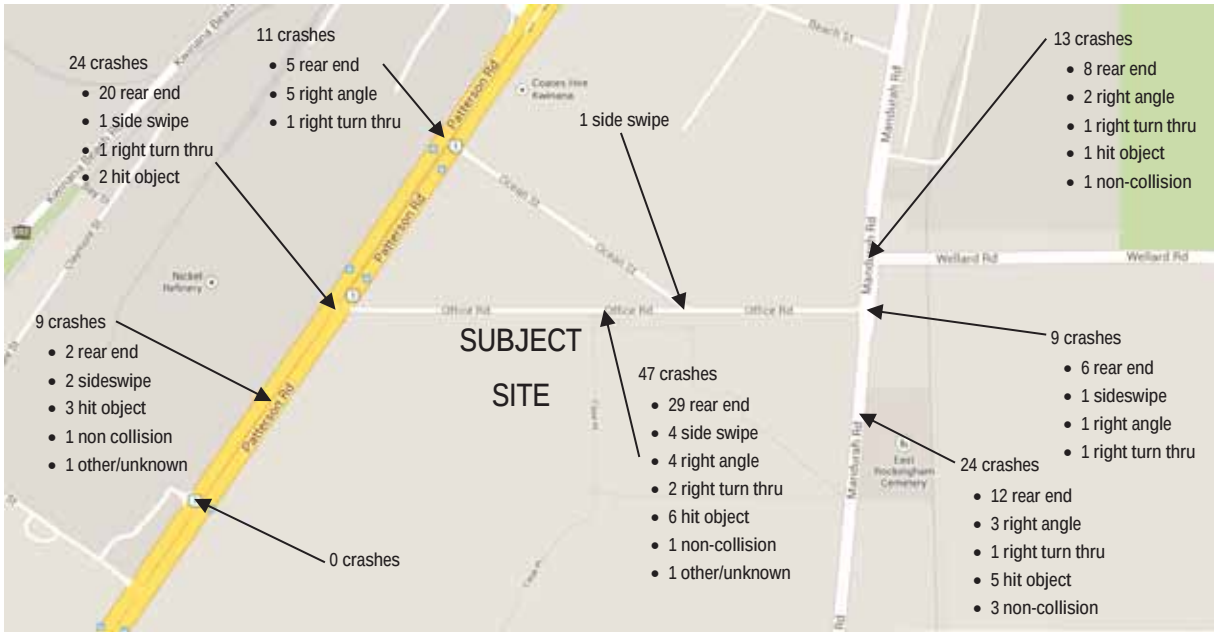


Figure 7: Crash Summary

A review of the crash history in the vicinity of the proposed operation indicates that there has been a higher than average number of rear end crashes on Patterson Road at Office Road which is under MRWA jurisdiction. The proposed number of vehicular trips generated by the proposed facility is not expected to enhance risks associated with these crashes due a proposed routing via Office Road and Ocean Road to and from Patterson Road.

5. Changes to Surrounding Transport Networks

Major changes to the surrounding transport network include the extension of Mundijong Road west of Baldivis Road to connect with Mandurah Road.

6. Traffic Generation and Distribution

6.1. Traffic Generation

Based upon discussions with the proposed operators of the facility, the proposed uses on the site will generate approximately 203 vehicular movements per day (50% inbound/50% outbound) as follows:

- 146 truck movements including:
    - 65 trucks arriving and departing each day, six days per week to deliver waste;
    - Up to 7 trucks per week to transport materials and remove gasification unit residue for disposal;
    - An estimated average rate of 1 vehicle per day entering or exiting the site while delivering chemicals; and
- 60 light vehicle movements (based on 30 full time staff during operation).

6.2. Traffic Distribution

The following assumptions have been made for the distribution of the site-generated traffic.

- All of heavy vehicle traffic will be originating from and destined to the south via Mandurah Road and Kulja Road to access Kwinana Freeway; and
- 50% of the light vehicle traffic movements originate from and are destined to the north and 50% originate from and are destined to the south;

The proposed route taken by the trucks arriving at and departing from the site is illustrated below in Figure 8. It is recommended that vehicles do not turn right from Office Road onto Patterson Road, particularly during the morning and afternoon peak hours due to the limited right-turning opportunities as a result of the high volume of through traffic on Patterson Road. This routing has been discussed at length during the last iteration with the City of Rockingham with regard to minimising the impacts at local intersections.

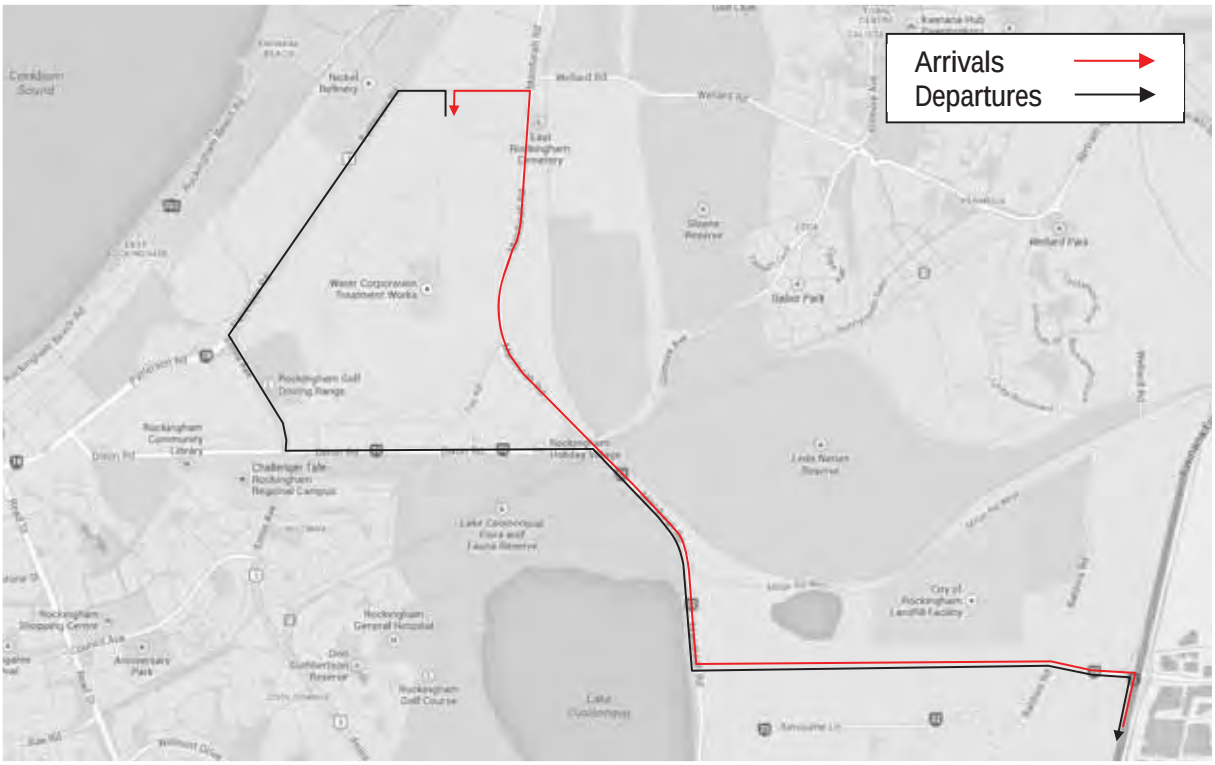


Figure 8: Recommended Truck Route To and From Proposed Development Site

The anticipated site-generated traffic was then assigned onto the boundary road network based upon the assumptions above and the resultant increases in weekday daily and peak hour traffic on the boundary roads associated with the proposed development under the 'worst case scenario' conditions are estimated as follows. It has been assumed that all light vehicle movements will occur during AM and PM peak periods.

- Office Road
    - Weekday Daily: +206 vehicular trips
    - Weekday A.M. Peak Hour: +48 vehicular trips
    - Weekday P.M. Peak Hour: +48 vehicular trips
- Patterson Road
    - Weekday Daily: +102 vehicular trips
    - Weekday A.M. Peak Hour: +24 vehicular trips
    - Weekday P.M. Peak Hour: +24 vehicular trips
- Mandurah Road
    - Weekday Daily: +102 vehicular trips
    - Weekday A.M. Peak Hour: +24 vehicular trips
    - Weekday P.M. Peak Hour: +24 vehicular trips

The anticipated increases in vehicular traffic on the boundary road network associated with the proposed development on the site can be accommodated within the existing practical capacity of the road network and is not expected to have any significant impact on the existing traffic operations of these roads.

6.3. Swept Path Analysis

A swept path analysis has been completed for the traffic distribution shown in Figure 8 indicating RAV 4 vehicles will drive over the kerb turning left out of Office Road onto Patterson Road. Further RAV Assessment is necessary to determine the requirements for the Patterson Road / Office Road intersection. The swept path analysis is provided in Appendix A.

7. Intersection Capacity Analysis

The two key intersections that are likely to be affected by the traffic associated with the proposed development are the Patterson Road/Office Road and Mandurah Road/Office Road intersections. The performance of these intersections has been analysed under the existing and post-development scenarios to determine the impact of the proposed development.

7.1. SIDRA Analysis

Analysis of the two intersections was carried out using the computer software *SIDRA Intersection 6.0*. SIDRA is a commonly used intersection modelling tool in the field of traffic engineering. Outputs for four standard measures of operation performance can be obtained, being Degree of Saturation (DoS), Average Delay, Queue Length, and Level of Service (LoS).

- Degree of Saturation is a measure of how much physical capacity is being used with reference to the full capability of the particular movement, approach, or overall intersection. A DoS of 1.0 equates to full theoretical capacity although in some instances this level is exceeded in practice. SIDRA uses maximum acceptable DoS of 0.90 for signalised intersections for its Design Life analysis. Design engineers typically set a maximum DoS threshold of 0.95 for new intersection layouts or modifications.
- Average Delay reports the average delay per vehicle in seconds experienced by all vehicles in a particular lane, approach, or for the intersection as a whole. For severely congested intersections the average delay begins to climb exponentially.
- Queue Length measures the length of approach queues. In this document we have reported queue length in terms of the length of queue at the 95th percentile (the maximum queue length that will not be exceeded for 95 percent of the time). Queue lengths provide a useful indication of the impact of signals on network performance. It also enables the traffic engineer to consider the likely impact of queues blocking back and impacting on upstream intersections and accesses.
- Level of Service is a combined appreciation of queuing incidence and delay time incurred, producing an alphanumeric ranking of A through F. A Loss of A indicates an excellent level of service whereby drivers delay is at a minimum and they clear the intersection at each change of signals or soon after arrival with little if any queuing. Values of B through D are acceptable in normal traffic conditions. Whilst values of E and F are typically considered undesirable, within central business district areas with significant vehicular and pedestrian numbers, corresponding delays/queues are unavoidable and hence, are generally accepted by road users.

The results of the SIDRA analysis under existing and proposed a.m. and p.m. weekday roadway peak hour conditions are detailed Appendix A. The results are summarised below in Table 1.

Table 1: Summary of SIDRA Results

Intersection	Peak Period	Scenario	Degree of Saturation	Average Delay (s)	Maximum Queue Length (m)	Level of Service
Patterson Road / Office Road	AM Peak	Existing	0.217	1.3	2.7	LOS B
		Future	0.217	1.3	2.7	LOS B
	PM Peak	Existing	0.511	9.3	8.7	LOS C
		Future	0.511	9.6	11.4	LOS C
Mandurah Road / Office Road	AM Peak	Existing	0.466	2.9	8.5	N/A
		Future	0.477	3.2	9.5	N/A
	PM Peak	Existing	0.443	1.8	11.6	N/A
		Future	0.444	2.0	11.7	N/A

As indicated by the above table, the changes in the expected operational performance of the affected intersections associated with the proposed development are minimal in the context of the existing performance of the boundary road network intersections. The proposed development will only have a minor impact on the existing vehicular queuing and delay at these intersections.

The turning capacity of the Patterson Road/Office Road intersection is improved by the spatial layout of the surrounding road network as well as the proximity to the upstream signalised intersections at Patterson Road/Kwinana Beach Road to the north and Patterson Road/Ennis Avenue combined with limited access points to Patterson Road to the south will induce a 'platooning' effect for both northbound and southbound traffic and hence create additional gaps to allow for ease of left-turning traffic onto Patterson Road from Office Road. It should be noted that the local boundary road network has been designed to accommodate increases in background traffic associated with increased development on the broader area over time above and beyond the site-specific traffic generated by the subject site. It should also be noted that saturation and delays generated by right turning into Office Road from Patterson Road has not been considered as the site does not generate any traffic for this manoeuvre.

8. Conclusions

Shawmac has been engaged to prepare a Transport Impact Assessment on behalf of New Energy Corporation for the proposed materials recovery facility and waste-to-energy conversion facility to be located at Lot 1 Office Road, East Rockingham, in the City of Rockingham.

A traffic generation and distribution exercise was undertaken to determine the overall traffic impacts of the proposed development on the local road network in the context of the existing practical capacity of the proposed route.

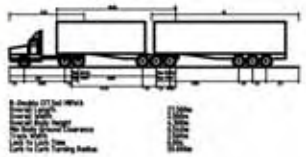
A SIDRA assessment was undertaken to determine the change in operational performance at the nearby intersections associated with the proposed uses on the site. The results of the SIDRA assessment indicate that the changes in operational performance of the Patterson Road/Office Road and Mandurah Road/Office Road intersections associated with the proposed development are minimal in the context of the existing performance of the intersections. The proposed development will only have a minor impact on the existing queuing and delay at these intersections.

An extension of the RAV 4 Network to Patterson Road to allow left turning out is required to support the development. Further RAV Assessment is necessary to determine the requirements of the Patterson Road / Office Road intersection.

The turning capacity of the Patterson Road/Office Road intersection is improved by spatial layout of the surrounding road network as well as the proximity to the upstream signalised intersections at Patterson Road/Kwinana Beach Road to the north and Patterson Road/Ennis Avenue combined with limited access points to Patterson Road to the south will induce a 'platooning' effect for both northbound and southbound traffic and hence create additional gaps to allow for ease of left-turning traffic onto Patterson Road from Office Road. It should be noted that the local boundary road network has been designed to accommodate increases in background traffic associated with increased development on the broader area over time above and beyond the site-specific traffic generated by the subject site.

In conclusion, the Transport Impact Statement has identified that with extension of the RAV Network the traffic operations of the proposed development are considered acceptable.

Appendix A: Swept Path Analysis



REV	DATE	DESCRIPTION	APPROVED
A	26.04.18	FOR INFORMATION ONLY	LD

ISSUE AND REVISION HISTORY

CLIENT: NEW ENERGY

LOCAL GOVERNMENT AUTHORITY:

SCALE @ A1: HORIZ: 1:200, VERT: 1:200

DATUM: HORIZONTAL: N/A, VERTICAL: N/A

SHAWMAC

FOR INFORMATION ONLY

DATE DRAWN	26.04.18
DESIGNED	BM
DRAWN	BM
CHECKED	LD
APPROVED	TS

LOT 1 OFFICE ROAD
PATTERSON ROAD INTERSECTION
SWEPT PATHS
B-DOUBLE 27.5M LENGTH

DRAWING NUMBER: 1308009-SK-001

REV: A

SCALE 1:200 A1

Appendix B: SIDRA Analysis Results

MOVEMENT SUMMARY

Site: 1 [Patterson Road / Office Road - Existing AM Stage 1]

Network: N101 [Patterson Road/ Office Road - Existing AM]

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
South: Minor Road (Stage 1)													
1	L2	58	0.0	58	0.0	0.063	10.0	LOS B	0.2	1.7	0.46	0.89	51.0
2	T1	13	0.0	13	0.0	0.006	8.4	LOS A	0.0	0.1	0.40	0.90	48.3
Approach		71	0.0	71	0.0	0.063	9.7	LOS A	0.2	1.7	0.45	0.89	50.7
East: Major Road East													
4	L2	3	0.0	3	0.0	0.217	5.6	LOS A	0.0	0.0	0.00	0.00	58.3
5	T1	841	0.0	841	0.0	0.217	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		844	0.0	844	0.0	0.217	0.0	NA	0.0	0.0	0.00	0.00	59.9
North: Median Storage Area													
8	T1	59	0.0	59	0.0	0.112	9.3	LOS A	0.4	2.7	0.63	1.07	45.6
Approach		59	0.0	59	0.0	0.112	9.3	LOS A	0.4	2.7	0.63	1.07	45.6
All Vehicles		974	0.0	974	0.0	0.217	1.3	NA	0.4	2.7	0.07	0.13	58.6

MOVEMENT SUMMARY

Site: 1 [Patterson Road / Office Road - Future AM Stage 1]

Network: N101 [Patterson Road/ Office Road - Future AM]

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
South: Minor Road (Stage 1)													
1	L2	58	0.0	58	0.0	0.063	10.0	LOS B	0.2	1.7	0.46	0.89	51.0
2	T1	13	0.0	13	0.0	0.006	8.4	LOS A	0.0	0.1	0.40	0.90	48.3
Approach		71	0.0	71	0.0	0.063	9.7	LOS A	0.2	1.7	0.45	0.89	50.7
East: Major Road East													
4	L2	3	0.0	3	0.0	0.217	5.6	LOS A	0.0	0.0	0.00	0.00	58.3
5	T1	841	0.0	841	0.0	0.217	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		844	0.0	844	0.0	0.217	0.0	NA	0.0	0.0	0.00	0.00	59.9
North: Median Storage Area													
8	T1	59	0.0	59	0.0	0.112	9.3	LOS A	0.4	2.7	0.63	1.07	45.6
Approach		59	0.0	59	0.0	0.112	9.3	LOS A	0.4	2.7	0.63	1.07	45.6
All Vehicles		974	0.0	974	0.0	0.217	1.3	NA	0.4	2.7	0.07	0.13	58.6

MOVEMENT SUMMARY

Site: 1 [Patterson Road / Office Road - Existing PM Stage 1]

Network: N101 [Patterson Road/ Office Road - Existing PM]

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Minor Road (Stage 1)													
1	L2	113	0.0	113	0.0	0.318	19.6	LOS C	1.2	8.7	0.82	1.04	45.4
2	T1	6	0.0	6	0.0	0.007	10.9	LOS B	0.0	0.2	0.72	0.94	46.1
Approach		119	0.0	119	0.0	0.318	19.2	LOS C	1.2	8.7	0.81	1.04	45.4
East: Major Road East													
4	L2	4	0.0	4	0.0	0.511	5.6	LOS A	0.0	0.0	0.00	0.00	58.2
5	T1	1989	0.0	1989	0.0	0.511	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		1994	0.0	1994	0.0	0.511	0.1	NA	0.0	0.0	0.00	0.00	59.8
North: Median Storage Area													
8	T1	114	0.0	114	0.0	2.088	1050.6	LOS F	2.5	17.4	1.00	2.75	1.7
Approach		114	0.0	114	0.0	2.088	1050.6	LOS F	2.5	17.4	1.00	2.75	1.7
All Vehicles		2226	0.0	2226	0.0	2.088	54.8	NA	2.5	17.4	0.09	0.20	30.7

MOVEMENT SUMMARY

Site: 1 [Patterson Road / Office Road - Future PM Stage 1]

Network: N101 [Patterson Road/ Office Road - Future PM]

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Minor Road (Stage 1)													
1	L2	139	0.0	139	0.0	0.392	20.6	LOS C	1.6	11.4	0.83	1.07	44.8
2	T1	6	0.0	6	0.0	0.007	10.9	LOS B	0.0	0.2	0.72	0.94	46.1
Approach		145	0.0	145	0.0	0.392	20.2	LOS C	1.6	11.4	0.83	1.06	44.9
East: Major Road East													
4	L2	4	0.0	4	0.0	0.511	5.6	LOS A	0.0	0.0	0.00	0.00	58.2
5	T1	1989	0.0	1989	0.0	0.511	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		1994	0.0	1994	0.0	0.511	0.1	NA	0.0	0.0	0.00	0.00	59.8
North: Median Storage Area													
8	T1	114	0.0	114	0.0	2.088	1050.6	LOS F	2.5	17.4	1.00	2.75	1.7
Approach		114	0.0	114	0.0	2.088	1050.6	LOS F	2.5	17.4	1.00	2.75	1.7
All Vehicles		2253	0.0	2253	0.0	2.088	54.4	NA	2.5	17.4	0.10	0.21	30.8

MOVEMENT SUMMARY

Site: 1 [Mandurah Road/Office Road - Existing A.M.]

Existing A.M.
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mandurah Northbound											
1	L2	69	0.0	0.466	5.6	LOS A	0.0	0.0	0.00	0.05	57.9
2	T1	836	0.0	0.466	0.1	LOS A	0.0	0.0	0.00	0.05	59.4
Approach		905	0.0	0.466	0.5	NA	0.0	0.0	0.00	0.05	59.3
North: Mandurah Road Southbound											
8	T1	159	0.0	0.221	2.7	LOS A	1.2	8.5	0.34	0.25	56.0
9	R2	105	0.0	0.221	11.9	LOS B	1.2	8.5	0.73	0.53	50.5
Approach		264	0.0	0.221	6.4	NA	1.2	8.5	0.49	0.36	53.7
West: Office Road											
10	L2	96	0.0	0.078	6.3	LOS A	0.1	0.8	0.26	0.66	52.8
12	R2	12	0.0	0.010	9.5	LOS A	0.1	0.4	0.79	0.67	50.2
Approach		107	0.0	0.078	6.7	LOS A	0.1	0.8	0.32	0.66	52.5
All Vehicles		1277	0.0	0.466	2.2	NA	1.2	8.5	0.13	0.16	57.4

MOVEMENT SUMMARY

Site: 1 [Mandurah Road/Office Road - Future A.M.]

Existing A.M.
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mandurah Northbound											
1	L2	96	0.0	0.480	5.6	LOS A	0.0	0.0	0.00	0.06	57.7
2	T1	836	0.0	0.480	0.1	LOS A	0.0	0.0	0.00	0.06	59.3
Approach		932	0.0	0.480	0.6	NA	0.0	0.0	0.00	0.06	59.1
North: Mandurah Road Southbound											
8	T1	169	0.0	0.257	2.8	LOS A	1.4	10.0	0.31	0.24	56.0
9	R2	121	0.0	0.257	12.6	LOS B	1.4	10.0	0.76	0.59	49.7
Approach		291	0.0	0.257	6.9	NA	1.4	10.0	0.50	0.39	53.2
West: Office Road											
10	L2	96	0.0	0.078	6.3	LOS A	0.1	0.8	0.26	0.66	52.8
12	R2	12	0.0	0.011	9.7	LOS A	0.1	0.4	0.80	0.68	50.0
Approach		107	0.0	0.078	6.7	LOS A	0.1	0.8	0.32	0.66	52.5
All Vehicles		1329	0.0	0.480	2.5	NA	1.4	10.0	0.14	0.18	57.2

MOVEMENT SUMMARY

▽ Site: 1 [Mandurah Road/Office Road - Existing P.M.]

Existing P.M.
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mandurah Northbound											
1	L2	8	0.0	0.141	5.6	LOS A	0.0	0.0	0.00	0.02	58.2
2	T1	265	0.0	0.141	0.0	LOS A	0.0	0.0	0.00	0.02	59.8
Approach		274	0.0	0.141	0.2	NA	0.0	0.0	0.00	0.02	59.8
North: Mandurah Road Southbound											
8	T1	849	0.0	0.443	0.4	LOS A	1.7	11.6	0.16	0.08	58.6
9	R2	131	0.0	0.443	7.2	LOS A	1.7	11.6	0.20	0.10	56.5
Approach		980	0.0	0.443	1.3	NA	1.7	11.6	0.16	0.08	58.3
West: Office Road											
10	L2	181	0.0	0.119	5.8	LOS A	0.2	1.1	0.12	0.58	53.3
12	R2	32	0.0	0.031	10.2	LOS B	0.2	1.3	0.81	0.75	49.7
Approach		213	0.0	0.119	6.4	LOS A	0.2	1.3	0.22	0.61	52.7
All Vehicles		1466	0.0	0.443	1.8	NA	1.7	11.6	0.14	0.15	57.7

MOVEMENT SUMMARY

▽ Site: 1 [Mandurah Road/Office Road - Future P.M.]

Existing P.M.
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mandurah Northbound											
1	L2	19	0.0	0.146	5.6	LOS A	0.0	0.0	0.00	0.04	58.0
2	T1	265	0.0	0.146	0.0	LOS A	0.0	0.0	0.00	0.04	59.6
Approach		284	0.0	0.146	0.4	NA	0.0	0.0	0.00	0.04	59.5
North: Mandurah Road Southbound											
8	T1	860	0.0	0.449	0.4	LOS A	1.7	12.1	0.16	0.08	58.6
9	R2	131	0.0	0.449	7.3	LOS A	1.7	12.1	0.20	0.10	56.5
Approach		991	0.0	0.449	1.3	NA	1.7	12.1	0.17	0.08	58.3
West: Office Road											
10	L2	197	0.0	0.129	5.8	LOS A	0.2	1.3	0.12	0.59	53.2
12	R2	47	0.0	0.046	10.4	LOS B	0.3	1.9	0.81	0.78	49.6
Approach		244	0.0	0.129	6.7	LOS A	0.3	1.9	0.25	0.62	52.5
All Vehicles		1519	0.0	0.449	2.0	NA	1.7	12.1	0.15	0.16	57.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.9 %
Number of Iterations: 7 (maximum specified: 10)

BUSHFIRE PRONE PLANNING

Bushfire Emergency Plan

Prepare | Monitor | Respond

Lot 1 (#26) Office Road, East Rockingham

City of Rockingham

Associated Bushfire Management Plan	Ref No. 180203
Date Created:	4 May 2018

This document has been prepared by:

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Disclaimer

The measures contained in this Bushfire Emergency Plan are considered to be minimum standards and they do not guarantee that a building will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions. Additionally, the correct implementation of the required bushfire protection measures and the required monitoring and response set out in any associated Bushfire Emergency Plan (if applicable), will depend, among other things, on the actions of the landowners or occupiers over which Bushfire Prone Planning has no control.

All surveys, forecasts, projections and recommendations made in this report associated with the project are made in good faith based on information available to Bushfire Prone Planning at the time. All maps included herein are indicative in nature and are not to be used for accurate calculations.

Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents - arising out of the services provided by their consultants.

Persons who will be present within this property/facility are deemed as vulnerable. Theses persons will include those who are less able to respond in a bushfire emergency due to:

- Not being familiar with their surroundings and will require assistance or direction in the event of a bushfire; and/or
- Reduced physical ability: or

State Planning Policy 3.7 establishes that a Bushfire Emergency Plan is to be prepared for such vulnerable land uses at the development application stage.

This Bushfire Emergency Plan provides clear information, tools and directions for responsible persons and occupants/visitors to the facility:

- To prepare the facility and occupants for a bushfire event;
- To monitor weather and emergency services information during the bushfire season;
- To monitor the position and development of a bushfire potentially impacting the property;
- To monitor whom is present on the property and within the facility;
- To direct the appropriate responses including the early evacuation from the site or refuge onsite.

Emphasis is on the safety of lives over preservation of property.

Guidance provided is based on information easily obtained and aims to incorporate a high margin of safety in the timing of response actions.

Document Control

Document:	Bushfire Emergency Plan – Prepare | Monitor | Respond	
Compliance Statement:	*The content of this Bushfire Emergency Plan (the Plan) complies with the requirements established by State Planning Policy No. 3.7: Planning in Bushfire Prone Areas - December 2015 (SPP 3.7) and the associated Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 (the Guidelines), Section 5.5.2.*	
Reference:	Associated Bushfire Management Plan	Ref No: **180203**
Plan Version:	**v1.0**	**Submitted:** 4 May 2018
Amendment:		
Plan Version:		
Amendment:		
Plan Version:		
Author:	**Ian Macleod**	
	Level 1 BAL Assessor	Accreditation: BPAD39131
	BPP Group Pty Ltd TA Bushfire Prone Planning ACN: 39 166 551 784	
	Signature: 	
Reviewed:	**Kathy Nastov**	
	Level 3 Bushfire Planning and Design Practitioner	Accreditation: BPAD27794
	BPP Group Pty Ltd TA Bushfire Prone Planning ACN: 39 166 551 784	
	Signature: 	

BPP Bushfire Emergency Plan Template No 1 v9.0

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The Bushfire Emergency Plan – Structure and Use

For functionality during a potentially stressful event, this document is structured into six sections of which only Section 5 is essential as an operational document during the bushfire season.

Therefore, Section 5 is separable as a standalone document for the use of the nominated onsite responsible persons.

Section 1:	**Site and Facility Information**
	The content of this section is not required for the daily operation of this Bushfire Emergency Plan during the bushfire season. It is used to develop the Bushfire Emergency Plan.
Section 2:	**Maintaining Operational Compliance**
	The content of this section is not required for the daily operation of this Bushfire Emergency Plan during the bushfire season. It is used for pre-bushfire season preparation and compliance.
Section 3:	**Prepare – Property | Facility | Staff**
	The content of this section is primarily directed at pre-bushfire season preparation procedures; BUT It is also used as a reference checklist to confirm maintenance of requirements during the bushfire season.
Section 4:	**Monitor - Observe | Check | Record**
	The content of this section is not required for the daily operation of this Bushfire Emergency Plan during the bushfire season. It provides monitoring information and recording resources. Where parts of this section are required as part of an operational document for use during the bushfire season, they have been included in Section 5.
Section 5:	**Respond – Maps | Actions | Site Operations | Evacuate | Shelter**
Important	***The content of this section is to function as a standalone operational document for use during the bushfire season by the relevant responsible persons onsite.***
Section 6:	**Annexed Additional Resources**
	The content of this section is not required for the daily operation of this Bushfire Emergency Plan during the bushfire season.

Section 1:	Site and Facility Information
Purpose:	This section provides specific details of the property, its uses, the types of persons who will be present and the structures onsite. The information has been used to develop this Bushfire Emergency Plan specifically for the described property. The content of this section is not required for the daily operation of this Bushfire Emergency Plan during the bushfire season.
	Section Content:
	Site Information – Location | Water Supply
	Facility Information - Use | Occupants | Assets
	Facility Information – Emergency Locations - Assembly | Refuge | Evacuation
	Notes:
	Use to make notes of required or suggested changes or additions to procedures or resources associated with this section. These are to be considered at the next review and amendment of this Bushfire Emergency Plan.

1.1 Site Location | Water Supply

Property:	**Lot 1 (#26) Office Road, East Rockingham, 6168.**
Property Size:	10 ha
Onsite vegetation:	Shrubland and scrub with grassy understorey, narrow strip of woodland along road boundary.
Offsite vegetation:	Shrubland and scrub with grassy understorey, narrow strip of woodland along road boundary.
Nearest Road:	Office Road
Nearest Cross Road:	**Name:** Patterson Road
	Distance: 460m from entry to Administration Building
Nearest Significant Townsite:	**Name:** Suburb of Calista in the City of Kwinana
	Distance: 2.7 km
Access & Egress Routes:	East or West along Office Road
Water Supply:	Internal:- Fire water tank and fire hydrants at a maximum spacing of 100m External:- Multiple fire hydrants along the north side of Office Road

1.2 Facility Use | Occupants | Assets

Description of Use:	Waste to energy facility – 24hr/day and 7days/week operation	
Onsite Caretaker:	Site occupied at all times	
Staff Onsite:	Maximum No: 30	Maximum Hrs/Day: 24hr/day
Trucks Onsite:	Maximum No: 4	Maximum Hrs/Day: 24hr/day
Visitors Onsite:	Maximum No: 20	
Total Maximum People Onsite	Maximum No: 54	
Specific Vulnerable Persons:	Persons who are mobile and meet the definition of visitors who are using services provided on the site. This can include children and persons with disability (who will have their own means of mobility) These persons will most likely not be familiar with their surroundings and will require direction in the event of a bushfire.	
Onsite Assets:	Waste to Energy Complex and associated infrastructure	

1.3 Facility Emergency Locations - Assembly | Evacuation | Refuge

Nominated Emergency Assembly Location: Refer to Site Map (Section 5)	Administration Building The location is identified on the Site Map (contained in Section 5).
Nominated Emergency Refuge Location: Refer to Site Map (Section 5)	Administration Building The location is identified on the Site Map (contained in Section 5).
Proposed Method of Moving Occupants to Safe Location/s:	In vehicles via the identified evacuation routes.
Identified Sources of Emergency Evacuation Transport:	All persons on site (staff, guests, visitors) will use the vehicles they arrived on site in. It can be reasonably expected that excess capacity will exist in many vehicles.
Identified Evacuation Route 1: Refer to Response Zones Map (Section 5)	**Destination: South - Rockingham Township** On Office Road travel west to Patterson Road, then Travel south-west along Patterson Road, to Rockingham Township.
Identified Evacuation Route 2: Refer to Response Zones Map (Section 5)	**Destination: East – Kwinana Town Centre** On Office Road travel east to Mandurah Road, then Travel north to Wellard Road, then Travel east along Wellard Road to Gilmore Avenue, then Travel north along Gilmore Avenue to Kwinana Town Centre
Identified Evacuation Route 3: Refer to Response Zones Map (Section 5)	**Destination: South – Alternative Route Rockingham Township** On Office Road travel west to Patterson Road, then Travel north-east to Kwinana Beach Road. then Follow Kwinana Beach Road (which becomes Rockingham Beach Road) west and south-west to Rockingham Township

Section 2: Maintaining Operational Compliance

Purpose:

This section provides:

- The actionable requirements that are essential to the effective operation of the Plan;
- A place for the meeting of the requirements to be recorded; and
- The review and update requirements that must be met for the Plan to remain current over time.

The content of this section is not required for the daily operation of this Bushfire Emergency Plan during the bushfire season. It is used for pre-bushfire season preparation and compliance.

Section 2 Content:
Storage | Display - Locations for the Bushfire Emergency Plan
Staff Training | Staff Responsibilities | Emergency Contacts
Site Map | Bushfire Response Zones Map
Bushfire Emergency Plan - Review | Update | Amend
Associated Content Contained within Section 5
The Site and Bushfire Response Zones Maps
The List of Responsible Persons on Site (for bushfire preparedness and response)
The List of Emergency Contacts
Notes:
Use to make notes of required or suggested changes or additions to procedures or resources associated with this section. These are to be considered at the next review and amendment of this Bushfire Emergency Plan.

2.1 Bushfire Emergency Plan - Location | Availability | Display | Supplies

In the event of any part of this Bushfire Emergency Plan is amended, including as part of its annual review, replace old copies and destroy them.

Administration Building (Nominated Assembly/Refuge Building)	
Available	Complete copy (Sections 1-6) of the most recent version of the Bushfire Emergency Plan. To be maintained with the Site Operational Guide | Policies and Procedures
	Separated Section 5 – the Bushfire Season Operational Emergency Plan (plus extra copy for the nominated Fire Warden if they are not the manager)
Displayed	Site Map; Bushfire Response Zones Map; Emergency Contacts; Responsible Persons on Site List
Supplies	Persons in Refuge Log sheets
Control Room/Visitors Centre	
Available	Separated Section 5 – the Bushfire Season Operational Emergency Plan
Displayed	Site Map; Bushfire Response Zones Map; Emergency Contacts List; Responsible Persons on Site List
Workshop	
Available	Separated Section 5 – the Bushfire Season Operational Emergency Plan. Keep near displayed information
Displayed	Site Map; Bushfire Response Zones Map; Emergency Contacts List; Responsible Persons on Site List

2.2 Staff Training | Responsibilities | Emergency Contacts

Prior to the start of the bushfire season:
All new staff to complete mandatory training in the procedures and awareness of both the Bushfire Management Plan and the Bushfire Emergency Plan.
Update Emergency Contacts List (template in Section 5)
Update the Responsible Persons on Site List (template in Section 5). Ensure all responsible persons are aware of their role.
Conduct simulation drills for assembly, evacuation and taking refuge procedures.
During the bushfire season:
Ensure sufficient daily rostered staffs are trained and hold current Senior First Aid Certification.

Date	Person Responsible	Signature When Completed

2.3 Occupants/Visitors – Onsite Numbers Log

Purpose: To help ensure persons onsite will be informed if any warning, alert or order is to be given and to ensure adequate transport is available (if applicable).

Action: Develop and maintain, prior to occupation and commencement of operations, a process to:

1. Record the number of persons known to be onsite (not visitors) on a "relevant" day and their likely location within the facility (refer to Section 4.4);
2. Assign the task of entering the required data to a responsible person;
3. Ensure there is a hardcopy version in case there is a power failure; and
4. Make the log readily available to the Fire Warden and other responsible persons onsite

This process might be hardcopy based or an electronic process e.g. combined with a booking system).

Date	Person Responsible	Signature When Completed

2.4 Persons in Refuge Log

Purpose: Information that can be provided to Emergency Services personnel for tracking and safety reporting.

Action: Develop, prior to occupation and commencement of operations, a 'Persons in Refuge Log' sheets/booklet to record persons within the refuge building during a bushfire event.

Assign the person who will be responsible for compiling the log.

Date	Person Responsible	Signature When Completed

2.5 Site Map | Response Zones Map

The Site Map and Bushfire Response Zones Map (defined in Section 4.2 and contained Section 5 are to be available and displayed as established in Section 2.1.

Emergency Assembly/Refuge Building:	Location must be clearly identified on the Site Map.
All Other Buildings:	Existing locations and proposed buildings must be identified on the Site Map. Future buildings must be identified on a revised Site Map.
Roads/paths within the Site:	Must be identified on the Site Map
Nearest Crossroads	Must be clearly identified on the Bushfire Response Zones Map.
Evacuation Routes and Destinations:	Must be clearly identified on the Bushfire Response Zones Map.
Bushfire Awareness Zone:	Must be clearly identified on the Bushfire Response Zones Map.
Bushfire Evacuation Zone:	Must be clearly identified on the Bushfire Response Zones Map.

Date	Person Responsible	Signature When Completed

2.6 Completion of Seasonal Site Preparation Procedures

Section 3.1 sets out the Seasonal Site Preparation Procedures.

Prior to the start of each bushfire season:
Complete all required procedures.
During the bushfire season:
Continue to maintain the site in the required condition. As seasonal preparation and maintenance is carried out, make notes within Section 3.1 of this Plan regarding any amendments or improvements that may be required to be made to the procedures.

Date	Person Responsible	Signature When Completed

2.7 Completion of Seasonal Facility Preparation Procedures

Section 3.2 sets out the Seasonal Site Preparation Procedures.

Prior to the start of each bushfire season:
Complete all required procedures.
During the bushfire season:
Continue to maintain the site in the required condition. As seasonal preparation and maintenance is carried out, make notes within Section 3.2 of this Plan regarding any amendments or improvements that may be required to be made to the procedures.

Date	Person Responsible	Signature When Completed

2.8 Bushfire Emergency Plan - Review | Update | Amend

Encourage staff participation at each review and promote awareness of the obligation to operate and maintain a safe environment for all guests and the surrounding local community.

Prior to the start of each bushfire season:

Update and amend the Bushfire Emergency Plan as required with consideration of, but not limited to, the below points (assistance from a bushfire consultant may be required):

- Any notes (issues/suggestions) made in the Plan during the bushfire season;
- Any changes in responsible persons details;
- Any changes to evacuation routes or refuges;
- Any changes in primary bushfire information or assistance sources;
- Any changes to the built environment or equipment on site; and
- Any changes in best practice protection measures that are developed over time.

During the bushfire season:

As seasonal preparation and daily monitoring is carried out, make notes within the relevant section of this Plan regarding any amendments or improvements that may be required to be made to the Bushfire Emergency Plan.

After a bushfire event requiring the activation of the response measures:

Assess the outcomes and make notes within the relevant section of this Plan regarding any amendments or improvements that may be required to be made to the Bushfire Emergency Plan.

Date	Person Responsible	Signature When Completed

Section 3: Preparation – Property | Facility – Before & During Bushfire Season

Purpose:

The content of this section is primarily directed at pre-bushfire season preparation procedures.

It is also used as a reference checklist to confirm maintenance of requirements during the bushfire season.

Section Content:

Seasonal Site Preparedness Procedures

Seasonal Facility Preparedness Procedures

Notes:

Use to make notes of required or suggested changes or additions to procedures or resources associated with this section. These are to be considered at the next review and amendment of this Bushfire Emergency Plan.

Note:

It is Important that those nominated as responsible for seasonal site and facility preparedness procedures do not consider this list as complete.

Any item, feature or appliance onsite perceived to present a potential fire threat should be dealt with and reported on, to allow these procedures to be updated.

3.1 Seasonal Site Preparedness Procedures

This section addresses the required management of onsite combustible vegetative materials. These conditions must be established prior to the bushfire season and maintained during the season. The most significant requirements are stated on this page for easy reference

It is Important that those deemed responsible for seasonal site preparedness procedures do not consider this list as complete. Any item, feature or appliance onsite perceived to present a risk should be tended to and reported on, to allow these measures to be updated.

Maintain Asset Protection Zones (APZ) around all buildings and landscaping onsite in accordance with the associated Bushfire Management Plan (BMP) which will establish any specific requirements for this site that are additional to those in the 'Guidelines' or Firebreak Notice (see below).
The minimum general requirements are established by the most current version of the Guidelines for Planning in Bushfire Prone Areas Appendix 4 Schedule 1 'Standards for Asset Protection Zones' (WAPC).
Maintain compliance with the local government's annual firebreak notice issued under section 33 of the Bush Fires Act 1954. This may require the implementation of standards greater than those contained in the 'Guidelines'.
Trim all grasses to a height no greater than 50mm across the entire site. Unless lawns are under irrigation.
Trim back branches, trees or limbs overhanging firebreaks or driveways to a minimum height of 4.5 metres from ground level.
Trim back branches, trees, limbs and any shrub to maintain a 6 metre wide carriageway clearance along all driveways.
Remove any debris build up from any terrace, pathway, driveway (or other hardstand surfaces), any table drain, culvert or drainage pits.
Ensure combustible dead vegetation matter less than 6 mm in thickness is reduced to and maintained at an average of 2 tonnes per hectare (or less).
Clear all roofs, roof gutters and valleys of any debris build up.
Remove any fuel build up in garden bedding and under hedge lines.
Ensure removal from site or composting of any refuse vegetation materials.
Heavy (or coarse) fuels (i.e. greater than 6mm in diameter) including timber, branches, logs and stumps, shall be excluded from areas under or adjacent to buildings to a distance of at least 4m (measured in plan).

3.2 Seasonal Facility Preparedness Procedures

This section addresses the required management of relevant aspects of the facilities infrastructure and any heavy fuel items as noted. These conditions must be established prior to the bushfire season and maintained during the season.

It is Important that those deemed responsible for facility preparedness procedures do not consider this list as complete. Any item, feature or appliance onsite perceived to present a risk should be tended to and reported on, to allow these measures to be updated.

Ensure hazard reduction procedures are continuous and complete.
Confirm all pipework and sprinkler heads serving the irrigation zones within the designated APZ's are functioning and providing sufficient flow of water to lawns, grassed and garden areas.
Ensure all driveways and turning areas for emergency services are maintained in accordance with the Standards (Appendix 5 of the Bushfire Management Plan - 'Vehicular Access').
Confirm all Emergency Signage and Notices are in place and legible.
Confirm all pathway lighting and signage lighting is fully functional.
Ensure all installed firefighting appliances including hydrants, water storage tanks, valves, fire hose reels & fire extinguishers are serviced and correctly located.
Ensure all gas bottles are securely tethered to ensure stability, and that pressure release valves face away from any near buildings.
Consult the Building & Machinery Maintenance Schedules within the Sites Operational Guide / Policies and Procedures. Check that regular maintenance of buildings and equipment is up to date, and if required, immediately engage workmen to perform maintenance or do repairs.

Section 4: Monitor - Observe | Forecasts | Record

Purpose:

The content of this section is not required for the daily operation of this Bushfire Emergency Plan during the bushfire season. It provides bushfire information monitoring sources and recording resources.

This section establishes:

- The sources of bushfire information that are to be monitored;
- The Bushfire Response Zones (Awareness and Evacuation);

To monitor (observe and check) weather and emergency services information during the bushfire season and monitor the position and development of a bushfire potentially impacting the property. To monitor whom is present on the property and within the facility. Where parts of this section are required as part of an operational document for use during the bushfire season, they have been included in Section 5.

Section Content:
Bushfire Information Sources
Description and Use of the Bushfire Response Zones Map (Monitoring)
Understanding Fire Danger Ratings
Persons in Refuge Log – Record Template

Associated Content Contained within Section 5
Response Sheet 1 - Bushfire Information to Monitor
The Bushfire Response Zones Map

Notes:
Use to make notes of required or suggested changes or additions to procedures or resources associated with this section. These are to be considered at the next review and amendment of this Bushfire Emergency Plan.

4.1 Bushfire Information Sources - Monitor

Emergency WA	Monitor for: • Fire Danger Ratings • Incidents |Locations |Advice | Warnings Website: www.emergency.wa.gov.au
ABC Local Radio	Monitor for bushfire advice, warnings
Emergency Alert	Monitor your mobile phone. Government authority telephone warning system.
Bureau of Meteorology	Monitor for: • Weather Forecasts • Fire Danger Ratings Website: www.bom.gov.au/wa/forecasts

4.2 Bushfire Response Zones Map

The Bushfire Response Zones Map (contained in Section 5) identifies the two bushfire response zones and the safe evacuation routes from the subject property.

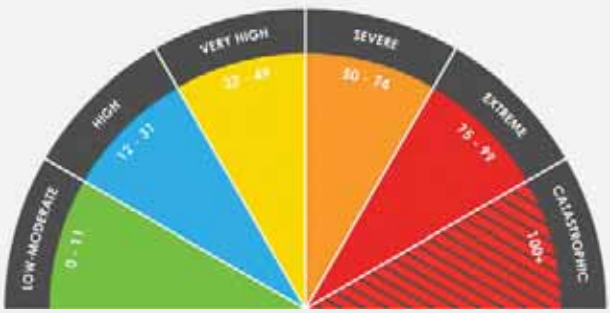
The dimensions of the bushfire response zones have been determined with consideration of:

- The site's situation in the broader landscape, including the wider road network, proximity of settlements, extents of vegetated areas, distances to safe areas, population density of the surrounding area, the numbers and mobility of occupants onsite, the likelihood of being able to receive accurate and timely bushfire information;
- The potential rate of spread of a fire in the surrounding vegetation (the key factors being the type and structure of vegetation that is present and the topography of the area); and
- Incorporating the knowledge and practical experience of a BPAD Level 3 accredited bushfire practitioner in determining the appropriate length of time required for assessment and implementing the required responses.

Bushfire Awareness Zone	The Bushfire Awareness Zone defines the area surrounding the facility site within which you must: • Be aware of the existence and, to the best extent possible, the location and movement of a bushfire; and • Confirm that the required seasonal site and facility preparation has been completed and monitor the bushfire progress.
Bushfire Evacuation Zone	The Bushfire Evacuation Zone defines the area surrounding the facility site within which, if a bushfire is present, the focus must be on executing an early and safe evacuation of visitors and non-essential staff. If it is determined that all evacuation routes are currently or imminently impacted by the bushfire, assembly and refuge onsite is required.

4.3 Understanding Fire Danger Ratings

Fire Danger Ratings: What They Mean



The Fire Danger Ratings apply to a given range of fire danger indices (the numbers in the above diagram) that are calculated from information relating to the moisture content of fuels, fire weather and drought effects.

While a bushfire can occur at any time of year, within a range of conditions, under certain conditions the likelihood and potential threat and impact of a bushfire is significantly greater.

As the Fire Danger Rating increases it becomes increasingly important that any bushfire is identified, its movement monitored, and the appropriate responses identified.

Catastrophic

The worst conditions for a bush or grass fire.

If a fire starts and takes hold, it will be extremely difficult to control and will take significant firefighting resources and cooler conditions to bring it under control.

Spot fires will start ahead of the main fire and cause rapid spread of the fire. Embers will come from many directions.

Extreme or Severe

Very hot, dry and windy conditions for a bush or grass fire.

If a fire starts and takes hold, it will be unpredictable, move very fast and difficult for firefighters to bring under control.

Spot fires will start and move quickly. Embers may come from many directions.

Very High

Hot, dry and possibly windy conditions for a bush or grass fire.

If a fire starts and takes hold, it may be hard for firefighters to control.

High or Low-Moderate

If a fire starts, it is likely to be controlled in these conditions.

Be aware of how fires can start and reduce the risk.

4.4 Persons in Refuge Log – Record Template

This logging must be actioned in if persons are required to move into the Emergency Refuge Building

Its purpose is to allow details to be given to Emergency Services personnel for tracking and safety reporting.

Print and locate copies as directed in Section 2.1 **Date:**

Name:	Mobile:		

Section 5 of the Bushfire Emergency Plan

The Operational Component for Use During the Bushfire Season

Lot 1 (#26) Office Road, East Rockingham

City of Rockingham

Associated Bushfire Management Plan	Ref No. 180203
Date Created:	30 April 2018

Section 5: Respond – Maps | Actions | Site Operations | Evacuate | Shelter

Purpose:

This section has been constructed so that it contains all the necessary information to enable it to be separated from the complete Bushfire Emergency Plan and function as:

The Operational Component of the Bushfire Emergency Plan

(For Use During the Bushfire Season)

A standalone printed operational document for the use by the relevant responsible persons on site.

Section Content:

Site and Response Zone Maps

Response Sheets

- Required daily actions in bushfire season – dependant on Fire Danger Rating;
- Required actions when a bushfire is identified; and
- Required actions when evacuating or sheltering onsite

Elevated Threat Preparedness Procedures

- On days with forecast Very High to Catastrophic Fire Danger Ratings; and
- When a bushfire is identified

Contact Details

- In Case of Emergency
- Responsible Persons on Site

Notes:

Use to make notes of required or suggested changes or additions to procedures or resources associated with this section. These are to be considered at the next review and amendment of this Bushfire Emergency Plan.

Site Response Map

EVACUATION INFORMATION

Lot 1 Office Road
[Street No. 26]
EAST ROCKINGHAM

LEGEND

Subject Area: Lot 1 | Assembly / Muster Area | Evacuation Route

Nearest Evacuation Centre

Listen to DFES Emergency Broadcast on ABC Radio

EVACUATION ROUTES

Nominated Evacuation Locations

ROCKINGHAM TOWNSHIP (Route 1)

SOUTH – Left (west) on Office Road, Left (southwest) on Patterson Road to Rockingham township.

KWINANA TOWN CENTRE (Route 2)

EAST – Right (east) on Office Road, Left (north) on Mandurah Road, Right (west) on Wellard Road, Left (north) on Gilmore Ave, continue to Kwinana town centre.

ROCKINGHAM TOWNSHIP (Route 3)

SOUTH – Left (west) on Office Road, Right (northeast) on Patterson Road, Left (west) on Kwinana Beach Road, continue on Kwinana Beach Road – Rockingham Beach Road (south) to Rockingham township.

Bushfire Warning System

ADVICE	A fire has started but there is no immediate threat to lives or homes. Be aware and keep up to date.
WATCH AND ACT	There is a possible threat to lives or homes. You need to leave or get ready to defend – do not wait and see.
EMERGENCY WARNING	You are in danger and need to take immediate action to survive. There is a threat to lives and homes.
ALL CLEAR	Take care to avoid any dangers and keep up to date.

CONTACT	PHONE
Emergency	000
DFES (Emergency Info)	13 DFES (13 3337)
DFES (Recorded Info)	1300 657 209

SCALE (A3)

0 25 50 75 100

Metres

Date: 27/04/2018

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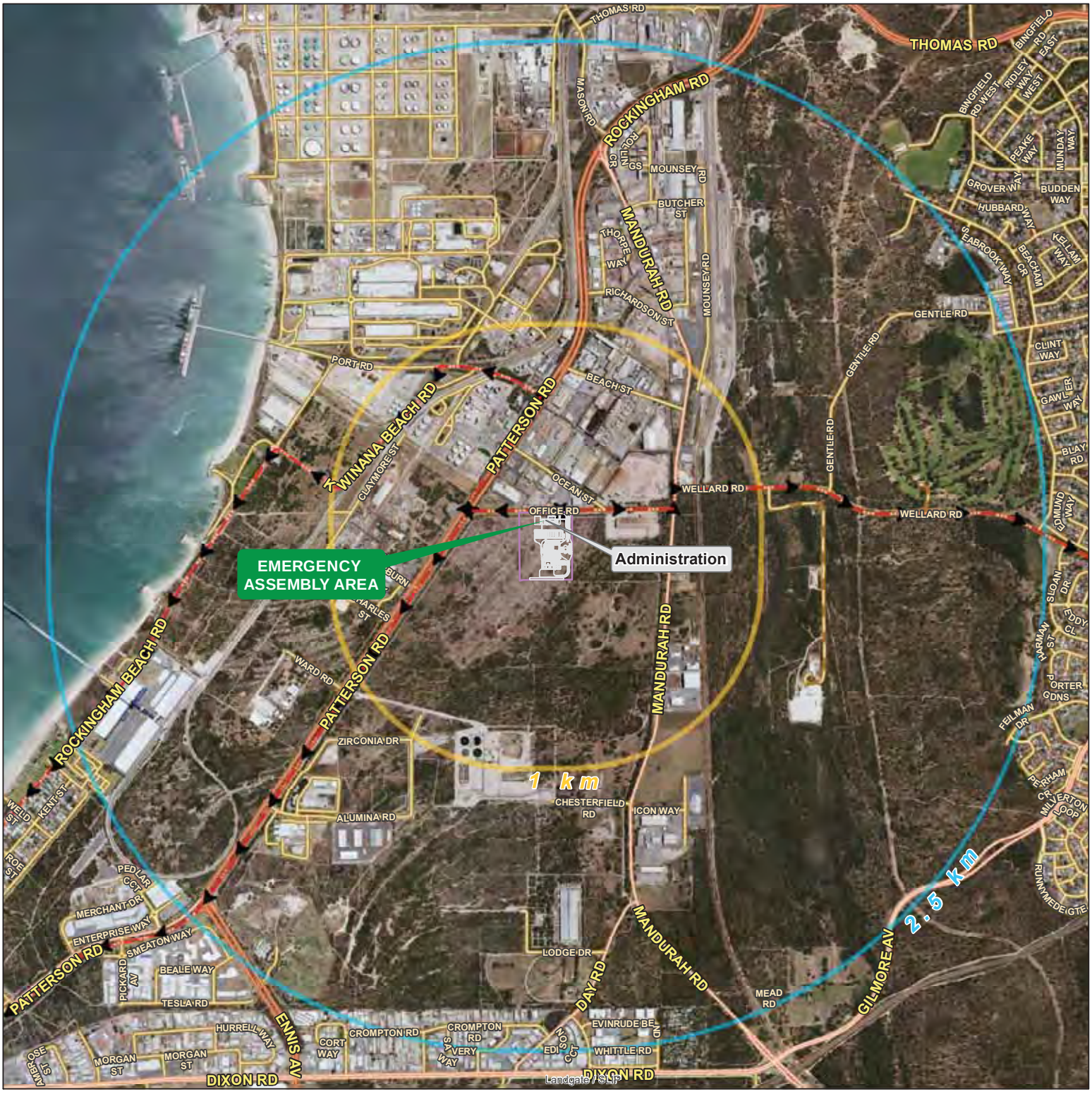

Response **Zones** Map

Lot 1 Office Road
[Street No. 26]
EAST ROCKINGHAM

EVACUATION INFORMATION

LEGEND

- Subject Area: Lot 1
- Evacuation Route
- Evacuation Readiness Zone
- Bushfire Awareness Zone

EVACUATION ROUTES

Nominated Evacuation Locations

ROCKINGHAM TOWNSHIP (Route 1)

SOUTH – Left (west) on Office Road, Left (southwest) on Patterson Road to Rockingham township.

KWINANA TOWN CENTRE (Route 2)

EAST – Right (east) on Office Road, Left (north) on Mandurah Road, Right (west) on Wellard Road, Left (north) on Gilmore Ave, continue to Kwinana town centre.

ROCKINGHAM TOWNSHIP (Route 3)

SOUTH – Left (west) on Office Road, Right (northeast) on Patterson Road, Left (west) on Kwinana Beach Road, continue on Kwinana Beach Road – Rockingham Beach Road (south) to Rockingham township.

Nearest Evacuation Centre

Listen to DFES Emergency Broadcast on ABC Radio

Bushfire Warning System

- ADVICE — A fire has started but there is no immediate threat to lives or homes. Be aware and keep up to date.
- WATCH AND ACT — There is a possible threat to lives or homes. You need to leave or get ready to defend – do not wait and see.
- EMERGENCY WARNING — You are in danger and need to take immediate action to survive. There is a threat to lives and homes.
- ALL CLEAR — Take care to avoid any dangers and keep up to date.

CONTACT	PHONE
Emergency	000
DFES (Emergency Info)	13 DFES (13 3337)
DFES (Recorded Info)	1300 657 209

SCALE (A3)

0 250 500 750 1,000 1,250 1,500

Metres

Date: 27/04/2018

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5.3 Response Sheets - Index

No Bushfire Identified 1	**Monitoring Summary** Information Sources
No Bushfire Identified 2	**Daily Actions during the Bushfire Threat Season** Required response (action) will vary corresponding to forecast Fire Danger Ratings
Bushfire Identified 3	**Bushfire Identified within the Awareness Zone** A bushfire is identified within the Bushfire Awareness Zone but it is not within the Evacuation Zone.
Bushfire Identified 4	**Bushfire Identified within the Evacuation Zone** A bushfire has progressed into or started in the Evacuation Zone. A safe evacuation route is available.
Bushfire Identified 5	**Bushfire Identified within the Evacuation Zone** A bushfire has progressed into or started in the Evacuation Zone and is impacting the evacuation routes. A safe evacuation route is not available.
Shelter 6a	**Procedures for Sheltering in the Nominated Emergency Refuge Building** Conditions outside remain tenable.
Shelter 6b	**Procedures for Sheltering in the Nominated Emergency Refuge Building** Conditions outside are untenable.

No Bushfire Identified

1

Important:

Persons may be present within this facility that are considered as vulnerable based on not being familiar with their surroundings and requiring assistance or direction in the event of a bushfire.

If this property is subject to a bushfire event, the priority will be to evacuate all visitors and non-essential staff at the earliest possible time – provided the evacuation route is not impacted by bushfire (including smoke).

Monitor

During the Bushfire Season

Visually survey the landscape in all directions and distances from the site, for any sign of smoke – regularly.

Emergency WA (www.emergency.wa.gov.au)

For Fire Danger Ratings | Incidents |Locations |Advice | Warnings

ABC local radio

For bushfire Advice | Warnings

Bureau of Meteorology (www.bom.gov.au/wa/forecasts)

For Fire Danger Ratings | Weather Conditions and Trends.

Mobile Phones

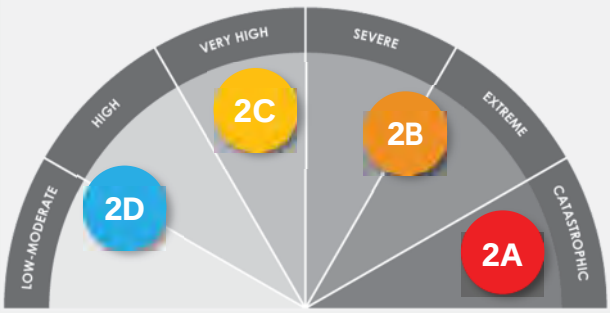
For emergency alert text - from the government telephone warning service.

Fire Danger Ratings

Ensure you know the Fire Danger Ratings (FDR) on the day and the forecast FDR.

Certain actions and variations to operations are required, dependant on the forecast FDR.

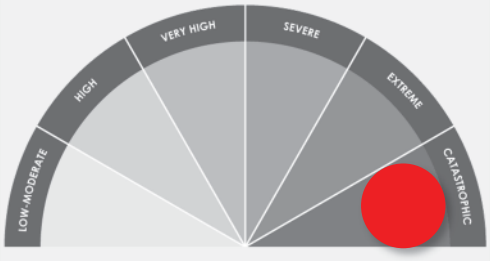
These requirements are established on the following Response Sheets.



No Bushfire Identified

2A

Forecast Fire Danger Rating of: **Catastrophic**



Monitor

Continue to monitor area and information sources (Response Sheet 1)

If on any day the threat escalates quickly, consider immediate evacuation of all non essential persons onsite. Do not wait and see.

Actions

Precautionary Actions to Take (Day before and Morning)

- Inform all staff of the forecast catastrophic FDR.
- Ensure all staff have read the **Bushfire Emergency Plan** and confirm their understanding.
- Confirm the ongoing requirements of the **Seasonal Site Preparation Procedures** (vegetation management) contained in Section 3, are being complied with.
- Conduct the relevant **Elevated Threat Preparedness Procedures** (checklist in this Section 5).
- Post notice to the venture's website of closure of the Visitors Centre.

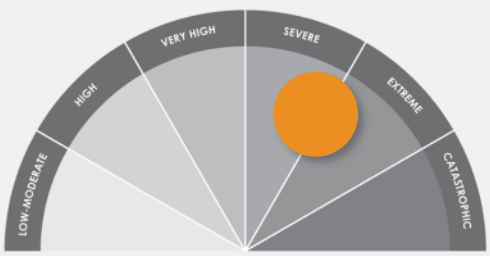
Cease these operations

- Close the Visitors Centre.
- No lawn or landscape machinery is to be used.

No Bushfire Identified

2B

Forecast Fire Danger Rating of: **Severe | Extreme**



Monitor

Continue to monitor area and information sources (Response Sheet 1)

If on any day the threat escalates quickly, consider immediate evacuation of all non essential persons onsite. Do not wait and see.

Actions

Precautionary Actions to Take (Day before and Morning)

- Inform all Staff of the forecast severe of extreme FDR.
- Ensure all staff have read the **Bushfire Emergency Plan** and confirm their understanding.
- Confirm the ongoing requirements of the **Seasonal Site Preparation Procedures** (vegetation management) contained in Section 3, are being complied with.
- Conduct the relevant **Elevated Threat Preparedness Procedures** (checklist in this Section 5).

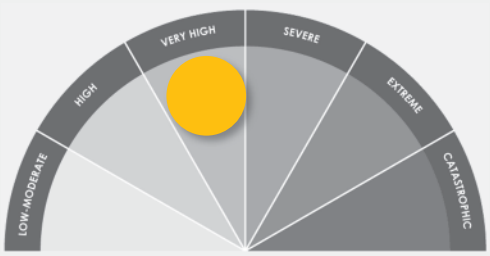
Extreme FDR Only: Cease these operations

- No lawn or landscape machinery is to be used.

No Bushfire Identified

2C

Forecast Fire Danger Rating of: **Very High**



Monitor

Continue to monitor area and information sources (Response Sheet 1)

If on any day the threat escalates quickly, consider immediate evacuation of all non essential persons onsite. Do not wait and see.

Actions

Precautionary Actions to Take (Day before and Morning)

- Confirm the ongoing requirements of the **Seasonal Site Preparation Procedures** (vegetation management) contained in Section 3, are being complied with.
- Conduct the relevant **Elevated Threat Preparedness Procedures** (checklist in this Section 5).

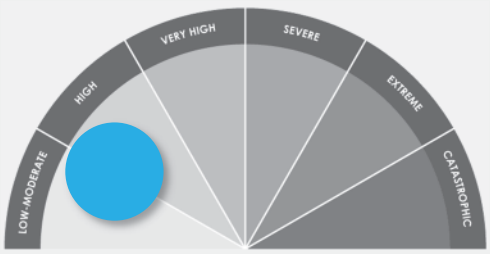
Site Operations

Continue all operations as usual

No Bushfire Identified

2D

Forecast Fire Danger Rating of: **Low-Moderate or High**



Monitor

Continue to monitor area and information sources (Response Sheet 1)

Actions

Precautionary Actions to Take (Day before and Morning)

- Confirm the ongoing requirements of the **Seasonal Site Preparation Procedures** (vegetation management) contained in Section 3, are being complied with.

Site Operations

Continue all operations as usual

Bushfire Identified

3

Monitor

Bushfire Identified in the Awareness Zone

A bushfire is identified within the Bushfire Awareness Zone, but it is not within the Evacuation Zone.

Continue to monitor area and information sources (Response Sheet 1)

To the extent possible, locate the bushfire on the Bushfire Response Zones Map and identify the direction of the fire movement (consider local wind direction and any information from the emergency services). Identify if the fire is moving towards your nominated evacuation route. Be aware there may be several bushfires. Be aware of your ongoing ability to evacuate safely.

Actions

Perform These Actions

Inform Visitors and Staff of the existence of the bushfire, the elevated threat and the preliminary actions required.

Cease all incoming vehicles and visitors

Ensure all staff have read the **Bushfire Emergency Plan** and confirm their understanding.

Confirm the ongoing requirements of the **Seasonal Site Preparation Procedures** (vegetation management) contained in Section 3, are being complied with.

Conduct the relevant **Elevated Threat Preparedness Procedures** (checklist in this Section 5).

Be prepared - refer to Response Sheet 4.

Site Operations

Cease all operations as per Response Sheet 2A

Assemble

Triggers for Assembly

Assemble all persons at the Emergency Assembly Building if:

- Emergency services have directed evacuation; or
- The location and movement of the bushfire is likely to impact (including by smoke), the nominated evacuation route.

Follow the Assembly directions on Response Sheet 4.

Evacuate

Making the Decision to Evacuate

Identify the evacuation location/route that is to be used and inform everyone.

If persons have been required to assemble, and if the nominated evacuation route is considered unlikely to be impacted by the bushfire while travelling the route, proceed to evacuate all visitors and non-essential staff.

Bushfire Identified

4

Monitor

Bushfire Identified in the Evacuation Zone

An Evacuation Route is Still Considered Available and Safe

A bushfire has progressed into or started in the Evacuation Zone.

Continue to monitor area and information sources (Response Sheet 1)

To the extent possible, locate the bushfire on the Bushfire Response Zones Map and identify the direction of the fire movement (consider local wind direction and any information from the emergency services). Identify if the fire is moving towards your nominated evacuation route. Be aware there may be several bushfires. Be aware of your ongoing ability to evacuate safely.

Actions

Perform These Actions

Order all visitors and staff without specific fire responsibilities to assemble at the Emergency Assembly/Refuge Building.

Cease all incoming vehicles and visitors

Conduct the relevant **Elevated Threat Preparedness Procedures** (checklist in this Section 5).

Be prepared – refer to Response Sheet 5.

Cease all operations as per Response Sheet 2A

Site Operations

Directions for Assembly

Assemble

Order all persons to bring their vehicles to the Emergency Assembly Building.

Vehicles to be parked in defined bays and clear of the Emergency Assembly Building.

Keep all driveways clear for emergency vehicle access.

Making the Decision to Evacuate

Evacuate

Identify the evacuation location/route that is to be used and inform everyone.

If the nominated evacuation route is considered unlikely to be impacted by the bushfire while travelling the route, proceed to evacuate all visitors and non-essential staff.

Bushfire Identified

5

Monitor

Actions

Site Operations

Assemble

Shelter

Bushfire Identified in the Evacuation Zone

Evacuation Routes are Not Safe – Shelter on Site

A bushfire has progressed into or started in the Evacuation Zone and is impacting the evacuation routes.

Continue to monitor area and information sources (Response Sheet 1)

Perform These Actions

Order all persons to move to the Emergency Assembly/Refuge Building (refer below for detail).

Cease all incoming vehicles and visitors

Conduct the relevant **Elevated Threat Preparedness Procedures** (checklist in this Section 5)

Immediately notify DFES (dial 000) that the decision has been taken to shelter on site. Refer to Response Sheet 6a for details to provide.

Cease all operations as per Response Sheet 2A

Directions for Assembly

All persons onsite may have already been required to assemble as per Response Sheets 3 or 4. If not, order all persons (except those with fire responsibilities) to the Emergency Assembly/Refuge Building. Instruct to:

- Assemble on foot- do not bring vehicles;
- Bring only hand held communication devices; and
- Bring required medicines, health or mobility aids

For those persons with any health issues or mobility impairments, order them immediately into the refuge. Assemble all other persons near to Refuge entries, in these areas:

- **The Administration Building Parking Area south of the building entry.**

Communicate loudly and with clear arm gestures. Indicate they will be briefed once assembled or inside the refuge.

Follow Shelter in Refuge procedures on Response Sheets 6a and 6b

The nominated Emergency Refuge Building is the Administration Building and is identified on the Site Map.

Shelter

6a

Procedures for Sheltering in the Nominated Emergency Refuge Building

Conditions Outside Remain Tenable

Conditions in the assembly area, immediately outside the refuge building, remain tenable (radiant heat, embers and smoke are limited).

Monitor

Continue to monitor the outside area and information sources (refer to Response Sheet 1)

- **Monitor the proximity and direction of the fire;**
- **Monitor the external conditions for tenability.**

Inform DFES

Ring 000

- **State sheltering on site in the Emergency Refuge Building (Administration Building)**
- **State number of persons and if any special needs persons**
- **State street address and nearest crossroads**
- **State entry point to the refuge building**
- **State current bushfire observations – distance / flames / embers / smoke / spot fires**

Actions

While conditions remain tenable outside

- **Brief all on the current situation and actions if it escalates**
- **Ensure all people outside remain close to and aware of entries**
- **Make available adequate supplies of cold water**
- **Keep open all accessible doors and windows**
- **Monitor the condition of any 'at risk' person**
- **Move any high 'at risk' persons in front of fridge units inside**
- **Assess the number of persons, starting inside then outside**

Conditions outside likely to soon be untenable

- **Order all persons to move inside the refuge**
- **Communicate loudly and with clear arm gestures**
- **Visually assess the number of those entering mindful of limits**
- **Commence closing all external doors and windows**
- **Commence 'Persons in Refuge' Logging** (supply of sheets is maintained in the nominated bushfire refuge building)

Shelter 6b

Procedures for Sheltering in the Nominated Emergency Refuge Building

Conditions Outside are Untenable

All persons have been moved inside.

Monitor

Continue to monitor the outside area and information sources (refer to Response Sheet 1) from inside the Refuge Building

- **Monitor the fire and be aware of the passage of the fire front;**
- **Monitor the external conditions for tenability.**

Actions

While persons are inside taking refuge for the duration of the passage of the fire front

- **Update DFES with the existing situation**
- **Continue to inform those sheltering if known information changes**
- **Make available adequate supplies of cold water**
- **Monitor the condition of any 'at risk' person**
- **Position any high 'at risk' persons in front of fridge units inside**
- **Intermittently open fridge doors to cool high 'at risk' persons**
- **Intermittently run air conditioning (not evaporative), mindful of over heating units**
- **Ensure clear path of entry for any late arrival**

After passage of the fire front

When conditions outside improve cautiously conduct the following:

- **Begin limited opening of windows and doors**
- **Be aware of any fire around the building**
- **Responsible persons to use fire hose reels to douse any spot fires or embers if necessary**
- **Allow some movement onto the Administration Building Carpark, but ensure all stay close to entry points and able to move inside again easily**

The Fire Warden is to instruct nominated staff to conduct all items from these checklists, when required, and confirm their completion.

5.4 Elevated Threat Preparedness Procedures - No Bushfire Identified Response Dependant on Forecast Fire Danger Ratings		Very High / Severe	Extreme	Catastrophic
☐	Charge all radios, radio communication and two way radio devices.			
☐	Charge and set to ring all mobile phone devices.			
☐	Ensure all First Aid equipment and supplies are stocked and accessible.			
☐	Stock all fridges with adequate supplies of water and maintain additional stocks on hand.			
☐	Fuel, prime and test start the emergency power generator.			
☐	Ensure the operation of any Automatic Operable Doors at the designated points of access to the refuge.			
☐	Ensure all pathways are maintained clear and unobstructed.			
☐	Ensure all potential hazards around the Administration Building (Refuge) are removed.			
☐	Ensure a clear 1.5 metre unobstructed path around the Administration Building (Refuge).			
☐	Cease use of all landscaping or maintenance equipment.			
☐	Cease all Visitor Centre operations and close these facilities.			
☐	Close all windows and doors to the Administration Building			

5.5 Elevated Threat Preparedness Procedures - Bushfire Identified Response Dependant on Location of Fire (in addition to those listed on Response Sheets 3, 4, 5, 6a ,6b)		Awareness Zone	Evacuation Zone
☐	Charge all radios, radio communication and two way radio devices.		
☐	Charge and set to ring all mobile phone devices.		
☐	Ensure all First Aid equipment and supplies are stocked and accessible.		
☐	Stock all fridges with adequate supplies of water and maintain additional stocks on hand.		
☐	Fuel, prime and test start the emergency power generator.		
☐	Ensure the operation of any Automatic Operable Doors at the designated points of access to the refuge.		
☐	Ensure all pathways are maintained clear and unobstructed.		
☐	Ensure all potential hazards around the Administration Building (Refuge) are removed.		
☐	Ensure a clear 1.5 metre unobstructed path around the Administration Building (Refuge).		
☐	Cease all Visitor Centre operations and close these facilities		
☐	Cease all incoming vehicles		
☐	Cease use of all landscaping or maintenance equipment.		
☐	Close all windows, doors and fire shutters to the Administration Building		
☐	Start and leave running the emergency power generator.		
☐	Shut down mechanical ventilation and air conditioning.		

5.6 Elevated Threat Preparedness Procedures - Bushfire Identified - Evacuation Check

Decision has been made to safely evacuate persons from the site. Ensure following procedures have been completed prior to leaving.

☐	Start and leave running the emergency power generator.
☐	Shut down any mechanical ventilation and air conditioning systems.
☐	Ensure all doors and windows to the refuge are closed but left unlocked.
☐	Ensure all doors and windows of other buildings are closed.
☐	Leave on any Automatic Operable Doors of the Administration Centre.
☐	Leave on adequate lighting and most importantly those lighting points of entry.

5.7 Contacts: In Case of Emergency

This contact list must be updated regularly with any changes

Organisation Service	**Number** Website
Life Threatening Emergencies Fire / Ambulance / Police	**Dial: 000**
Department of Fire & Emergency Services (DFES) Emergency Information	**13 33 37** dfes.wa.gov.au
Department of Fire & Emergency Services (DFES) Recorded Information Line	**1300 657 209**
Bureau of Meteorology (BOM) Recorded Information Line	**1300 659 213**
State Emergency Service (SES) Various Emergency Services	**13 25 00**
St John Ambulance Emergency Medical/Transport	**08 9538 3322**
Red Cross Emergency Humanitarian Assistance (all hours)	**9225 8888**
Salvation Army Social Services Care Line	**1300 36 36 22**
Sir Charles Gardiner Hospital Medical Services	**08 9346 3333**
Princess Margaret Hospital Medical Services	**08 9340 8222**
Western Power Power outages, lines down	**13 13 51**
Department of Transport and Main Roads Road Conditions	**13 81 38**
Department of Child Protection and Family Support Crisis Care	**08 9222 2555** **08 9223 1111** After hours
Red Cross Emergency Humanitarian Assistance	**08 9225 8888**
Salvation Army	**1300 36 36 22**

5.8 Contacts: Responsible Persons Onsite

This contact list must be updated regularly with any changes of responsibility

Details:	Role:	**Fire Warden**
	Name:	
	Mobile Number:	
	Landline Number:	
Details:	Role:	
	Name:	
	Mobile Number:	
	Landline Number:	
Details:	Role:	
	Name:	
	Mobile Number:	
	Landline Number:	
Details:	Role:	
	Name:	
	Mobile Number:	
	Landline Number:	
Details:	Role:	
	Name:	
	Mobile Number:	
	Landline Number:	

Section 6: Annexed Additional Resources

Purpose:

The content of this section is <u>not required</u> for the daily operation of this Bushfire Emergency Plan during the bushfire season.

The section provides templates and information for administrative and compliance purposes.

Section Content:

Notes:

Use to make notes of required or suggested changes or additions to procedures or resources associated with this section. These are to be considered at the next review and amendment of this Bushfire Emergency Plan.

Risk Management Plan for Bushfire Risk

East Rockingham Resource Recovery Facility

Lot 1 (#26) Office Road, East Rockingham

Associated Bushfire Management Plan	Ref No. 180203
Date Created:	4 May 2018

BPP Group Pty Ltd t/a Bushfire Prone Planning
ABN: 39 166 551 784

Level, 159-161 James Street
Guildford WA 6055

PO Box 388
Guildford WA 6935

Ph: 08 6477 1144
Email: admin@bushfireprone.com.au

Disclaimer

The measures contained in this Bushfire Management Plan are considered to be minimum standards and they do not guarantee that a building will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions. Additionally, the correct implementation of the required bushfire protection measures (and any associated response/evacuation plan if applicable) will depend, among other things, on the actions of the landowners or occupiers over which Bushfire Prone Planning has no control.

All surveys, forecasts, projections and recommendations made in this report associated with the project are made in good faith based on information available to Bushfire Prone Planning at the time.

All maps included herein are indicative in nature and are not to be used for accurate calculations.

Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents - arising out of the services provided by their consultants.

Document Control

Document:	Bushfire Risk Management Plan- Bushfire	
Compliance Statement:	*The content of this Bushfire Emergency Plan (the Plan) complies with the requirements established by State Planning Policy No. 3.7: Planning in Bushfire Prone Areas - December 2015 (SPP 3.7) and the associated Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 (the Guidelines), Section 5.5.2.*	
Reference:	Associated Bushfire Management Plan	Ref No: **180203**
Plan Version:	**v1.0**	**Submitted:** 4 May 2018
Amendment:		
Plan Version:		
Amendment:		
Plan Version:		
Author:	**Syd Bignell**	
Reviewed:	**Kathy Nastov**	
	Level 3 Bushfire Planning and Design Practitioner	Accreditation: BPAD27794
	BPP Group Pty Ltd TA Bushfire Prone Planning ACN: 39 166 551 784	
	Signature: 	

BPP Bushfire Emergency Plan Template No 1 v9.0

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Introduction

A new waste to energy plant is proposed for development at 26 Office Road, East Rockingham, Western Australia. The development when complete will receive, sort/decline, store and burn bulk general municipal waste that develops steam pressure for a turbine to generate electricity and a byproduct from the ash potentially for road base aggregate. The Map below presents the site within the Bush Fire Prone Area.

Figure 1 – Map of Bush Fire Prone areas as designated by the Fire and Emergency Services Commissioner – May 2017.
https://maps.slip.wa.gov.au/landgate/bushfireprone/

Aim

Provide a Risk Management Plan that addresses bushfire risk management to the site for any flammable on-site hazards or activities.

Scope

The scope of this plan is to address all identified risks that potentially ignite flammable on-site hazards and/or bushfire, prolonging a bushfire's duration, or increasing its intensity.

Plan Objectives

Prevent on-site activities starting a bush fire on external land.

Reduce the risk of ignition of on-site hazards when exposed to a local area bushfire.

Mitigate risk that exposes the community, fire fighters and the surrounding environment to dangerous, uncontrolled substances during a bushfire event.

Establishing Context

Justification for risk management plan

The East Rockingham Resource Recovery Facility has been determined by State Planning Policy 3.7 (SPP3.7) – Planning in Bushfire Prone Areas to be of a high-risk land use.

The SPP3.7 Part 7 definition of high-risk land use is: - A land use which may lead to the potential ignition, prolonged duration and/or increased intensity of a bushfire. Such uses may also expose the community, fire fighters and the surrounding environment to dangerous, uncontrolled substances during a bushfire event.

The WA Planning Commission's Guidelines for Planning in Bushfire Prone Areas version 1.3 of Dec 2017, Part 5.6 provides examples of what constitutes a high-risk land use presented but not limited to; service stations, landfill sites, bulk storage of hazardous materials, fuel depots and certain heavy industries as well as military bases, power generating land uses, saw-mills, highways and railways. As such the East Rockingham Resource Recovery Facility cuts across the high risks of landfill sites, bulk storage of hazardous materials[1], certain heavy industries and power generating land uses.

Further, proposals for non-residential, high-risk land uses in bushfire prone areas are to comply with policy measure 6.6 (of the Guidelines) which requires a Bushfire Management Plan jointly endorsed by the local government and the Department of Fire and Emergency Services. This may include establishing an appropriate Asset Protection Zone and should be supported by a risk management plan that addresses bushfire risk management measures for any flammable on-site hazards. It may determine that a reduction in on-site flammable material or appropriate storage of such material, would be required to reduce the threat.

The City of Rockingham has requested a Risk Management Plan that addresses bushfire risk be provided with the Bushfire Management Plan under WA Planning Policy 6.6 (refer Bushfire Management Plan BPP reference 180203).

Context

The proposed site at 26 Office Road East Rockingham is within the Bushfire Prone Area as identified and designated by the Fire and Emergency Services' Commissioner under the Fire and Emergency Services Act 1998 (as amended) as "Designation of an area as being bushfire prone reflects the potential of bushfire to affect that site".

Stakeholder group

The stakeholder group in respect to ignition of bushfires is limited to the site and adjacent bushland owner - Landgate, the City of Rockingham and the Department of Fire and Emergency Services. In terms of a bushfire being exacerbated by the facility or its operations through an increase in duration or increase in fire intensity and/or the potential increase of hazard exposure to the community, firefighters and the environment the stakeholder group extends to the Department of Water and Environmental Regulation, Department of Biodiversity, Conservation and Attractions, Main Roads and WA Police. The Kwinana Industries Public Safety Liaison Group will also be a key player in communications for response planning.

[1] Hazardous materials due to the unknown contamination and mixing of waste types

Identifying Risks and Opportunities

Within the context of bushfire, the Risk Register below describes bushfire impact from external to the site OR the outcome from on-site practices in causing bushfire external to site.

Context	There is a risk that
Bushfire impacts the site	1. Fire embers enter site and ignites waste products and other flammables 2. Fire within site prolongs duration or increases intensity 3. Fire within site causes increased or dangerous hazard exposure to the community, firefighters and the environment
On-site activities start Bushfire	1. A fire starting in plant, storage or transport vehicle causes a bushfire external to site that threatens communities, infrastructure and the environment

Table 1 Bushfire Risk Register

In all cases opportunities come from any successes with the introduction of a waste management system with little or no risk to community and environmental values.

Analysis of Risks

External bushfire threat

There is little for the site to be able to achieve in the prevention of bushfire in external bushland.

Any localised bushfire in the east, south and west will pose considerable threat to on-site operations. The east and south of the site are also the areas where waste is received by road transport to on-site infrastructure. Any fire brigade response accessing the site through the transport entrance will prioritise the protection of exposures and locally threatened operations will become problematic or disrupt easy access for responders.

Ember attack will become the critical threat for waste resources, resource recovery operations and business continuity.

Internal fire or activity threat to bushland

Operations of plant and vehicles as well as storage of bulk waste outside of installed fire safety system zones will require strict monitoring to reduce the likelihood of fire developing and transferring to bushland. Maintenance of plant, equipment and vehicles entering the site will need to be managed in respect of not just internal fire risk but also that of fire to external land, property and environment as primary exposures.

Based on the known frequency of fires starting in the waste storage compartment of road transport vehicles it is critical to focus on the prevention of fire hazards being introduced to site in any of the trucks arriving with municipal waste at the reported rate of one for every 8 minutes on a 24/7 basis. The reduced ability to control outside transport agencies will most likely become a primary risk for business continuity.

Evaluation of Risks

A further and more complex strategic risk assessment should be undertaken from the perspectives of political, economic, social, technological, legal and the environment. Noting again here that the risk register has only

prioritised risk from a bushfire perspective and it is expected that corporate and other risks will be assessed and treated in house.

Treatment Options/Considerations

Treatment options are discussed / proposed in the following points. These will be further communicated in the Recommendations Section in the Risk Management Plan at the end of this document.

- Within the closed-circuit monitoring of all operations on-site there is the ability to focus some monitoring towards the bushland areas and thus have an early threat warning to the site (refer Bushfire Emergency Plan) or a recording of the occurrence of a bushfire event during the ignition and thus prevention of bushfire locally in the future
- Storage of waste in areas not protected by installed fire safety systems will be limited to bulk storage of recyclables regulations
- Bushfire is seasonal in East Rockingham with elevated risk during afternoons of the months from November through to May. Sourcing information from the Bureau of Meteorology during these high-risk months will inform sound decision making for on-site operations for storage and handling of waste as well as response planning. Reduced to nil waste storage in unprotected areas during the high-risk bushfire period will reduce risk from bushfire impact to on-site operations
- During the high-risk bushfire period DFES will on occasions declare a Total Fire Ban (TFB) for the Lower West Coastal which East Rockingham is located within. Whilst TFB Exemptions for the prohibited activities during a TFB are available by application it is noted in a TFB clause that prohibited operations should be postponed if possible for another safer day
- It is noted as referenced within the Bushfire Management Plan (BMP) for the site that the whole of site will be cleared of vegetation in the development phase and all site areas will need to be maintained to reduce risk of fire. The City of Rockingham during high-risk bushfire periods will on occasions declare a Harvest and Vehicle Movement Ban (HVMB) that will prohibit the movement of vehicles for the purposes of slashing / mowing of open ground
- As fires occur in transport equipment an isolated dumping area adjacent to attack fire hydrants / fire hose reels will allow for on-site operations to be safely continued whilst an incident is managed away from normal business areas. A safe area will still need considerable separation from bushland exposures. Some reticulated water focused on bushland exposures will be well recognised as managing localised bushfire risk however, it would not be considered appropriate to water vegetation unless a regular mowing / slashing program acceptable to land owner / managers was in place. Note HVMBs mentioned above will affect land management options of slashing /mowing
- A traffic management or exclusion plan will be required for possible activation whilst the site is threatened by a bushfire
- Construction standards applied to all high-risk areas in the facility to prevent any bushfire ember attack to operations and the facility's infrastructure. Prevention of low level ember attack can be achieved with boundary water systems designed to mist or project water over the adjacent bushland
- Evacuation planning during a bushfire threat as per the Bushfire Emergency Plan for the site
- Strict maintenance and monitoring regimes for on-site plant and equipment including road transportation to site potentially from other operators will be effective treatment of risk. Infra-red

scanning camera equipment installed during construction or managed within manual operation processes to detect hot spots in transportation compartments as well as the drive trains and axles will also reduce the risk of incoming fire risk

- It is assumed that the strict environmental measures in place for emissions will also restrict the emission of sparks from the main flue of the burning chamber/s
- Opportunities exist with the Kwinana Industries Council and the Kwinana Industries Public Safety Liaison Group to communicate risk management processes with surrounding industry and community groups

Appendix A is a brief version from 'Fires in waste to energy power generation plants- A guide to loss prevention' written by HSB Engineering Insurance Limited of England and Wales in December 2014. Much of this document relates to on-site operations however is a useful guide to all aspects of fire that can and will start cause fire externally in bushland as well.

Recommendations

1. A clear area/zone required away from exposures serviced by attack fire hydrant / fire hose reel/s for unloading and managing a potential fire within an incoming transportation vehicle
2. Heat detection equipment installed or utilised manually at entry point to site
3. Closed circuit monitoring of site to include off site hazard areas for bushfire
4. Building construction standards to eliminate the entry of bushfire embers as recommended in the BMP
5. Response plan developed for communicating and acting on a fire or hazardous materials incident
6. Bulk storage of waste in areas unprotected by installed fire safety systems to be as per Department of Water and Environmental Regulation EPA standards. Management plan also specific to high-risk bushfire period of November to May including Total Fire Ban and Harvest & Vehicle Movement Ban periods
7. Fire or hazardous materials incident traffic management plan to allow for responder access and enable business continuity where possible. Incoming waste transports should also be briefed or denied access for difficult incidents
8. Bushfire Emergency Plan for the site as per the Bushfire Management Plan
9. Communicate effectively with local stakeholders through established networks and groups- to be ongoing.

Response Planning

1. Establish and test procedures for all incident response mechanisms
2. Establish and test evacuation procedures for all on site staff and visitors for all hazards
3. Review risk and manage level of readiness to reduce/eliminate risk
4. Monitor systems and surroundings within normal operations for disruption, arson incidents, threat of fire to site, infrastructure and bushland
5. Report all fires and hazardous materials incidents through 000 to Fire (DFES)
6. Local response where developed for appreciated risk
7. Report bushfire incidents early with
    a. Location and cause if known
    b. Size or area of bushfire
    c. Flame height
    d. Road or access restrictions/access ways if known
    e. Wind and fire direction as well as assets under threat
8. Communicate response planning with the Department of Fire and Emergency Services and the City of Rockingham
9. Exercise bushfire procedures in September of each year
10. Monitor and review procedures after emergencies, incidents, near misses and procedural exercises
11. Communicate risk and readiness effectively with employees, stakeholders and community.

Appendix A

Fires in waste to energy power generation plants- A guide to loss prevention

Author - HSB Engineering Insurance Limited of England and Wales in December 2014

Bushfire risk items are highlighted

The risks from waste fuel streams can include dust, spontaneous combustion, poor housekeeping, the delivery of already smouldering loads, ignition in bulk storage bins or conveying systems, the use of hydraulically actuated processing equipment, flue gas filtration systems and the use of combustion engine powered loading shovels.

A designated bunker area should be provided for unloading waste loads that are smouldering on arrival. This area should be at least 15m from any other structure or building and be provided with fire extinguishing equipment.

Spontaneous combustion, smoking, arson, the delivery of smouldering loads, adjacent hot-work and ignition by glass refracted sunlight are all common causes of stockpile fires.

Stockpiles of combustible materials should be separated from buildings (exposures are also bushlands) and plant by a minimum distance of 15m with a minimum of 5m clear separation from the site perimeter fence line. Where 15m separation is not possible, a two hour-rated fire barrier is required to protect adjacent plant and buildings.

The work area should be examined periodically during the hour immediately after work is completed to ensure there are no smouldering or incipient fires

Regular thermal imaging inspections of motors, bearings, transformers and electrical equipment should be carried out to detect possible overheating as a cause of fires (including road transportation storage areas).

To prevent the accumulation of combustible materials, equipment should be regularly cleaned and washed down.

Storage of flammable liquids and gases Flammable liquids should be stored in fire resistant steel cabinets specifically designed for the purpose. The volume of stored flammable liquids should be maintained at the lowest possible level.

LPG and flammable welding gases should be stored and secured in the upright position in locked and well ventilated cages outside. Full and empty flammable bottles should be kept in separate cages and all oxygen bottles must be stored separately. Gas bottle storage areas should be sited as far away as is reasonably practical from any building or boundary fence. The use and storage of acetylene is discouraged and an alternative should be found.

Note: Where the fire service is called to attend a fire and acetylene gas bottles are involved, current fire service practice is to establish a 200m hazard exclusion zone around the incident and leave the cylinders involved undisturbed for 24 hours. All fire-fighting activity in the designated hazard zone must cease and the area must be evacuated.

Smouldering loads - Maintain close observation of delivered loads and provide a safe and suitably equipped place to dump and extinguish the load.

Housekeeping -_ Establish a continuous process of removing accumulations of dust and combustible materials to reduce fire risks.

References

Aurora Environmental, 2017. East Rockingham Waste to Energy Facility, Environmental Review. Retrieved from: http://www.newenergycorp.com.au

HSB Engineering Insurance Limited, 2014. *Fires in waste to energy power generation plants- A guide to loss prevention.* Retrieved from: https://www.munichre.com/site/hsb-eil-mobile

Landgate, 2017. *Map of Bush Fire Prone Areas.* Retrieved from: https://maps.slip.wa.gov.au/landgate/bushfireprone/

Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

Bushfire Management Plan and Site Details

Site Address / Plan Reference: Lot 1 (#26) Office Road

Suburb: East Rockingham **State:** W.A. **P/code:** 6168

Local government area: City of Rockingham

Description of the planning proposal: Development Application for a waste to enegy plant

BMP Plan / Reference Number: 180203 **Version:** 1.0 **Date of Issue:** 4/05/2018

Client / Business Name: New Energy Corporation Pty Ltd

Reason for referral to DFES	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?	☐	☑
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the BPC elements)?	☐	☑
Is the proposal any of the following special development types (see SPP 3.7 for definitions)?		
Unavoidable development (in BAL-40 or BAL-FZ)	☐	☑
Strategic planning proposal (including rezoning applications)	☐	☑
Minor development (in BAL-40 or BAL-FZ)	☐	☑
High risk land-use	☑	☐
Vulnerable land-use	☑	☐

If the development is a special development type as listed above, explain why the proposal is considered to be one of the above listed classifications (E.g. considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

The development is considered a high risk land use being a waste to energy facility producing electricity from the combustion of waste materials.

As the development has a visitor centre when visitors can view portions of the process it is considered a vulnerable land use.

Note: The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".

BPAD Accredited Practitioner Details and Declaration

Name	Accreditation Level	Accreditation No.	Accreditation Expiry
Ian Macleod	1	BPAD39131	Nov 2018
Company		**Contact No.**	
Bushfire Prone Planning		6477 1144	

I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct

Signature of Practitioner  **Date** 4/05/2018

Bushfire Management Plan

Site Address: Lot 1 (#26) Office Road, East Rockingham

City of Rockingham

Job Number:	180203
Assessment Date:	17 April 2018
Report Date:	4 May 2018

BPP Group Pty Ltd t/a Bushfire Prone Planning
ABN: 39 166 551 784

Level, 159-161 James Street
Guildford WA 6055

PO Box 388
Guildford WA 6935

Ph: 08 6477 1144
Email: admin@bushfireprone.com.au

Disclaimer

The measures contained in this Bushfire Management Plan are considered to be minimum standards and they do not guarantee that a building will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions. Additionally, the correct implementation of the required bushfire protection measures (and any associated response/evacuation plan if applicable) will depend, among other things, on the actions of the landowners or occupiers over which Bushfire Prone Planning has no control.

All surveys, forecasts, projections and recommendations made in this report associated with the project are made in good faith based on information available to Bushfire Prone Planning at the time.

All maps included herein are indicative in nature and are not to be used for accurate calculations.

Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents – arising out of the services provided by their consultants.

Document Control

Version	Version Details	Date Submitted
1.0	Original Document	4-May-18
		-
		-

Author	Accreditation	Signature
Ian Macleod	BPAD Level 1 - No. 39131	
Co-author		

Reviewed/Approved		
Kathy Nastov	BPAD Level 3 - No. 27794	

Document Content Compliance Statement
This Bushfire Management Plan (the Plan) provides the required information to address State Planning Policy No. 3.7: Planning in Bushfire Prone Areas - December 2015 (SPP 3.7), the associated Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 (Guidelines), and any additional information as directed by the WA Planning Commission (WA Department of Planning, Lands and Heritage). It is fit for accompanying a planning application.

Complex DA BMP Template v1.0

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Executive Summary

The proposed development is for the construction of a Waste to Energy facility located within the Rockingham Industrial Zone at Lot 1 (#26) Office Road, Rockingham. Once complete the facility will be operational 24 hours/day and 7 days/week.

The facility will burn waste at very high temperatures to provide steam to run a turbine producing electricity for distribution to the grid. An ash by-product may potentially have a use as aggregate for road base.

The proposed development is assessed as a vulnerable and high-risk land use and therefore requires a Bushfire Emergency Plan and a Bushfire Risk Management Plan to accompany the proposal.

The whole of the subject lot is to be cleared of vegetation during the construction stage and the lot will subsequently be maintained in a low bushfire threat state in perpetuity. With the exception of the Gatehouse, which will have a BAL rating of BAL-19, the remaining buildings in the development will be subject to BAL ratings of either BAL-LOW or BAL-12.5.

Office Road provides access/egress to two different destinations and the internal driveway system will comply with the Guidelines for Planning in Bushfire Prone Areas including minimum 6 metre horizontal and 4.5 metre vertical clearance.

A reticulated water supply is currently available to the site. The closest hydrant is located 18 metres north of the subject site on the opposite side of Office Road. Additionally, fire hydrants will be installed within the development, at a minimum spacing of 100 metres, along with a 1.42 megalitre Fire Water Storage Tank.

Bushfire construction standards aligned to AS3959-2009 do not apply to the development. However, it is recommended that the proposed buildings be constructed to the specifications for a BAL-12.5 rating as a minimum, providing protection from ember attack. It is also noted from the Fire and Life Safety Strategy document for this site, that the building materials for the proposed development shall be non-combustible.

The Administration Building will be adopted as the Assembly Point and Refuge in the event of a bushfire. This building is close to the carpark and Office Road should evacuation be required. The building is subject to a maximum bushfire attack level of 2.3kW/m^2 once the development is complete (See Appendix 4). It is recommended that this building also be constructed to BAL-12.5 standards to protect against ember attack.

1 The Proposal and Purpose of the Plan

1.1 Details

Proponent:	New Energy Corporation Pty Ltd
Site Address:	Lot 1 (#26) Office Road, East Rockingham
Local Government:	City of Rockingham
Lot Area:	10 ha
Planning Stage:	Development application
Development Type:	Construction of a Class 4 - Class 9 buildings

Overview of the Proposal:

The proposed development is for the construction of a Waste to Energy facility located within the Rockingham Industrial Zone at Lot 1 (#26) Office Road, Rockingham.

This Bushfire Management Plan will assess the potential bushfire threat to the site, address the bushfire protection criteria and assign responsibilities for the implementation and management of bushfire protection measures.

Bushfire Prone Planning Commissioned to Produce the Plan by:	New Energy Corporation Pty Ltd
Purpose of the Plan:	To Accompany a development application
For Submission to:	City of Rockingham

Figure 1.1

Proposed Development

Lot 1 on Diagram 62220
26 Office Road
EAST ROCKINGHAM

LEGEND

- Subject Area: Lot
- Other Lots
- R — Water Storage Tank
- V — Hydrant / Standpipe
- Site Plan

LOCALITY

Aerial Imagery : Landgate/SLIP
Image Date : Feb 2018

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre

Map compiled by: Russell Wornes
Date map compiled/updated: 26 Apr 2018

SCALE (A3) 0 25 50 75 Metres

Document Path: G:\BushfireProne\Mapping\MXD's\180203_Lot 1 Office Road, East Rockingham_BMP_(A3P)18-2.mxd

Figure 1.2

Proposed Development
(Spatial Context)

Lot 1 on Diagram 62220
Office Road
EAST ROCKINGHAM

LEGEND

- Subject Area: Lot
- Other Lots

Assessment Area
- Vegetation - 150m

Environmental - Flora
- Bush Forever Sites

Geomorphic Wetlands - Management
- Conservation
- Resource Enhancement

DBCA Managed Lands
- Nature Reserve
- 5(1)(g) & (h) Reserve
- Crown Freehold - Dept Interest

LOCALITY

Aerial Imagery : Landgate/SLIP
Image Date : Feb 2018

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre

Map compiled by: Russell Wornes
Date map compiled/updated: 26 Apr 2018

SCALE (A3) 0 250 500 750 1,000 Metres

Document Path: G:\BushfireProne\Mapping\MXD's\180203_Lot 1 Office Road, East Rockingham_BMP_(A3P)18-2.mxd

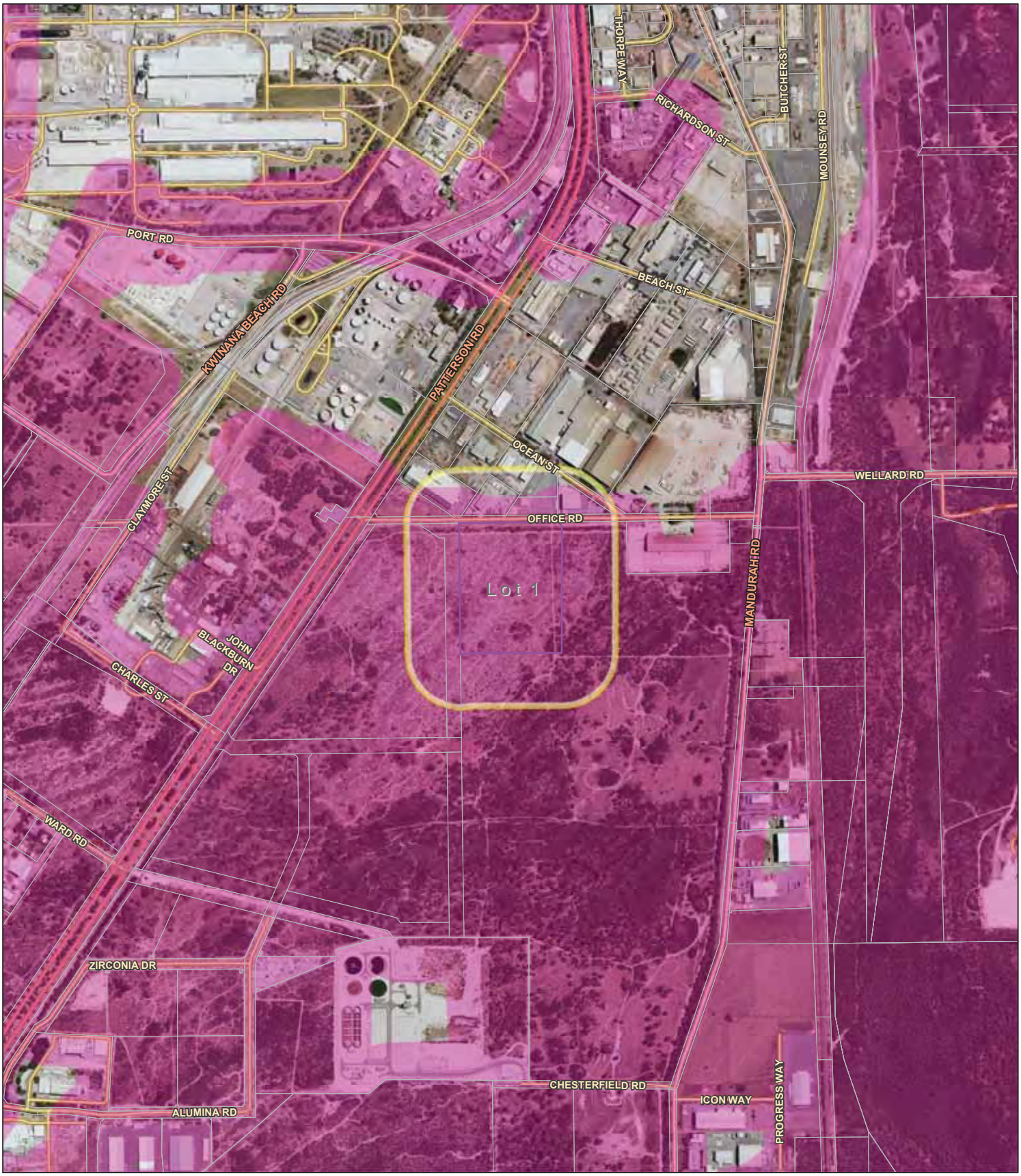


Figure 1.3

Bushfire Prone Area

Lot 1 on Diagram 62220
26 Office Road
EAST ROCKINGHAM

LEGEND

- Subject Area: Lot
- Other Lots

Assessment Area

- Vegetation - 150m
- Bushfire Prone Areas (2017)

LOCALITY

Aerial Imagery : Landgate/SLIP
Image Date : Feb 2018

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre

Map compiled by: Russell Wornes
Date map compiled/updated: 26 Apr 2018

SCALE (A3) 0 250 500 750 Metres

Document Path: G:\BushfireProne\Mapping\MXD's\180203_Lot 1 Office Road, East Rockingham_BMP_(A3P)18-2.mxd

1.2 Existing Documentation Relevant to the Construction of this Plan

This section acknowledges any known reports or plans that have been prepared for previous planning stages, that refer to the subject area and that may or will impact upon the assessment of bushfire risk and/or the implementation of bushfire protection measures and will be referenced in this Bushfire Management Plan.

Relevant Documents		
Existing Document	Copy Provided by Client	Title
Structure Plan	No	
Environmental Report	Yes	"East Rockingham Waste to Energy Facility Environmental Review Document Assessment No.2116".
Landscaping (Revegetation) Plan	No	
Bushfire Risk Assessments	No	
Fire and Life Safety Strategy	Yes	"East Rockingham Resource Recovery Facility Fire and Safety Strategy"

1.3 Vulnerable Land Use

Definition and Application

A 'vulnerable land use' is defined as "a land use where persons may be less able to respond in a bushfire emergency". The Guidelines provide examples of what constitutes a vulnerable land use.

Information, additional to the Bushfire Management Plan, is required to accompany applications involving a vulnerable land use.

Required Additional Information – Emergency Evacuation

Development applications for a vulnerable land use are to provide actionable information for persons that will occupy or visit that site with respect to their preparedness, awareness and response to a bushfire potentially impacting the property. The development application must:

1. "Include an emergency evacuation plan for proposed occupants"; unless
2. The proposal is to be treated as a 'residential-based minor development'. In which case "consideration should be given to emergency evacuation" within the Bushfire Management Plan, with the content "to reflect the nature and scale of the development".

Subdivision applications, scheme amendments or structure plans "should make provision for emergency evacuation".

Required Additional Information - Inability to Comply with SPP 3.7

Development applications for vulnerable land uses that cannot achieve full compliance with SPP 3.7 and cannot fully comply with the bushfire protection criteria contained in the Guidelines, including if the proposed site is subject to BAL-40 or BAL-FZ, will generally not be supported unless:

1. Sufficient justification can be provided for support as 'Minor Development'; or
2. Sufficient justification can be provided for support as 'Residential-based Minor Development'; or
3. Sufficient justification can be provided for support as 'Unavoidable Development'.

(Source: State Planning Policy No. 3.7: Planning in Bushfire Prone Areas - December 2015 (SPP 3.7) s7 and pm6.6 and Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 (Guidelines) s5.4 and s5.5.

Determination of Vulnerable Land Use - Category Applied	
It has been determined that the proposed development is a 'vulnerable land use' based on fitting the following category of land use.	
Category 3: Short stay accommodation or visitation uses that involve people who are unaware of their surroundings and who may require assistance or direction in the event of a bushfire.	✓
The proposed development will incorporate a Visitors Centre where members of the public can view the operation of the waste to energy process.	

Required Additional Information and its Location within this BMP		
A detailed and site-specific Bushfire Emergency Plan for occupants.	Provided	Provided as a separate document to accompany the planning application
Create a responsibility for the landowner/occupier to inform occupants of the existence and application of the Bushfire Emergency Plan.	Provided	Within Section 6

At the development application stage, the details of the key persons with responsibility (positions, names and contact details) with respect to application of the Bushfire Emergency Plan is unknown. This information must be compiled within the Plan prior to occupancy.

The Administration Building will be adopted as the Assembly Point and Refuge in the event of a bushfire. This building is close to the carpark and Office Road should evacuation be required. The building is also subject to a maximum bushfire attack level of 2.3kW/m^2 once the development is complete (See Appendix 4). It is recommended that this building be constructed to BAL-12.5 standards to protect against ember attack.

1.4 High Risk Land Use

Definition and Application

A 'high risk land use' is defined as "a land use which may lead to the potential ignition, prolonged duration and/or increased intensity of a bushfire. Such uses may also expose the community, firefighters and the surrounding environment to dangerous, uncontrolled substances during a bushfire event". The Guidelines provide examples of what constitutes a high-risk land use.

Required Additional Information – Flammable On-site Hazards

Development applications for a high-risk land use are to include a risk management plan that addresses the required bushfire risk management measures for any flammable onsite-hazards.

Required Additional Information - Inability to Comply with SPP 3.7

Proposed high risk land uses that cannot meet full compliance with SPP 3.7 and cannot fully comply with the bushfire protection criteria contained in the Guidelines, including if the proposed site is subject to BAL-40 or BAL-FZ, will generally not be supported unless:

1. Sufficient justification can be provided for support as 'unavoidable development' because the "development represents exceptional circumstances where full compliance with SPP 3.7 would be unreasonable as no alternative location exists and it can be proven that it is not contrary to the public interest", as determined by the decision maker.

(Source: State Planning Policy No. 3.7: Planning in Bushfire Prone Areas - December 2015 (SPP 3.7) s7 and pm6.6 and Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 (Guidelines) s5.6.

Determination of High-Risk Land Use

It has been determined that the proposed development is a 'high-risk land use'. The development is for the construction of a waste to energy facility which will burn waste at very high temperatures to provide steam to run a turbine producing electricity for distribution to the grid.

Required Additional Information and its Location within this BMP		
A risk management plan that addresses bushfire risk management measures for any flammable onsite-hazards to support the 'high-risk' land use.	✓	Provided as bushfire specific content.
The high-risk land use has also been identified as a 'vulnerable land use. The required information for a 'vulnerable land use' also applies.	✓	Refer to Section 1.3: Vulnerable Land Use
Create a responsibility for the landowner/occupier to inform persons on site of the existence and application of a Risk Management Plan containing bushfire risk management measures. Also to create a responsibility to update the plan and continue to comply with the requirements	✓	Within Section 6

The Bushfire Risk Management Plan will be submitted along with the Bushfire Management Plan and Bushfire Emergency Plan at the development application stage.

2 Environmental Considerations

2.1 Native Vegetation – Modification and Clearing

'Guidelines' s2.3: "Many bushfire prone areas also have high biodiversity values. SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values."

Existing conservation areas that are potentially affected by the development proposal are required to be identified. This may result in vegetation removal/modification prohibition or limitations. These areas include National Parks, Nature Reserves, Wetlands and Bush Forever sites.

Environmental Protection Act 1986: "Clearing of native vegetation in Western Australia requires a clearing permit under Part V, Division 2 of the Act unless clearing is for an exempt purpose. Exemptions from requiring a clearing permit are contained in Schedule 6 of the Act or are prescribed in the Environmental Protection Regulations" ('Guidelines' s2.3).

The Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act): This Act administered by the Australian Government Department of Environment, provides a national scheme of environment and heritage protection and biodiversity conservation. Nationally threatened species and ecological communities are a specific matter of significance. Areas of vegetation can be classified as a Threatened Ecological Community (TEC) under the EPBC Act and consequently have removal restrictions imposed.

Vegetation Modification and Clearing Assessment	
Will on-site clearing of native vegetation be required?	Yes
Does this have the potential to trigger environmental impact/referral requirements under State and Federal environmental legislation?	No
Identified environmental legislation applicable to the Proposal site - No.1:	N/A
Identified environmental legislation applicable to the Proposal site - No.2:	N/A
For the proposed development site, have any areas of native vegetation been identified as species that might result in the classification of the area as a Threatened Ecological Community (TEC)?	No
Potential TEC species identified:	N/A

The proposed development site is located within the Rockingham Industrial zone and the subject lot is zoned 'Industrial'. The subject lot does not does not have any significant environmental value and also abuts an area assessed by the Environmental Protection Authority as being environmentally acceptable for heavy industry.

The subject lot is flat and vegetation on the lot consists of shrubland, scrub and heath with a grassy ground cover. There are no Threatened Ecological Communities identified on the subject lot.

Refer also to the "East Rockingham Waste to Energy Facility Environmental Review Document Assessment No.2116" for a comprehensive environmental impact assessment of the subject lot and surrounds.

Development Design Options

Establishing development in bushfire prone areas can adversely affect the retention of native vegetation through clearing associated with the creation Lots and/or Asset Protection Zones. Where loss of vegetation is not acceptable or causes conflict with landscape or environmental objectives, it will be necessary to consider available design options to minimise the removal of native vegetation.

Minimising the Removal of Native Vegetation		
Design Option	Identified	Adopted
Cluster development	N/A	N/A
Construct building to a standard corresponding to a higher BAL rating as per BCA (AS 3959-2009 and/or NASH Standard)	N/A	N/A
Modify the development location	N/A	N/A

It is proposed that the whole of the subject lot will be cleared during the construction phase and that the lot will be maintained to a low bushfire threat state in perpetuity.

Impact on Adjoining Land

Is this planning proposal able to implement the required bushfire measures within the boundaries of the land being developed so as not to impact on the bushfire and environmental management of neighbouring reserves, properties or conservation covenants?	Yes

The proposed development can achieve an asset protection zone and maintenance of vegetation in a low threat state within the lot boundaries. This will ensure the bushfire risk will be reduced to the immediate surrounding properties due to the continued ongoing management of vegetation. Compliance is regulated via the bushfire management plan for the site. Bushfire management measures external to the site are not required as part of this proposal.

2.2 Re-vegetation / Retained Vegetation / Landscape Plans

Riparian zones, wetland/foreshore buffers, road verges and public open space may have plans to re-vegetate or retain vegetation as part of the Proposal.

Vegetation corridors may join offsite vegetation and provide a route for fire to enter a development area.

When applicable, any such area will be identified in this Bushfire Management Plan and their impact on the assessment and future management accounted for.

Is re-vegetation of riparian zones and/or wetland or foreshore buffers and/or public open space a part of this Proposal?	No
Is the requirement for ongoing maintenance of existing vegetation in riparian zones and/or wetland or foreshore buffers and/or public open space a part of this Proposal?	No

3 Potential Bushfire Impact Assessment

3.1 Assessment Input

3.1.1 Fire Danger Index (FDI) Applied

AS 3959-2009 specifies the fire danger index values to apply for different regions as per Table 2.1. The values used in the model calculations are for the Forest Fire Danger Index (FFDI) and for which equivalent representative values of the Grassland Fire Danger Index (GFDI) are applied as per Appendix B. The values can be refined if appropriately justified.

Table 3.1: Applied FDI Value

FDI Value			
Vegetation Area	As per AS 3959 - 2009 Table 2.1	As per DFES for the Location	Value Applied
All vegetation areas	80	N/A	80

3.1.2 Existing Vegetation Identification, Classification and Effective Slope

Vegetation identification and classification has been conducted in accordance with AS 3959-2009 s2.2.3 and the Visual Guide for Bushfire Risk Assessment in WA (DoP February 2016).

When more than one vegetation type is present, each type is identified separately with the worst-case scenario being applied as the classification. The predominant vegetation is not necessarily the worst-case scenario.

The vegetation structure has been assessed as it will be in its mature state (rather than what might be observed on the day). Areas of modified vegetation are assessed as they will be in their natural unmodified state (unless maintained in a permanently low threat, minimal fuel condition, satisfying AS 3959-2009 s2.2.3.2-f and asset protection zone standards). Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its revegetated mature state.

Effective Slope: Is the ground slope under the classified vegetation and is determined for each area of classified vegetation. It is the measured or determined slope which will most significantly influence the bushfire behaviour in that vegetation as it approaches a building or site. Where there is a significant change in effective ground slope under an area of classified vegetation, that will cause a change in fire behaviour, separate vegetation areas will be identified, based on the change in effective slope, to enable the correct assessment.

Table 3.2: Vegetation identification and classification.

All Vegetation Within 150 metres of the Proposed Development				
Vegetation Area	Identified Classification Types [1] or Description if 'Excluded'	Applied Classification[2]	Effective Slope Under Classified Vegetation	
			degrees	description
1	Closed Tussock Grassland G-22	Class G Grassland	0	Flat
2	Woodland B-05	Class B Woodland	0	Flat
3	Open Heath C-11	Class C Shrubland	0	Flat
4	Open Scrub D-14	Class D Scrub	0	Flat
-	Industrial buildings and hardstand areas.	Excluded AS3959-2009 2.2.3.2 (f)	N/A	N/A

Representative photos of each vegetation area, descriptions and classification justification, are presented on the following pages. The areas of classified vegetation are defined, and the photo locations identified on the topography and classified vegetation map, Figure 3.1.

Note[1]: As per AS 3959-2009 Table 2.3 and Figures 2.3 and 2.4 a-g
Note[2]: As per AS 3959-2009 Table 2.3.

Vegetation Area 1 **Classification Applied:** Class G Grassland

Classification Justification: Vacant lot, tussock grassland, occasional low trees being shrub, narrow strip of low screening trees along north-eastern boundary.

Photo ID: 1a

Photo ID: 1b

Vegetation Area 2 **Classification Applied:** Class B Woodland

Classification Justification: Narrow strip of trees alongside road verge, eucalypt, sheoak, acacia, some shrubs, grass understorey.

Photo ID: 2a

Photo ID: 2b

Vegetation Area 2 **Classification Applied:** Class B Woodland

Classification Justification: Narrow strip of trees alongside road verge, eucalypt, sheoak, acacia, some shrubs, grass understorey

Photo ID: 2c

Photo ID: 2d

Vegetation Area 3 **Classification Applied:** Class C Shrubland

Classification Justification: Grass trees, shrubs, occasional scrub, grass understorey, recently burnt

Photo ID: 3a

Photo ID: 3b

Vegetation Area 3 **Classification Applied:** Class C Shrubland

Classification Justification: Grass trees, shrubs, occasional scrub, grass understorey, recently burnt

Photo ID: 3c

Photo ID: 3d

Vegetation Area 3 **Classification Applied:** Class C Shrubland

Classification Justification: Grass trees, shrubs, occasional scrub, grass understorey, recently burnt

Photo ID: 3e

Photo ID: 3f

Vegetation Area 3 **Classification Applied:** Class C Shrubland

Classification Justification: Grass trees, shrubs, occasional scrub, grass understorey, recently burnt

Photo ID: 3g

Photo ID: 3h

Vegetation Area 3 **Classification Applied:** Class C Shrubland

Classification Justification: Grass trees, shrubs, occasional scrub, grass understorey, recently burnt

Photo ID: 3i

Photo ID: 3j

Vegetation Area 3 **Classification Applied:** Class C Shrubland

Classification Justification: Grass trees, shrubs, occasional scrub, grass understorey, recently burnt

Photo ID: 3k

Photo ID: 3l

Vegetation Area 4 **Classification Applied:** Class D Scrub

Classification Justification: Acacias, some shrubs and grass trees, grass understorey, some areas recently burnt

Photo ID: 4a

Photo ID: 4b

Vegetation Area 4 **Classification Applied:** Class D Scrub

Classification Justification: Acacias, some shrubs and grass trees, grass understorey

Photo ID: 4c

Photo ID: 4d

Vegetation Area 4 **Classification Applied:** Class D Scrub

Classification Justification: Acacias, some shrubs and grass trees, grass understorey, some areas recently burnt

Photo ID: 4e

Photo ID: 4f

Vegetation Area **Classification Applied:** Excluded AS3959-2009 2.2.3.2 (f)

Classification Justification: Managed road verge, industrial buildings and hardstand areas

Photo ID: 5a

Photo ID: 5b

Vegetation Area **Classification Applied:** Excluded AS3959-2009 2.2.3.2 (f)

Classification Justification: Managed road verge, industrial buildings and hardstand areas

Photo ID: 5c

Photo ID: 5d

Vegetation Area 6 **Classification Applied:** Excluded AS3959-2009 2.2.3.2 (f)

Classification Justification: Managed road verge

Photo ID: 5e

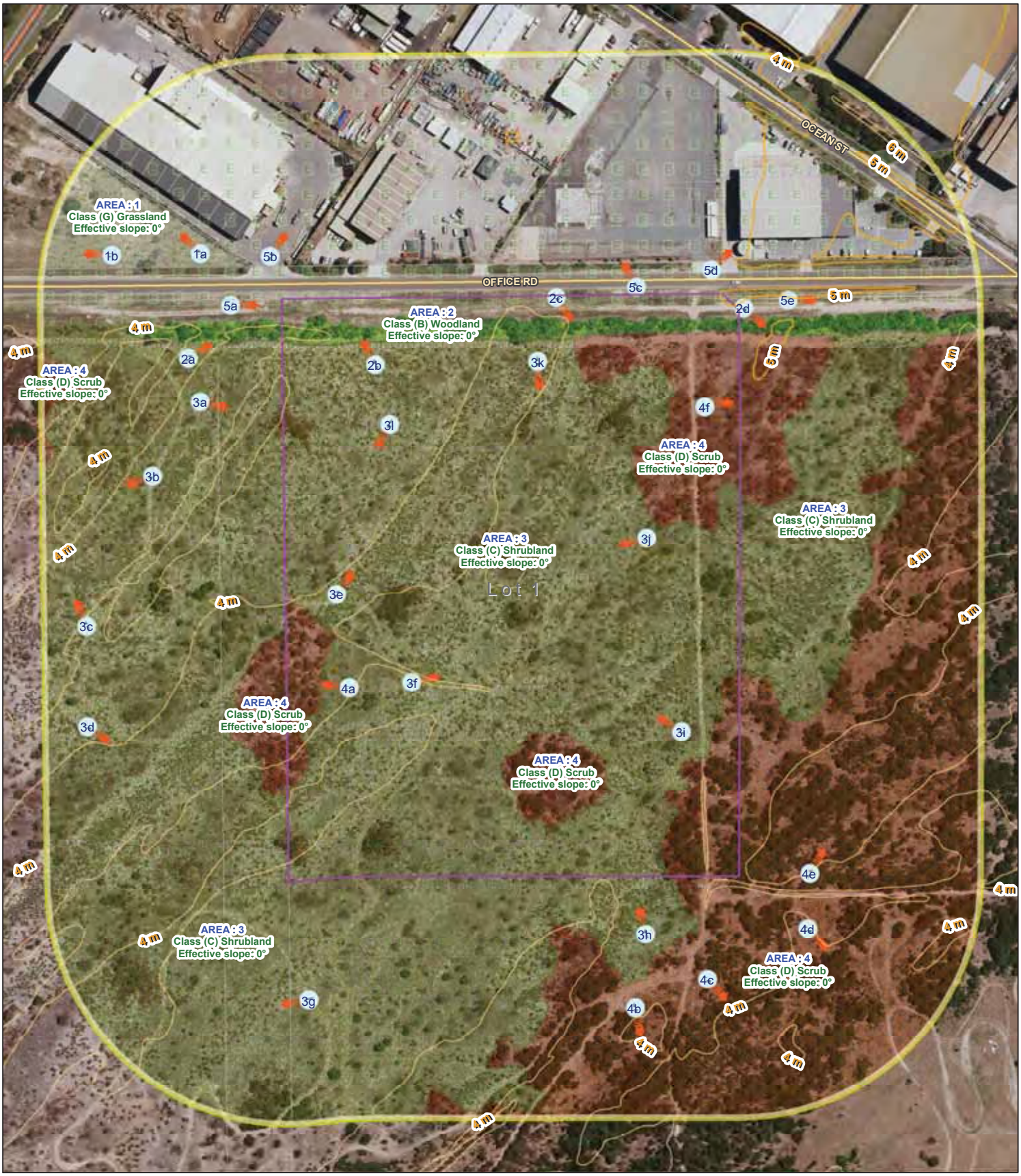


Figure 3.1

Topography & Classified Vegetation

Lot 1 on Diagram 62220
26 Office Road
EAST ROCKINGHAM

Aerial Imagery : Landgate/SLIP
Image Date : Feb 2018

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre

Map compiled by: Russell Wornes
Date map compiled/updated: 26 Apr 2018

LEGEND

- Subject Area: Lot
- Other Lots

Assessment Area

- Vegetation - 150m
- Elevation contour (m)
- Photo No., location & direction

Classified Vegetation

- Class (B) Woodland
- Class (C) Shrubland
- Class (D) Scrub
- Class (G) Grassland
- Exclusion 2.2.3.2

LOCALITY

SCALE (A3) 0 25 50 75 100 125 150 Metres

Document Path: G:\BushfireProne\Mapping\MXD's\180203_Lot 1 Office Road, East Rockingham_BMP_(A3P)18-2.mxd

3.1.3 Vegetation Separation Distance

The vegetation separation distance is the horizontal distance from an existing building or planned building footprint to the start of an area of classified vegetation.

The separation distance can be:

- The actual distance – which will correspond to a single determined BAL rating. It can only be measured when the location of a building or building footprint is known; or
- A required distance or range of distances that correspond to a single BAL rating or varying BAL ratings. These calculated distances are used to indicate what BAL rating/s are achievable.

Required distances can be presented in this Plan in the following formats, dependant on the specific development proposal and the type of information most applicable:

- A distance that must be achieved to result in a stated BAL rating. This is presented as the Conditional BAL rating (conditional upon achieving the required separation distance);
- A table stating the separation distance range that, if achieved, would correspond to each BAL rating; or
- A map visually showing the separation distance range - from areas of classified vegetation that would remain post-development - that correspond to each BAL rating i.e. a BAL Contour Map.

Note:

Required (calculated) separation distances are presented in the 'Assessment Output' section as the BAL Contour Map and relevant tables to assist with its interpretation.

Required vegetation separation distances (calculated) to achieve stated BAL's are determined in this assessment and are presented in Section 3.2.	✓

3.2 Assessment Output

Understanding the Bushfire Assessment Results - Application of Bushfire Attack Levels (BAL)

The BAL rating has a different application in the building environment compared to the planning environment and the BAL assessment can result in a determined BAL or an indicative BAL which have different implications.

Building versus Planning Applications

In the building environment, a determined BAL rating is required (for the proposed construction) at the building application stage. This is to inform approval considerations and establish the construction standards that are to apply if approved. An indicative BAL rating is not acceptable for a building application.

In the planning environment, assessing the ability of a proposed development site to achieve BAL-29 or less is the objective (as one of the bushfire protection criteria being assessed). The 'development site' is defined by the LPS Amendment Regulations 2015 as "that part of a lot on which a building that is the subject of development stands or is to be constructed".

Therefore, being able to show that a BAL rating of BAL-29 or lower is achievable for a proposed development site (i.e. the building footprint) is an acceptable outcome for that criteria, as established by the bushfire provisions, SPP 3.7 and the associated Guidelines. For planning purposes, this BAL rating could be either indicative or determined.

Determined BAL Ratings

A determined BAL rating is to apply to an existing or proposed construction site (building) and not to a lot or envelope. Its purpose is to state the potential radiant heat flux to which the building will be exposed.

A determined BAL cannot be given for a future building whose location, elevation design and footprint (on a given lot) are unknown. It is not until these variables have been fixed that a BAL can be determined (typically at the development application or building application stage).

The one exception is when a building of ***any dimension*** can be ***positioned anywhere*** on a proposed lot or within defined limits within the lot (i.e. building setbacks or building envelope) and always remain subject to the same BAL rating. For this to be the case, there needs to be no classified vegetation either onsite or offsite that if retained could impact upon the determined BAL rating.

Indicative BAL Ratings

When this Plan presents a single indicative BAL rating for a proposed construction site (building), this will be because the construction is still subject to a location within the lot being confirmed and/or a vegetation separation distance being achieved. That is, it will be conditional upon some factor being confirmed at a later stage.

For planning applications associated with proposed lots, the building location, elevation design and footprint have typically not been established. Therefore, indicative rather than determined BAL rating/s will be presented for each lot (with the exception as noted above under 'Determined BAL Ratings').

When this Plan presents a single indicative BAL rating for a lot or building envelope (i.e. an 'area' that is not a located building footprint) it will represent the highest BAL rating affecting that 'area'. The BAL rating of a future building on that 'area' will be dependent on its eventual location.

Otherwise, this Plan will present all BAL ratings for each lot and for each BAL rating, the vegetation separation distances from each area of classified vegetation that are to apply. These distances will be presented as either figures in a table or as a BAL contour map.

From this indicative BAL information, it can be assessed if acceptable BAL ratings (≤ BAL-29) can be achieved for future buildings.

3.2.1 Indicative BAL Results Presented as a BAL Contour Map

Interpretation of the Bushfire Attack Level (BAL) Contour Map

The contour map will present different coloured contour intervals constructed around the classified bushfire prone vegetation. These represent the different Bushfire Attack Levels that exist at varying distances away from the classified vegetation.

Each BAL represents a set range of radiant heat flux (as defined by AS 3959-2009) that can be generated by the bushfire in that vegetation at that location.

The width of each shaded contour (i.e. the distance interval) will vary and is determined by consideration of variables including vegetation type, fuel structure, ground slope, climatic conditions. They are unique to a site and can vary across a site. The width of each contour is a diagrammatic expression of the separation distances from the classified vegetation that apply for each BAL rating, for that site.

A building (or 'area') located within any given BAL contour will be subject to that BAL rating and potentially multiple BAL ratings of which the highest rating will be applied.

Separation Distances Calculated to Construct the BAL Contours

Table 3.3: Vegetation separation distances applied to construct the BAL contours.

Calculated Vegetation Separation Distances								
Vegetation Area	Vegetation Classification	Effective Slope Degrees	BAL Assessment Method Applied[1]	BAL Rating and Corresponding Separation Distance (metres)				
				BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class G Grassland	0	Method 1	<6	6-<8	8-<12	12-<17	17-<50
2	Class B Woodland	0	Method 1	<10	10-<14	14-<20	20-<29	29-<100
3	Class C Shrubland	0	Method 1	<7	7-<9	9-<13	13-<19	19-<100
4	Class D Scrub	0	Method 1	<10	10-<13	13-<19	19-<27	27-<100

[1] Method 1 as per AS 3959-2009 Table 2.4.3 and Method 2 as per AS 3959-2009 Appendix B. The input variables applied, other than the calculation model defaults, are presented in Section 3.1 of this Plan.

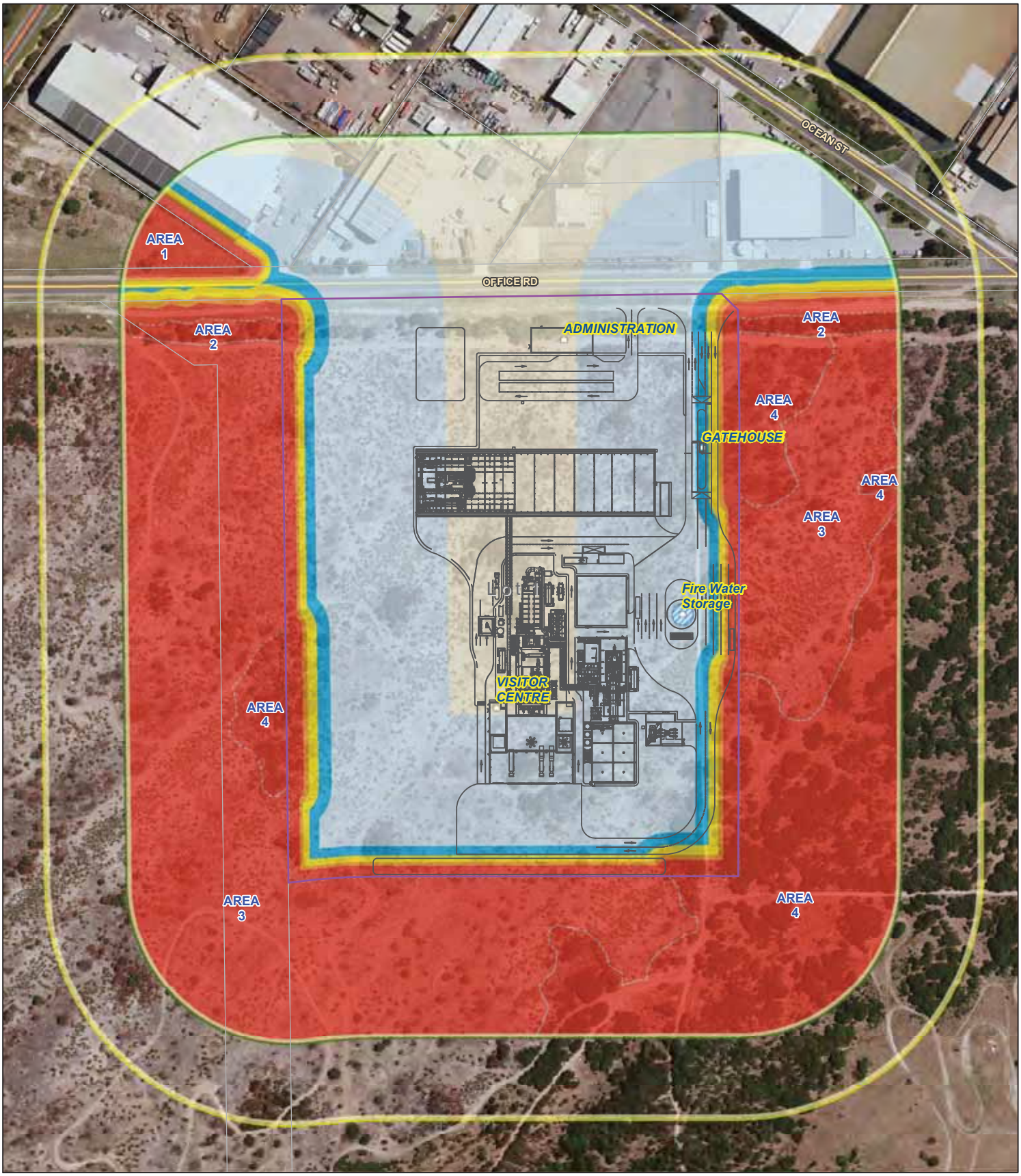


Figure 3.2

BAL Contour Map

Lot 1 on Diagram 62220
26 Office Road
EAST ROCKINGHAM

LEGEND

- Subject Area: Lot
- Other Lots
- Site Plan
- R Water Storage Tank

Assessment Area

- Vegetation - 150m
- BAL Contour - 100m

Bushfire Attack Levels (Method 1)

- Vegetation edge (Indicative only)
- BAL FZ (Indicative only)
- BAL 40 (Indicative only)
- BAL 29 (Indicative only)
- BAL 19 (Indicative only)
- BAL 12.5 (Indicative only)
- BAL LOW (Indicative only)

LOCALITY

Aerial Imagery : Landgate/SLIP
Image Date : Feb 2018

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre

Map compiled by: Russell Wornes
Date map compiled/updated: 27 Apr 2018

SCALE (A3) 0 25 50 75 100 125 150 Metres

Document Path: G:\BushfireProne\Mapping\MXD's\180203_Lot 1 Office Road, East Rockingham_BMP_(A3P)18-2.mxd

3.2.2 Bushfire Attack Levels (BAL) Derived from The Contour Map

Deriving a BAL Rating for a Future Construction Site (Building) from the BAL Contour Map Data

(Capacity to Issue a BAL Certificate)

Key Assumptions: The actual location of a building within a lot or envelope (an 'area') has not been determined at this stage of planning; and the BAL ratings represent the BAL of an 'area' not a building.

The BAL Rating is Assessed as Indicative

If the assessed BAL for the 'area' is stated as being 'indicative', it is because that 'area' is impacted by more than one BAL contour interval and/or classifiable vegetation remains on the lot, or on adjacent lots, that can influence a future building's BAL rating (and this vegetation may have been omitted from being contoured for planning purposes e.g. Grassland or when the assumption is made that all onsite vegetation can be removed and/or modified).

In this report the indicative BAL is presented as either the highest BAL impacting the site or as a range of achievable BAL's within the site – whichever is the most appropriate.

The BAL rating that will apply to any future building within that 'area' will be dependent on:

1. vegetation management onsite; and/or
2. vegetation remaining on adjacent lots; and/or
3. the actual location of the future building within that 'area'.

A BAL Certificate cannot be provided for future buildings, within a lot or envelope with an indicative BAL, until the building location and in some instances building design (elevation), have been established and any required and approved vegetation modification/removal has been confirmed. Once this has occurred a report confirming the building location and BAL rating will be required to submit with the BAL certificate.

The required confirmation of the BAL rating must be done by a bushfire practitioner with the same level of accreditation as has been required to compile this Bushfire Management Plan. This is dependent on the type of calculations utilised (e.g. if performance based solutions have been used in the Plan BPAD Level 3 accreditation is required)

The BAL Rating is Assessed as Determined

If the assessed BAL for the lot or envelope is stated as being 'determined' it is because that lot or envelope is impacted by a single BAL contour interval. This BAL has been determined by the existence (or non-existence) of classified vegetation outside the lot or envelope, and no classifiable vegetation currently exists on the lot or envelope (i.e. it has been cleared to a minimal fuel, low bushfire threat state). In the situation where the BAL Contour Map has been constructed around multiple lots, there also needs to no classifiable vegetation on an adjacent lot if this vegetation has not already been incorporated into the creation of the BAL Contour Map.

As a result, a determined BAL can be provided in this limited situation because:

1. No classified vegetation is required to be removed or modified to achieve the determined BAL, either within the lot/envelope or on adjacent lots (or if vegetation is excluded from classification, it is reasonable to assume it will be maintained in this state into the future); and
2. A future building can be located anywhere within the 'site' and be subject to the determined BAL rating; and
3. The degree of certainty is more than sufficient to allow for any small discrepancy that might occur in the mapping of the BAL contours.

For a determined BAL rating for a lot/envelope, A BAL Certificate (referring to this BMP) can be provided for a future building, if the BMP remains current.

Table 3.4**:** Summary BAL results.

BAL Results – Summary of Assessment (detail of assessment and determination is presented in the following sections of this report)		
Proposed Building	BAL Status	Bushfire Attack Level
Gate House	Indicative Only	BAL-19
Tipping Hall	Indicative Only	BAL-12.5
Waste Bunker	Indicative Only	BAL-12.5
Boiler Hall	Indicative Only	BAL-LOW
Flue Gas Treatment Area	Indicative Only	BAL-LOW
Turbine Hall	Indicative Only	BAL-12.5
Air Cooled Condenser	Indicative Only	BAL-12.5
Control Room Building	Indicative Only	BAL-12.5
Bottom Ash Treatment Area	Indicative Only	BAL-12.5
Bottom Ash Storage Area	Indicative Only	BAL-12.5
Workshop & Storage	Indicative Only	BAL-12.5
Weighbridge/Gate House	Indicative Only	BAL-19
Visitor Centre	Indicative Only	BAL-12.5
FGTR Stabilization Plant	Indicative Only	BAL-12.5

4 Identification of Bushfire Hazard Issues

Areas of scrub and shrubland abut the east, south and west boundaries of the subject lot. Developed industrial lots are located to the north. A corridor of bushfire prone vegetation, running in a north-south direction, exists further to the east and joins with the vegetation abutting the subject lot. The land adjoining the proposed development is flat and there will be no increased fire behaviour from this topography.

The whole of the subject lot will be cleared of vegetation during the construction phase of the development and will be maintained in a low bushfire threat in perpetuity. Buildings within the development will be subject to BAL ratings ranging from BAL-LOW to BAL-19.

Two access/egress routes are available from the entrance to the proposed development and similarly from either end of Office Road. A looped parking area with sufficient turning for a 3.4 type fire appliance services the Administration Building. Access routes around the perimeter of the production area are generally greater than 6 metres in width with one 50 metre section having a 5 metre surface.

A reticulated water supply is available to the site and multiple fire hydrants exist along Office Road. Additionally, fire water storage tanks will be available in the event of a fire.

5 Assessment Against the Bushfire Protection Criteria (BPC)

5.1 Bushfire Protection Criteria - Assessment Summary

Summarised Outcome of the Assessment Against the Bushfire Protection Criteria (BPC)				
Element	Basis for the Assessment of Achieving the Intent of the Element			
	Achieves compliance with the Element through meeting Acceptable Solutions		Achieves compliance with the Element by application of a Performance Based Solution	Minor or Unavoidable Development
	Meets all relevant acceptable solutions	One or more relevant Acceptable Solutions are not fully met. A variation of the solution is provided and justified.	One or more applicable Acceptable Solutions are not met. A solution is developed with the summary presented in this Plan in Section 5.5. The supporting document presenting Bushfire Prone Planning's detailed methodology is submitted separately to the decision makers.	The required supporting statements are presented in this Plan.
Location	✓			N/A
Siting and Design of Development	✓			
Vehicular Access	✓			
Water	✓			

The subject Proposal has been assessed against:

1. The requirements established in Appendix 4 of the Guidelines for Planning in Bushfire Prone Areas, WAPC 2017 v1.3 (the 'Guidelines'). The detail, including technical construction requirements, are found at https://www.planning.wa.gov.au/8194.aspx. A summary of relevant information is provided in the appendices of this Plan; and

2. Any endorsed variations to the Guideline's acceptable solutions and associated technical requirements that have been established by the relevant local government. If known and applicable these have been stated in Section 5.2 of this Plan with the detail included as an appendix if required by the relevant local government.

5.2 Bushfire Protection Criteria – Acceptable Solutions Assessment Detail

5.2.1 Element 1: Location

Bushfire Protection Criteria Element 1: Location Assessment Statements and Bushfire Protection Measures to be Applied			
Intent: To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.			
Acceptable Solution:	A1.1: Development Location	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution will be fully met.

The proposed development achieves compliance by:

- By ensuring future building work on the lot can be located on an area that will be subject to potential radiant heat from a bushfire not exceeding 29 kW/m^2 (i.e. a BAL rating of BAL-29 or less will apply). This can be achieved by using positioning, design and appropriate vegetation removal/modification; and
- Managing the remaining bushfire risk to an acceptable level by the existence/implementation and ongoing maintenance of all required bushfire protection measures, as identified within this Plan. These measures include the requirements for vegetation management, vehicular access and firefighting water supply.

5.2.2 Element 2: Siting and Design of Development

Bushfire Protection Criteria Element 2: Siting and Design of Development Assessment Statements and Bushfire Protection Measures to be Applied			
Intent: To ensure that the siting and design of development (note: not building/construction design) minimises the level of bushfire impact.			
Acceptable Solution:	A2.1: Asset Protection Zone	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution will be fully met.

The proposed development achieves compliance by:

- Ensuring future building work on the lot can have established around it an APZ of the required dimensions - to ensure that the potential radiant heat from a bushfire to impact future buildings, does not exceed 29 kW/m^2 (i.e. a BAL rating of BAL-29 or less will apply to determine building construction standards);
- The APZ can be established fully within the lot boundaries; and
- The landowner/s having the responsibility of continuing to manage the required APZ as low threat vegetation in a minimal fuel state, by maintaining the APZ to the required dimensions and standard, including compliance with the local government's annual firebreak notice where applicable.

The whole of the subject lot is to be managed to the technical requirements for Asset Protection Zones. The APZ technical requirements (Standards) are detailed in Appendix 1.

5.2.3 Element 3: Vehicular Access

Bushfire Protection Criteria Element 3: Vehicular Access Assessment Statements and Bushfire Protection Measures to be Applied			
Intent: To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.			
Acceptable Solution:	A3.1: Two access routes	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.
Vehicular access to the proposed development is from Office Road. Office Road provides safe access and egress to two different destinations. As a sealed public road, it is available to all residents and the public at all times and under all weather conditions.			
Acceptable Solution:	A3.2 Public Road	Method of achieving Element compliance and/or the Intent of the Element:	N/A
No new public roads are proposed for this development.			
Acceptable Solution:	A3.3 Cul-de-sacs (including a dead-end road)	Method of achieving Element compliance and/or the Intent of the Element:	N/A
Acceptable Solution:	A3.4: Battle-axe	Method of achieving Element compliance and/or the Intent of the Element:	N/A
Acceptable Solution:	A3.5: Private Driveways	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution will be fully met.
The construction technical requirements established by the Guidelines can and will be complied with, including minimum 6 metre horizontal and 4.5 metre vertical clearances. These requirements are set out in Appendix 2.			
Acceptable Solution:	A3.6 Emergency Access Way	Method of achieving Element compliance and/or the Intent of the Element:	N/A
Acceptable Solution:	A3.7 Fire Service Access Routes	Method of achieving Element compliance and/or the Intent of the Element:	N/A
Acceptable Solution:	A3.8 Firebreak Width	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution will be fully met.
The proposed development will comply with the requirements of the local government annual firebreak notice issued under s33 of the Bush Fires Act 1954 as applicable.			

5.2.4 Element 4: Water

Bushfire Protection Criteria Element 4: Water Assessment Statements and Bushfire Protection Measures to be Applied			
Intent: To ensure water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.			
Acceptable Solution:	A4.1 Reticulated Areas	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.
A reticulated water supply is currently available to the site. The closest hydrant is located 18 metres north of the subject site on the opposite side of Office Road. Additionally, fire hydrants will be installed within the development, at a minimum spacing of 100 metres, along with a 1.42 megalitre Fire Water Storage Tank. The construction technical requirements established by the Guidelines and/or the local government can and will be complied with. These requirements are set out in Appendix 3.			
Acceptable Solution:	A4.2 Non-Reticulated Areas	Method of achieving Element compliance and/or the Intent of the Element:	N/A
Acceptable Solution:	A4.3 Non-reticulated Areas (Individual Lots)	Method of achieving Element compliance and/or the Intent of the Element:	N/A

5.3 Additional Information for Required Bushfire Protection Measures

The purpose of this section of the Plan is:

- As necessary, to provide additional detail (to that provided in the tables of Section 5.3) regarding the implementation of the acceptable solutions for those persons who will have the responsibility to apply the stated requirements;

- As necessary, to detail specific onsite vegetation management requirements such as the APZ dimensions, management of Public Open Space or application of landscaping plans for onsite vegetation;

- To discuss how staged development will be handled, if applicable; and

- As relevant, for future planning stages, consider and discuss the requirements that may apply to future planning applications and the content of the associated BMP. In particular:
    - Any potential Vulnerable or High-Risk Land Uses.
    - Any additional content that will be required in the future BMP.

5.3.1 Vegetation Management

Asset Protection Zone (APZ) Dimensions that are to Apply

The required dimensions of the APZ will vary dependent upon the purpose for which the APZ has been defined. There are effectively three APZ dimensions that can apply:

1. An application for planning approval will be required to show that an APZ can be created which is of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29); and
2. If the assessment has determined a BAL rating for an existing or future building is less than BAL-29, the APZ must be of sufficient size to ensure the potential radiant heat impact of a fire does not exceed the kW/m² corresponding to the lower assessed BAL rating; or
3. Complying with the relevant local government's annual firebreak notice may require an APZ of greater size than that defined by the two previous parameters.

The whole of the subject lot is to be managed to the technical requirements for Asset Protection Zones. The APZ technical requirements (Standards) are detailed in Appendix 1.

For reference, the minimum vegetation separation distances required to achieve the stated BAL ratings for the proposed buildings are presented in the tables below.

The Minimum Separation Distance Required to Retain the Indicative BAL Rating (refer to Figure 3.1 for vegetation area details)

The Minimum Separation Distance Required to Retain the Indicative BAL Rating				
Vegetation Area	**1**	**2**	**3**	**4**
Proposed Buildings with Indicative BAL of BAL-19				
Minimum Separation Distance Required (m)	12	20	13	19
Proposed Buildings with Indicative BAL of BAL-12.5				
Minimum Separation Distance Required (m)	17	29	19	27
Proposed Buildings with Indicative BAL of BAL-LOW				
Minimum Separation Distance Required (m)	50	100	100	100

'Local Government Firebreak Notice' Required Minimum Dimensions for the Subject Site	
Requirement Set By:	City of Rockingham
Minimum Dimensions:	See City of Rockingham Fire Control Notice
Other Conditions:	If Asset Protection Zone technical requirements are defined in the Notice, the standards and dimensions may differ from the Guideline's APZ Standards, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with. Refer to Appendix 1.
This requirement has been established through the stated local government's annual fire break notice issued under the Bushfires Act 1954 s33.	

5.4 Recommended Bushfire Protection Measures

These recommendations are for measures that are not directly considered by SPP 3.7 and the associated Guidelines, including the bushfire protection criteria.

These measures are recommended by the bushfire consultant to improve the safety of property occupants and the resilience of buildings in the event of a bushfire impacting the property.

Recommendations may be of specific benefit in supporting applications for 'Minor Development' or 'Unavoidable Development' which are otherwise unable to fully comply with the established bushfire protection criteria.

Bushfire construction standards do not apply to the development. However, it is recommended that the proposed buildings be constructed to the specifications for a BAL-12.5 rating as a minimum, providing protection from ember attack. Specifically, the Administration Building should be considered as this will be used as an assembly point/refuge in the event of a bushfire.

It is also noted from the Fire and Life Safety Strategy document for this site, that the building materials for the proposed development shall be non-combustible.

6 Responsibilities for Implementation and Management of the Bushfire Protection Measures

Table 6.1: BMP Implementation responsibilities prior to lot sale, occupancy or building for the Landowner (Developer).

LANDOWNER (DEVELOPER) - PRIOR TO LOT SALE, OCCUPANCY OR BUILDING	
No.	Implementation Actions
1	The local government may condition a development application approval with a requirement for the landowner/proponent to register a notification onto the certificate of title (it may also need to be included on the deposited plan). This will be done pursuant to Section 70A Transfer of Land Act 1893 as amended ('Factors affecting use and enjoyment of land, notification on title:'). This is to give notice of the bushfire hazard and any restrictions and/or protective measures required to be maintained at the owner's cost. This condition ensures that: 1. Landowners/proponents are aware their lot is in a designated bushfire prone area and of their obligations to apply the stated bushfire risk management measures; and 2. Potential purchasers are alerted to the Bushfire Management Plan so that future landowners/proponents can continue to apply the bushfire risk management measures that have been established in the Plan.
2	Prior to occupancy and post planning approval, the entity responsible for having the BMP prepared should ensure that anyone listed as having responsibility under the Plan has endorsed it and is provided with a copy for their information and informed that it contains their responsibilities. This includes the landowners/proponents, local government and any other authorities or referral agencies ('Guidelines' s4.6.3).
3	Prior to occupancy of the subject lot it is to be compliant with the relevant local government's annual firebreak notice issued under s33 of the Bushfires Act 1954.
4	Prior to occupancy, establish the Asset Protection Zone (APZ) on the lot to the dimensions and standard stated in the BMP. This is the responsibility of the landowner.
5	Prior to occupancy, install the planned emergency static water supply (1.42 megalitre tank within the lot) and associated vehicle access, to the standards stated in the BMP.
6	Prior to occupancy, install the private driveways to the standards stated in the BMP.
7	There is an obligation, created by this Bushfire Management Plan, for a Bushfire Emergency Plan for proposed occupants to be developed for the 'vulnerable' land use.

8	Prior to occupancy, a copy of the Bushfire Emergency Plan must be provided to the landowner/occupier and they are to be informed that it contains responsibilities that must be actioned due to the subject Proposal's land use being defined as 'Vulnerable'. Certain information contained within the Bushfire Emergency Plan that has accompanied this Bushfire Management Plan, must be displayed in the building – as directed in the Bushfire Emergency Plan provided as a separate document.
9	At the development application stage, the details of the key persons with responsibility (positions, names and contact details) with respect to application of the Bushfire Emergency Plan is unknown. This information must be compiled within the Plan prior to occupancy.
10	Prior to use of the buildings, there is an outstanding obligation created by this Bushfire Management Plan to develop and have approved, the required risk management plan that addresses bushfire risk management measures for onsite flammable hazards, as directed in Section 1.4.
11	Prior to any building work, inform the builder of the existence of this Bushfire Management Plan and the responsibilities it contains, regarding the required construction standards. This will be: • The standard corresponding to the determined BAL rating, as per the bushfire provisions of the Building Code of Australia (BCA); and/or • A higher standard as a result of the BMP establishing that construction is required at a standard corresponding to a higher BAL rating.

Table 6.2: Ongoing management responsibilities for the Landowner/Occupier.

LANDOWNER/OCCUPIER - ONGOING	
No.	Ongoing Management Actions
1	Maintain the Asset Protection Zone (APZ) to the dimensions and standard stated in the BMP.
2	Comply with the City of Rockingham Fire Control Notice issued under s33 of the Bush Fires Act 1954 where applicable.
3	Maintain vehicular access routes within the lot to the required surface condition and clearances as stated in the BMP.
4	Maintain the emergency water supply tank and its associated fittings and vehicular access in good working condition.
5	Ensure that any builders (of future structures on the lot) are aware of the existence of this Bushfire Management Plan and the responsibilities it contains regarding the application of construction standards corresponding to a determined BAL rating.
6	Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with: 1. the requirements of the WA Building Act 2011 and the bushfire provisions of the Building Code of Australia (BCA); and 2. with any identified additional requirements established by this BMP or the relevant local government.
7	To consider, implement and maintain, as relevant and able, any bushfire protection measures that have been recommended by the bushfire consultant (refer to Section 5.4), in addition to the measures that are required to be implemented and maintained.
8	Maintain the Bushfire Emergency Plan and as it directs, the pages containing actionable information must continue to be to be displayed and available to all occupants. The key persons and all contact information must be checked annually and updated as necessary.
9	The Risk Management Plan containing bushfire risk management measures for flammable onsite hazards must be reviewed each year and relevant information updated. All required measures must continue to be complied with.

Table 6.3: Ongoing management responsibilities for the Local Government.

LOCAL GOVERNMENT - ONGOING	
No.	Ongoing Management Actions
1	Monitor landowner compliance with the Bushfire Management Plan and the annual Fire Control Notice where applicable.

Appendix 1 - Onsite Vegetation Management Technical Requirements

It is the responsibility of the landowner to maintain the established bushfire protection measures on their property. Not complying with these responsibilities can result in buildings being subject to a greater potential impact from bushfire than that determined by the assessed BAL rating presented in this Bushfire Management Plan.

For the management of vegetation within a lot (i.e. onsite) the following technical requirements exist:

1. **The APZ:** Installing and maintaining an asset protection zone (APZ) of the required dimensions to the standard established by the Guidelines for Planning in Bushfire Prone Areas (WA Planning Commission, as amended). When, due to the planning stage of the proposal to which this Bushfire Management Plan applies, defined APZ dimensions are known and are to be applied to existing or future buildings – then these dimensions are stated in Section 5.4.1 of this Plan.

2. **The Firebreak/Fuel Load Notice:** Complying with the requirements established by the relevant local government's annual firebreak notice issued under s33 of the Bushfires Act 1954. Note: If an APZ requirement is included in the Notice, the standards and dimensions may differ from the Guideline's APZ Standard – the larger dimension must be complied with.

3. **Changes to Vegetated/Non-Vegetated Areas:**

    a. If applicable to this Plan, the minimum separation distance from any classified vegetation, that corresponds to the determined BAL for a proposed building, must be maintained as either a non-vegetated area or as low threat vegetation managed to a minimal fuel condition as per AS 3959-2009 s2.2.3.2 (e) and (f). Refer to Part 4 of this Appendix 1.

    b. Must not alter the composition of onsite areas of classified vegetation (as assessed and presented in Section 3.1.2) to the extent that would require their classification to be changed to a higher bushfire threat classification (as per AS 3959-2009); and

    c. Must not allow areas within a lot (i.e. onsite) that have been:
        i. excluded from classification by being low threat vegetation or non-vegetated; and
        ii. form part of the assessed separation distance that is determining a BAL rating -

    …to become vegetated to the extent they no longer represent a low threat (refer to Part 4 of Appendix 1). Note: The vegetation classification exclusion specifications as established by AS 3959-2009 s2.2.3.2, are included at A1.4 below for reference.

1. Requirements Established by the Guidelines – the Asset Protection Zone (APZ) Standards

(Source: Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 Appendix 4, Element 2, Schedule 1 and Explanatory Note E2.1)

Defining the Asset Protection Zone (APZ)

Description: An APZ is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level (by reducing fuel loads). The width of the required APZ varies with slope and vegetation. For planning applications, the minimum sized acceptable APZ is that which is of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29). It will be site specific.

The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

For subdivision planning, design elements and excluded/low threat vegetation adjacent to the lot can be utilised to achieve the required vegetation separation distances and therefore reduce the required dimensions of the APZ within the lot.

Defendable Space: The APZ includes a defendable space which is an area adjoining the asset within which firefighting operations can be undertaken to defend the structure. Vegetation within the defendable space should be kept at an absolute minimum and the area should be free from combustible items and obstructions. The width of the defendable space is dependent on the space which is available on the property, but as a minimum should be 3 metres.

Establishment: The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity.

Note: Regardless of whether an Asset Protection Zone exists in accordance with the acceptable solutions and is appropriately maintained, fire fighters are not obliged to protect an asset if they think the separation distance between the dwelling and vegetation that can be involved in a bushfire, is unsafe.

Schedule 1: Standards for APZ

Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.

Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.

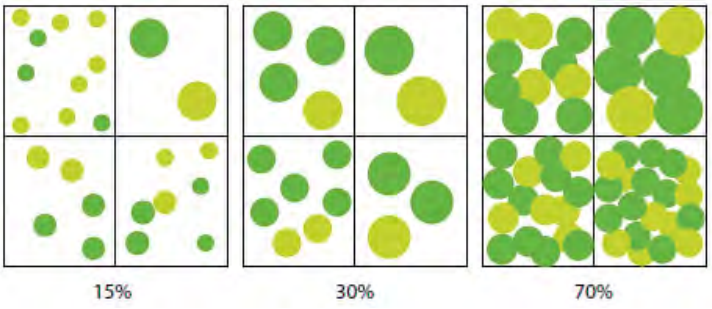
Fine Fuel Load: combustible dead vegetation matter less than 6 mm in thickness reduced to and maintained at an average of two tonnes per hectare (example below).

Example Fine Fuel Load of Two Tonnes per Hectare

(Image source: Shire of Augusta Margaret River's Firebreak and Fuel Reduction Hazard Notice)

Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy. Diagram below represents tree canopy cover at maturity.

Tree canopy cover – ranging from 15 to 70 per cent at maturity



(Source: Guidelines for Planning in Bushfire Prone Areas 2017, Appendix 4)

Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m2 in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.

Ground covers (<0.5 metres in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 mm in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.

Grass: should be managed to maintain a height of 100 mm or less.

The following example diagrams illustrate how the required dimensions of the APZ will be determined by the type and location of the vegetation.

2. Requirements Established by the Local Government – the Firebreak Notice

These requirements are established by the relevant local government's Firebreak Notice created under s33 of the Bushfires Act 1954 and issued annually (potentially with revisions). The Notice may include additional components directed at managing fuel loads, accessibility and general property management with respect to limiting potential bushfire impact.

The relevant local government's current Firebreak Notice is available on their website, at their offices and is distributed as ratepayer's information. It must be complied with.

If Asset Protection Zone technical requirements are defined in the Notice, the standards and dimensions may differ from the Guideline's APZ Standards, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with.

When, due to the planning stage of the proposal to which this Bushfire Management Plan applies, defined APZ dimensions are known and are to be applied to existing or future buildings – then these dimensions are stated in Section 5.4.1 of this Plan.

3. Requirements Recommended by DFES – Property Protection Checklists

Further guidance regarding ongoing/lasting property protection (from potential bushfire impact) is presented in the publication 'DFES – Fire Chat – Your Bushfire Protection Toolkit'. It is available from the Department of Fire and Emergency Services (DFES) website.

4. Requirements Established by AS 3959-2009 - Maintaining Areas within your Lot as 'Low Threat'

This information is provided for reference purposes. This knowledge will assist the landowner to comply with Management Requirement No. 3 set out in the Guidance Panel at the start of this Appendix. It identifies what is required for an area of land to be excluded from classification as a potential bushfire threat.

"Australian Standard - AS 3959-2009 Section 2.2.3.2: Exclusions - Low threat vegetation and non-vegetated areas:

The Bushfire Attack Level shall be classified BAL-LOW where the vegetation is one or a combination of the following:

a) *Vegetation of any type that is more than 100m from the site.*
b) *Single areas of vegetation less than 1ha in area and not within 100m of other areas of vegetation being classified.*
c) *Multiple area of vegetation less than 0.25ha in area and not within 20m of the site or each other.*
d) *Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or each other, or other areas of vegetation being classified.*
e) *Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.*
f) *Low threat vegetation, including grassland managed in a* ***minimal fuel condition*** *(i.e. insufficient fuel available to significantly increase the severity of a bushfire attack – recognisable as short cropped grass to a nominal height of 100mm for example), maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks."*

Appendix 2 - Vehicular Access Technical Requirements

Each local government may have their own standard technical requirements for emergency vehicular access and they may vary from those stated in the Guidelines.

Contact the relevant local government for the requirements that are to apply in addition to the requirements set out as an acceptable solution in the Guidelines. If the relevant local government requires that these are included in the Bushfire Management Plan, they will be included in this appendix and referenced.

Requirements Established by the Guidelines – The Acceptable Solutions

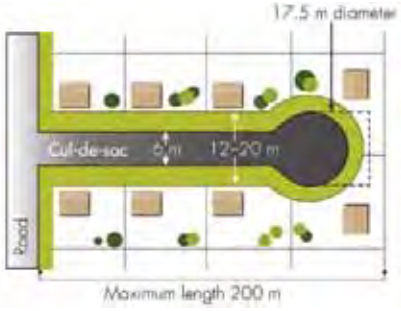
(Source: Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4)

Vehicular Access Technical Requirements - Part 1

Acceptable Solution 3.3: Cul-de-sacs (including a dead-end road)

Their use in bushfire prone areas should be avoided. Where no alternative exists then the following requirements are to be achieved:

- Maximum length is 200m. If public emergency access is provided between cul-de-sac heads (as a right of way or public access easement in gross), the maximum length can be increased to 600m provided no more than 8 lots are serviced and the emergency access way is less than 600m in length;
- Turnaround area requirements, including a minimum 17.5m diameter head to allow type 3.4 fire appliances to turn around safely;
- The cul-de-sac connects to a public road that allows for travel in two directions; and
- Meet the additional design requirements set out in Part 2 of this appendix.



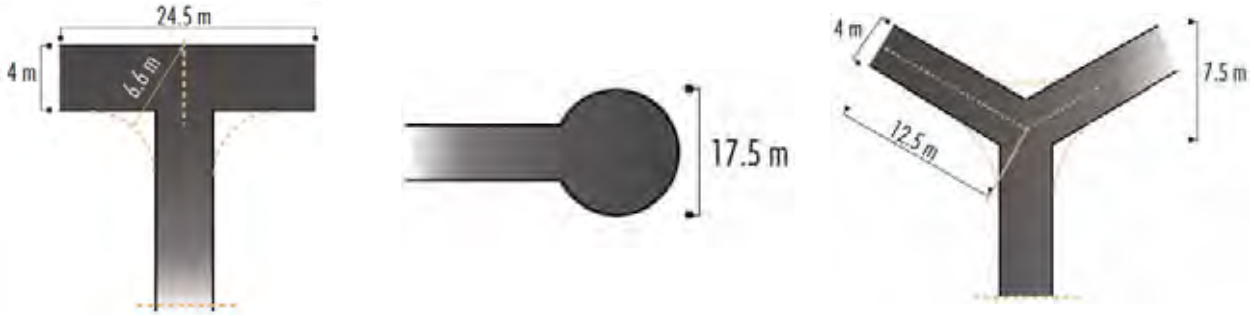
Acceptable Solution 3.5: Private Driveways

The following requirements are to be achieved:

- The design requirements set out in Part 2 of this appendix; and

Where the house site is more than 50 metres from a public road:

- Passing bays every 200 metres with a minimum length of 20 metres and a minimum width of two metres (ie combined width of the passing bay and constructed private driveway to be a minimum six metres);
- Turn-around areas every 500 metres and within 50 metres of a house, designed to accommodate type 3.4 fire appliances to turn around safely (ie kerb to kerb 17.5 metres);
- Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes; and
- All weather surface (i.e. compacted gravel, limestone or sealed).



Acceptable Solution 3.7: Fire Service Access Routes (Perimeter Roads)

Are to be established to provide access within and around the edge of subdivision and related development and to provide direct access to bushfire prone areas for firefighters and link between public road networks for firefighting purposes. Fire service access is used during bushfire suppression activities but can also be used for fire prevention work. The following requirements are to be achieved:

- No further than 600 metres from a public road (driveways may be used as part of the designated fire service access;
- Dead end roads not permitted;
- Allow for two-way traffic (i.e. two 3.4 fire appliances);
- Provide turn-around areas designed to accommodate 3.4 fire appliances and to enable them to turn around safely every 500m (i.e. kerb to kerb 17.5 metres);
- All weather surface (i.e. compacted gravel, limestone or sealed) and have erosion control measures in place;
- Must be adequately sign posted;
- Where gates are used they must be a minimum width of 3.6 metres with design and construction approved by local government (refer to the example in this appendix) and may be locked (use a common key system);
- Meet the additional design requirements set out in Part 2 of this appendix;
- Provided as right of ways or public access easements in gross; and
- Management and access arrangements to be documented and in place.

Acceptable Solution 3.8: Firebreak Width

Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three meters or to the level as prescribed in the local firebreak notice issued by the local government.

Vehicular Access Technical Requirements - Part 2					
Technical Component	Vehicular Access Types				
	Public Roads	Cul-de-sacs	Private Driveways	Emergency Access Ways	Fire Service Access Routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	4.5	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum cross-fall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5
* A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metres of paving and one metre of constructed road shoulders. In special circumstances, where 8 lots or less are being serviced, a public road with a minimum trafficable surface of four metres for a maximum distance of ninety metres may be provided subject to the approval of both the local government and DFES.					

Appendix 3 - Water Technical Requirements

Requirements Established by the Guidelines - Acceptable Solution A4.1: Reticulated Areas

(Source: Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4, Element 4)

The requirement is to supply a reticulated water supply and fire hydrants, in accordance with the technical requirements of the relevant water supply authority and DFES.

The Water Corporation's 'No 63 Water Reticulation Standard' is deemed to be the baseline criteria for developments and should be applied unless local water supply authority's conditions apply.

Key specifications in the most recent version/revision of the design standard include:

- ***Residential Standard*** – hydrants are to be located so that the maximum distance between the hydrants shall be no more than 200 metres.
- ***Commercial Standard*** – hydrants are to be located with a maximum of 100 metre spacing in Industrial and Commercial areas.
- ***Rural Residential Standard*** – where minimum site areas per dwelling is 10,000 m^2 (1ha), hydrants are to be located with a maximum 400m spacing. If the area is further subdivided to land parcels less than 1ha, then the residential standard (200m) is to be applied.

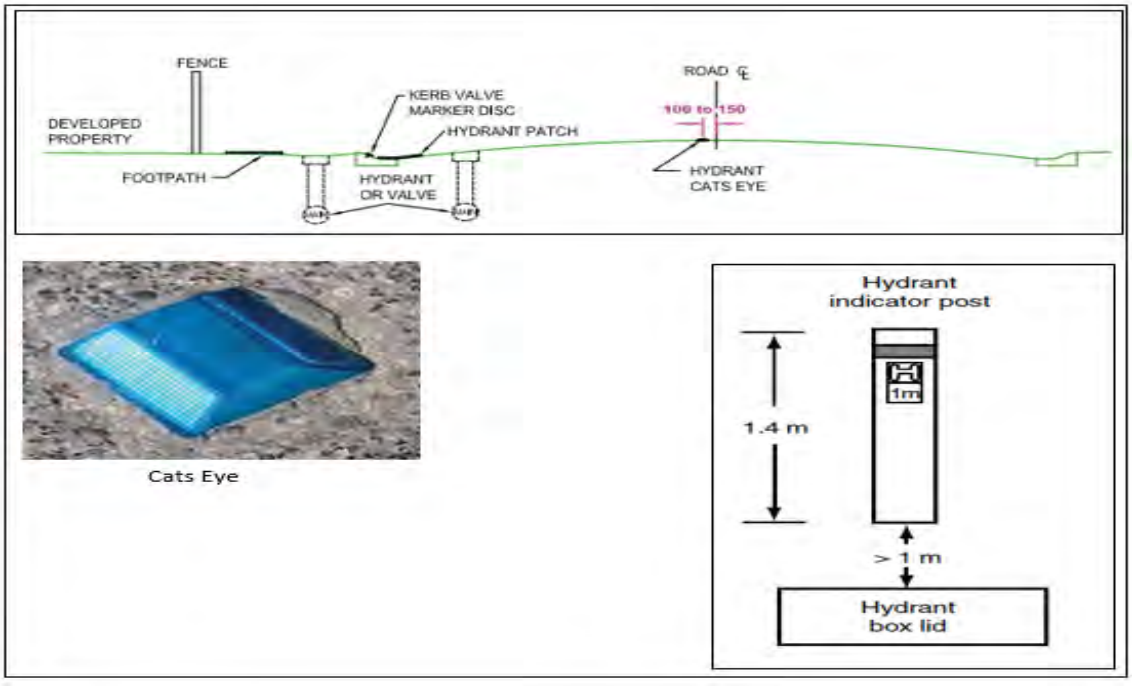


Figure A4.1: Hydrant Location and Identification Specifications

Contact the relevant water supply authority to confirm the technical requirements that are to be applied. They may differ from the minimum requirements of the 'baseline' Water Corporation's No. 63 Water Reticulation Standard.

BUSHFIRE PRONE PLANNING

Calculated April 27, 2016, 3:07 pm (BALc v.4.8)

26 Office Road, East Rockingham (Admin Building)

Bushfire Attack Level calculator - AS3959-2009 (Method 2)			
Inputs		Outputs	
Fire Danger Index	80	Rate of spread	1.43 km/h
Vegetation classification	Woodland	Flame length	12.35 m
Surface fuel load	15 t/ha	Flame angle	83 °
Overall fuel load	25 t/ha	Panel height	12.26 m
Vegetation height	n/a	Elevation of receiver	6.13 m
Effective slope	0 °	Fire intensity	18,599 kW/m
Site slope	0 °	Transmissivity	0.73
Distance to vegetation	89 m	Viewfactor	0.0416
Flame width	100 m	Radiant heat flux	2.31 kW/m²
Windspeed	n/a	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,090 K		

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

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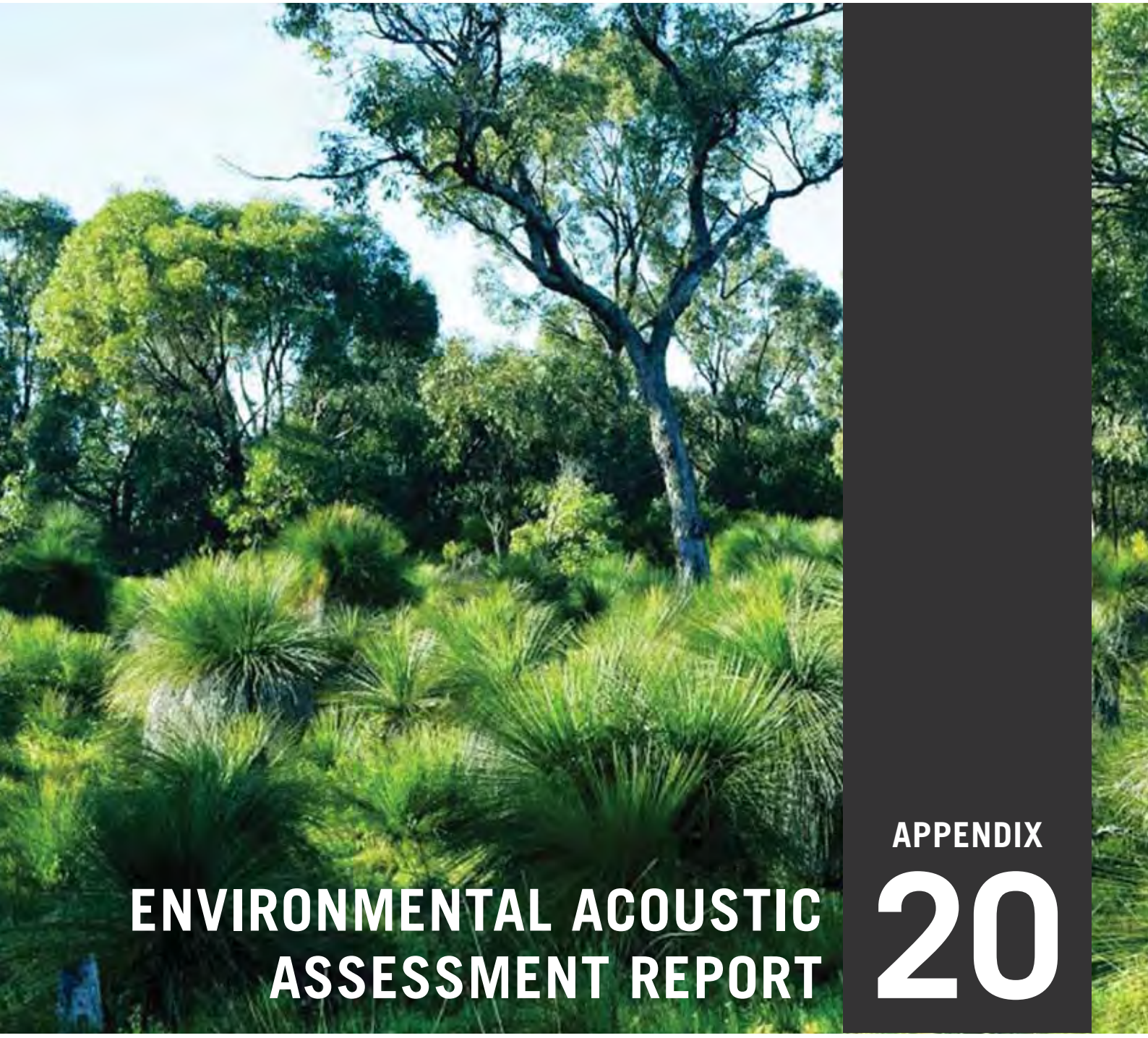

APPENDIX

20

ENVIRONMENTAL ACOUSTIC ASSESSMENT REPORT

APPENDIX 20: Environmental Acoustic Assessment Report

HERRING STORER ACOUSTICS

AURORA ENVIRONMENTAL

WASTE TO ENERGY POWER STATION
EAST ROCKINGHAM

ENVIRONMENTAL ACOUSTIC ASSESSMENT

AUGUST 2017

OUR REFERENCE: 22140-2-17194

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
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DOCUMENT CONTROL PAGE

ENVIRONMENTAL ACOUSTIC ASSESSMENT
EAST ROCKINGHAM

Job No: 17194

Document Reference : 22140-2-17194

FOR

AURORA ENVIRONMENTAL

DOCUMENT INFORMATION			
Author:	Tim Reynolds	**Checked By:**	Paul Daly
Date of Issue :	23 August 2017		

REVISION HISTORY				
Revision	**Description**	**Date**	**Author**	**Checked**
1	Revised for Comments	07/09/17	TR	PLD

DOCUMENT DISTRIBUTION				
Copy No.	**Version No.**	**Destination**	**Hard Copy**	**Electronic Copy**
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APPENDIX

A	Locality Plan / Site Plan
B	Noise Contours

1. INTRODUCTION

Herring Storer Acoustics (HSA) was commissioned by Aurora Environmental to undertake a noise level impact assessment of noise emissions from the proposed waste to energy power station to be located at Lot 1 Office Road, East Rockingham, within the Kwinana Industrial Estate.

The objective of the study is to assess noise emissions from the Facility at noise sensitive premises surrounding the proposed site for compliance with the requirements of the *Environmental Protection (Noise) Regulations 1997*.

For information a locality plan is attached is Appendix A.

2. SUMMARY

The closest residences of concern are located within the suburbs of Medina, Calista and North Rockingham. As the power station could operate during the night period, noise received at the neighbouring residences needs to comply with the assigned night period noise level of 35 dB(A). However, as the power station is located within an area with other industry, noise received at the residences needs to be considered as NOT significantly contributing. Thus, noise received at the surrounding residential premises needs to comply with 30 dB(A).

Noise received at the neighbouring noise sensitive premises, located outside the Kwinana Industrial Area, in the worst case location was calculated at 29 dB(A). Therefore, noise received at these residences would be considered as NOT significantly contributing and would be deemed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*.

Additionally, noise received at the residences located within the Kwinana Industrial Area would also comply with the Regulatory requirements.

Based on the noise modelling, noise received at the neighbouring industrial premises, with the above noise ameliorations, has been calculated at up to 65 dB(A). At this noise level, noise received at the neighbouring industrial premises would also comply with the Regulatory requirements, even if a +5 dB(A) penalty for tonality was applied. Even with the inclusion of the penalty for a tonal component, noise received at the neighbouring industrial premises would comply with the assigned L_{A10} noise level of 75 dB(A).

Based on the above, noise emissions from the proposed power station, would be deemed to comply with the Regulatory requirements at all times.

3. CRITERIA

The *Environmental Protection (Noise) Regulations 1997* stipulate the allowable noise levels at any noise sensitive premises from other premises. For noise sensitive premises, the allowable noise level is determined by the calculation of an influencing factor, which is added to the baseline criteria set out in Table 1 of the Regulations. The baseline assigned noise levels are listed in Table 3.1. For commercial and industrial premises, the allowable noise levels are fixed.

TABLE 3.1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises: highly sensitive area	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days (Evening)	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35 + IF	45 + IF	55 + IF
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Industrial and utility premises in the Kwinana Industrial Area	All hours	75	85	90

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} is the maximum noise level.
IF is the influencing factor.

It is a requirement that received noise be free of annoying characteristics (tonality, modulation and impulsiveness), defined below as per Regulation 9.

"impulsiveness" means a variation in the emission of a noise where the difference between L_{Apeak} and $L_{Amax\ Slow}$ is more than 15 dB when determined for a single representative event;

"modulation" means a variation in the emission of noise that –

(a) is more than 3 dB $L_{A\ Fast}$ or is more than 3 dB $L_{A\ Fast}$ in any one-third octave band;
(b) is present for more at least 10% of the representative assessment period; and
(c) is regular, cyclic and audible;

"tonality" means the presence in the noise emission of tonal characteristics where the difference between –

(a) the A-weighted sound pressure level in any one-third octave band; and
(b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A\ Slow}$ levels.

Where the above characteristics are present and cannot be practicably removed, the following adjustments are made to the measured or predicted level at other premises.

TABLE 3.2 - ADJUSTMENTS TO MEASURED LEVELS

Where **tonality** is present	Where **modulation** is present	Where **impulsiveness** is present
+5 dB(A)	+5 dB(A)	+10 dB(A)

Note: These adjustments are cumulative to a maximum of 15 dB.

We note that Regulation 7 - Prescribed Standard for noise emissions states under sub-regulation 1:

Noise emitted from any premises or public place when received at other premises -

(a) must not cause, or significantly contribute to, a level of noise which exceeds the assigned level.

Additional, it also states that:

For the purposes of subregulation (1) (a), a noise emission is taken to ***significantly contribute to*** *a level of noise if the noise emission as determined under subregulation (3) exceeds a value which is 5 dB below the assigned level at the point of reception.*

Hence, if the noise received at a premises is 5 dB(A) or more below the assigned noise level, then noise received at that premises is considered to be NOT "significantly contributing" and deemed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* regardless of any other noise received at that premises from other sources.

As the power station would operate during the night period, noise received at the neighbouring residence outside Area B of the Kwinana Industrial Area would need to comply with the assigned night period L_{A10} noise level of 35 dB(A). However, as the power station is located within an industrial estate, noise received at a residence would need to be considered as NOT significantly contributing and acoustic criteria would be 5 dB(A) below the assigned noise level or 30 dB(A).

It is understood that there are a couple of residences located within the Kwinana Industrial Area. At these residence, the influencing factor would, due to their location within Area B of the Kwinana Policy Area, be +10 dB and the assigned noise level would be as listed in Table 3.3.

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL – RESIDENCES WITHIN KWINANA INDUSTRIAL AREA

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
Noise sensitive premises : Highly sensitive area	0700 - 1900 hours Monday to Saturday	55	65	75
	0900 - 1900 hours Sunday and Public Holidays	50	60	75
	1900 - 2200 hours all days	50	60	65
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	45	55	65

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} is the maximum noise level.

Noise received at these residences would also need to comply with the NOT "significantly contributing" requirements. Therefore, to comply with the regulatory requirements at these residences within the Policy Area, noise received from the Waste to Energy Power Station during the night period would need to comply with an L_{A10} noise level of 40 dB(A).

Noise received at the neighbouring industrial premises would need to comply with the assigned L_{A10} noise level of 75 dB(A). Due to the close proximity of neighbouring industrial premises to this facility compared to other industries, noise received at the boundary of the neighbouring industries would be dominated by the noise received from the Waste to Energy Power Station and the "significantly contributing" requirement would not be applicable. Therefore, the assigned L_{A10} noise level of 75 dB(A) is the applicable regulatory criteria at for the neighbouring residence.

4. PROPOSED FACILITY

The proposed facility is a waste to energy power station and would be located at Lot 1 Office Road, East Rockingham in the Kwinana Industrial Estate.

Given the location of the site, the neighbouring residences of concern are located within Medina, Calista and North Rockingham.

The power station would operate during the night period. Therefore, the night period would be the critical period for compliance. Additionally, as the noise emissions from the facility are basically steady state, noise emissions would need to comply with the assigned L_{A10} noise levels as outlined above in Section 3 – Criteria. Therefore, unless otherwise stated, noise levels stated within this assessment are L_{A10} noise levels.

For information, a site plan showing the plant layout is attached in Appendix A.

As shown on the site plan attached in Appendix A, sources, as listed below, will be located within the building :

- Residual Reception Facility (RRF);
- Generators; and
- Incineration Bottom Ash (IBA) treatment and storage.

From information supplied by the client, we understand that the construction of the building will be a metal clad on a steel frame, however, thermal insulation (anticon) will be installed under the roof.

The sound power levels of the equipment is listed in Table 4.1. Also listed in table 4.1 is the elevation of the noise source above ground level.

TABLE 4.1 –SOUND POWER LEVELS

Item of Equipment	Sound Power Level, (dB(A))	Elevation above Ground Level (m)
Bunker	95	15
Boiler	105	20
Bottom Ash Extraction	98	1
Hydraulic Station	93	2
Primary Air Fan	92	7
Secondary Air Fan	92	7
ID fan	97	2
Flue Gas Cleaning	107	12
Stack	97	60
Feed Water Pumps	92	1
Condensate Pumps	99	1
Air Cooled Condensers	106	15
Re-coolers	98	15
Turbine	101	7
Lignite Coke Blower	98	2
IBA Processing	101	10
Compressed Air Station	95	2
Emergency Generator	96	2
Front End Loader	105	2
Trucks	97	3

The noise model includes 2 front end loaders and 4 trucks.

5. MODELLING

Noise modelling of the noise propagation from the Facility was carried out using an environmental noise modelling computer program, 'SoundPlan'. Both single point and noise contour calculations were undertaken for this study. Noise contours show the overall noise level that would be received at a location due to the various activities carried out, whereas single point calculations show the influence of individual items on the overall noise resulting at a specific location.

Noise modelling was undertaker using the sound power levels listed in Table 4.1.

Weather conditions for the modelling were undertaken using the "Default Conditions for Noise Modelling" as stipulated within the Environmental Protection Authority's "*Draft Guidance for Environmental Noise for Prescribed Premises"* for the night period as listed in Table 5.1.

TABLE 5.1 – WEATHER CONDITIONS

Condition	Night
Temperature	15°C
Relative humidity	50%
Pasquill Stability Class	F
Wind speed	3 m/s*

* From sources, towards receivers.

Notes :

1 Calculations are always undertaken with the wind direction from the sources to the receiver.

2 A ground absorption co-efficient of 0.6, which we understand is the same as used in the Kwinana Industrial Council (KIC) noise model.

3 To be conservative, no other building apart from the building associated with this project have been included in the noise model.

Single point calculations were carried out for noise received at closest residential premises located around the site and results are listed in Table 5.2. The location of the following single point locations are shown on the locality plan attached in Appendix A. We understand that these points are reference monitoring points used to assess noise emissions from the KIC and are understood to represent to worst case locations for each locality.

TABLE 5.2 – CALCULATED NOISE LEVELS

Item	Calculated Noise Levels (dB(A))
1 – North Rockingham	28
2 – Hillman	27
3 – Leda	29
4 – Calista	29
5 – Medina	27
6 – Residence within Area B	28

Based on the noise modelling, noise received at the neighbouring industrial premises, has been calculated at up to 65 dB(A). However, noise received at the neighbouring industrial premises could be tonal and a +5 dB(A) penalty. Therefore, including the +5 dB(A) penalty, the adjusted noise level at the neighbouring industries would be 70 dB(A).

We note that at the neighbouring residential premises, at the calculated noise level noise received at these locations would not be tonal or contain any other annoying characteristics, thus no penalties would be applied calculated noise levels listed above.

The noise contour plot for the power station is attached as Figure B1 in Appendix B.

6. DISCUSSION

As the power station would operate during the night period, noise received at the neighbouring residence located outside the Zone B of the Kwinana Industrial Area would need to comply with the assigned night period L_{A10} noise level of 35 dB(A). However, as the power station is located within an industrial estate, noise received at a residence would need to be considered as NOT significantly contributing and acoustic criteria would be 5 dB(A) below the assigned noise level or 30 dB(A). Due the combination of noise received at the surrounding residential premises, the background noise levels in these areas are relatively high. With noise received at these neighbouring premises being NOT significantly contributing or 5 dB(A) below the assigned noise level, noise received at these premises would not contain any annoying characteristics and no penalties would be applied.

For those residence located within Zone B of the Kwinana Policy Area would, taking into account the requirements to be considered as NOT "significantly contributing" during the night period, need to comply with an L_{A10} of 40 dB(A).

Noise received at the neighbouring industrial premises would need to comply with the assigned L_{A10} noise level of 75 dB(A). Due to the close proximity of neighbouring industrial premises to this facility compared to other industries, noise received at the boundary of the neighbouring industries would be dominated by the noise received from the Waste to Energy Power Station and the "significantly contributing" requirement would not be applicable. Therefore, the assigned L_{A10} noise level of 75 dB(A) is the applicable regulatory criteria at for the neighbouring residence.

Based on the noise modelling, noise received at the neighbouring industrial premises, with the above noise ameliorations, has been calculated at up to 65 dB(A). At this noise level, noise received at the neighbouring industrial premises would also comply with the Regulatory requirements, even if a +5 dB(A) penalty for tonality was applied. Even with the inclusion of the penalty for a tonal component, noise received at the neighbouring residential premises would comply with the assigned L_{A10} noise level of 75 dB(A).

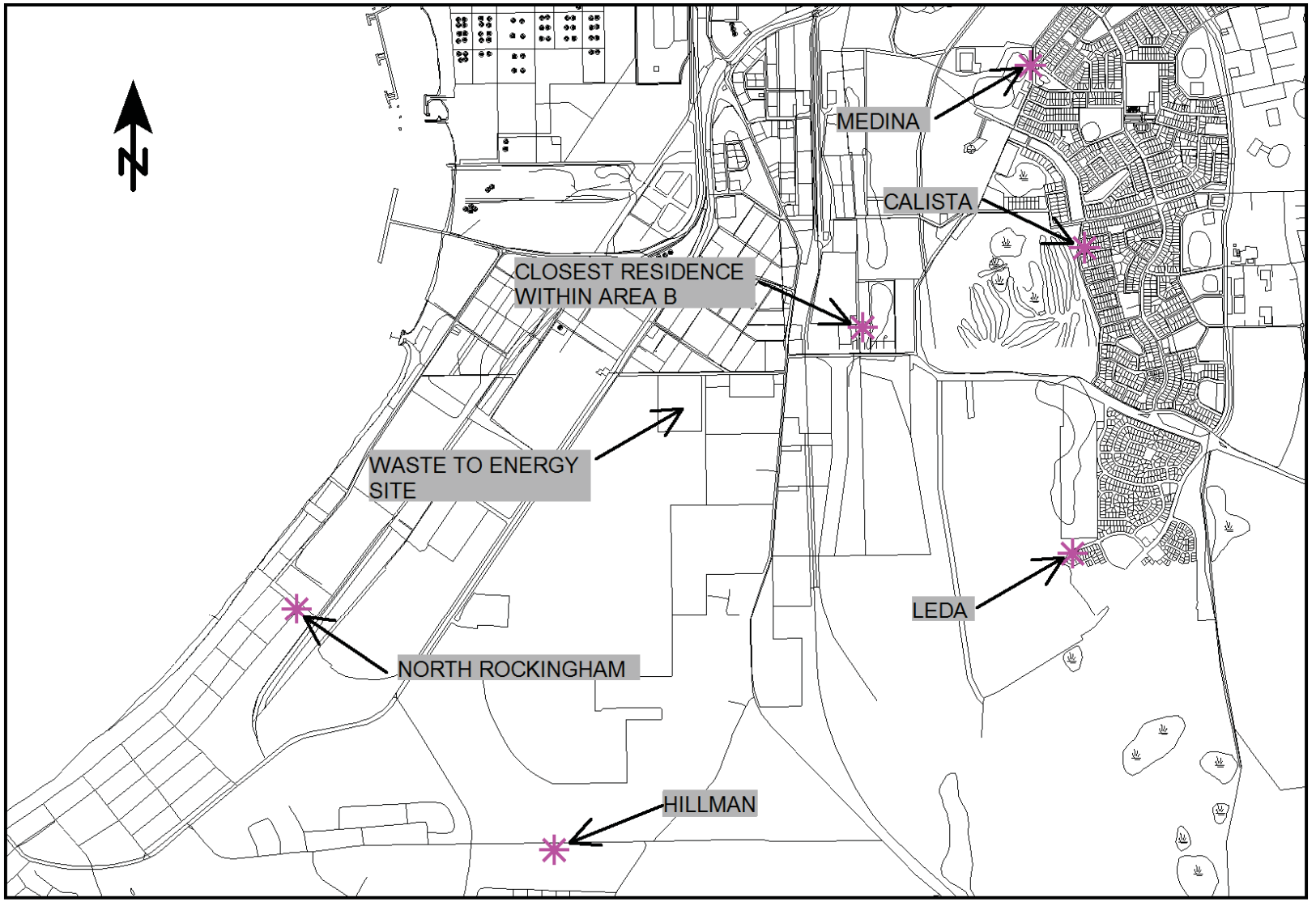
Additionally, noise received at the neighbouring residences would be considered as NOT significantly contributing and would be deemed to comply with the regulations.

Given the above, noise emissions from the proposed power station, would be deemed to comply with the Regulatory requirements at all times.

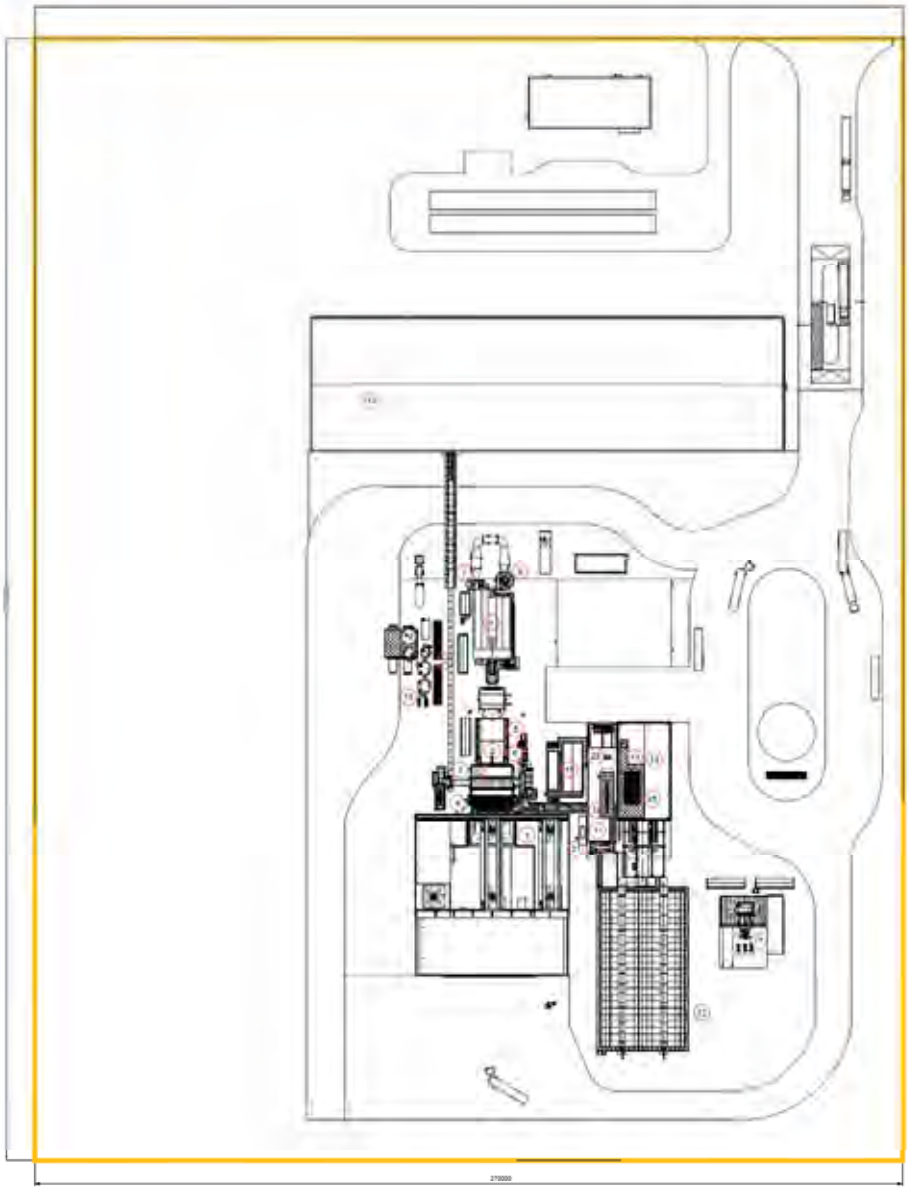
APPENDIX A

LOCALITY PLAN

LOCALITY PLAN / SINGLE POINT RECIEVER LOCATIONS – FIGURE A1

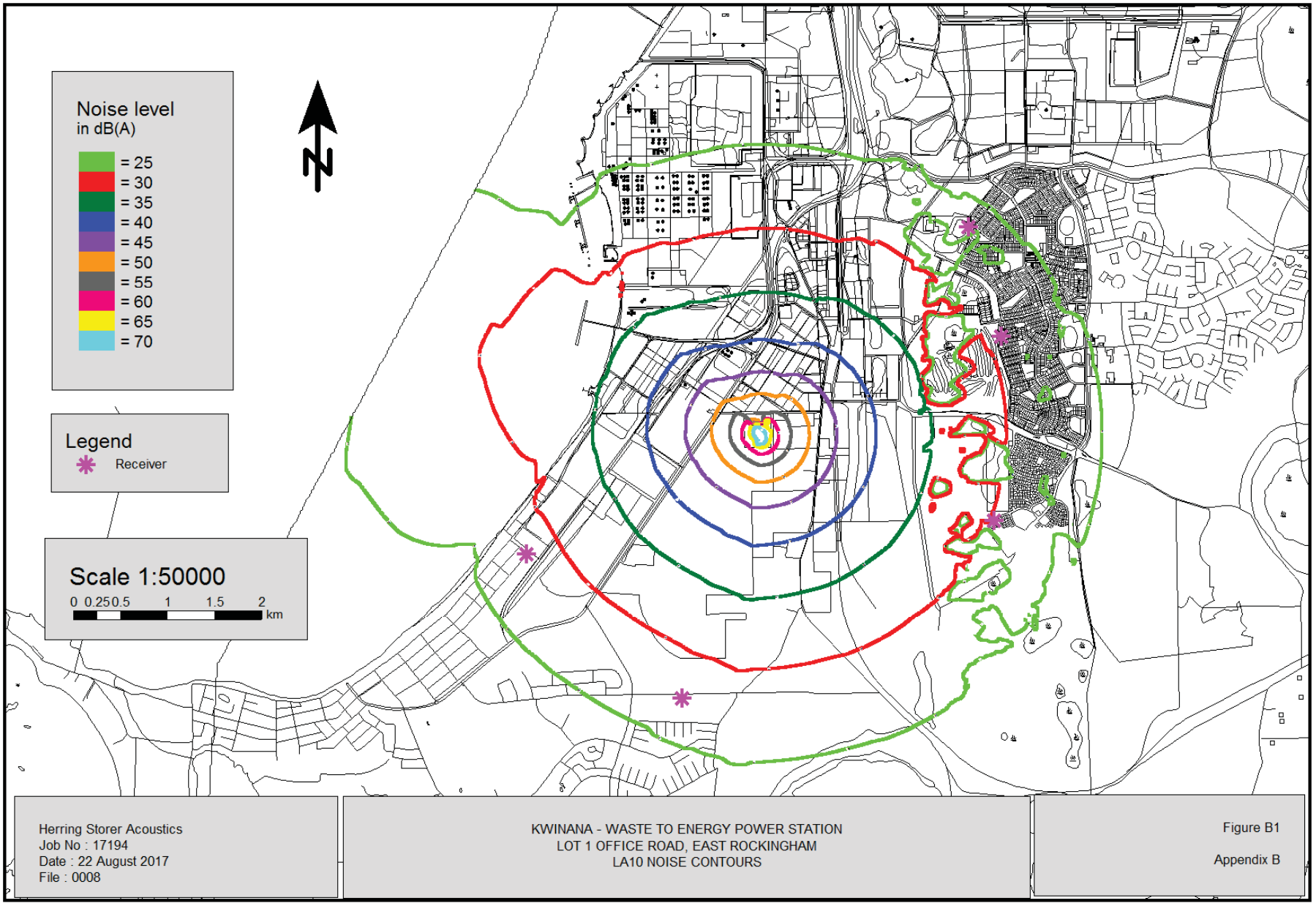


PLANT LAYOUT / NOISE SOURCE – FIGURE A2



APPENDIX B

NOISE CONTOUR PLOT

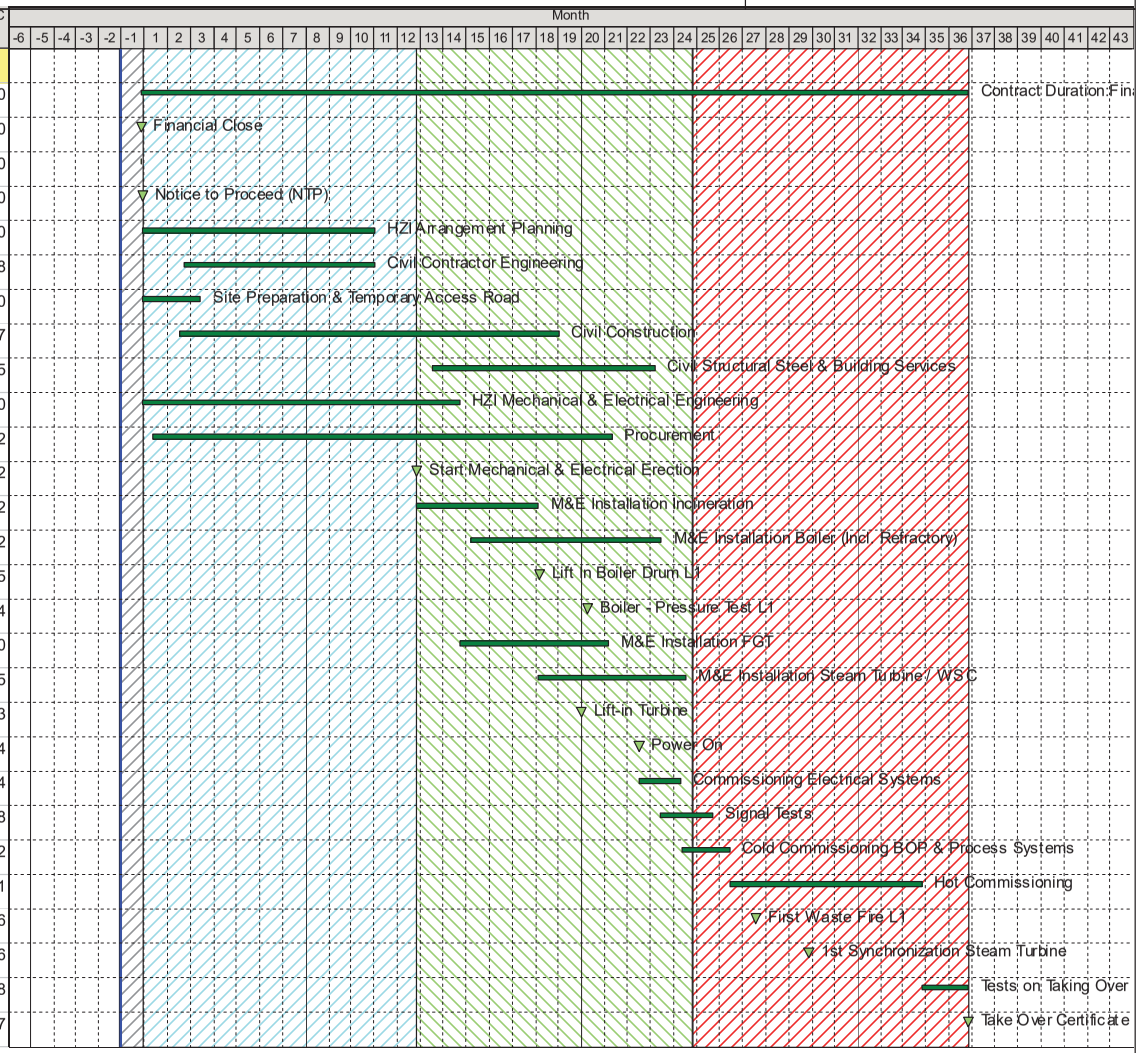

Noise level
in dB(A)
= 25
= 30
= 35
= 40
= 45
= 50
= 55
= 60
= 65
= 70
N
Legend
Receiver
Scale 1:50000
0 0.25 0.5 1 1.5 2
km
Herring Storer Acoustics
Job No : 17194
Date : 22 August 2017
File : 0008
KWINANA - WASTE TO ENERGY POWER STATION
LOT 1 OFFICE ROAD, EAST ROCKINGHAM
LA10 NOISE CONTOURS
Figure B1
Appendix B

Hitachi Zosen INOVA

Project Implementation Schedule

Project: YE-3324
Rockingham
1- Lines / 1 x 37.5 t/h / 102MWth
Hitachi Zosen Inova AG
Switzerland

Project ID	Activity ID	Activity Name	Original Duration	Start Weeks after FC
PROJECT OVERVIEW				
YE-3324-EPC-02	BABA090L0	Contract Duration:Financial Close - Take Over	1096	0
YE-3324-EPC-02	BABA100M0	Financial Close	0	0
YE-3324-EPC-02	BABA105M0	Closing of Contracts	1	0
YE-3324-EPC-02	BABA110M0	Notice to Proceed (NTP)	0	0
YE-3324-EPC-02	BABA120L0	HZI Arrangement Planning	220	0
YE-3324-EPC-02	BABA150L0	Civil Contractor Engineering	180	8
YE-3324-EPC-02	BABA160L0	Site Preparation & Temporary Access Road	55	0
YE-3324-EPC-02	BABA170L0	Civil Construction	360	7
YE-3324-EPC-02	BABA180L0	Civil Structural Steel & Building Services	211	55
YE-3324-EPC-02	BABA200L0	HZI Mechanical & Electrical Engineering	300	0
YE-3324-EPC-02	BABA230L0	Procurement	435	2
YE-3324-EPC-02	BABA240M0	Start Mechanical & Electrical Erection	0	52
YE-3324-EPC-02	BABA250L0	M&E Installation Incineration	115	52
YE-3324-EPC-02	BABA260L0	M&E Installation Boiler (Incl. Refractory)	180	62
YE-3324-EPC-02	BABA270M1	Lift In Boiler Drum L1	0	75
YE-3324-EPC-02	BABA290M1	Boiler - Pressure Test L1	0	84
YE-3324-EPC-02	BABA310L0	M&E Installation FGT	132	60
YE-3324-EPC-02	BABA320L0	M&E Installation Steam Turbine / WSC	140	75
YE-3324-EPC-02	BABA330M0	Lift-in Turbine	0	83
YE-3324-EPC-02	BABA340M0	Power On	0	94
YE-3324-EPC-02	BABA350L0	Commissioning Electrical Systems	40	94
YE-3324-EPC-02	BABA360L0	Signal Tests	50	98
YE-3324-EPC-02	BABA370L0	Cold Commissioning BOP & Process Systems	46	102
YE-3324-EPC-02	BABA380L0	Hot Commissioning	182	111
YE-3324-EPC-02	BABA390M1	First Waste Fire L1	0	116
YE-3324-EPC-02	BABA410M0	1st Synchronization Steam Turbine	0	126
YE-3324-EPC-02	BABA420L0	Tests on Taking Over & Visual Inspection	45	148
YE-3324-EPC-02	BABA430M0	Take Over Certificate	0	157



Document Nr:50059631
Project: TTS Rockingham Rev.02
Project ID: YE-3324-EPC-02
Layout: YE-3324 Client View
TASK filter: Client Selection.

Summary
Task
Milestone

Prepared:PMOS/heg
Printed:07.09.2017/16:53
Page 1/1

NEWENERGY TRIBE

Pre Engineering
Engineering
Civil Execution
M&E-Installation
Commissioning

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11 June 2018

New Energy Corporation
12 Parliament Place
West Perth WA 6005

Attention: Mr Jason Pugh

Dear Jason,

RE: Compliance with the City of Rockingham Planning Policy 7.1 East Rockingham Industrial Park

The City of Rockingham has requested additional information in relation to your application to develop a Waste to Energy Facility at Office Road in Rockingham. This site falls within the boundaries of the East Rockingham Industrial Park and as a result needs to comply with the City of Rockingham's Planning Policy 7.1. The City has asked New Energy to demonstrate compliance with the policy in relation to the following specific issues:

- Air Quality;
- Risks & Hazards;
- Noise;
- Water Quality; and
- Social Environment.

This letter provides advice based on the submitted Environmental Review Document (ERD) which is currently being assessed by the Environmental Protection Authority (EPA), with final Ministerial approval to be granted by the Minster for Environment on completion of a public appeal period and consultation with Decision Making Authorities in relation the final Ministerial Conditions.

Advice on each of the relevant environmental issues is presented below.

AIR QUALITY

Planning Policy 7.1 adopts the supports the following positions in relation to air quality:

ID2 The use of the EPP for Air Quality in the Kwinana/Rockingham Region.

ID3 The standards and limits for SO2 and dust set in the EPP and the implementation of monitoring programmes to enforce these standards and limits.

ID4 The adoption of NEPM Standards for Ambient Air Quality for CO, NO2 ozone, SO2 and PM_{10}.

ID5 The progressive reassessment of air quality impacts in the buffer zone (Area B).

ID6 The establishment of a new permanent air quality monitoring stations in Hillman, complementing the monitoring stations currently located on Governor Road.

ID7 A clear demonstration of compliance with the EPP and NEPM air quality criteria prior to development approval of any industry with emissions of the listed pollutants.

ID8 The installation of best practice technology available, and integrated monitoring programmes to ensure emission objectives.

ID9 Management of odours by a combination of minimum separation distances and best practice emission control. In case of doubt, an odour impact study should be conducted in accordance with EPA Guidance Statement No. 47.

As described in the ERD, the New Energy Facility is based on generating energy from selected wastes using a state-of-the-art grate incineration facility. The incinerator will be installed is manufactured by Hitachi Zosen Inova (HZI) and meets the stringent design and emission standards defined under the European Commission's Industrial Emissions Directive (IED). HZI has a very large installed base of modern incinerator facilities operating throughout the world.

The incineration system incorporates sophisticated control systems to ensure complete combustion of organics. The high temperature gases from the incinerator pass through a purpose designed boiler to extract energy as steam to produce electricity and the cooled gases are treated in sophisticated, gas treatment system incorporating:

- Dry alkali scrubbing to capture acid gases
- Selective Non Catalytic Reduction of Nitrogen Oxides using controlled ammonia injection
- Carbon injection to capture metals and residual organics; and
- High efficiency bag filtration to capture particulates.

This emissions control system is described in greater detail in the ERD and associated technical design appendices and is demonstrably compliant with international best practice for emission control.

New Energy commissioned Envall to undertake a comprehensive Air Quality Modelling Study to develop relevant assessment criteria, background pollutant concentrations and model predicted ground level concentrations for all the key pollutants listed in the Kwinana EPP and the Air Quality NEPM. In addition, the report models predicted ground level concentrations for the key hazardous pollutants such as heavy metals. In all cases, because of the state of the art emission control systems to be installed in the facility, the ground level will concentrations comfortably comply with the EPP and NEPM criteria at all points in the Kwinana and Rockingham airsheds. The results of this study are presented in the ERD and confirm full compliance with both the Kwinana EPP and the Air Quality NEPM. I understand that City of Rockingham has access to both the ERD and the Envall Report attached with it. In addition, NEC has provided all relevant data to the consultant commissioned by the Kwinana Industries Council who is currently in the process of completing a redetermination of the Sulfur Dioxide contributions by industry to the Kwinana airshed. NEC will contribute to the industry monitoring program once an operating licence and Sulfur dioxide allocation is formally granted by the DWER.

In terms of odour control, the facility is enclosed and operates under negative pressure with odorous air being captured and used as incinerator combustion air which essentially destroys all odour. Under shutdown air, the negative pressure is maintained by a ventilation system which discharges

though stack to thoroughly disperse any odours. The odour emissions have been modelled by Envall and the results are presented in the ERD. The key features of the odour control system are:

- A building design for the waste storage and processing areas ensure that the building is isolated from the external environment and kept under negative pressure.
- All vehicle entry points are equipped with fast closing doors to minimise fugitive emissions when trucks enter the building.
- The interior of the building to be kept under negative pressure with all ventilation air directed to the incinerator for destruction of odours or to a biofilter.

These measures collectively ensure that fugitive odours from the site are minimised to the extent feasible. Modelling of odour emissions was conducted by Envall and demonstrates that under normal operations, detectable odours are confined within the boundaries of the New Energy Site. While when the plant is shutdown a very small area of industrial land will be subjected to odour levels are within the limits allowed for industrial land.

In relation to buffer or separation distances, the site is located in land zone for industrial use with the nearest house be located at least 1100 m to the north and east. This exceeds the recommended buffer of 500m as noted in the Appendix A of the Planning Policy. The Appendix A defines the activity as a "Sanitary Engineering Installations and Municipal Undertakings" and further defined in Class II point 3 as "Principal centre for salvage and incineration of Refuse" (Page 45).

In addition to the facility incorporating state-of-the-art air quality control system, it utilises a sophisticated Continuous Emissions Monitoring System (CEMS) to provide real time data on key air pollutants being emitted from the facility. This provides high quality data for controlling operating conditions in the facility and will demonstrate compliance will emissions limits specified in the Department of Environment Regulation (DER) site licence.

Information demonstrating compliance with each of these policy positions adopted in Planning Policy 7.1 is presented in the following Table.

Policy Position #	Policy Position	Information Demonstrating Compliance by New Energy
ID2	Use of the Kwinana EPP	The design of the facility and the completed modelling demonstrates full compliance with the Kwinana Air Quality EPP. Refer ERD Section 4.2 – Air Quality and the appendicised Envall report (Appendix 7).
ID3	Compliance with the Standards and limits set down in the EPP.	The design of the facility and the completed modelling demonstrates full compliance with the Kwinana Air Quality EPP Refer ERD Sections 4.2 – Air Quality and 4.3.4.3 – Assessment of Odour, and the appendicised Envall report (Appendix 7).
ID4	Compliance with NEPM standards for CO,NO_2, Ozone, SO_2 and PM_{10}	The design of the facility and the completed modelling demonstrates full compliance with the specified NEPM criteria. Refer ERD Sections 4.2 – Air Quality, and the appendicised Envall report (Appendix 7).
ID5	Progressive Reassessment of Air Quality Impacts in the Buffer Zone	This policy position is supported by New Energy. The air emissions from the New Energy facility, however are so low as to not materially impact on air quality in the buffer zone. NEC is participating in the current round of SO_2 re-determinations being conducted by Kwinana Industry Council.

Policy Position #	Policy Position	Information Demonstrating Compliance by New Energy
ID6	The establishment of new permanent Air Quality Monitoring Stations in Hillman to complement existing Stations	NEC will hold membership in the KIC and through this group is willing to contribute to enhanced monitoring networks. In addition, the New Energy facility incorporates a sophisticated CEMS which will provide high quality emissions data in real time for the facility.
ID7	Clear demonstration of compliance with the EPP and NEPM air quality criteria prior to development approval of any industry with emissions of the listed pollutants	The design of the facility and the completed modelling demonstrates full compliance with the Kwinana Air Quality EPP the NEPM Air Quality Criteria. Refer ERD Sections 4.2 – Air Quality, and the appendicised Envall report (Appendix 7).
ID8	Installation of best practice technology available, and integrated monitoring programmes to ensure emission objectives	The New Energy facility complies with the EPA policy on Waste to Energy Facilities which requires demonstrated adherence to Best Practice emissions control technology. The facility is also fully compliant with the European Commission – Industrial Emissions Directive which is accepted as setting the benchmarks for Best Practice in terms of emissions control for Waste to Energy facilities. The ERD demonstrates compliance with Best Practice requirements in Section 2.6.5 of the ERD.
ID9	Management of odours by a combination of minimum separation distances and best practice emission control.	The building design and odour control systems have been demonstrated to contain detectable levels of odour to within the boundaries of the New Energy site. Modelling confirms compliance with EPA Guidance Statement No. 47.

RISKS AND HAZARDS

The facility proposed by New Energy is not designated a Major Hazard facility and does not involve the handling or storage of hazardous materials. As such it does not significantly alter the risk or hazard profile of the Kwinana/Rockingham industrial area.

The facility could potentially receive minor quantities of household hazardous wastes that may have been placed in municipal solid waste bins but the design incorporates facilities and operational practices designed to safely detect and manage these. There is no intention or approval for acceptance of hazardous materials at the facility.

The major hazard identified by New Energy for the facility is the risk of fire and in order to mitigate this risk of fire and any potential hazards the following measures have been incorporated in the design:

- A strict control regime over the nature wastes to be accepted at the facility backed by detailed inspection procedures at multiple points in the waste acceptance and sorting system.
- Dedicated fire alarm and automatic fire control systems including on-site fire water storage tanks
- Fire water containment systems to prevent off-site migration of contaminants in the unlikely event of a fire.

- A sophisticated emergency plan for the site which will integrate with local emergency systems and the State Hazard Plan for Hazardous Materials Emergencies - Westplan – Hazmat.
- A tailored Bush Fire Management Plan endorsed by FESA.
- Participation in the emergency preparedness programs through membership of the Kwinana Industry Council

Compliance with the planning principles outlined in Planning Policy 7.1 is demonstrated in the following table.

Policy Position #	Policy Position	Information Demonstrating Compliance by New Energy
ID10	Compliance with the individual fatality risk criterion of $1x10^{-6}$ per year.	The facility is not assessed as a major hazard facility it therefore does not materially alter the assessed risk profile of the Kwinana and Rockingham area. On this basis, compliance with this requirement is implicitly achieved.
ID11	Compliance with the $50x10^{-6}$ per year individual fatality risk limit.	The facility is not assessed as a major hazard facility it therefore does not materially alter the assessed risk profile of the Kwinana and Rockingham area. On this basis, compliance with this requirement is implicitly achieved.
ID12	Compliance with the cumulative risk level of less than $1x10^{-6}$ per year.	The facility is not assessed as a major hazard facility it therefore does not materially alter the assessed risk profile of the Kwinana and Rockingham area. On this basis, compliance with this requirement is implicitly achieved.
ID13	Compliance with $0.5\text{-}1.0x10^{-6}$ per year risk level for sensitive developments and intermittently occupied areas (such as car parks).	The facility is not assessed as a major hazard facility it therefore does not materially alter the assessed risk profile of the Kwinana and Rockingham area. On this basis, compliance with this requirement is implicitly achieved.
ID14	Compliance with $10x10^{-6}$ per year risk level for non-industrial activity in the buffer zone.	The facility is not assessed as a major hazard facility it therefore does not materially alter the assessed risk profile of the Kwinana and Rockingham area. On this basis, compliance with this requirement is implicitly achieved.
ID15	Clear preference for industries with low risk profiles and minimal need for storage of pressurised, flammable or hazardous materials.	The facility will not receive, store or handle significant quantities of hazardous materials. While the facility will necessarily accept combustible materials as a feedstock, the quantities stored at any one time remain low less than 2000 tonnes in total and sophisticated fire monitoring and control systems will be in place.
ID16	A preference for rail transport of hazardous materials.	Hazardous materials will not be handled at the facility.
ID17	Bringing forward of, and Government commitment to, regional road planning to relieve Patterson Road from non-industrial traffic, thus reducing risk exposure to road users.	New Energy notes and supports this initiative.

NOISE

The New Energy facility has been designed to achieve compliance with the *Environmental Protection (Noise) Regulations 1997*.

Acoustic consultant Herring Storer Acoustics has reviewed the design and completed acoustic modelling to demonstrate compliance with the *Environmental Protection (Noise Regulations 1997)*. This work is presented in Section 4.3 of the ERD and the Herring Storer report is included as Appendix 20of the ERD.

In terms of transport noise, the New Energy site will be serviced by a significant number of truck movements but transport routes have been selected to avoid minor roads and residential areas. Specific responses to the policy principals adopted in Planning Policy 7.1 are presented in the following table.

Policy Position #	Policy Position	Information Demonstrating Compliance by New Energy
ID18	Support for the use of the Environmental Protection (Noise) Regulations 1997, in the assessment of noise from proposed industrial developments.	The proposal has been assessed by an experienced acoustic consultant and found to be in full compliance with the *Environmental Protection (Noise) Regulations 1997.* Refer to Section 4.3 of the ERD and Technical Appendix 20.
ID19	Support for the use of the Environmental Protection (Noise) Regulations 1997, in the continuing assessment and control of noise from current industrial operations.	New Energy notes this requirement and will comply. New Energy will revaluate noise modelling at the detailed design stage for the facility and will undertake noise monitoring during commissioning to demonstrate that the plant is in compliance with predicted noise levels. In the unlikely event that there are noise complaints in the future, New Energy will engage a competent consultant to assess noise levels and ensure compliance with *Environmental Protection (Noise) Regulations 1997.*
ID20	New industry will have to comply with the 5 dB(A) below assigned level criterion.	Noted. The Herring Storer assessment as presented in sections 4.3 of the ERD and Appendix 20 confirms compliance with this requirement.
ID21	Support for the adoption of a transportation noise policy that addresses the impacts of railway noise, in particular the impacts on sleep.	Noted but not relevant to this proposal.
ID22	Support for the application of the draft EPA Statement for EIA Policy No. 14 (2000) in relation to railway movements.	Noted but not relevant to this proposal.
ID23	Supports a rigorous environmental assessment of any new proposal to ensure effective management of noise.	Noted. The work completed by NEC through the ERD demonstrates compliance with this requirement.

Policy Position #	Policy Position	Information Demonstrating Compliance by New Energy
ID24	Support for the requirement for existing industry and freight rail operators to manage noise emissions to ensure compliance with the Regulations or transportation noise policies once adopted.	Noted but not relevant to this proposal.
ID25	Supports for a review of freight rail nearby residential areas to ensure that better use is made of the facility during the day with fewer train movements at night time.	Noted but not relevant to this proposal.
ID26	Supports for the implementation of a complaints management program to be jointly managed by DWER and the City of Rockingham.	New Energy notes and supports this initiative. New Energy will implement its own in-house complaints response procedure and will liaise with Local and State Government to ensure the policy integrates with the work of the regulatory agencies in relation to responding to and resolving noise complaints.
ID27	Support for the installation of a permanent noise monitoring station to be located adjacent the IP14 industrial area.	New Energy notes this requirement and will support the establishment of a site through its involvement in the KIC.

WATER QUALITY

New Energy has developed its proposal with a view to minimising both the consumption of water and the risk of contaminating ground or surface water body.

The facility is predicated on minimising the acceptance of materials that represent a significant risk of contaminating water resources and will only be handing residual Municipal Solid Wastes and segregated residual wastes mainly plastic, paper, cardboard and timber.

All waste feedstocks are trucked to the facility in covered or enclosed vehicles and managed inside completely enclosed buildings. Ash residues are similarly handled and stored in a roofed structure enclosed by walls on three sides with bunding to retain any liquids that may form in the ash treatment and storage facility. As a result, there is minimal risk of ground or surface water contamination.

No liquid or solid waste will be disposed of on-site other than effluent from the on-site amenities building. New Energy will re-use wastewater such as boiler blowdown in the ash handling and treatment system with any minor residual quantities of waste water that cannot be handled in this way being injected into the incinerator.

In terms of water consumption, this will be minimised to the maximum extent feasible by water sensitive design. Clean stormwater will be captured for re-use as fire water, while stormwater from roadways and hardstand will be directed to an infiltration basin on site after passing through a triple interceptor or lined and trapped sedimentation basin.

All process water will be sourced as scheme water so there will be no draw on local groundwater.

As there are no on-site discharges to surface or groundwater other than clean stormwater, there would appear to be no potential for the facility to impact on water quality in Cockburn Sound or other nearby coastal waters.

Specific response to the policy principles set down Planning Policy 7.1 are presented in the following table.

Policy Position #	Policy Position	Information Demonstrating Compliance by New Energy
ID28	The quality of marine and estuarine waters in Cockburn Sound, Warnbro Sound and other coastal waters in Rockingham should conform to those in the "Western Australian Water Quality Guidelines for Fresh and Marine Waters" released by the EPA in October 1993.	Noted, but not relevant to this proposal as there are no direct or indirect discharges to coastal waters.
ID29	The project should conform to the Cockburn Sound EPP and Environmental Management Plan, released in draft form in 2001.	Noted, but not relevant to this proposal as there are no direct or indirect discharges to coastal waters.
ID30	A target of very low (as determined by relevant Authorities namely DEP and the Cockburn Sound Management Council) or nil discharge to Cockburn Sound to be set for proposed industries in respect of all wastes.	Noted, but not relevant to this proposal as there are no direct or indirect discharges to coastal waters
ID31	Support for a local industrial effluent reuse scheme if it does not result in addition of further pollutants.	New Energy notes the existence of an effluent re-use scheme operated by Water Corporation of WA and will investigate the use of water from this scheme at the detailed design stage of its proposal.
ID32	Support for a target of very low (as determined by relevant Authorities) to nil discharge of waste to groundwater aquifers by infiltration.	Noted, no discharges to groundwater are proposed other than infiltration of clean stormwater. Refer to section 5.5 of the ERD for additional information.
ID33	A clear preference for industries not requiring dedicated containment of waste with potential for aquifer pollution.	Noted, no waste containment is proposed as part of the New Energy project. Waste will be imported for use as feedstock but will not be permanently stored or contained. Bottom ash generated by the facility will be directed off-site for re-use as aggregate after treatment. Residues from the flue gas treatment system will be directed for off-site disposal at a licensed landfill. Refer to section 5.5 of the ERD for additional information.
ID34	Protection of groundwater upstream and around important wetlands (as listed in the Swan Coastal Plain Lakes Policy, 1992) for beneficial uses of ecosystem maintenance and flora and fauna habitat.	Noted, no groundwater impacts are envisaged given that all activities on site occur with enclosed buildings with concrete floors. Refer to section 5.5 of the ERD for additional information.

Policy Position #	Policy Position	Information Demonstrating Compliance by New Energy
ID35	Maintenance of water table levels by a management policy of sustainable yield as determined by the WRC and avoidance of over-clearing of significant vegetation stands.	Noted, no groundwater extraction is proposed. Vegetation will be cleared but existing vegetation on the site is quite sparse and is not seen as likely to impact on groundwater quality. Refer to section 5.1 of the ERD for a discussion of existing vegetation and an assessment of impacts.
ID36	A water sensitive design approach to subdivision layouts and landscaping.	The New Energy development is consistent with the principles of water sensitive urban design as stormwater will be infiltrated on site rather directed for off-site discharge. The stormwater system will have sufficient detention capacity to prevent erosion and prevent off-site migration of stormwater. Refer to section 5.3 of the ERD for additional information.

SOCIAL ENVIRONMENT

The development described in this application will complement the objectives of the City of Rockingham in regards to maintaining its status as a great place to live and visit.

Although the proposal does not add to the residential amenity, it is located in an area that will have no negative impact on the City's residents nor impact the tourist image that Rockingham has been able to establish.

It is anticipated that the project will generate 300 direct jobs through the construction phase and then on-going employment for at least 40 people during operation. Indirectly the project will create an estimated 750 additional jobs which will be supported in other industries outside of the Project. Many of those employed in both the construction and operational phase of the project will reside in Rockingham and Kwinana. .

The stack on this project will only be 50 metres high and the facility design will blend with the surrounding industrial area. The large size of the lot means that there are large setbacks from the boundary and this allows for attractive landscape planning on the site boundaries which will screen the facility from the street. The site on Office Rd affords excellent transport access. Trucks can exit the Kwinana Freeway at Mundijong Rd and access the site without travelling through any residential areas. The impact of these trucks is separately presented in the Traffic Impact Report.

Policy Position #	Policy Position	Information Demonstrating Compliance by New Energy
ID 37	Visibility of industry from residential areas, recreational areas and major thoroughfares.	The proposal site meets the requirement for a minimum 500m buffer zone from the nearest resident. It is also located on the boundary of Kwinana which is appropriate for this type of industry. The site is not on a major thoroughfare nor near recreation areas. Visual impact from Office Rd will be limited due to the landscaping of the verge.
ID 38	Any other impacts on residential areas, recreational areas and major thoroughfares.	The proposal site meets the requirement for a minimum 500m buffer zone from the nearest residence. It is also located on the boundary of Kwinana which is appropriate for this type of industry. The site on Office Rd affords excellent transport access. Trucks can exit the Kwinana Freeway at Mundijong Rd and access the site without travelling through any residential areas.
ID 39	The skill requirements of the industry and potential for local employment	It is anticipated that the project will generate 300 direct jobs through the construction phase and then on-going employment for at least 40 people during operation. Indirectly the project will create an estimated 750 additional jobs which will be supported in other industries outside of the Project. The work force will require a range of skills and NEC is committed to sourcing as many employees as is feasible from the local areas and offering in-house and external training to upskill the workforce as required.
ID 40	The potential for multiplier impacts benefiting the local community.	The proposal will require products and services from the local community. Many of these services already exist in the area including chemical suppliers, equipment suppliers, equipment manufacturers, cleaning services and food and beverage outlets.

I trust the information contained in this advice is sufficient for your needs. Should you or the City of Rockingham require additional information please do not hesitate to contact me on 9227 2600.

Yours sincerely

Noel Davies
Director

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11th January 2019

City of Rockingham
Greg Delahunty - Senior Projects Officer
David Banovic – Senior Planning Officer
Civic Boulevard, Rockingham 6967
Western Australia

Dear Greg and David,

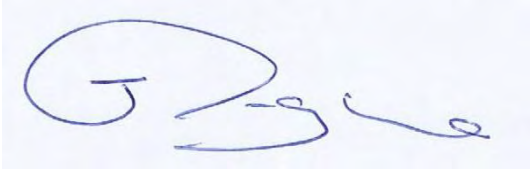
Re: Proposed Waste to Energy Facility – Lot 1 (no 26) Office Road, East Rockingham

I am writing in response to your letter to me dated 18th December seeking our response to comments made by external and internal departments on our Development Application for the above mentioned project. I am also responding to community submissions received by e-mail on the 8th January 2019.

1. All items raised in letter dated 18th December and discussed at our meeting with you on the 20th December are covered in the attachment *"New Energy Response to DMA Comments on DA 2018_Final".* The response also references a number of attachments which are listed and provided separately.
2. The Site Drawings have been updated in response to the questions raised. The only change to the site drawing that does not relate to the DA submissions is the relocation of the Western Power substation. This was discussed at our meeting and has been relocated to the North West corner of the site to allow Western Power transmission lines to access the site with minimal interface with businesses on the northern side of Office Rd.
3. We also attach "*Response to Community Submissions"* which is our response to the 5 community submissions. We would like to emphasise that 4 of the 5 submissions are strongly supportive of the project. This is also consistent with our 83% approval rating at our Community Consultation day held in Rockingham in 2018. We would like this fact to be conveyed to Council as they consider the approval. It also clearly shows the scaremongering by City of Kwinana is not supported by the community.

Thank you for the opportunity to respond to the submissions and we are happy to clarify any of the enclosed responses.

Kind regards,



Jason Pugh
Chief Executive Officer

Proposed Waste to Energy Facility - Lot 1 (No.26) Office Road, East Rockingham

New Energy Response to City of Rockingham's internal and external department comments

Date: 11 January 2019

Comments	NEC Response	Attachment
Landscape		
• Landscaping has not been provided along Office Road frontage for a minimum of 10 metres in depth as required by Clause 4.10.10 - Special Industry zone of the TPS2; • The landscape plan prepared to support the development application shows proposed tree planting locations and garden beds, but it does not identify if any trees are proposed to be retained. The East Rockingham Industrial Park Development Guidelines (ERIP) requires existing trees to be retained where practicable. There are a number of trees adjacent to Office Road that can be retained as part of the development as there is sufficient space around developed areas and minimal proposed changes to site levels. • Further to above, the Bushfire Management Plan states that the entire site will be cleared of vegetation, therefore a substantial asset protection zone (APZ) will be created around the buildings. There is the potential to retain existing grass trees within the large APZ in the western portion of the site. • A revised landscape plan is to be provided and must include the following: o Confirm existing vegetation (particular mature trees along Office Road) to be retained and/or areas of vegetation to be cleared; o Identify areas of grass trees (Xanthorrhoea), those to be relocated on site and those to be relocated off site to an agreed location; o Clearly define the lot boundaries; o Confirm all plant species names, plant size at installation and at maturity (to determine level of screening); and o Provision of shade trees at a ratio of 1 per 4 car-bays evenly throughout parking areas (item 5.2.7 Car parking, Vehicular and Pedestrian Movement ERIP – Development (Guidelines).	All comments have been addressed in the updated Landscape Plan. Wherever practicable grass trees will be retained on the western portion of the site. To mitigate bush fire risk the surface fuels and the skirts of the grass trees will need to be managed. Consultants Bushfire Prone Planning, Director Kathy Nastov has provided this advice in compliance to *The Asset Protection Zone (APZ) from the Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 Appendix 4, Element 2, Schedule 1and Explanatory Note E2.1). The required spacing and concentration of the grass trees is noted on the revised Landscape Plan.* This is contained in Appendix 1 of the Bushfire Management Plan (BMP).	Revised Landscape Plan

Comments	NEC Response	Attachment
Traffic		
• Office Road is to be upgraded to the satisfaction of the City of Rockingham. o Austroads' Guide to Traffic Management Part 6 – Intersections, Interchanges and Crossings provides warrants for turn treatments at unsignalised intersections. o Preliminary analysis suggests that a channelised right turn treatment would be required at the crossover locations. There are currently existing crossovers located to the north of the Office Road carriageway which would restrict the viability for turn treatments (see Figure 1 below). The proposed road widening and turning lanes shown in the plan would cross two (2) existing crossover locations therefore considered to be not acceptable. Please consider amending the design accordingly because it is likely that all road upgrades may need to be incorporated within the development's lot. • The existing RAV4 network along Dixon Road (between Patterson Road and Mandurah Road) restricts heavy vehicle through movements (i.e. only for local delivery or pick up only). This suggests that the proposed departing route would not be feasible under this restriction. Please consider an alternative departing route as this route may not be supported (see Figure 2 below). • The RAV4 network along Office Road is required to be extended to Patterson Road which would require MRWA's approval. • Provide a swept path analysis for the commercial vehicles to demonstrate that the design vehicles are able to enter and exit the site in forward gear (for both crossover locations). Swept path analysis will also be required to demonstrate vehicle manoeuvrability within the site. • Swept paths at intersection of Office Road/Mandurah Road (arriving and departing). • A breakdown of the Transport Impact Statement (TIS) is attached to Appendix 1.	The attached covering letter from Traffic Consultants Shawmac, addresses all individual issues raised. The Traffic Impact Assessment has also been updated to reflect the response to submissions.	1. Covering Letter Shawmac. 2. Updated Transport Impact Statement

Comment	NEC Response	Attachment
Water Corporation		
• Reticulated sewerage is not available to serve the subject Lot, on site disposal will be required.	Noted. Septic tanks included in design.	None
DWER		
Stormwater • In relation to Stormwater Management, a Stormwater Management Plan (SMP) should be prepared and be consistent with the Stormwater Management Manual for Western Australia (DoW, 2004) and Water Quality Protection Note 52 – Stormwater management at industrial sites (DoW, 2010). • Additionally, the SMP should align with the broader water management principles and commitments within the Rockingham Industry Zone Water Management Strategy (RIZWMS) (hyd2o Hydrology, July 2013).	Noted. Please see attached advice from Aurora Environmental Consultants. Agree to SMP to be included as a condition	Letter: Aurora Environmental Consultants.
Sewerage • As per the Draft Government Sewerage Policy (Government of Western Australia, 2016), the subject land is located within a sewage sensitive area and must connect to a reticulated sewerage system, not an aerobic treatment unit as noted in the project definition section of the development application. The above comment is not considered applicable given advice from Water Corporation.	Noted. Please see attached advice from Aurora Environmental Consultants.	Letter: Aurora Environmental Consultants.
Prescribed Premises • Under Part V of the Environmental Protection Act, there may be a requirement for a works approval and licence. Please refer to https://der.wa.gov.au/our-work/licences-and-worksapprovals for further advice.	Noted. Please see attached advice from Aurora Environmental Consultants.	Letter: Aurora Environmental Consultants.

Comment	NEC Response	Attachment
Best Practice Management • The following Water Quality Protection Notes (WQPN's) have been referenced to provide best practice management guidelines relevant to this development proposal with the intent to protect the state's water resources (WQPN 10, 26, 51, 52, 65 and 68). • These can be found on the department's website www.water.wa.gov.au.	Noted The WQPNs will be referred to in developing the SMP, wastewater facility and management procedures	Letter: Aurora Environmental Consultants.
Groundwater • The subject area is located in the Cockburn Groundwater Area as proclaimed under the Rights in Water and Irrigation Act 1914. Any groundwater abstraction in this proclaimed area for purposes other than domestic and/or stock watering taken from the superficial aquifer, is subject to licensing by the DWER. This includes any soil dewatering that may need to occur during construction. • The issuing of a groundwater licence is not guaranteed but if issued will contain a number of conditions that are binding upon the licensee. Please contact the licensing business support unit on 1800 508 885 for further advice.	Noted. Please see attached advice from Aurora Environmental Consultants.	Letter: Aurora Environmental Consultants.
DFES		
The development application and the Bushfire Management Plan (BMP) have adequately identified issues arising from the bushfire risk assessment and considered how compliance with the bushfire protection criteria can be achieved. However, modifications to the BMP are necessary to ensure it accurately identifies the bushfire risk and necessary mitigation measures. As these modifications will not affect the development design, these modifications can be undertaken without further referral to DFES. • The required modifications are listed below:-	Noted	

• Policy Measure 6.5 a) Preparation of a BAL contour map • The BAL Contour Map provides indicative BAL ratings due to the location of the development being undetermined. It is unclear why reference is made to indicative BAL ratings given the proposal contains siting and design details of the proposed development within the development application.	The BAL's are listed as 'Indicative Only' as they are reliant on vegetation being modified within the site. This is detailed with reasoning and a description of an Indicative BAL on Page 26 and Page 29 of the report.	None
• Policy Measure 6.5 c) Compliance with the Bushfire Protection Criteria • It is unclear what inputs have been changed in the 'Method 2' calculation. Please clarify if the 'Method 2 BAL Calculation' within Appendix 4 of the BMP has been incorrectly included. • The Method 2 calculation has not been validated by DFES.	The inputs for the Method 2 are those used for a Method 1 calculation, no inputs have been changed. A method 2 calculation was shown to detail the exact radiant heat flux on the Admin Building (as discussed in the Exec Summary), to provide justification for this building to be used for the Assembly Point and Refuge. No validation of these calculations is required as no parameters have been modified.	None
City of Kwinana		
Location	These matters were raised by the Town of Kwinana as submissions on the Environmental Review Document and responses were provided by NEC to the EPA and accepted by the EPA.	None
Air Quality Emissions	These matters were raised by the Town of Kwinana as submissions on the Environmental Review Document and responses were provided by NEC to the EPA and accepted by the EPA. NEC is committed to open and honest communication but there is a need to quality check data before release. We believe that the	None

	appropriate approach is as per the EPA condition in the EPA report as below:- "Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), management plans and reports relevant to the assessment of this proposal and implementation of this Statement." NEC sees no need for the condition recommended by the Town of Kwinana to be included.	
Odour management	These matters were raised by the Town of Kwinana as submissions on the Environmental Review Document and responses were provided by NEC to the EPA and accepted by the EPA. New Energy will have a complaints procedure that is consistent with industry practice in the Kwinana Industrial strip and compliant with DWER licence requirements. The procedure will include:- • Any complaint will be investigated promptly (within 2 working days) and a response provided to the complainant.	None

	• Complaints will be recorded in the register and the register kept on site and made available to DWER staff on request • Complaints will be addressed in the annual compliance report. NEC sees no need for the condition recommended by the Town of Kwinana to be included.	
Noise management	These matters were raised by the Town of Kwinana as submissions on the Environmental Review Document and responses were provided by NEC to the EPA and accepted by the EPA. NEC has already committed to a noise assessment during commissioning to demonstrate compliance with predicted noise levels as part of the Part IV Environmental Approval. A copy of this commitment is attached. NEC sees no need for the condition recommended by the Town of Kwinana to be included.	Table 10 of the ERD
Traffic modelling	The proponent agrees that no trucks will be exiting unto Patterson Rd. An alternative exit	Updated Transport

	has been considered and accepted with trucks exiting Office Rd to Mandurah Rd. The revised Traffic Impact Assessment concludes that there is no need to upgrade Office Rd or the Intersection at Patterson Rd and Office Rd.	Impact Assessment
Waste management	All trucks bring rubbish will be covered and will be offloading in an enclosed hall. As such there is very low risk for windblown litter from the facility. NEC is happy to accept provide a Waste Management Plan as a condition to this approval.	None
Main Roads		
• Main Roads WA has no objections to the development however does not support the selected route of departure. • The City supports the comments provided by Main Roads WA.	Noted The route of departure of departure has been changed.	Updated Transport Impact Assessment
Additional Information		
• Detailed drawings for the Pylon Sign; alternatively the sign will be stamped 'not part of this development application';	Signage will be removed from Site Plan and NEC will submit a separate application for signage at a later date. Any signage will be in accordance with City of Rockingham's planning policies and will be submitted for approval prior to installation.	Updated Site Plan

• A Waste Management Plan for City's consideration and to address concerns by City of Kwinana;	All waste generated on site will be disposed of at the facility or transported offsite to an appropriate location for disposal. NEC is happy to accept provide a Waste Management Plan as a condition to this approval.	None
• Please Clarify cost of development (original DAP value $13.9 million / proposed DAP value $356 million	$356m is the correct amount. Note that for the previous DA, we included just building costs, whilst this time we included civils, buildings & process equipment.	None
• Clarification on staff numbers at any one time;	20	None
• Detailed justification must be provided explaining how the existing proposed facades of the 'visitor centre/admin building' and 'wp switch yard' satisfy objectives of Clause 4.10.1- Objectives and Clause 4.10.2 - Form of Development of TPS2. • As per Clause 4.10.4 - General Development Provisions of the Town Planning Scheme No. 2 (TPS2), the façade of buildings within the Special Industry Zone are required to be of masonry construction unless otherwise approved by the Council.	Noted	Updated Visitor centre/ admin building drawing
• Revise 'Office' elevations as both refer to 'south' rather 'south' and 'north';	Noted	Elevations drawings have been updated
• Please demonstrate how 33 parking spaces is considered to be appropriate for this type of development when under TPS2, 300 car parking bays are required to be provided for this development.	We note that there is a maximum of only 20 staff on site at any time. The previous approved DA had 36 car spaces.	None

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11th January 2019

David Banovic

Senior Planning Officer
City of Rockingham
Civic Boulevard
Rockingham WA 6168

Dear Mr Banovic,

Re: Proposed Waste to Energy Facility – Lot 1 (No.26) Office Road East Rockingham

Ref: DD020.2018.00000310.001 – D18/226187

This letter is to summarise the amendments made to the Transport Impact Statement supporting the above proposed development in response to the traffic related comments in your letter dated 18th December 2018.

Comment	Shawmac Response (PN 11-01-2019)
Office Road is to be upgraded to the satisfaction of the City of Rockingham. • Austroads' *Guide to Traffic Management Part 6 – Intersections, Interchanges and Crossings* provides warrants for turn treatments at unsignalised intersections. • Preliminary analysis suggests that a channelised right turn treatment would be required at the crossover locations. There are currently existing crossovers located to the north of the Office Road carriageway which would restrict the viability for turn treatments (see Figure 1 below). The proposed road widening and turning lanes shown in the plan would cross two (2) existing crossover locations therefore considered to be not acceptable. Please consider amending the design accordingly because it is likely that all road upgrades may need to be incorporated within the development's lot.	A CHR(S) will be provided for the light vehicle crossover. As no right turns will be made into the truck crossover, no right turn treatment is needed here. However a left-turn treatment is being provided to improve movements at this crossover. Due to the high pressure gas along the south side of Office Road, the widening will be incorporated along the north site subject to consultation with the City of Kwinana.

The existing RAV4 network along Dixon Road (between Patterson Road and Mandurah Road) restricts heavy vehicle through movements (i.e. only for local delivery or pick up only). This suggests that the proposed departing route would not be feasible under this restriction. Please consider an alternative departing route as this route may not be supported (see Figure 2 below).	Alternate routing is proposed which does not include Dixon Road.
The RAV4 network along Office Road is required to be extended to Patterson Road which would require MRWA's approval.	Alternate routing is proposed that does not require this extension.
Provide a swept path analysis for the commercial vehicles to demonstrate that the design vehicles are able to enter and exit the site in forward gear (for both crossover locations).	Site plan shows internal circulating roads which allow vehicles to enter and exit in forward gear at both crossovers. Truck swept paths through the truck crossover have been provided. These can be reassessed during detail design.
Swept path analysis will also be required to demonstrate vehicle manoeuvrability within the site.	Swept paths have been provided in Appendix C of the revised TIS.
Swept paths at intersection of Office Road/Mandurah Road (arriving and departing).	Has been included.
Clarification on staff numbers at any one time.	Staff numbers and rostering has been included.
Please demonstrate how 33 parking spaces is considered to be appropriate for this type of development when under TPS2, 300 car parking bays are required to be provided for this development.	Realistic parking demand based on staff numbers indicates that 33 bays is adequate for the proposed operation.
The TIS report mentioned that the facility will operate six days per week between 6am and 4pm however the *Development Application – East Rockingham Resource Recovery Facility* (prepared by New Energy, dated November 2018) suggests that the facility will operate seven days per week, 24 hours per day. Please amend the TIS report accordingly and ensure that the number of truck and standard vehicle movements are still applicable.	Operating hours have been amended in the revised TIS.
Please consider amending the second bullet point within Section 3.1 to the following; • "*Up to seven (7) trucks will enter and depart the facility each week to transport materials and remove grate combustion unit residue for disposal*" • It should be noted that the gasification technology relates to a previous application in 2015 therefore no longer applicable.	TIS has been revised accordingly.
Dixon Road (between Patterson Road and Mandurah Road) has the following condition; • "*Not to be used as a through route. For local delivery and pickup only. Driver must carry documentation as proof of local delivery or pickup*". Please incorporate this information within Section 4.5.3 and this means that the proposed departing route would not be a feasible option.	The truck route has been amended and Dixon Road is no longer referred to.
Please update the existing traffic volumes within Section 4.6 to account for more recent traffic data from the MRWA's Traffic Map website	Traffic volumes have been updated to reflect the most recent available data.

The manual traffic counts were undertaken in August 2013 which is considered to be out of date. Please conduct a more recent manual traffic counts at both intersections (Patterson Road/Office Road and Mandurah Road/Office Road).	As agreed with the City, the intersection counts at Mandurah / Office have been derived using the 2017/18 peak hour mid-block counts. The assumptions used to derive the Patterson / Office counts are included in the revised TIS.
MRWA's *Crash Analysis Reporting System* has a more recent crash data for period ending December 2017. Please update Section 4.7 accordingly.	Crash history has been updated.
The extension of Mundijong Road west of Baldivis Road to connect with Mandurah Road has been completed. Please amend Section 5 accordingly.	Amended.
Please amend the first sentence within Section 6.1 to the following; • "*Based upon discussions with the proposed operators of the facility, the proposed uses on the site will generate approximately 206 vehicular movements per day (50% inbound/50% outbound) …"*	Transport metrics have been confirmed with the client and updated accordingly.
Please note that Section 6.2 is required to be updated to reflect that no through movements will be allowed for RAV4 network along Dixon Road (between Patterson Road and Mandurah Road).	Truck route has been amended and Dixon Road is no longer referred to.
Please amend the weekday daily vehicle trips for both Patterson Road and Mandurah Road to be 103 vpd so that the total sum of the daily generated traffic volumes for the proposed development is 206.	Transport metrics have been confirmed with the client and updated accordingly.
Please provide swept path analysis for the intersection of Mandurah Road/Office Road to confirm that it is adequate to cater for a B-double (with a maximum length of 27.5m).	Has been included.
Turning movements from the SIDRA results suggest that the growth in the background traffic volume has not been considered in the analysis. Please incorporate the growth in background traffic volumes within the SIDRA traffic models (e.g. based on expected land use, growth rate based on historical traffic data, etc.). It should be noted that in any case, at least a growth rate of 3% should be applied to the background traffic volumes (i.e. 10 years after full opening).	As agreed with the City, the intersection counts at Mandurah / Office have been derived using the 2017/18 peak hour mid-block counts. The assumptions used to derive the Patterson / Office counts are included in the revised TIS. As the expected traffic numbers warrants a TIS and not a full TIA, a 10 year assessment is not necessary. Regardless, a sensitivity analysis estimating the spare capacity in the network has been provided for the City's information.
Section 7.1 mentions that the intersection analysis was conducted using SIDRA Intersection 6.0. The latest software version shall be used in the intersection analysis (i.e. SIDRA Intersection 8.0).	SIDRA 8.0 has been used for the revised assessment.
Austroads' *Guide to Traffic Management Part 3 – Traffic Studies and Analysis* recommends a practical degrees of saturation of 0.8 for unsignalised intersections. Please amend the first bullet point within Section 7.1 accordingly.	Amended.
SIDRA results suggest that a heavy vehicle percentage of 0% was used in the analysis. The City considers this to be unacceptable because there are a high proportion of heavy vehicles along this route therefore please re-do the intersection analysis to account for heavy vehicles (e.g. based on heavy vehicle proportion in the existing traffic data).	Heavy vehicles percentages and numbers as obtained from MRWA data have been included in the revised assessment.

Please provide the intersection road geometry used in the SIDRA analysis.	Included.
The City is unable to determine how the turning volumes (used in the intersection analysis) were derived from. Please provide details on the derivation of peak hour turning movements.	Assumptions and peak hour turning volumes have been included in the revised assessment. Background traffic has been separated from development traffic for clarity.
Please provide the complete set of SIDRA Analysis Results. • It is understood that the intersection of Patterson Road/Office Road was modelled as a staged crossing however only the first stage results were provided. Please include the SIDRA results for "Stage 2" within the TIS and ensure that the existing storage area within the central median can accommodate for the required queue length. • The Existing and Future AM peak hour analysis for Patterson Road/Office Road has the same turning volumes which is incorrect. Please amend turning movements accordingly to account for background traffic growth and the proposed development's trip generation turning movements. • The attached intersection analysis for Mandurah Road/Office Road seems to be the same as the previous application therefore suggesting that it has not been updated to reflect the trip generation associated with the current application. Please update the intersection analysis accordingly. • A SIDRA traffic model was provided for the intersection of Mandurah Road/Office Road however it appears that the traffic model does not correctly represent the existing intersection geometry (e.g. right turn movement within the turning pocket from Mandurah Road to Office Road is not allowed to travel southbound). It should also be noted that the turning movements in the model does not match with those presented in the TIS for the future scenarios. • A SIDRA traffic model was provided for the intersection of Patterson Road/Office Road however it appears that the traffic model may not correctly represent the existing intersection geometry (e.g. the westbound lane on Office Road is single lane road). Please check and amend (if required) the priorities adopted for the intersection (e.g. right turn movement from Office Road shall give way to right turn movement from Patterson Road, right turn movement within the central median may not be required to give way to right turn movement from Patterson Road). Please also amend base values of gap acceptance parameters in accordance with recommendations within the *SIDRA Intersection 8 User Guide* (Section 5.10.7). It should also be noted the "Vehicle Movement Data" is also to be amended to reflect existing situation (e.g. 70km/hr for Office Road and 90km/hr along Patterson Road).	Complete set of SIDRA analysis results has been included in Appendix B. • Both Stage 1 and Stage 2 results have been included. • Amended. The development traffic has been included as a separate vehicle class for clarity. • SIDRA has been updated to reflect the latest correct trip generation. • SIDRA has been amended to reflect the current intersection geometry. • SIDRA has been amended to reflect the current intersection geometry. Priorities, gap acceptance and vehicle movement data have been corrected.

Please feel free to contact me on 9355 1800 if you have any queries.

Kind Regards,

Paul Nguyen

Civil / Traffic Engineer

Transport Impact Statement

Project:	Proposed Materials Recovery & Waste Conversion Facility Lot 1, Office Road, East Rockingham
Client:	New Energy Corporation
Author:	Rian McIlduff / Paul Nguyen
Date:	11th January 2019
Document #	1308009-TIA-004

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Document Status

Version	Prepared By	Reviewed By	Approved By	Date
1	P. Nguyen	H. Lansdell	H. Lansdell	17/09/13
2	P. Nguyen	H. Lansdell	H. Lansdell	19/09/13
3	R. McIlduff	L. Dawson	L. Dawson	26/04/18
4	P. Nguyen	L. Dawson	L. Dawson	11/01/19

File Reference: Y:\Jobs Active 2019\T&T - Traffic & Parking\New Energy_Lot 1 Office Road, East Rockingham_TIS_1901001\Report\New Energy Corporation_Lot 1 Office Road_TIA_V4.docx

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1. Introduction

1.1. Background

Shawmac has been commissioned to prepare a detailed Transport Impact Statement for the proposed materials recovery facility and associated waste-to-energy conversion facility to be located at Lot 1 Office Road, East Rockingham, in the City of Rockingham. This Transport Impact Statement has been prepared in accordance with the Western Australian Planning Commission (WAPC) document *Transport Assessment Guidelines for Development: Volume 4 – Individual Developments*.

The Transport Impact Statement will include the following:

- Assessment of future traffic generation from the site;
- Assignment of predicted traffic flows onto the road network;
- Modelling of intersection and midblock road performance under predicted traffic conditions where increased flows from the development warrant;
- Review and assessment of access and egress requirements for the site;
- Review of heavy vehicle permit networks in the area (i.e. MRWA RAV networks etc.);
- Review and assessment of parking provisions to ensure they meet the government requirements and are in line with Australian Standard 2890;
- Review of relevant crash history associated with the boundary road network; and
- Identification of any unacceptable risks and prescription of remedial actions required to moderate risk.

1.2. Transport Impact Statement Objective

This assessment aims to quantify and review the anticipated traffic operations impacts associated with the proposed development, including the impact of increased vehicle numbers and movements at links to existing roads. The assessment also includes assessment of the proposed car parking arrangements in the context of the required supply and demand.

2. Location

The development is to be located at Lot 1 Office Road, East Rockingham, in the City of Rockingham, approximately 34km south of the Perth CBD and approximately 4km north-east of Rockingham. The subject site is located on the southern side of Office Road halfway between Patterson Road and Mandurah Road Street and is bound by existing industrial development to the north and vacant land to the south, east and west. Figure 1 shows the contextual location of the proposed development. Figure 2 shows the location of the site in the context of the existing adjacent urban layout. Office Road is the boundary with the City of Kwinana.

Figure 1: Regional Context

Figure 2: Local Context

3. Development Proposal

3.1. Proposed Land Use

The proposal consists of the construction of a materials recovery facility and a waste-to-energy project facility. The facility will operate 24 hours per day, 7 days per week.

3.2. Access and Parking

Vehicle access will be via two new crossovers from Office Road. One crossover will be for truck movements and one will lead to a car park for staff and visitors. 33 car parking bays are proposed including 2 ACROD bays.

A site plan is attached as Appendix A.

4. Existing Situation

4.1. Existing Site Use

The site is currently vacant and undeveloped.

4.2. Existing Parking Provision

There is currently no on-site car parking provision.

4.3. Existing Site Traffic Generation

The site currently generates no vehicular traffic under the existing uses.

4.4. Existing Surrounding Land Uses

Surrounding land use is primarily industrial type development including fertiliser suppliers, industrial equipment suppliers, a lumber store and fuel stations. Additional uses include the East Rockingham Cemetery located on the eastern side of Mandurah Road.

4.5. Existing Surrounding Road Network

4.5.1. Road Hierarchy

Mandurah Road

Mandurah Road is a north-south aligned road to the east of the subject site. In the vicinity of the proposed development, Mandurah Road has been constructed as a two-lane single carriageway and currently operates under a 70 km/h posted speed limit. Under the Main Roads Western Australia (MRWA) *Road Hierarchy,* Mandurah Road, north of Office Road is classified as a *District Distributor A* road. District Distributor A roads are those which *"Carry traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government."* Mandurah Road, south of Office Road is classified as a *Regional Distributor* road. Regional Distributors are *"Roads that are not Primary Distributors but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government."*

Patterson Road

Patterson Road is a north-south aligned road to the west of the subject site. In the vicinity of the proposed development, Patterson Road has been constructed as a four-lane dual carriageway, with a central median approximately 17m wide and sealed shoulders on both sides of each carriageway. A speed limit of 90km/h applies on Patterson Road to the south of Office Road reducing to 80km/h to the north of Office Road. Under the Main Roads Western Australia (MRWA) *Road Hierarchy,* Patterson Road is classified as a *Primary Distributor* road. Primary Distributor roads are those which *"Provide for major regional and inter-regional traffic movement and carry large volumes of generally fast-moving traffic. Some are strategic freight routes and all are State Roads.*

They are maintained by Main Roads Western Australia." It should also be noted that Patterson Road is designated as a *Primary Regional Road* (PRR) or a 'red road' in the context of the Metropolitan Region Scheme and therefore any proposed changes to the road cross-section and/or access arrangement will fall under the review of the WAPC.

Office Road

Office Road runs along the northern boundary of the site between Patterson Road and Mandurah Road. Office Road has been constructed as a two-lane single carriageway and currently operates under a 70 km/h posted speed limit. Under the Main Roads Western Australia (MRWA) *Road Hierarchy*, Office Road is classified as a *Local Distributor* road. Local Distributor roads are "*Roads that carry traffic within a cell and link District Distributors or Regional Distributors at the boundary, to access roads. The route of Local Distributors should discourage through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to, or serving the area. In built-up areas, these roads should accommodate buses, but discourage trucks. They are managed by Local Government."* It should also be noted that the portion of Office Road to the east of Ocean Street is designated as an *Other Regional Road* (ORR) or a 'blue road' in the context of the Metropolitan Region Scheme and therefore any proposed changes to the road cross-section and/or access arrangement will fall under the review of the WAPC.

Figure 3 shows the existing road classification under the MRWA *Road Mapping System* for roads in the vicinity of the site.

Figure 3: Main Roads WA Road Hierarchy - Local Road Network

4.5.2. Intersections

Patterson Road/Office Road

This is priority-controlled unsignalised T-intersection with Office Road as the terminating road. There is a right-turn bay for vehicles turning from Patterson Road onto Office Road.

Mandurah Road/Office Road

This is priority-controlled unsignalised T-intersection with Office Road as the terminating road. There is a right-turn bay for vehicles turning from Mandurah Road onto Office Road.

4.5.3. RAV Network

The Restricted Access Vehicles (RAV) Network 4 roads are shown in Figure 4. There are conditions restricting the right turn movement of RAV4 vehicles onto Mandurah Road and any turn movements between Ocean Street and Office Road west of Ocean Street.

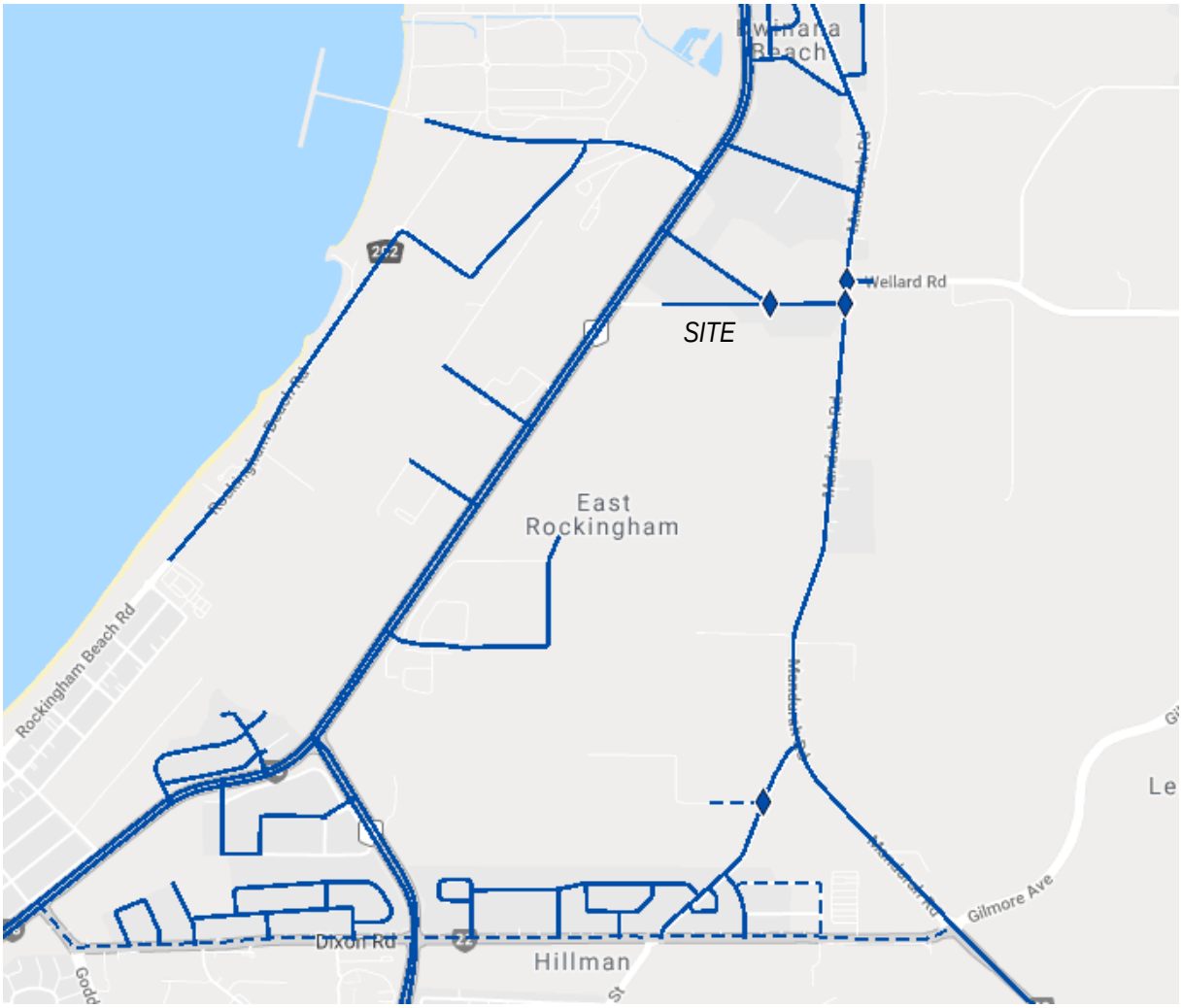


Figure 4: RAV Network 4 Roads

4.6. Existing Traffic Volumes

The latest traffic data as sourced from MRWA are shown in Figure 5.

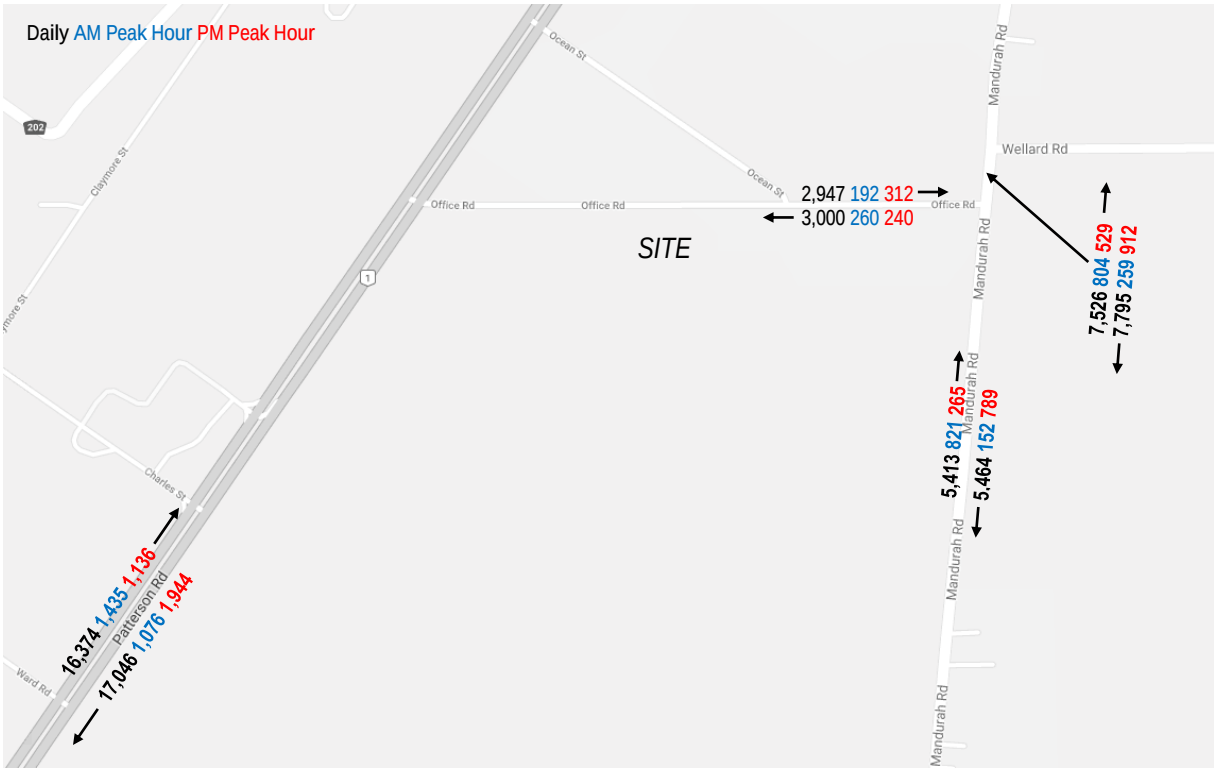


Figure 5: Latest Traffic Counts

4.7. Crash History

The number of crashes occurring at mid-block locations and intersections in the vicinity of the proposed development site within the five-year period ending December 2017 was sourced from the MRWA *Reporting Centre* as illustrated in Figure 6.

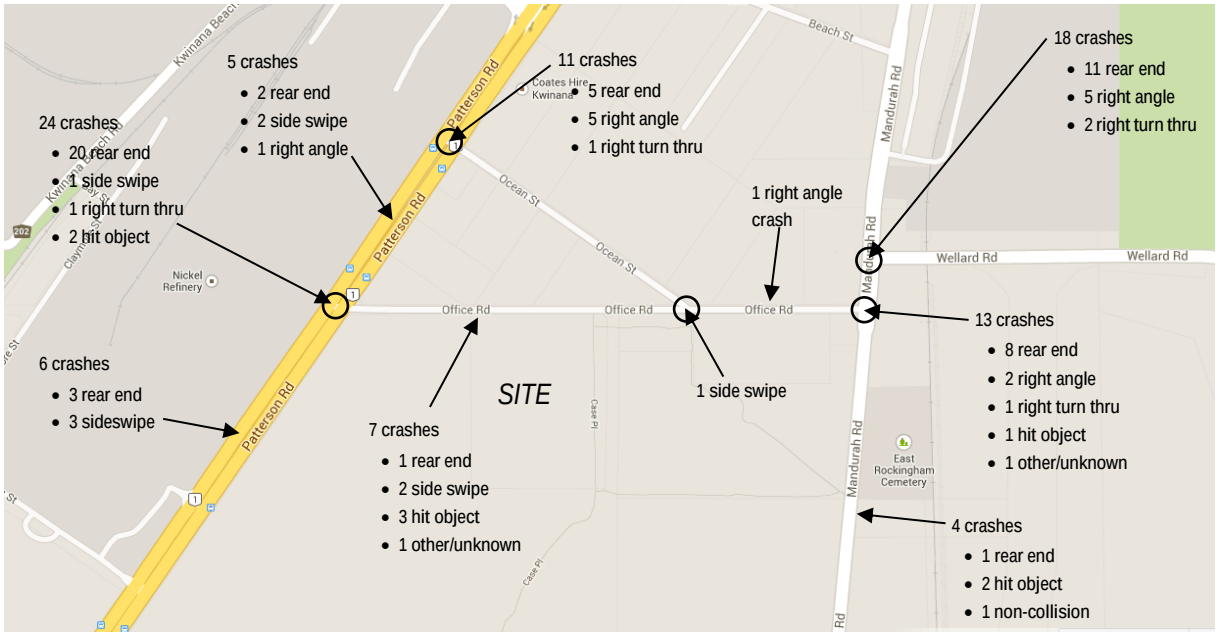


Figure 6: Crash Summary

A review of the crash history in the vicinity of the proposed operation indicates that there has been a higher than average number of rear end crashes at the nearby intersections on Patterson Road and Mandurah Road.

The volume of traffic expected to be generated by the development is relatively low and not considered to increase the risk of crashes above acceptable levels.

5. Changes to Surrounding Transport Networks

There are no known major changes to the surrounding transport network.

6. Traffic Generation and Distribution

6.1. Traffic Generation

6.1.1. Daily

Based upon discussions with the proposed operators of the facility, the proposed uses on the site will generate on average 190 vehicle movements per day detailed as follows:

- 65 B-Double trucks each day to deliver waste (65 in / 65 out).
- 1 B-Double truck each day to transport materials and remove grate combustion unit residue for disposal (1 in / 1 out).
- 1 B-Double truck each day to deliver chemicals (1 in / 1 out).
- 28 light vehicle trips per day assuming all staff drive individually (28 in / 28 out).

6.1.2. Peak Hour

The typical road network peak hours vary slightly on each road but generally occurs somewhere between 6 and 9am in the morning and between 3 to 5pm in the afternoon.

While the site can operate 24 hours per day, the majority of waste deliveries are expected to occur over the 12 hour period from 5am to 5pm and deliveries are expected to be spread evenly over this period. Based on this, the expected number of waste trucks expected during each of the peak hours of the road network is approximately 5 trucks (5 inbound movements and 5 outbound movements).

The trucks transporting materials, chemicals and grate combustion unit residue are mostly likely to make trips outside of the peak hours on the road network.

The proposed staff rostering is as follows:

- Operations day shift:
    - 6am to 2pm (15 staff)
    - 2pm to 10pm (4 staff)
- Operations night shift: 10pm to 6am (4 staff)
- Admin staff: 8am to 4pm (5 staff)

The expected staff movements are therefore:

- 20 inbound movements and 4 outbound movements during the morning peak hour.
- 5 outbound movements during the afternoon peak hour.

Based on the above, the expected peak hour movements from the site are as follows:

- Morning peak hour: 5 HV / 20 LV in and 5 HV / 4 LV out.
- Afternoon peak hour: 5HV in and 5 HV / 5 LV out.

6.2. Traffic Distribution

All truck movements will be made to and from the south via Kwinana Freeway. Based on the available RAV4 network roads, the proposed truck routing will be:

- Inbound via Kulija Road and then Mandurah Road.
- Outbound via Mandurah Road north of Office Road, right onto Rockingham Road and then Thomas Road.

Trucks will not be permitted to approach or leave the site via Patterson Road as the western section of Office Road is not part of the RAV network. The proposed route taken by the trucks arriving at and departing from the site is shown in Figure 7.

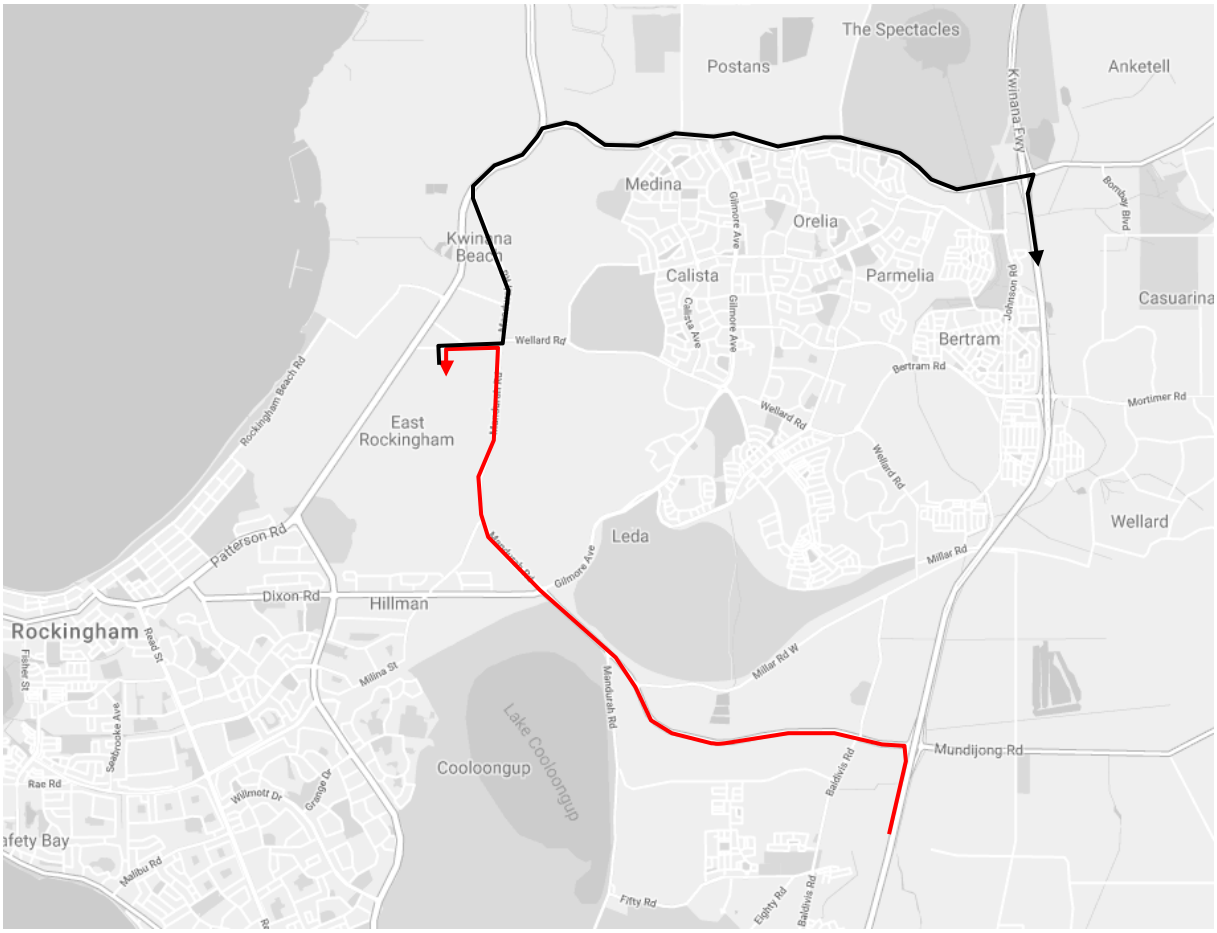


Figure 7: Proposed Truck Route

For light vehicles, it was assumed that trips would be split 50/50 between Patterson Road and Mandurah Road and then 50% north / 50% south.

The site generated traffic was then assigned onto the boundary road network based upon the assumptions above as shown in Figure 8. The site generated traffic is then shown along with the existing background traffic flows in Figure 9. Both the background and site traffic have been split into heavy vehicles and light vehicles for clarity.

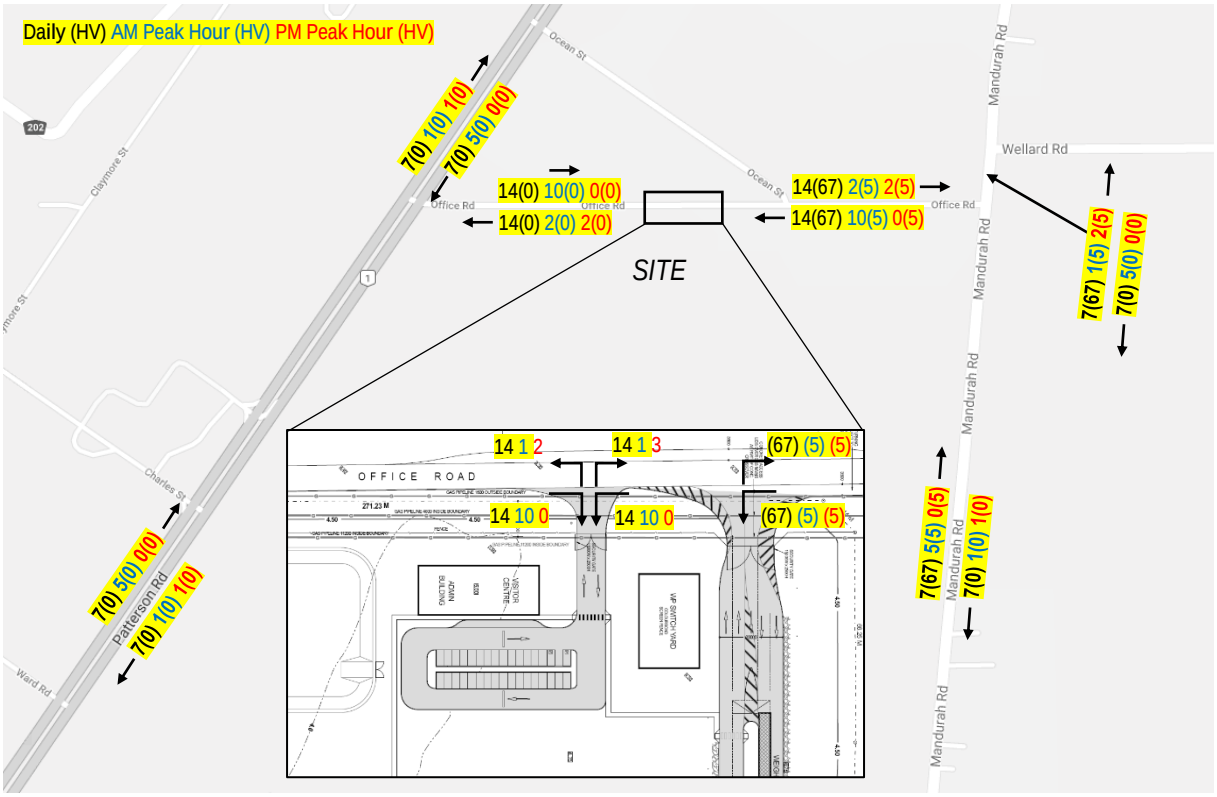


Figure 8: Site Generated Traffic

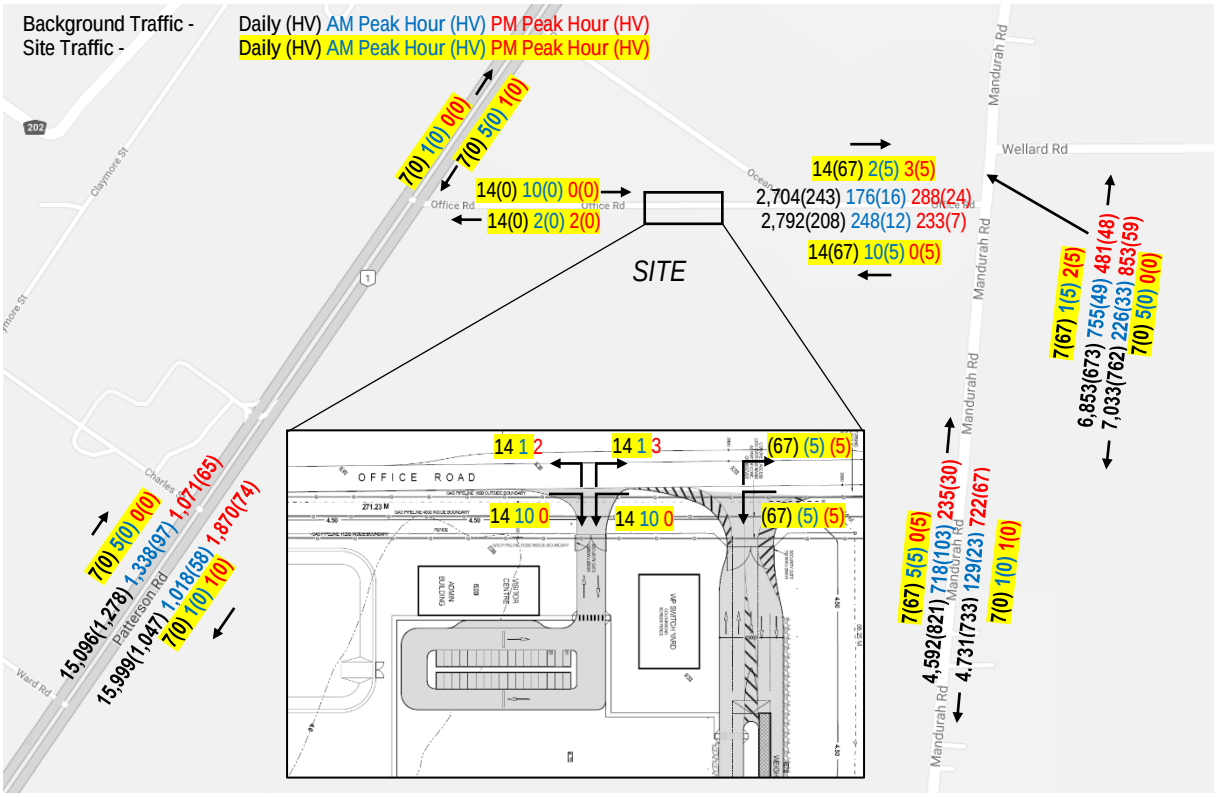


Figure 9: Background and Site Generated Traffic

7. Impact on Road Network

7.1. Mid-block Capacity Analysis

Based on Figure 9, the proposed development will generate a low amount of traffic compared to the existing volume of traffic on the road network and therefore the impact is considered to be relatively low.

The WAPC TIA Guidelines refers to Austroads Guide to Traffic Management for assessment of the impact of changes in traffic flows on the surrounding road network. Austroads *Guide to Traffic Management Part 3: Traffic Studies and Analysis* (AGTM03) notes that the following typical midblock lane capacities for different road types:

- Two-lane, two-way rural roads (Mandurah Road south of Office Road) – 1,700 passenger cars per hour (pc/h)
- Urban Roads with interrupted flow (Office Road, Patterson Road and Mandurah Road north of Office Road)
    - 900 pc/h on and undivided road
    - 1,000 pc/h on a divided road

Based on the predicted peak hour traffic flows, the existing number of lanes and cross sections of each road are considered to have sufficient capacity to accommodate the increase in traffic resulting from the proposed development at mid-block locations.

7.2. Intersection Capacity Analysis

The performance of the Mandurah Road / Office Road and Patterson Road / Office Road intersections have been analysed under the existing and post-development scenarios to determine the impact of the proposed development.

Analysis was carried out using the computer software *SIDRA Intersection 8.0*. SIDRA is a commonly used intersection modelling tool in the field of traffic engineering. Outputs for four standard measures of operation performance can be obtained, being Degree of Saturation (DoS), Average Delay, Queue Length, and Level of Service (LoS).

- Degree of Saturation is a measure of how much physical capacity is being used with reference to the full capability of the particular movement, approach, or overall intersection. A DoS of 1.0 equates to full theoretical capacity although in some instances this level is exceeded in practice. SIDRA uses maximum acceptable DoS of 0.90 for signalised intersections for its Design Life analysis. Austroads recommends a practical degree of saturation of 0.8 for unsignalised intersections. Design engineers typically set a maximum DoS threshold of 0.95 for new intersection layouts or modifications.
- Average Delay reports the average delay per vehicle in seconds experienced by all vehicles in a particular lane, approach, or for the intersection as a whole. For severely congested intersections the average delay begins to climb exponentially.
- Queue Length measures the length of approach queues. In this document we have reported queue length in terms of the length of queue at the 95th percentile (the maximum queue length that will not be exceeded for 95 percent of the time). Queue lengths provide a useful indication of the impact of signals on network performance. It also enables the traffic engineer to consider the likely impact of queues blocking back and impacting on upstream intersections and accesses.
- Level of Service is a combined appreciation of queuing incidence and delay time incurred, producing an alphanumeric ranking of A through F. A Loss of A indicates an excellent level of service whereby drivers delay is at a minimum and they clear the intersection at each change of signals or soon after arrival with little if any queuing. Values of B through D are acceptable in normal traffic conditions. Whilst values of E and F are typically considered undesirable, within central business district areas with significant vehicular and pedestrian numbers, corresponding delays/queues are unavoidable and hence, are generally accepted by road users.

The following assumptions were made as part of the assessment:

- The peak hour intersection flows at the Mandurah Road / Office Road intersection were derived using the mid-block peak hour traffic data from 2017/2018.
- All heavy vehicles at the Mandurah Road / Office Road intersection were modelled as having a passenger car equivalence (PCE) of 4 as recommended by the MRWA Standard Restricted Access

Vehicle Route Assessment Guidelines (RAV Guidelines).

- The peak hour intersection flows at the Patterson Road / Office Road intersection were derived from the August 2013 manual traffic counts. Historical data shows that the traffic flows on Patterson Road have not changed between 2013 and 2018. The intersection flows to and from Office Road were derived by increasing the 2013 counts by 5% per annum based on the historical data along Office Road.
- Heavy vehicle numbers were derived from MRWA data.
- The heavy vehicle percentage for the right turn from Office Road to Mandurah Road was set to zero as this movement is not permitted for RAV vehicles.

The modelled layout and peak hour intersection flows are shown in Figure 10 and Figure 11.

The results of the SIDRA analysis are included in Appendix B and summarised in Table 1.

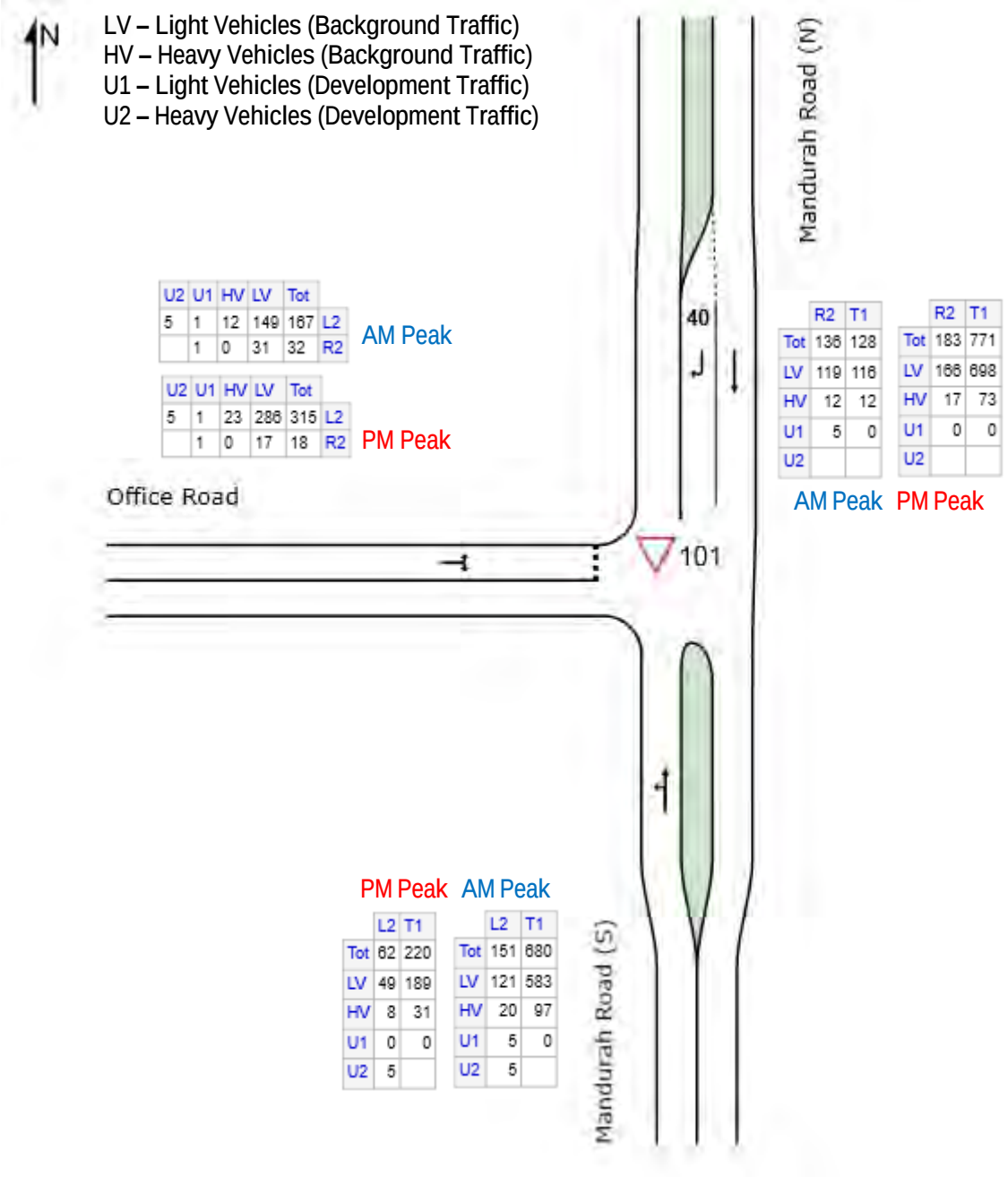
Table 1: Summary of SIDRA Results

Intersection	Peak Period	Scenario	Degree of Saturation	Average Delay (s)	Maximum Queue Length (m)	Average Level of Service
Mandurah Road / Office Road	AM Peak	Existing	0.572	3.6	8.6	A/B
		Future	0.579	3.8	9.5	A/B
	PM Peak	Existing	0.481	2.8	9.2	A
		Future	0.481	2.8	9.7	A
Patterson Road / Office Road	AM Peak	Existing	0.476	0.8	1.2	A
		Future	1.486	41.9	184.5	C
	PM Peak	Existing	0.476	0.8	1.3	A
		Future	1.486	42.1	184.5	C

As indicated by the above table, the proposed development and operations result in minimal change in the operation of the nearby intersections during peak hours.

It is noted that the right turn traffic from Patterson Road into Office Road is modelled as operating over capacity at a Level of Service F during the afternoon peak hour due to the high volume of southbound traffic on Patterson Road. It is also noted that the proposed development does not generate any inbound traffic movements through this intersection during the afternoon peak hour and therefore the impact of the development during this period is negligible.

During the morning peak hour, this intersection operates well and there is sufficient capacity to accommodate the development traffic.



U2	U1	HV	LV	Tot	
5	1	12	149	167	L2
	1	0	31	32	R2

U2	U1	HV	LV	Tot	
5	1	23	286	315	L2
	1	0	17	18	R2

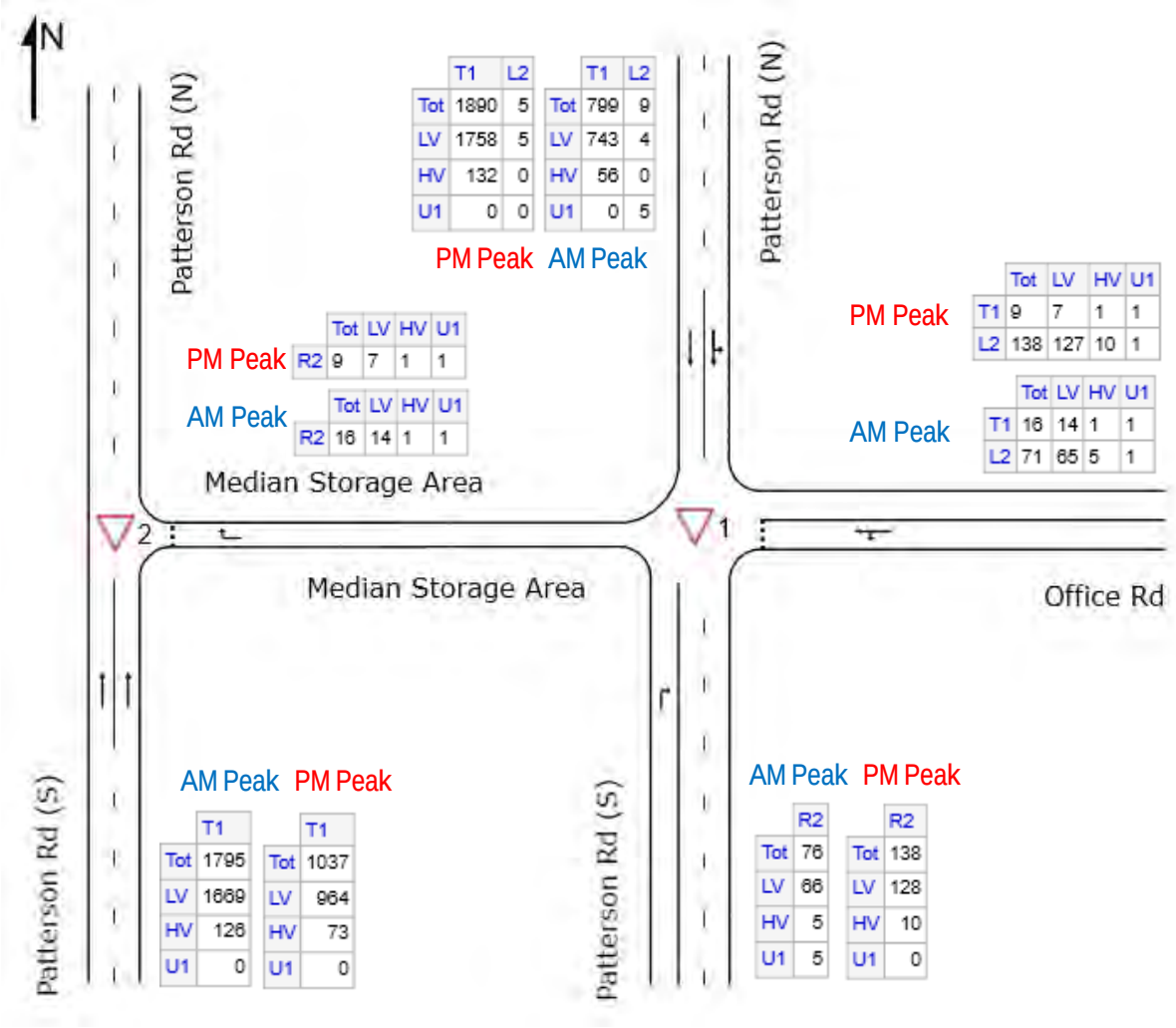
	R2	T1
Tot	136	128
LV	119	116
HV	12	12
U1	5	0
U2		

	R2	T1
Tot	183	771
LV	166	698
HV	17	73
U1	0	0
U2		

	L2	T1
Tot	62	220
LV	49	189
HV	8	31
U1	0	0
U2	5	

	L2	T1
Tot	151	680
LV	121	583
HV	20	97
U1	5	0
U2	5	

Figure 10: Peak Hour Intersection Flows (Mandurah Road / Office Road)



	T1	L2
Tot	1890	5
LV	1758	5
HV	132	0
U1	0	0

	T1	L2
Tot	799	9
LV	743	4
HV	56	0
U1	0	5

	Tot	LV	HV	U1
R2	9	7	1	1

	Tot	LV	HV	U1
R2	16	14	1	1

	Tot	LV	HV	U1
T1	9	7	1	1
L2	138	127	10	1

	Tot	LV	HV	U1
T1	16	14	1	1
L2	71	65	5	1

	T1
Tot	1795
LV	1669
HV	126
U1	0

	T1
Tot	1037
LV	964
HV	73
U1	0

	R2
Tot	76
LV	66
HV	5
U1	5

	R2
Tot	138
LV	128
HV	10
U1	0

LV – Light Vehicles (Background Traffic)
HV – Heavy Vehicles (Background Traffic)
U1 – Light Vehicles (Development Traffic)

Figure 11: Peak Hour Intersection Flows (Patterson Road / Office Road)

7.3. Sensitivity Analysis

A high level sensitivity analysis has been undertaken where the peak hour intersection flows are increased incrementally until the practical capacity of the intersection is reached (Degree of Saturation of 0.8). The following increases were estimated:

- Mandurah Road / Office Road – AM Peak – 40%
- Mandurah Road / Office Road – PM Peak – 60-70%
- Patterson Road / Office Road – AM Peak – 70%

A sensitivity analysis was not undertaken for the Patterson Road / Office Road intersection during the afternoon peak hour as the right turn movement from Patterson Road is already currently at capacity.

8. Road Geometry

8.1. Office Road

The width and cross section of Office Road has been checked for adequacy against the recommendations of MRWA RAV Guidelines. Appendix C of the RAV Guidelines is shown below as Figure 12.

Based on the 70km/h speed limit, the minimum required width between the road centre and the sealed edge is 3.5 metres (with marked separation lane). The existing sealed width from the road centre is approximately 3.75m to 4.0 metres which satisfies the minimum requirements. As such, no widening or upgrade of the road is required.

Appendix C: Town Site Road Minimum Widths

Feature	RAVs Categories 2-4		RAVs Categories 5-8		RAVs Categories 9-10	
	60 - 70 km/h	80-100 km/h	60 - 70 km/h	80-100 km/h	60 - 70 km/h	80-100 km/h
(Undivided carriageway – 2 Way) Width between sealed edge and road centre (m)						
Basic / unmarked	3.2	3.5	3.3	3.7	3.6	4.1
with marked separation line	3.5	3.8	3.6	4.0	3.9	4.4
with dedicated cycle lane	4.7	5.5	4.8	5.7	5.1	6.1
with dedicated or regular parallel parking	5.7	NA	5.8	NA	6.1	NA
with dedicated angle (45°) parking	9.2	NA	9.3	NA	9.6	NA
(Divided carriageway – single lane) Width between sealed edge and edge of median or traffic island (m)						
Basic / unmarked	3.5	3.8	3.6	4.0	3.9	4.4
with dedicated cycle lane	5.0	5.8	5.1	6.0	5.4	6.4
with dedicated or regular parallel parking	6.0	NA	6.1	NA	6.4	NA
with dedicated angle (45°) parking	9.5	NA	9.6	NA	9.9	NA
(Undivided carriageway – 2 lanes) Width between sealed edge and road centre (m)						
Basic / unmarked	6.6	7.0	6.7	7.1	7.0	7.5
with dedicated cycle lane	8.1	9.0	8.2	9.1	8.5	9.5
with dedicated or regular parallel parking	9.1	NA	9.2	NA	9.5	NA
(Divided carriageway – 2 lanes) Width between sealed edge and edge of median or traffic island (m)						
Basic / unmarked	6.6	7.0	6.7	7.1	7.0	7.5
with dedicated cycle lane	8.1	9.0	8.2	9.1	8.5	9.5
with dedicated or regular parallel parking	9.1	NA	9.2	NA	9.5	NA
(Multiple Lane Carriageways – 3 or more lanes) Width of additional through lane (m)						
basic	3.2	3.4	3.3	3.5	3.4	3.6

Notes:

1) Speed refers to the prevailing speed limit for the road

Figure 12: MRWA RAV Guidelines – Town Site Road Minimum Widths

The existing road shoulders are relatively flat and there is relatively little drainage infrastructure to capture stormwater runoff from the road. Pavement edge breaks were also observed during a site visit in January 2019. As such, the City of Rockingham requires that drainage in the form of swales are to be provided in the verge where there is room in the road reserve. The crossovers and the section of Office Road along the site frontage should also be kerbed with kerb openings to convey stormwater into the swales.

Due to the proposed widening on the north side of Office Road (Refer next section), kerbing and drainage is also likely to be required on this side, subject to consultation with the City of Kwinana.

8.2. Site Crossovers

The City of Rockingham requires that a short Channelised Right (CHR(S)) turn treatment is provided at the light vehicle crossover to allow through traffic on Office Road to bypass any vehicles turning right into this crossover. It has also been agreed that a Basic Left (BAL) turn treatment should be provided at the heavy vehicle crossover in order to allow trucks to come off the through lane before entering the crossover.

A concept layout of these intersection treatments is shown in Figure 13. The ultimate layout and dimensions will be subject to detailed design.

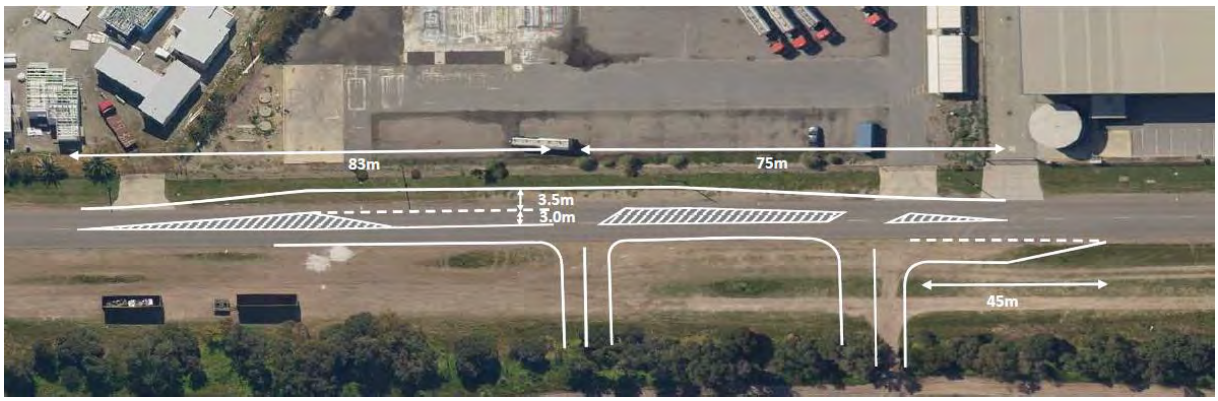


Figure 13: Turning Treatments at Site Crossovers – Concept Layout

8.3. Mandurah Road / Office Road Intersection

A swept path analysis has been undertaken for the proposed B-Double movements through this intersection which indicates that some pavement widening is required in the south-west corner of the intersection to accommodate a B-Double turning left from Mandurah Road into Office Road. The swept path is shown in Figure 14. The extent of pavement widening will be confirmed as part of the detailed design.

Figure 14: Mandurah Road / Office Road – B-Double Swept Paths

9. Parking

Due to the specific nature of the operation, the only car parking required for the site is for staff and visitor parking.

Based on the proposed staff roster, a maximum of 20 staff will be on site at any one time and therefore the 33 bays proposed on site would be sufficient for staff use with 13 bays left over to account for any overlap in staff movements and for visitors.

10. On-site Circulation

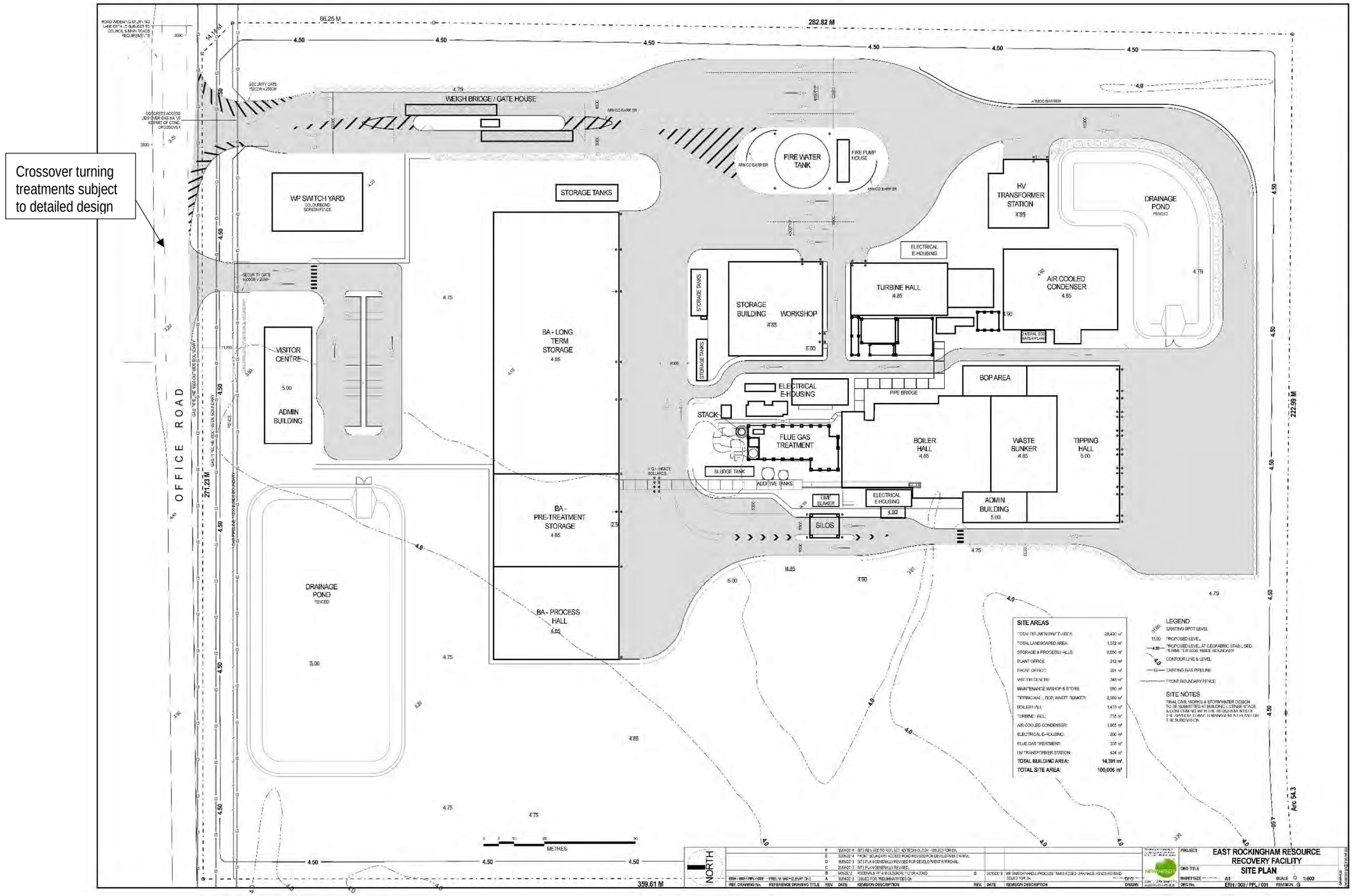
A swept path assessment has also been undertaken to confirm the satisfactory movement of B-Doubles throughout the site. The results of the assessment are attached as Appendix C which show that all necessary movements through the site can be made adequately. A supplementary swept path assessment can be undertaken for the crossover and crossover turning treatments at the detailed design stage.

11. Conclusions

A transport assessment of the proposed materials recovery facility and waste-to-energy conversion facility to be located at Lot 1 Office Road, East Rockingham, in the City of Rockingham has concluded the following:

- There is adequate capacity in the existing road network at mid-block locations and at intersections to accommodate the expected development traffic.
- The existing pavement width of Office Road is compliant with the MRWA RAV Guidelines.
- A Short Channelised Right (CHR(S)) turn treatment is to be provided at the light vehicle crossover and Basic Left (BAL) turn treatment is to be provided at the truck crossover.
- The south-west corner of the Mandurah Road / Office Road intersection will need to be widened to accommodate the movement of B-Doubles turning left from Mandurah Road into Office Road.
- The proposed 33 car bays is assessed as being adequate to meet the expected car parking demand of the development.
- A swept path assessment has demonstrated that the internal site layout adequately allows the movement of the trucks throughout the site.

Appendix A – Site Plan


Crossover turning treatments subject to detailed design
66.25 M
282.82 M
14.13 M
WEIGH BRIDGE / GATE HOUSE
SECURITY GATE
WP SWITCH YARD
COLORBOND SCREEN FENCE
STORAGE TANKS
FIRE WATER TANK
FIRE PUMP HOUSE
ARMCO BARRIER
HV TRANSFORMER STATION
DRAINAGE POND
FENCED
ELECTRICAL E-HOUSING
TURBINE HALL
AIR COOLED CONDENSER
STORAGE BUILDING
WORKSHOP
BA - LONG TERM STORAGE
VISITOR CENTRE
ADMIN BUILDING
BOP AREA
PIPE BRIDGE
STACK
FLUE GAS TREATMENT
BOILER HALL
WASTE BUNKER
TIPPING HALL
SLUDGE TANK
ADDITIVE TANKS
LIME SLAKER
SILOS
BA - PRE-TREATMENT STORAGE
BA - PROCESS HALL
OFFICE ROAD
271.23 M
222.99 M
359.61 M
Arc 54.3
METRES
NORTH
SITE AREAS
TOTAL DISTURBANCE AREA: 39,430 m²
TOTAL LANDSCAPED AREA: 1,372 m²
STORAGE & PROCESS HALLS: 8,650 m²
PLANT OFFICE: 212 m²
FRONT OFFICE: 201 m²
VISITOR CENTRE: 348 m²
MAINTENANCE WSHOP & STORE: 950 m²
TIPPING HALL, TIPP, WASTE BUNKER: 2,089 m²
BOILER HALL: 1,433 m²
TURBINE HALL: 735 m²
AIR COOLED CONDENSER: 1,065 m²
ELECTRICAL E-HOUSING: 256 m²
FLUE GAS TREATMENT: 338 m²
HV TRANSFORMER STATION: 424 m²
TOTAL BUILDING AREA: 14,391 m²
TOTAL SITE AREA: 100,006 m²
LEGEND
EXISTING SPOT LEVEL
PROPOSED LEVEL
PROPOSED LEVEL AT GEOFABRIC STABILISED PERIMETER GOOD ISSUE BOUNDARY
CONTOUR LINE & LEVEL
EXISTING GAS PIPELINE
FRONT BOUNDARY FENCE
SITE NOTES
FINAL CIVIL WORKS & STORMWATER DESIGN TO BE SUBMITTED AT BUILDING LICENSE STAGE & CONFORM WITH THE REQUIRMENTS OF THE APPROVED WATER MANAGEMENT PLAN FOR THE SUBDIVISION
PROJECT: EAST ROCKINGHAM RESOURCE RECOVERY FACILITY
DRG TITLE: SITE PLAN
SHEET SIZE: A1
SCALE: 1:500
DRG No.: ERH / 000 / PPL / 001
REVISION: G

MOVEMENT SUMMARY

Site: 101 [Mandurah Rd / Office Rd - Existing AM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mandurah Road (S)												
1	L2	141	14.2	0.572	6.7	LOS A	0.0	0.0	0.00	0.11	0.00	60.3
2	T1	680	14.3	0.572	0.2	LOS A	0.0	0.0	0.00	0.11	0.00	68.2
Approach		821	14.3	0.572	1.3	NA	0.0	0.0	0.00	0.11	0.00	66.7
North: Mandurah Road (N)												
8	T1	128	9.4	0.080	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	70.0
9	R2	131	9.2	0.159	10.7	LOS B	0.7	5.3	0.69	0.88	0.69	53.4
Approach		259	9.3	0.159	5.4	NA	0.7	5.3	0.35	0.44	0.35	60.5
West: Office Road												
10	L2	161	7.5	0.281	11.3	LOS B	1.2	8.6	0.65	0.89	0.75	53.5
12	R2	31	0.0	0.281	11.0	LOS B	1.2	8.6	0.65	0.89	0.75	55.2
Approach		192	6.3	0.281	11.3	LOS B	1.2	8.6	0.65	0.89	0.75	53.8
All Vehicles		1272	12.0	0.572	3.6	NA	1.2	8.6	0.17	0.29	0.18	63.1

MOVEMENT SUMMARY

Site: 101 [Mandurah Rd / Office Rd - Future AM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mandurah Road (S)												
1	L2	151	16.6	0.579	6.7	LOS A	0.0	0.0	0.00	0.11	0.00	59.5
2	T1	680	14.3	0.579	0.2	LOS A	0.0	0.0	0.00	0.11	0.00	68.0
Approach		831	14.7	0.579	1.3	NA	0.0	0.0	0.00	0.11	0.00	66.3
North: Mandurah Road (N)												
8	T1	128	9.4	0.080	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	70.0
9	R2	136	8.8	0.168	10.8	LOS B	0.7	5.5	0.69	0.88	0.69	53.2
Approach		264	9.1	0.168	5.6	NA	0.7	5.5	0.36	0.45	0.36	60.2
West: Office Road												
10	L2	167	10.2	0.298	11.6	LOS B	1.3	9.5	0.66	0.90	0.78	54.2
12	R2	32	0.0	0.298	11.2	LOS B	1.3	9.5	0.66	0.90	0.78	54.8
Approach		199	8.5	0.298	11.6	LOS B	1.3	9.5	0.66	0.90	0.78	54.3
All Vehicles		1294	12.6	0.579	3.8	NA	1.3	9.5	0.17	0.30	0.19	62.8

MOVEMENT SUMMARY

Site: 101 [Mandurah Rd / Office Rd - Existing PM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mandurah Road (S)												
1	L2	57	14.0	0.193	6.6	LOS A	0.0	0.0	0.00	0.13	0.00	60.4
2	T1	220	14.1	0.193	0.0	LOS A	0.0	0.0	0.00	0.13	0.00	68.2
Approach		277	14.1	0.193	1.4	NA	0.0	0.0	0.00	0.13	0.00	66.4
North: Mandurah Road (N)												
8	T1	771	9.5	0.481	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	69.8
9	R2	183	9.3	0.104	7.3	LOS A	0.6	4.2	0.41	0.61	0.41	55.5
Approach		954	9.4	0.481	1.5	NA	0.6	4.2	0.08	0.12	0.08	66.5
West: Office Road												
10	L2	309	7.4	0.272	7.5	LOS A	1.2	9.2	0.38	0.64	0.38	56.2
12	R2	17	0.0	0.272	12.8	LOS B	1.2	9.2	0.38	0.64	0.38	58.1
Approach		326	7.1	0.272	7.8	LOS A	1.2	9.2	0.38	0.64	0.38	56.3
All Vehicles		1557	9.8	0.481	2.8	NA	1.2	9.2	0.13	0.23	0.13	64.0

MOVEMENT SUMMARY

Site: 101 [Mandurah Rd / Office Rd - Future PM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mandurah Road (S)												
1	L2	62	21.0	0.197	6.7	LOS A	0.0	0.0	0.00	0.14	0.00	58.2
2	T1	220	14.1	0.197	0.0	LOS A	0.0	0.0	0.00	0.14	0.00	68.0
Approach		282	15.6	0.197	1.5	NA	0.0	0.0	0.00	0.14	0.00	65.6
North: Mandurah Road (N)												
8	T1	771	9.5	0.481	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	69.8
9	R2	183	9.3	0.105	7.3	LOS A	0.6	4.3	0.42	0.61	0.42	55.5
Approach		954	9.4	0.481	1.5	NA	0.6	4.3	0.08	0.12	0.08	66.5
West: Office Road												
10	L2	316	8.9	0.281	7.5	LOS A	1.3	9.7	0.38	0.64	0.38	57.4
12	R2	18	0.0	0.281	12.9	LOS B	1.3	9.7	0.38	0.64	0.38	57.8
Approach		334	8.4	0.281	7.8	LOS A	1.3	9.7	0.38	0.64	0.38	57.4
All Vehicles		1570	10.3	0.481	2.8	NA	1.3	9.7	0.13	0.23	0.13	64.2

MOVEMENT SUMMARY

Site: 1 [Patterson Rd / Office Rd - Existing AM - Stage 1]

Network: N101 [Patterson Rd / Office Rd - Existing AM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Patterson Rd (S)														
12	R2	71	7.0	71	7.0	0.098	11.7	LOS B	0.2	1.2	0.63	0.84	0.63	58.2
Approach		71	7.0	71	7.0	0.098	11.7	NA	0.2	1.2	0.63	0.84	0.63	58.2
East: Office Rd														
1	L2	70	7.1	70	7.1	0.094	8.1	LOS A	0.1	1.1	0.49	0.70	0.49	59.9
2	T1	15	6.7	15	6.7	0.094	12.6	LOS B	0.1	1.1	0.49	0.70	0.49	52.5
Approach		85	7.1	85	7.1	0.094	8.9	LOS A	0.1	1.1	0.49	0.70	0.49	59.1
North: Patterson Rd (N)														
4	L2	4	0.0	4	0.0	0.214	7.5	LOS A	0.0	0.0	0.00	0.01	0.00	82.1
5	T1	799	7.0	799	7.0	0.214	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	89.8
Approach		803	7.0	803	7.0	0.214	0.1	NA	0.0	0.0	0.00	0.00	0.00	89.8
All Vehicles		959	7.0	959	7.0	0.214	1.7	NA	0.2	1.2	0.09	0.13	0.09	82.9

MOVEMENT SUMMARY

Site: 2 [Patterson Rd / Office Rd - Existing AM - Stage 2]

Network: N101 [Patterson Rd / Office Rd - Existing AM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Patterson Rd (S)														
11	T1	1795	7.0	1795	7.0	0.476	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	89.7
Approach		1795	7.0	1795	7.0	0.476	0.1	NA	0.0	0.0	0.00	0.00	0.00	89.7
East: Median Storage Area														
3	R2	15	6.7	15	6.7	0.117	25.3	LOS D	0.1	0.7	0.92	0.92	0.92	33.7
Approach		15	6.7	15	6.7	0.117	25.3	LOS D	0.1	0.7	0.92	0.92	0.92	33.7
All Vehicles		1810	7.0	1810	7.0	0.476	0.3	NA	0.1	0.7	0.01	0.01	0.01	89.0

MOVEMENT SUMMARY

Site: 1 [Patterson Rd / Office Rd - Future AM - Stage 1]

Network: N101 [Patterson Rd / Office Rd - Future AM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Patterson Rd (S)														
12	R2	76	6.6	76	6.6	0.105	11.7	LOS B	0.2	1.3	0.63	0.84	0.63	57.7
Approach		76	6.6	76	6.6	0.105	11.7	NA	0.2	1.3	0.63	0.84	0.63	57.7
East: Office Rd														
1	L2	71	7.0	71	7.0	0.097	8.1	LOS A	0.2	1.1	0.49	0.70	0.49	59.7
2	T1	16	6.3	16	6.3	0.097	12.6	LOS B	0.2	1.1	0.49	0.70	0.49	52.4
Approach		87	6.9	87	6.9	0.097	8.9	LOS A	0.2	1.1	0.49	0.70	0.49	58.9
North: Patterson Rd (N)														
4	L2	9	0.0	9	0.0	0.215	7.4	LOS A	0.0	0.0	0.00	0.02	0.00	81.7
5	T1	799	7.0	799	7.0	0.215	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	89.6
Approach		808	6.9	808	6.9	0.215	0.1	NA	0.0	0.0	0.00	0.01	0.00	89.5
All Vehicles		971	6.9	971	6.9	0.215	1.8	NA	0.2	1.3	0.09	0.14	0.09	82.4

MOVEMENT SUMMARY

Site: 2 [Patterson Rd / Office Rd - Future AM - Stage 2]

Network: N101 [Patterson Rd / Office Rd - Future AM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Patterson Rd (S)														
11	T1	1795	7.0	1795	7.0	0.476	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	89.7
Approach		1795	7.0	1795	7.0	0.476	0.1	NA	0.0	0.0	0.00	0.00	0.00	89.7
East: Median Storage Area														
3	R2	16	6.3	16	6.3	0.124	25.6	LOS D	0.1	0.8	0.92	0.93	0.92	6.5
Approach		16	6.3	16	6.3	0.124	25.6	LOS D	0.1	0.8	0.92	0.93	0.92	6.5
All Vehicles		1811	7.0	1811	7.0	0.476	0.3	NA	0.1	0.8	0.01	0.01	0.01	89.0

MOVEMENT SUMMARY

Site: 1 [Patterson Rd / Office Rd - Existing PM - Stage 1]

Network: N101 [Patterson Rd / Office Rd - Existing PM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Patterson Rd (S)														
12	R2	138	7.2	138	7.2	1.486	956.5	LOS F	24.8	184.5	1.00	3.61	16.14	3.6
Approach		138	7.2	138	7.2	1.486	956.5	NA	24.8	184.5	1.00	3.61	16.14	3.6
East: Office Rd														
1	L2	137	7.3	137	7.3	0.410	16.9	LOS C	0.7	5.1	0.83	1.01	1.12	50.9
2	T1	7	0.0	7	0.0	0.410	74.1	LOS F	0.7	5.1	0.83	1.01	1.12	40.3
Approach		144	6.9	144	6.9	0.410	19.6	LOS C	0.7	5.1	0.83	1.01	1.12	50.5
North: Patterson Rd (N)														
4	L2	5	0.0	5	0.0	0.504	7.5	LOS A	0.0	0.0	0.00	0.00	0.00	82.0
5	T1	1890	7.0	1890	7.0	0.504	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	89.6
Approach		1895	7.0	1895	7.0	0.504	0.1	NA	0.0	0.0	0.00	0.00	0.00	89.6
All Vehicles		2177	7.0	2177	7.0	1.486	62.0	NA	24.8	184.5	0.12	0.30	1.10	34.7

MOVEMENT SUMMARY

Site: 2 [Patterson Rd / Office Rd - Existing PM - Stage 2]

Network: N101 [Patterson Rd / Office Rd - Existing PM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Patterson Rd (S)														
11	T1	1037	7.0	1037	7.0	0.275	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	89.9
Approach		1037	7.0	1037	7.0	0.275	0.0	NA	0.0	0.0	0.00	0.00	0.00	89.9
East: Median Storage Area														
3	R2	8	12.5	8	12.5	0.018	5.8	LOS A	0.0	0.1	0.67	0.63	0.67	49.1
Approach		8	12.5	8	12.5	0.018	5.8	LOS A	0.0	0.1	0.67	0.63	0.67	49.1
All Vehicles		1045	7.1	1045	7.1	0.275	0.1	NA	0.0	0.1	0.01	0.00	0.01	89.6

MOVEMENT SUMMARY

Site: 1 [Patterson Rd / Office Rd - Future PM - Stage 1]

Network: N101 [Patterson Rd / Office Rd - Future PM]

Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Patterson Rd (S)														
12	R2	138	7.2	138	7.2	1.486	956.5	LOS F	24.8	184.5	1.00	3.61	16.14	3.6
Approach		138	7.2	138	7.2	1.486	956.5	NA	24.8	184.5	1.00	3.61	16.14	3.6
East: Office Rd														
1	L2	138	7.2	138	7.2	0.482	18.7	LOS C	0.8	6.2	0.86	1.04	1.24	48.4
2	T1	9	11.1	9	11.1	0.482	93.8	LOS F	0.8	6.2	0.86	1.04	1.24	37.3
Approach		147	7.5	147	7.5	0.482	23.3	LOS C	0.8	6.2	0.86	1.04	1.24	47.9
North: Patterson Rd (N)														
4	L2	5	0.0	5	0.0	0.504	7.5	LOS A	0.0	0.0	0.00	0.00	0.00	82.0
5	T1	1890	7.0	1890	7.0	0.504	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	89.6
Approach		1895	7.0	1895	7.0	0.504	0.1	NA	0.0	0.0	0.00	0.00	0.00	89.6
All Vehicles		2180	7.0	2180	7.0	1.486	62.2	NA	24.8	184.5	0.12	0.30	1.11	34.6

MOVEMENT SUMMARY

Site: 2 [Patterson Rd / Office Rd - Future PM - Stage 2]

Network: N101 [Patterson Rd / Office Rd - Future PM]

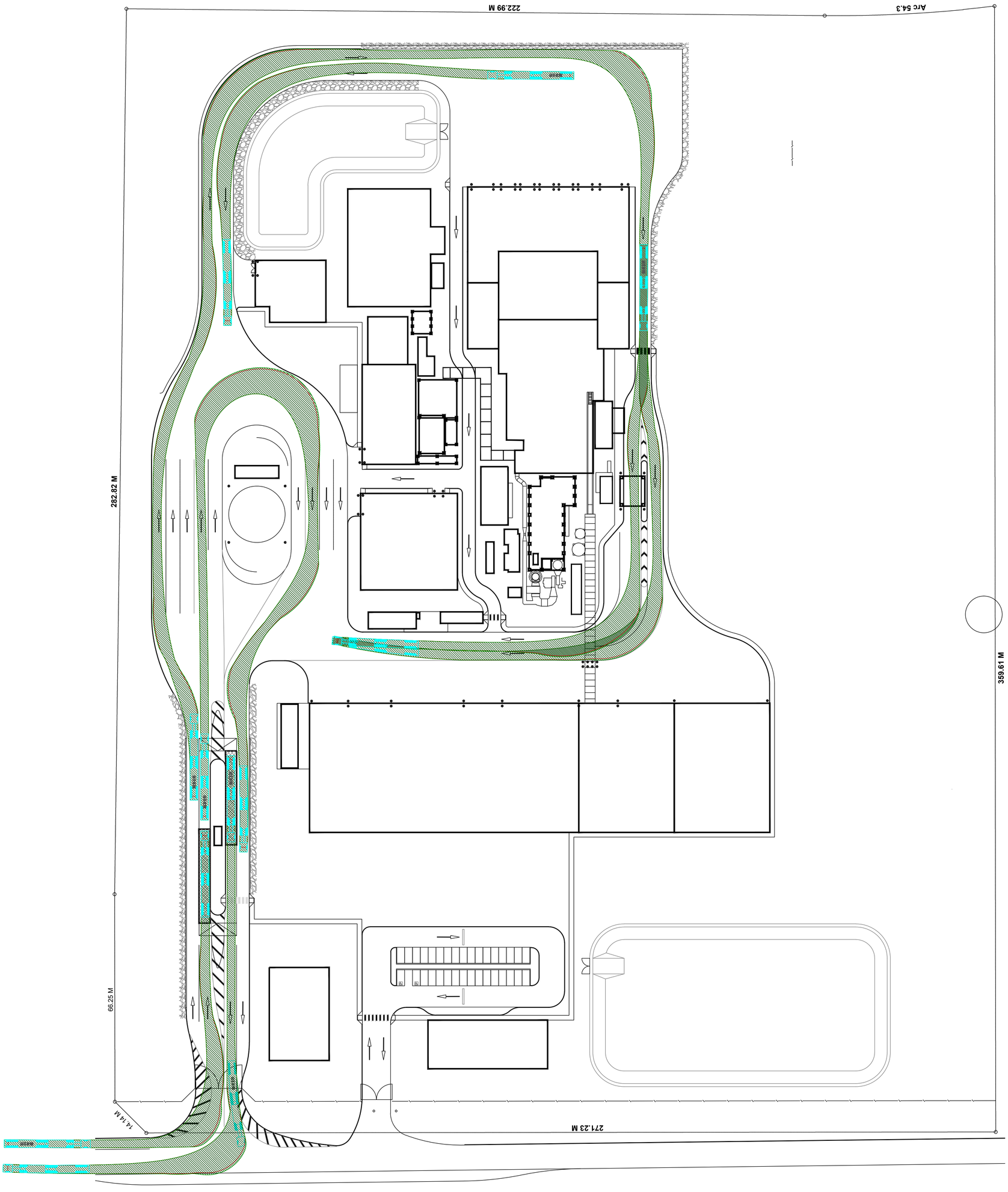
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Patterson Rd (S)														
11	T1	1037	7.0	1037	7.0	0.275	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	89.9
Approach		1037	7.0	1037	7.0	0.275	0.0	NA	0.0	0.0	0.00	0.00	0.00	89.9
East: Median Storage Area														
3	R2	9	11.1	9	11.1	0.020	6.7	LOS A	0.0	0.1	0.67	0.70	0.67	18.0
Approach		9	11.1	9	11.1	0.020	6.7	LOS A	0.0	0.1	0.67	0.70	0.67	18.0
All Vehicles		1046	7.1	1046	7.1	0.275	0.1	NA	0.0	0.1	0.01	0.01	0.01	89.6

Appendix C – Swept Path Assessment

gvrvasdesign@bne.net.au



Perth
Dilhorn House, 2 Bulwer Street
Perth WA 6000
T (08) 9227 2600
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7 January 2019

New Energy Corporation
12 Parliament Place
WEST PERTH WA 6005

Attention: Jason Pugh

Dear Jason,

RE: EAST ROCKINGHAM WASTE TO ENERGY FACILITY PLANNING APPROVAL – ACHIEVING COMPLIANCE WITH DEPARTMENT OF WATER AND ENVIRONMENTAL REGULATION (DWER) DMA SUBMISSION

Aurora Environmental has been engaged as the lead environmental consultant on the East Rockingham Waste to Energy Facility since 2016. In that role we have reviewed the DWER's submission to the City of Rockingham in relation to the Development Approval application for New Energy's revised Waste to Energy Facility located at 26 Office Road in East Rockingham.

The DWER comments address a number of matters relating to control of environmental emissions. We confirm that the project will be Prescribed Premises and a Works Approval Licence will be required to operate the facility under Part V of the Environmental Protection Act. This letter confirms that a Works Approval Application has been lodged pursuant to Sections 53 and 54 of the Environmental Protection Act seeking approval to construct and commission the facility. The lodged application deals explicitly with matters such as:

- air emissions controls including odour management;
- noise emissions control;
- liquid and Solid Waste management;
- stormwater management;
- monitoring programs for both emissions and the ambient environment; and
- management of commissioning of the facility.

DWER has acknowledged receipt of the application and has made an initial request for additional information and clarification. Aurora Environmental is currently in the process of assembling the additional requested information and envisages that there will be ongoing discussions and meetings during January to assist DWER in finalising its consideration of the application. The final approval will include specific conditions aimed at ensuring that all environmental emissions meet recognised regulatory criteria.

The comments on Best Practice Management and Groundwater are duly noted. It is not envisaged that the project will seek a groundwater licence but if that changes the appropriate application will be made to the DWER.

In relation to development of a Stormwater Management Plan, work has commenced on this plan and we envisage that it will be completed during the second quarter of 2019. Once completed this plan will be submitted to both the City of Rockingham and DWER for comment with a view to ensuring that is finalised and approved well before the facility is commissioned in 2021.

I trust the information contained in this advice is sufficient for your needs. Should you or the City of Rockingham require additional information please do not hesitate to contact me on 9227 2600.

Yours sincerely

Noel Davies

Director

East Rockingham Waste to Energy Facility

Environmental Review Document

Assessment No. 2116

Table 1: Monitoring and reporting framework

Environmental factor	Monitoring regime	Reporting
Air emissions	CEMS system to provide continuous monitoring and logging of key combustion parameters including: Temperatures at entry and exit of combustion chamber, boiler, air pollution control system and stack Key combustion parameters in the combustion chamber including O_2, CO, CO_2, $H_2O_{(vap)}$ Emission quality at stack exit including particulates, NO_x and SO_x. $H_2O_{(vap)}$.	Monthly summary reporting on New Energy website. Annual summary report under licence.
	Routine stack testing will be undertaken quarterly in the first year of operation for the following parameters: Particulates HAPs (such as Heavy Metals) NOx SOx Volatile Organic Compounds. The range of parameters and frequency of monitoring will be reviewed in conjunction with DWER after consideration of the first year of data (or sooner if necessary).	Monthly summary reporting on New Energy website Annual summary report under licence.

Environmental factor	Monitoring regime	Reporting
Water monitoring	**Groundwater** A minimum of four groundwater monitoring bores will be installed during the construction of the facility. The bores will be monitored quarterly for at least 12 months prior to the commencement of operation to establish background aquifer conditions and quarterly for the first year of operation. Thereafter, the monitoring frequency will be reduced to 6 monthly. The final suite of analytical parameters will be agreed with DWER as part of the Works Approval process but is expected to be consistent with the typical parameters monitored at landfills in WA.	Summary reporting on New Energy website. Annual summary report under licence.
	Surface Water Any standing water in the clean stormwater basins will be sampled after storm events and quarterly during the first year of operation. Subsequently, monitoring will be conducted six monthly (when standing water occurs). The final suite of analytical parameters will be agreed with DWER as part of the Works Approval process but is expected to be consistent with the typical parameters monitored at landfills in WA.	Summary reporting on New Energy website. Annual summary report under licence.
Waste assessment	**Waste Tracking and Reporting** New Energy will implement a waste tracking system and database for all wastes accepted at the site. This system tracks waste loads accepted at the facility and will be able to identify the final fate of specific loads of waste in order to be able to issue destruction certificates where requested by commercial clients.	Annual summary report on wastes accepted under licence.

Environmental factor	Monitoring regime	Reporting
	Feedstock Assessment New Energy will implement the following approach to feedstock assessment: Wastes received will be weighed using an on-site weighbridge; Wastes will be subject to visual assessment to identify and remove unsuitable or hazardous materials; New Energy will routinely monitor the contaminant loads, density, moisture content and calorific value of fuel bundles for the combustion chamber.	Internal management information available on request by DWER or during audits.
	Assessment of Residues All solid wastes resulting from the combustion process requiring off-site disposal will be assessed in accordance with the framework outlined in the document Western Australia Landfill Classification and Waste Definitions 1996 (as amended).	Summary report on New Energy website. Annual summary report on wastes disposed from the facility under licence.
Noise assessment	A noise survey to be completed during commissioning to demonstrate compliance with predicted noise levels.	Copy of noise assessment provided to DWER.

Schedule of Submissions
Proposed Waste to Energy Facility - Lot 1 (No.26) Office Road, East Rockingham

PUBLIC SCHEDULE OF SUBMISSIONS
Comment
1. Waste to Energy plant on Office Road in East Rockingham (Rockingham Industrial Zone). Society is facing a waste disposal problem and a WTE may be the right solution. This kind of facility plays a fundamental role in the waste management/energy generation/household heating solutions in Scandinavia. The concept is so successful in a country like Denmark that general waste is imported from GB. Apart from managing waste disposal, the concept is energy neutral, but the household heating generated makes it truly climate viable, although this is not a selling point in WA. Local pollution management is the immediate concern and it appears the EPA has thoroughly assessed this, but trust in industry compliance and regulatory oversight is crucial. Calista and Medina are the neighbourhoods most directly affected by toxic air pollution should anything occasionally slip. We know from a recent survey that low socio economic post codes are most negatively affected by industrial pollution. Measures to prevent groundwater pollution have to be absolute ironclad, no room for error. Local traffic management will be further challenged and a concern. The road network in the area is already groaning under the weight of heavy and industrial vehicle traffic, as well as commuter traffic. The intersection of Mandurah/Rockingham/Mason Roads is a nightmare and is degrading to traffic amenity. Mandated HV routes to and from the Kwinana/Rockingham Industrial Areas need to be established, eg. HV traffic strictly confined to Ankertel, Rockingham (relevant sections), Mandurah (relevant sections) and Kollijia Roads, all of which need upgrading to safely cater for large volumes of HVs. Road infrastructure has to be engineered ahead of development, not as a reactionary measure. Just imagine if the Kwinana Outer Harbour is built without Roe-8 and serious upgrades to Rockingham Road, the traffic will then be funnelled along a notoriously under-engineered Kwinana Freeway, through Ankertel Road and (God forbid ,Thomas Road), road-train upon road-train pouring onto Rockingham Road? The entire Cockburn Industrial Region need similar spectacular infrastructure attention and makeover as with Perth Airport. I support the WTE, but it is not as simple as just building a facility at Office Road.
Response to Submitter Number 1
Firstly thank you for your considered comments on the Project. It's clear that WA's reliance on landfilling waste needs to come to an end. This is recognised in the WA Draft Waste Strategy 2030, which was issued by the State Government in late 2018. The strategy sets an aggressive target of reducing Perth's waste to landfill to "no more than 15% by 2030". The introduction of waste to energy is also recognised in the strategy with the recovery of energy from residual waste as a key objective. In terms of emissions from the Project, yes they have been thoroughly examined by the EPA and they have recommended the Project for approval. In terms of ongoing compliance with emissions, this industry will be the most regulated in WA with a requirement for continuous emissions monitoring systems or CEMS. This provides a 24/7 measurement and record of key emissions. These are reported to the DWER and published on the Project Website to provide 100% transparency for local communities. In terms of traffic impact, we can confirm that a full traffic impact assessment has been submitted to City of Rockingham as part of the Development Application. The broader discussion on the road systems to access Fremantle Port or an Outer Harbour are noted.
2. This facility is totally inappropriate in both concept and location. There is already a waste to energy burner approved for the main Kwinana Industry Zone (the appropriate site for this type of industry) and for the Council to push for this type of proposal is just so short-sighted. With new technology in solar/battery storage and the plethera of lithium in this State why isn't Council and the State Government investing in proper recycling. To call this technology, renewable energy, is not only laughable it is totally stretching the truth. How can anyone in this day and age think, that adding more toxic pollutants into the atmosphere in close proximity to surrounding residential areas is a good idea? The residents in East Rockingham/Rockingham, Hillman and the suburbs of Kwinana deserve much better than this facility. Council should be working toward solving the problem of recycling now that China has stopped taking most of the plastics. Council should be encouraging proper recycling plants to take up residence in the area. In a prior submission, I suggested a recycling facility for the landfill site, which was proposed over five years ago, by the then waste manager at the landfill. It would have been up and running by now and would have generated millions in income every year, to make up for the reported revenue shortfall from the landfill. The New Energy facility is just a backward step, especially when we have more sunshine than almost everywhere else on the planet and enough lithium to store renewable energy for years to come. In conjunction with other utilised clean renewable energy sources such as wave energy and the major uptake of household solar, the clean future that Council/households would be creating and providing for generations to come, would be the responsible and correct thing to do. The long term health implications from toxic gases and heavy metals are well known so why play Russian roulette with the resident's health by supporting a burner? As a resident, I need and want to know that Council are working toward and making decisions that are in the best interest for our health. Going ahead with this burner does not fulfil that need and want. The New Energy facility is madness and I implore the Council/State Govt to rethink their strategy of continuing to use these unsuitable and backward thinking solutions for creating energy.

Response to Submitter Number 2
Submitter number 2 raises a number of issues so we shall respond to them where appropriate in the dot points below: • Location: the location for the project was identified by the Department of State Development and Landcorp and is located within the Kwinana Industrial Area. The site is appropriately zoned for this land use and adheres to the City of Rockingham Town Planning Scheme. • Energy generation alternatives: the primary purpose of this facility is to divert residual waste away from landfill. Energy generation is a benefit of this process. The electricity generated is base load energy and approximately 50% of the energy produced is deemed renewable energy. This definition of renewable energy is provided by the Australian Federal Government – Clean Energy Regulator. This type of generation fits well with more intermittent renewable sources such as wind and solar. • Concept of Waste to Energy: It's clear that WA's reliance on landfilling waste needs to come to an end. This is recognised in the WA Draft Waste Strategy 2030, which was issued by the State Government in late 2018. The strategy sets an aggressive target of reducing Perth's waste to landfill to "no more than 15% by 2030". The introduction of waste to energy is also recognised in the strategy with the recovery of energy from residual waste as a key objective. There will always be residual waste streams that cannot be recycled, therefore waste to energy is far more environmentally friendly than landfill, a concept supported by the WA State Government. New Energy is 100% supportive of recycling in WA and our contracts with Local Councils allow for waste to be recycled or reduced with no commercial impediments. • Air Emissions: the project has been thoroughly assessed by the EPA and recommended for approval. The key environmental factor in that assessment was air emissions. • Health Impact from Project: an independent Human Health Risk Assessment has been undertaken by the EPA. The results of the assessment support the statement that the Project does not pose a health risk for residential areas near the site.
3. I support it, but am not happy about the amount of town scheme water that the facility will use, e.g. "approximately 100,000 kilolitres (kl)/annum from scheme water" etc. as per the report you supplied. Can the plant not use another type or source of water? I think other alternatives need to explored. It uses too much scheme water. Grey or other waste water could be considered etc. Water is very valuable and also expensive. Other options would be explored. Otherwise, I am quite happy with the whole proposal. I am also appalled that we in WA produce the largest amount of waste per capita per annum. More needs to be done to address this. Why do we produce more than other states? The public needs to be confronted with these statistics much more.
Response to Submitter Number 3
Firstly, thank you for your considered comments on the proposal. As a Western Australian company we are very aware of the need to be water efficient. To that end we have been working on engineering solutions to reduce the amount of scheme water from the 100,000 Kl per annum. We are pleased to say that we are on track to achieve a reduced water requirement of around 50,000 KL per annum. This has been achieved by eliminating a water cooled condenser for the steam turbine and generator circuit. Other water efficient measures have also been achieved in the plant design. In terms of waste generation per capita, we agree this is an alarming statistic that needs addressing. I believe the current Draft Waste Strategy recognises this point with the Number 1 objective of the Strategy to reduce waste generation by 10% by 2025 and by 20% by 2030. One of the key planks in this strategy is an aggressive communication campaign as per the respondents' recommendation.
4. Proven well working Concept and Operations, Seconded and Supported. Direct Savings from Generation - buffer with battery banks (I am a Fully Licensed Unrestricted Electrician, Energy Electronics Engineering Technician and former Project Statutory Authority Electrical WA)
Response to Submitter Number 4
Thanks you for your comments. All comments made are supported by the project proponents.
5. I thank you for the opportunity to comment on the Waste to Energy proposal for East Rockingham. As an advocate for Waste to Energy over many years I fully support the proposal and would offer the following information to justify this proposal. About ten years ago I submitted an application for a Churchill Trust Scholarship to study Efw (Energy from Waste) in various countries including Tysley (UK), and Baltimore (USA). This also included a study on waste collection and disposal in places like the Isle of Wight (UK) Orkney Isles (UK) and the use of Bio Waste as fuel uses in San Francisco (USA). My application was fully supported, in writing, by the (then) City of Rockingham CEO, Andrew Hammond and the Director of Engineering, Chris Thompson. Unfortunately, the application was not successful.

I also, through WALGA, attempted to introduce a motion to survey local councils on their waste disposal and their attitude to Waste to Energy plants. The motion was not allowed due to, I believe, opposition from associated regional waste management groups within the State.

Tysley, mentioned above is currently in operation, converting 400 kilo tonnes of waste to energy per year. **(a)** Tysley. Is one of 40 EfW plants in the UK currently in operation with (as at December2017) 29 new facilities either under construction or proposed. Currently 12,263 kilo tonnes of waste are converted to energy per annum in the UK. (this is for either direct electric power conversion or used for district heating schemes) **(a)**

As at December 2017 the UK residual waste disposal statistics were

2008. Landfill 90%. Efw . 10%

2016. Landfill 65%. Efw. 35%

2018 (estimated) Landfill 50%. Etw . 50%

2019 Etw will exceed landfill. **(a)**

In Sweden over 50% of the country's energy is generated from Etw and only 1% of household waste ends up in landfill. The country has been the worlds leader in Etw for over twenty years and aims for a total zero waste. Over 50% of the country's energy is generated from energy from waste (approximately 550 Kwh of electricity per tonne can provide enough electricity for eighty average households per day) **(b)**

With the first EfW facility to be built in the (local) Kwinana Industrial Area and with Australia having a population of 24.9 million and an area of 7.6 million Km2 the following table reflects where some of the European countries are. **(c)**

It should be pointed out that with most countries in the world trying to combat climate change EfW is productive in reducing greenhouse gases.

Country	Population (Million)(d)	Area (Million Km²)(d)	EfW Plants (e)	Waste Burnt (Million Tonnes) (e)
Belgium	11.5	0.03	18	3.4
Denmark	5.7	0.04	26	3.47
France	65.2	0.5	126	14.4
Germany	82.9	0.3	121	26
Italy	59.2	0.3	41	6.21
Netherlands	17	0.03	12	7.8
Spain	46.3	0.5	12	2.88
Sweden	9.9	0.4	34	6.0
UK	66.5	0.2	46	10.07

In Rockingham the original "dump" prior to the opening of the Millar Road landfill facility was in Ennis Avenue, currently used by a couple of community activities. At its opening in 1993/4 the Millar Road facility had an expected lifespan of twenty years. With the introduction of re- cycling bins this anticipated life has been increased due to the reduction in waste going to landfill.

There will be the necessary planning for a future landfill facility once Millar Road reaches its maximum potential, costing ratepayers millions of dollars.

Originally most items regarded as re-cyclable were disposed of in the rec-cycle bin, however in recent times, due to the Chinese reaction to acceptance of certain re-cyclable items the home domestic situation has changed.

Currently re-cyclable items accepted only appear, in my opinion, those items that can gain income for the re-cycle resource centre, such as paper, glass, aluminium cans and certain plastics, such as drink containers.

1993/4 saw the industrial area of East Rockingham being considered as a steel mill production area and representatives of the City travelled to Wollongong to view the possibility of the steel mill going ahead in the East of Rockingham. Due to several factors this did not eventuate but that area of Rockingham has remained, zoned, industrial.

The site envisaged for the current proposal is far enough from residential to cause no concern regarding traffic, noise and due to the efficiency of the filter and scrubber system will cause no environmental health issues. The fact that 40 plants are in operation in a small country, such as the UK with no health issues, is proof to this.

I fully support the proposal,

I. Limited re-cyclable so more waste to land fill.
II. Limited life of the Millar Road Landfill facility III.
III. Power transferred into the grid.
IV. Location previously considered for steel mill.
V. Industrial location far enough from residential.
VI. Associated equipment to prevent air pollution.
VII. Experience of established facilities throughout the world including UK, Sweden and Japan.

Response to Submission Number 5

We thank submitter number 5 for their insightful comments. We would request that my contact details be passed to submitted number 5 so we can have a direct dialogue regarding the project.

Schedule of Submissions
Proposed Waste to Energy Facility - Lot 1 (No.26) Office Road, East Rockingham

PUBLIC SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
1. Mr Jarl C Andersen	19 McKenzie Road Shoalwater WA 6169	Waste to Energy plant on Office Road in East Rockingham (Rockingham Industrial Zone). Society is facing a waste disposal problem and a WTE may be the right solution. This kind of facility plays a fundamental role in the waste management/energy generation/household heating solutions in Scandinavia. The concept is so successful in a country like Denmark that general waste is imported from GB. Apart from managing waste disposal, the concept is energy neutral, but the household heating generated makes it truly climate viable, although this is not a selling point in WA. Local pollution management is the immediate concern and it appears the EPA has thoroughly assessed this, but trust in industry compliance and regulatory oversight is crucial. Calista and Medina are the neighbourhoods most directly affected by toxic air pollution should anything occasionally slip. We know from a recent survey that low socio economic post codes are most negatively affected by industrial pollution. Measures to prevent groundwater pollution have to be absolute ironclad, no room for error. Local traffic management will be further challenged and a concern. The road network in the area is already groaning under the weight of heavy and industrial vehicle traffic, as well as commuter traffic. The intersection of Mandurah/Rockingham/Mason Roads is a nightmare and is degrading to traffic amenity. Mandated HV routes to and from the Kwinana/Rockingham Industrial Areas need to be established, eg. HV traffic strictly confined to Ankertel, Rockingham (relevant sections), Mandurah (relevant sections) and Kollijia Roads, all of which need upgrading to safely cater for large volumes of HVs. Road infrastructure has to be engineered ahead of development, not as a reactionary measure. Just imagine if the Kwinana Outer Harbour is built without Roe-8 and serious upgrades to Rockingham Road, the traffic will then be funnelled along a notoriously under-engineered Kwinana Freeway, through Ankertel Road and (God forbid ,Thomas Road), road-train upon road-train pouring onto Rockingham Road? The entire Cockburn Industrial Region need similar spectacular infrastructure attention and makeover as with Perth Airport. I support the WTE, but it is not as simple as just building a facility at Office Road.
2. Mr J F & Mrs V Mendes & Mr B J & Mrs A P Clugston	41 Floyd Street Trigg WA 6029	This facility is totally inappropriate in both concept and location. There is already a waste to energy burner approved for the main Kwinana Industry Zone (the appropriate site for this type of industry) and for the Council to push for this type of proposal is just so short-sighted. With new technology in solar/battery storage and the plethera of lithium in this State why isn't Council and the State Government investing in proper recycling. To call this technology, renewable energy, is not only laughable it is totally stretching the truth. How can anyone in this day and age think, that adding more toxic pollutants into the atmosphere in close proximity to surrounding residential areas is a good idea? The residents in East Rockingham/Rockingham, Hillman and the suburbs of Kwinana deserve much better than this facility. Council should be working toward solving the problem of recycling now that China has stopped taking most of the plastics. Council should be encouraging proper recycling plants to take up residence in the area. In a prior submission, I suggested a recycling facility for the landfill site, which was proposed over five years ago, by the then waste manager at the landfill. It would have been up and running by now and would have generated millions in income every year, to make up for the reported revenue shortfall from the landfill.

PUBLIC SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.2 - cont…		The New Energy facility is just a backward step, especially when we have more sunshine than almost everywhere else on the planet and enough lithium to store renewable energy for years to come. In conjunction with other utilised clean renewable energy sources such as wave energy and the major uptake of household solar, the clean future that Council/households would be creating and providing for generations to come, would be the responsible and correct thing to do. The long term health implications from toxic gases and heavy metals are well known so why play Russian roulette with the resident's health by supporting a burner? As a resident, I need and want to know that Council are working toward and making decisions that are in the best interest for our health. Going ahead with this burner does not fulfil that need and want. The New Energy facility is madness and I implore the Council/State Govt to rethink their strategy of continuing to use these unsuitable and backward thinking solutions for creating energy.
3. Ms Susana Schmidt	5/56-60 Elanora Drive Cooloongup WA 6168	I support it, but am not happy about the amount of town scheme water that the facility will use, e.g. "approximately 100,000 kilolitres (kl)/annum from scheme water" etc. as per the report you supplied. Can the plant not use another type or source of water? I think other alternatives need to explored. It uses too much scheme water. Grey or other waste water could be considered etc. Water is very valuable and also expensive. Other options would be explored. Otherwise, I am quite happy with the whole proposal. I am also appalled that we in WA produce the largest amount of waste per capita per annum. More needs to be done to address this. Why do we produce more than other states? The public needs to be confronted with these statistics much more.
4. Mr Markus A Enkler	16 Rivergums Boulevard, Baldivis WA 6171	Proven well working Concept and Operations, Seconded and Supported. Direct Savings from Generation - buffer with battery banks (I am a Fully Licensed Unrestricted Electrician, Energy Electronics Engineering Technician and former Project Statutory Authority Electrical WA)
5. Mr Brian Warner	189/831 Mandurah Road Baldivis WA 6171	I thank you for the opportunity to comment on the Waste to Energy proposal for East Rockingham. As an advocate for Waste to Energy over many years I fully support the proposal and would offer the following information to justify this proposal. About ten years ago I submitted an application for a Churchill Trust Scholarship to study Efw (Energy from Waste) in various countries including Tysley (UK), and Baltimore (USA). This also included a study on waste collection and disposal in places like the Isle of Wight (UK) Orkney Isles (UK) and the use of Bio Waste as fuel uses in San Francisco (USA). My application was fully supported, in writing, by the (then) City of Rockingham CEO, Andrew Hammond and the Director of Engineering, Chris Thompson. Unfortunately, the application was not successful. I also, through WALGA, attempted to introduce a motion to survey local councils on their waste disposal and their attitude to Waste to Energy plants. The motion was not allowed due to, I believe, opposition from associated regional waste management groups within the State. Tysley, mentioned above is currently in operation, converting 400 kilo tonnes of waste to energy per year. **(a)**

PUBLIC SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.5 – cont…		Tysley. Is one of 40 EfW plants in the UK currently in operation with (as at December2017) 29 new facilities either under construction or proposed. Currently 12,263 kilo tonnes of waste are converted to energy per annum in the UK. (this is for either direct electric power conversion or used for district heating schemes) **(a)** As at December 2017 the UK residual waste disposal statistics were 2008. Landfill 90%. Efw . 10% 2016. Landfill 65%. Efw. 35% 2018 (estimated) Landfill 50%. Etw . 50% 2019 Etw will exceed landfill. **(a)** In Sweden over 50% of the country's energy is generated from Etw and only 1% of household waste ends up in landfill. The country has been the worlds leader in Etw for over twenty years and aims for a total zero waste. Over 50% of the country's energy is generated from energy from waste (approximately 550 Kwh of electricity per tonne can provide enough electricity for eighty average households per day) **(b)** With the first EfW facility to be built in the (local) Kwinana Industrial Area and with Australia having a population of 24.9 million and an area of 7.6 million Km2 the following table reflects where some of the European countries are. **(c)** It should be pointed out that with most countries in the world trying to combat climate change EfW is productive in reducing greenhouse gases.

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PUBLIC SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.5 – cont…		1993/4 saw the industrial area of East Rockingham being considered as a steel mill production area and representatives of the City travelled to Wollongong to view the possibility of the steel mill going ahead in the East of Rockingham. Due to several factors this did not eventuate but that area of Rockingham has remained, zoned, industrial. The site envisaged for the current proposal is far enough from residential to cause no concern regarding traffic, noise and due to the efficiency of the filter and scrubber system will cause no environmental health issues. The fact that 40 plants are in operation in a small country, such as the UK with no health issues, is proof to this. I fully support the proposal, I. Limited re-cyclable so more waste to land fill. II. Limited life of the Millar Road Landfill facility Ill. III. Power transferred into the grid. IV. Location previously considered for steel mill. V. Industrial location far enough from residential. VI. Associated equipment to prevent air pollution. VII. Experience of established facilities throughout the world including UK, Sweden and Japan.

Schedule of Submissions
Proposed Waste to Energy Facility - Lot 1 (No.26) Office Road, East Rockingham

SERVICING AUTHORITY & GOVERNMENT AGENCIES SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
1. Mr Lyndon Mutter **Department of Biodiversity, Conservation and Attractions**	Locked Bag 104 Bentley Delivery Centre WA 6983	The Department of Biodiversity Conservation and Attractions has no comments on the application.
2. M Zijad Bajrektarevic **APA Group**	Eastpoint Plaza, Level 5 233 Adelaide Terrace, Perth WA 6000	Thank you for your referral request received on 13th November 2018 in relation to the proposed Resource Recovery Facility at 26 (Lot 1) Office Road, East Rockingham. APA Group (APA) is Australia's largest natural gas infrastructure business and has direct management and operational control over its assets and investments. APA's gas transmission pipelines span across Australia, delivering approximately half of the nation's gas usage. APA owns and operates over 15,000km's of high pressure gas transmission pipelines across Australia. APA is the Pipeline Licensee for the Parmelia Gas Pipeline, which runs along the eastern boundary of the subject site. **APA's Role** As a Licensee under the Petroleum Pipelines Act 1969 (WA), APA is required to operate high pressure gas transmission pipelines (**HPGTP**) in a manner that minimises adverse environmental impacts and protects the public and property from health and safety risks. Once a HPGTP is in place, APA is required to constantly monitor both the pipeline easement and also a broader area within which we are required to consider land use changes and development and to assess what such changes means to the risk profile of the HPGTP. APA has a number of responsibilities and duties to perform under a complex framework of legislation, standards and controls across Federal, State and Local Government landscapes. In particular, our HPGTPs are required to be operated in accordance with Australian Standard 2885 (Pipelines – Gas and Liquid Petroleum) (AS2885). In discharging our regulatory responsibilities, APA needs to continuously review what is happening around its assets, what land use changes are occurring and what development is taking place to ensure it remains in a positon to comply with applicable operational and safety standards and legislation whilst meeting its commercial obligations and imperatives. **Pipeline Risk Management/Protection Plan** AS2885 requires a Pipeline Risk Management/Protection Plan to be undertaken whenever the land use classification of land within the ML. The purpose of an Pipeline Risk Management/Protection Plan is to assess the risk associated with a change in land use, including both construction risks and ongoing land use risks. The Pipeline Risk Management/Protection Plan will also develop appropriate controls to reduce risks to 'as low as reasonably practicable' (**ALARP**). The proposal is for the use and construction of a Resource Recovery Facility. This involves the construction of two crossovers to Office Road, a number of buildings and associated structures and a 10 metre wide landscape strip along Office Road. Given the extent of works proposed APA seeks for a pipeline risk management/protection plan to be prepared in accordance with Planning Bulletin 87 and requires the following conditions/advisory notes to be included with any approval issued for this proposal.

SERVICING AUTHORITY SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.2 - cont…		<u>Conditions:</u> 1. Prior to the commencement of development works, the landowner/applicant shall prepare and implement as part of the development works a pipeline risk management/protection plan in accordance with Planning Bulletin 87 High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region. The risk mitigation measures/controls outlined within the pipeline risk management/protection plan are to be implemented by the landowner/applicant as part of the development works to the satisfaction of the Western Australian Planning Commission and to the specifications of APA Group. 2. Prior to the development commencing, landscape plans depicting any planned landscaping, including the plating of vegetation, species, details, surface. <u>Notes</u> • The proponent is to contact APA's Infrastructure, Planning and Protection team to arrange for the preparation of the pipeline risk management/protection plan and discuss any other practical elements of works in and around the pipeline. APA can be contacted on 180 103 452 or via email at APAProtection@apa.com.au • If you are planning on undertaking any physical works on property containing or proximate to a pipeline, or are seeking details on the physical location of a pipeline, please contact Dial Before You Dig on 1100, or APA directly on APAProtection@apa.com.au For any further enquiries in relation to this correspondence, please contact myself on (+61) 436 616 145 or APA's Infrastructure, Planning & Protection team by email at PlanningWA@apa.com.au.
3. Mr Brett Dunn **Department of Water and Environmental Regulation**	PO Box 332 Mandurah WA 6210	Thank you for referring the above mentioned development application received by correspondence dated 8th November 2018. The Department of Water and Environmental Regulation (DWER) has reviewed the application and wishes to advise it has no objections to the proposal and provides the following advice. <u>Stormwater Management</u> A Stormwater Management Plan (SMP) should be prepared and be consistent with the Stormwater Management Manual for Western Australia (DoW, 2004) and Water Quality Protection Note 52 – Stormwater management at industrial sites (DoW, 2010). Additionally, the SMP should align with the broader water management principles and commitments within the Rockingham Industry Zone Water Management Strategy (RIZWMS) (hyd2o Hydrology, July 2013). <u>Sewerage</u> As per the Draft Government Sewerage Policy (Government of Western Australia, 2016), the subject land is located within a sewage sensitive area and must connect to a reticulated sewerage system. In addition, section 5.3 of the RIZWMS states that the industrial area will connect to reticulated sewerage: *"Wastewater will be deep sewerage (reticulated) with management by Water Corporation.*

SERVICING AUTHORITY SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.3 - cont…		*The development of the East Rockingham Wastewater Treatment Plant (ERWWTP) is essential to the future servicing of the Rockingham Industrial Zone (RIZ) (Porter Engineering, 2012). A memorandum of understanding has been established between the Water Corporation and Landcorp regarding the staging of sewerage infrastructure throughout the RIZ. This will guide the future development of the wastewater management system."* However, within the project definition section of the Development Application – East Rockingham Resource Recovery Facility (New Energy, November 2018), it indicates that sewerage and greywater will have: *"On-site disposal via an aerobic treatment unit – to be approved by the City of Rockingham."* This is not consistent with the draft policy, nor the RIZWMS and therefore the development is to be connected to reticulated sewerage. <u>Native Vegetation</u> Under section 51C of the Environmental Protection Act 1986 (EP Act), clearing of native vegetation is an offence unless undertaken under the authority of a clearing permit, or the clearing is subject to an exemption. Exemptions for clearing that is a requirement of a written law, or authorised under certain statutory processes, are contained in Schedule 6 of the EP Act. Exemptions for low impact routine land management practices are contained in the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Regulations). Guidelines and fact sheets on the regulation of native vegetation clearing can be found on DWER's website at https://www.der.wa.gov.au/our-work/clearing-permits. <u>Prescribed Premises</u> Under Part V of the Environmental Protection Act, there may be a requirement for a works approval and licence. Please refer to https://der.wa.gov.au/our-work/licences- and-works-approvals for further advice. <u>Best Practice Management</u> With regards to the preparation of the SMP, the following Water Quality Protection Notes (WQPN's) have been referenced to provide best practice management guidelines relevant to this development proposal with the intent to protect the state's water resources. These can be found on the department's website www.water.wa.gov.au. WQPN 10 – Contaminant spills-emergency response WQPN 26 – Liners for containing pollutants, using synthetic membranes WQPN 51 – Industrial wastewater management and disposal WQPN 52 – Stormwater management at industrial sites WQPN 65 – Toxic and hazardous substances – storage and use WQPN 68 – Mechanical equipment washdown <u>Groundwater</u> The subject area is located in the Cockburn Groundwater Area as proclaimed under the Rights in Water and Irrigation Act 1914. Any groundwater abstraction in this proclaimed area for purposes other than domestic and/or stock watering taken from the superficial aquifer, is subject to licensing by the DWER. This includes any soil dewatering that may need to occur during construction.

<table>
<tr><th colspan="3">SERVICING AUTHORITY SCHEDULE OF SUBMISSIONS</th></tr>
<tr><td>Name</td><td>Address</td><td>Comment</td></tr>
<tr><td>No.3 - cont…</td><td></td><td>The issuing of a groundwater licence is not guaranteed but if issued will contain a number of conditions that are binding upon the licensee. Please contact the licensing business support unit on 1800 508 885 for further advice.
The proponent has indicated that the water requirements needed for the facility will be provided by connection to scheme water.
If you have any queries relating to the above matter, please contact Nicolene Gault at DWER's Mandurah office on 9550 4237.</td></tr>
<tr><td>4. Mr Ron de Blank
Department of Fire & Emergency Services Fire Division</td><td>PO Box P1174
Perth WA 6844</td><td>I refer to your email dated 13 November 2018 regarding the submission of a Bushfire Management Plan (BMP) (Version 1.0), prepared by Bushfire Prone Planning and dated 4 May 2018, for the above development application. The BMP is accompanied by a report prepared by New Energy Corporation Pty Ltd titled "Development Application – East Rockingham Resource Recovery Facility" dated November 2018 for the above development application (DA).
It should be noted that this advice relates only to State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) and the Guidelines for Planning in Bushfire Prone Areas (Guidelines). It is the responsibility of the proponent to ensure that the proposal complies with all other relevant planning policies and building regulations where necessary. This advice does not exempt the applicant/proponent from obtaining necessary approvals that may apply to the proposal including planning, building, health or any other approvals required by a relevant authority under other written laws.
<u>Advice</u>
It is unclear why the City of Rockingham has determined the development to be considered a vulnerable land use in the 'Referral to DFES Checklist', as it does not appear to meet the definition as outlined in SPP 3.7.
<u>Assessment</u>
1. Policy Measure 6.5 a) Preparation of a BAL contour map
<table>
<tr><th>Issue</th><th>Assessment</th><th>Action</th></tr>
<tr><td>BAL Contour Map</td><td>Indicative BAL ratings
The BAL Contour Map provides indicative BAL ratings due to the location of the development being undetermined. It is unclear why reference is made to indicative BAL ratings given the proposal contains siting and design details of the proposed development within the development application.</td><td>Clarification required.</td></tr>
</table>
2. Policy Measure 6.5 c) Compliance with the Bushfire Protection Criteria
<table>
<tr><th>Issue</th><th>Assessment</th><th>Action</th></tr>
<tr><td>Method 2</td><td>Method 2 inputs and calculation

It is unclear what inputs have been changed in the 'Method 2' calculation. Please clarify if the 'Method 2 BAL Calculation' within Appendix 4 of the BMP has been incorrectly included.

The Method 2 calculation has not been validated by DFES.</td><td>Clarification required.</td></tr>
</table>
<u>Recommendation – supported subject to modifications</u>
The development application and the BMP have adequately identified issues arising from the bushfire risk assessment and considered how compliance with the bushfire protection criteria can be achieved. However, modifications to the BMP are necessary to ensure it accurately identifies the bushfire risk and necessary mitigation measures.</td></tr>
</table>

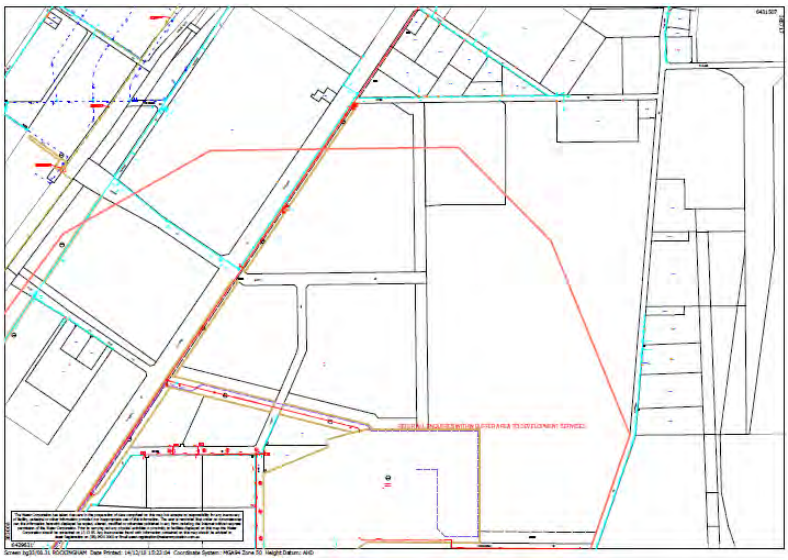
SERVICING AUTHORITY SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.4 - cont…		As these modifications will not affect the development design, these modifications can be undertaken without further referral to DFES. The required modifications are listed in the tables above. If you require further information, please contact Richard Trinh – Senior Land Use Planning Officer, on telephone number 6551 4031.
5. Ms Joanne Abbiss **City of Kwinana**	PO Box 21 Kwinana WA 6966	I refer to the City of Rockingham's letter of 9 November 2018 seeking the City of Kwinana's (the City) comments and recommendations on the proposed East Rockingham Waste to Energy Facility on the abovementioned land. The City has taken the opportunity to review the proposal and wish to make the following comments. <u>Location</u> Whilst the City is cognisant to the fact that the East Rockingham Waste to Energy Proposal has previously received an approval to operate a Waste to Energy Plant under the provisions of the Environmental Protection Act (EPA Report No.1513 and Ministerial Statement 994), and has also received development approval under the City of Rockingham Local Planning Scheme (DAP/14/00530), the City of Kwinana hold concerns regarding the location of the facility and the potential air quality impacts it may generate for residents within the Calista, Leda and Medina localities. As discussed in the EPA's report of June 2017, on the Mandogalup urban development buffer, the predominant winds in the region are typical of coastal environments in the Perth Metropolitan Region and are characterised by strong offshore breezes during the early morning to midday periods followed by strong onshore breezes in the afternoon to evening periods. The strong south-west to south-south-west breezes are of particular concern to the City especially during shut down periods for the plant (both scheduled and un-scheduled). The City are of the opinion that during these periods of shut down or facility down time, the proposal has the potential to negatively impact on the air quality of the residents of Calista, Medina and Leda through the release of fugitive gas and odour emissions. Additionally, the Public Environmental Review (PER) documents note that there are two residential premises located on Wellard Road approximately 1 kilometre to the east of the facility, however does not adequately address, nor give weight to, the potential impacts of the facility on these residences. In this regard, it is the opinion of the City that the proposal location should be reconsidered and an alternative site be sought closer to the core of the Kwinana Industrial Area (KIA) where the prevailing wind direction will direct any fugitive emissions over the existing industrial areas and not residential zoned land. <u>Air Quality Emissions</u> Whilst the Air Quality Impact Assessment provided as part of the PER appears to predict that the emissions from the facility will comply with the relevant standards, the City has concerns with aspects of the modelling, these concerns were raised as part of the PER process with the EPA also.

PUBLIC SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.5 - cont…		In this respect, the assessment assumes that the modelled emission rates will not be exceeded at any time, including during combustor start-ups and shutdowns. However, the assessment does not appear to have modelled any potential fugitive emissions during emergency shutdown scenarios. Under certain circumstances, the PER document stated remaining waste still smouldering on the grate may release some pollutants (CO, VOC) which are not treatable in the air pollution control system. These pollutants may be released untreated into the atmosphere and then subject to the prevailing winds from the south west, blowing towards residential areas. The EPA have concluded in its report (EPA Report No. 1624) that air quality emissions from the plant could be managed. In this regard, the City consider that the following condition be included in the Responsible Authority Report recommendation to the Metro South West Joint Development Assessment Panel (JDAP): ***'The proponent shall make near to real time data on emissions publicly available by displaying emissions on the proponents website or at the site entrance.'*** A similar condition was adopted by the JDAP on the Phoenix Waste to Energy proposal located within the core of the Kwinana Industrial Area. The above recommended condition is considered appropriate given the uncertainty regarding the potential fugitive emissions during emergency shutdown scenarios. In this regard, by providing real time data to the broader community the proponent can be held to account for any exceedances of the EPA approved emissions levels. <u>Odour Management</u> Predicted odour levels during facility down time are of concern to the City, this concern was also referred to the EPA as part of the PER submission period. Whilst there are no residences within the predicted 2.5 odour unit contour (as per Figure 13 of the PER document) during system down times, odours beyond the boundary of the facility may cause a significant impact on the City of Kwinana. The odour report provided as part of the Environmental review predicts that during periods of unplanned and planned shut downs, an odour contour of 2.5 odour units will be present up to 750 metres from the facility. In this regard, the City is aware of a number of cases where 2 odour units have caused significant impacts on sensitive receptors for up to 2 kilometres (from the odour source) - Biowise McLaughlin Road, Postans, and Wool Scourers East Rockingham are examples. These impacts have occurred on many occasions that ultimately resulted in the closure of the Biowise operations. In addition, there are two dwellings located on Wellard Road approximately 1 kilometre to the east of the facility. Whilst these premises are not located within a residential zone, they are sensitive premises which should not be impacted by odour emissions from the facility. As such, the City are of the opinion that an odour contour which exceeds 2.5 odour units beyond the boundary of the facility is unacceptable, and all measures should be undertaken to reduce this odour emission as far as possible so as not to cause any odour impacts on the surrounding areas.

PUBLIC SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.5 - cont…		The EPA approval for the plant has recommended that the operator undertake additional odour modelling upon commissioning of the facility (with a view to implementing opportunities to further reduce odour emissions) and employ a public odour complaints and resolution register. In regards to the above, the City recommend the following condition be considered for inclusion: ***'Prior to occupation of the development, the proponent shall implement, and thereafter maintain for the life of the development, a public odour complaints register and resolution procedure to address any odour concerns raised by the public to the satisfaction of the City of Rockingham in consultation with the City of Kwinana. The applicant shall provide a copy of the register of complaints and resolution outcomes on a quarterly basis to the City of Rockingham and City of Kwinana.'*** <u>Noise Management</u> Noise emissions from the facility will have the potential to impact on residences located within the suburbs of Calista and Leda. In particular, residences in the vicinity of Westbrook Road, Wellard Road, Edmund Place, Coleman Road and Harrison Way in Calista, as well as residents in Sloan Drive and Mercer Court in Leda are modelled as receiving sound level impacts in the range of 25 – 30 decibels. The aforementioned residential streets are located on elevated land which is less sheltered from noise originating in the Western Trade Coast (WTC) due to topographical undulations along the axis of Wellard Road. Noise modelling systems have design criteria that can attribute up to a 5 decibel "error margin" in predictions which is considered acceptable. However, in the case of the Calista and Leda residential streets listed above, an error of 5 dB (A) in combination with a 5 dB (A) tonal component (identified as part of the flu gas emissions but then discounted in the noise modelling), may result in exceedances of the Noise Regulations assigned night time levels. With regard to Noise emissions from the facility, cumulative noise levels generated from the WTC have reached levels where they are affecting the surrounding residential areas within Medina and Calista. In this regard, the position of the City of Kwinana and Kwinana Industries Council is that noise levels generated from the WTC should continue to be improved upon through redevelopment and upgrade to existing industry, and new industry will be encouraged to reduce noise levels as far as possible. In this regard, the City recommend the following condition and advice: ***<u>Condition</u>: 'Within 60 days of commissioning of the plant operations, the proponent shall provide to the City of Rockingham, certification from a suitably qualified acoustic consultant that the noise emissions resulting from the operations on the site comply with the Environmental Protection Act and Regulations. The certification shall demonstrate that the plant, at all times for the life of the development, will comply with the Environmental Protection (Noise) Regulations 1997 from time of commencement of operations through to maximum throughput capacity.'***

PUBLIC SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.5 - cont…		***<u>Advice</u>: 'The proponent is advised to liaise with the Kwinana Industries Council (KIC) to include the noise emissions from the development into the KIC cumulative noise model.'*** <u>Traffic Modelling and Road Network</u> Traffic modelling for the proposal indicates that the plant will accept waste up to six days a week between 6:00 a.m. and 4:00 p.m. The traffic report estimates that the development will generate approximately 206 vehicular movements per day (50% inbound/ 50% outbound). The traffic modelling has stated that all of the heavy vehicle traffic associated with the development will be originating from and destined to the south via Mandurah Road and Kulija Road to access Kwinana Freeway and of the light vehicle movements 50% originate from and are destined to the north and 50% originate from and are destined to the south. The proposed truck route accessing the development is to head north along Mandurah Road and turn onto Office Road to the development, trucks exiting the development will head west along Office Road and turn south onto Patterson Road, Ennis Avenue, Dixon Road then onto Kulija Road to the Kwinana Freeway. The City has considered the traffic modelling for the proposal and consider that the surrounding road network has the capacity to accommodate the increase in traffic proposed by the development. In this regard however, the City notes that as a result of increased traffic, the standard of Office Road should be upgraded to cater for the increased heavy vehicle traffic. Office Road is currently a single carriageway with no kerbing, drainage or lighting. In this regard, the standard of Office Road should be increased to facilitate the proposed 24-hour operation of the proposed waste to energy facility. In addition, the Office Road / Patterson Road and Office Road / Mandurah Road intersections are not suitably designed to accommodate B-Double vehicles. In regard to the above, the City recommends the following road upgrade conditions: ***1. 'The proponent shall upgrade the full length of Office Road to the satisfaction of the City of Rockingham in consultation with the City of Kwinana, and shall include the following requirements:*** ***i. Kerbing, drainage, lighting and landscaping;*** ***ii. Pavement widening in the vicinity of the proposed site crossovers to allow trucks to enter and exit the development lane correct and facilitate passing vehicle movements;*** ***iii. Upgrading of the Office Road / Mandurah Road intersection to facilitate and accommodate the lane correct turning movements of B-Double trucks proposed to enter the development.'*** ***2. 'The proponent shall upgrade the intersection of Office Road and Patterson Road in accordance with the recommendations of the 'Transport Impact Statement – Proposed Materials Recovery and Waste Conversion Facility – Document #1308009-TIA-003 - Dated 26 April 2018 - Prepared by Shawmac Consulting Civil and Traffic Engineers' to the satisfaction of the City of Rockingham on advice of Main Roads Western Australia.***

PUBLIC SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.5 - cont…		***All works and associated costs shall be at the proponent's expense with construction to be completed prior to occupation of the site.'*** <u>Waste Management</u> Whilst the development application addresses the plant waste acceptance criteria to ensure all wastes processed through the facility comply with the requirements of the EPA approvals, the application does not address how any wind-blown or fugitive waste on-site will be managed. The City has considered the development application supporting documentation and hold concerns that there may be the potential for rubbish to become wind-blown or prematurely released from waste vehicles entering and exiting the development. In this regard, the City recommend the following condition to address the management of waste on site. ***'A Waste Management Plan that addresses the management and maintenance of fugitive waste generated on site or from trucks entering I exiting the development shall be submitted to and approved by the City of Rockingham prior to occupancy of the development. Upon commencement of operations the Waste Management Plan shall be thereafter implemented and maintained for the life of the development to the satisfaction of the City of Rockingham.'*** Please call Brenton Scambler on 9439 0257 if you require more information or wish to discuss this matter further.
6. Mr Zeljko Zagorac Statutory Road Planning Manager **Main Roads Western Australia**	PO Box 6202 East Perth WA 6892	In response to your correspondence received on the 13 November 2018. Main Roads has no objections. <u>Advice Notes</u>: 1. Main Roads advises that the route of departure outlined in the proposed route map included within the Transport Impact Assessment prepared by Transcore dated 26 April 2018 includes vehicle movements on Office Road and Dixon Road which are contrary to the currently permitted Restricted Access Vehicle (RAV) allowances on those roads. 2. Any RAV 4 classified vehicle departing from the proposed facility will be required to egress eastbound on Office Road, northbound onto Mandurah Road and utilise Thomas Road to access the Kwinana Freeway southbound as to remain compliant with existing RAV road classifications and conditions. 3. It should be noted that any proposed modification to the existing RAV access permissions are subject to third party Main Roads approval pursuant to the Road Traffic (Vehicles) Act 2012. Therefore any condition issued as part of an approval which requires RAV permissions to be modified would be ambulatory in nature and lack finality. 4. The applicant should note that any RAV operator which utilises the western portion of Office Road which is not currently classified for RAV use, or Dixon Road contrary to the current conditional RAV classification, will be subject to noncompliance penalties. Should the City disagree with or resolve not to include as part of its conditional approval any of the above conditions or advice, Main Roads requests an opportunity to meet and discuss the application prior to a final determination being made.

PUBLIC SCHEDULE OF SUBMISSIONS		
Name	Address	Comment
No.6 - cont…		Also, would you please forward a copy of the City's final determination on this proposal quoting file reference 18/10551 (D18#1089431). If you require any further information please contact Planning Information Officer Byron McKie on (08) 9323 6436 or via email at byron.mckie@mainroads.wa.gov.au.
7. Mr Ross Crockett **Water Corporation**	Ross.Crockett@watercorporation.com.au	Thank you for your enquiry. We offer the following comments in regard to this proposal. Water Reticulated water is currently available to the subject Lot to serve the proposed development. Wastewater Reticulated sewerage is not available to serve the subject Lot, on site disposal will be required. Wastewater Odour Buffer This Development is partially within the Water Corporation's Odour Buffer for the East Rockingham Wastewater Treatment Plant (See attached Plan) however this development is considered to be a compatible land use. This proposal will also require approval by our Building Services section prior to commencement of works. Infrastructure contributions and fees may be required to be paid prior to approval being issued. For further information about building applications, please click on the following link: https://www.watercorporation.com.au/home/builders-and-developers/building/lodging-a-building-application/single-residential-application Please provide the above comments to the land owner, developer and/or their representative. Should you have any queries or require further clarification on any of the above issues, please do not hesitate to contact the Enquires Officer. 

Government of **Western Australia**
Development Assessment Panels

LG Ref: 20.2014.144.1
DoP Ref: DAP/14/00530
Enquiries: Development Assessment Panels
Telephone: (08) 6551 9919

Mr Jason Pugh
New Energy Corporation Pty Ltd
PO Box 1036
West Perth WA 6872

Dear Mr Pugh

Metro South-West JDAP – City of Rockingham – DAP Application 20.2014.144.1
Lot 1 (26) Office Road, East Rockingham
Proposed Waste to Energy and Recycling Facility

Thank you for your application and plans submitted to the City of Rockingham on 24 April 2014 for the above development at the above mentioned site.

This application was considered by the Metro South-West Joint Development Assessment Panel at its meeting held on 12 February 2015, where in accordance with the provisions of the City of Rockingham Town Planning Scheme No.2, it was resolved to approve the application as per the attached notice of determination.

Should the applicant not be satisfied by this decision, a DAP Form 2 application may be made to amend or cancel this planning approval in accordance with Regulation 17 of the Development Assessment Panel Regulations 2011.

Also be advised that there is a right of review by the State Administrative Tribunal in accordance with Part 14 of the *Planning and Development Act 2005*. An application must be made within 28 days of the determination in accordance with the *State Administrative Tribunal Act 2004*.

Should you have any enquiries in respect to the conditions of approval please contact Ms Erika Barton at the City of Rockingham on (08) 9528 0305.

Yours sincerely

Sean O'Connor

DAP Secretariat

18/02/2015

Encl. DAP Determination Notice
Approved plans

Cc: Ms Erika Barton
City of Rockingham
erika.barton@rockingham.wa.gov.au

Planning and Development Act 2005

City of Rockingham Town Planning Scheme No.2

Metro South-West Joint Development Assessment Panel

Determination on Development Assessment Panel Application for Planning Approval

Location: Lot 1 (26) Office Road, East Rockingham
Description of proposed Development: Proposed Waste to Energy and Recycling Facility

In accordance with Regulation 8 of the *Development Assessment Panels Regulations 2011*, the above application for planning approval was **granted** on 12 February 2015, subject to the following:

Approve DAP Application reference DAP/14/00530 and accompanying plans ERH/000/PPL/001 Revision E, ERH/000/PPL/002 Revision F, ERH/000/PPL/003, ERH/000/PPL/004 Revision B, ERH/000/PPL/004 Revision D, ERH/000/PPL/005 Revision A in accordance with Clause 6.7.1(a) of the City of Rockingham Planning Scheme No.2 and Clause 30(1) of the Metropolitan Region Scheme, subject to the following conditions:

Conditions

1. This approval relates to the plans approved by the South West Joint Development Assessment Panel on the 12 February 2015.

2. Earthworks over the site associated with the development must be stabilised to prevent sand or dust blowing off the site, and appropriate measures shall be implemented within the time and in the manner directed by the City of Rockingham in the event that sand or dust is blown from the site.

3. All stormwater generated by the development shall be designed to be contained of on-site and certified by a hydraulic engineer, prior to the application for a Building Permit. The design shall be implemented and maintained for the duration of the development.

4. A Landscaping Plan must be prepared and include the following detail, to the satisfaction of the City, prior to applying for a Building Permit.

   (i) The location, number and type of existing and proposed trees and shrubs, including calculations for the landscaping area;
   (ii) Any lawns to be established;
   (iii) Any natural landscape areas to be retained;
   (iv) Those areas to be reticulated or irrigated;
   (v) Verge areas; and
   (v) Bollard treatments in the verge area directly adjacent the subject site to prevent informal carparking;

Postal address: Locked Bag 2506 Perth WA Street address: 140 William Street Perth WA 6000
Tel: (08) 6551 9919 Fax: (08) 6551 9961 TTY: 6551 9007 Infoline: 1800 626 477
daps@planning.wa.gov.au www.planning.wa.gov.au
ABN 35 482 341 493

The landscaping must be completed prior to the occupation of the development, and must be maintained at all times to the satisfaction of the City of Rockingham.

5. Grasstree plants (XANTHORRHOEACEAE family) must be retained (unless specifically identified for removal on the approved plans) and, during the construction period, measures for their retention must be taken in accordance with Australian Standard AS 4970—2009, *Protection of trees on development sites*.

   Arrangements must be made to the satisfaction of the City for grasstree plants that are specifically identified for removal to be relocated, prior to applying for a Building Permit.

6. The carpark must:-

   (i) provide a minimum of 36 parking spaces;
   (ii) be designed in accordance with Australian/New Zealand Standard AS/NZS 2890.1:2004, *Parking facilities, Part 1: Off-street car parking* unless otherwise specified by this approval, prior to applying for a Building Permit;
   (iii) include one (1) car parking space dedicated to people with disabilities designed in accordance with Australian/New Zealand Standard AS/NZS 2890.6:2009, *Parking facilities, Part 6: Off-street parking for people with disabilities*, linked to the main entrance of the development by a continuous accessible path of travel designed in accordance with Australian Standard AS 1428.1—2009, *Design for access and mobility, Part 1: General Requirements for access—New building work*;
   (iv) be constructed, sealed, kerbed, drained and marked prior to the development being occupied and maintained thereafter; and
   (v) have lighting installed, prior to the occupation of the development.

   The car park must comply with the above requirements for the duration of the development.

7. Four (4) visitor car parking spaces must be designed in accordance with the Australian/New Zealand Standard AS/NZS 2890.1:2004, *Parking facilities, Part 1: Off-street car parking,* prior to applying for a Building Permit.

   The visitor car parking spaces must be constructed, clearly marked/signposted as visitor spaces and connected to the development via a 1.2m wide continuous accessible path of travel prior to occupation of the development, and must be retained and maintained in good condition at all times.

8. Materials, sea containers, goods or bins must not be stored within the carpark at any time.

9. A bin storage area(s) must be designed with a size suitable to service the development and screened from view of the street, to the satisfaction of the City of Rockingham, prior to applying for a Building Permit. It must be constructed prior to the occupation of the development and must be retained and maintained in good condition at all times.

10. A Sign Strategy must be prepared and include the information required by Planning Policy 3.3.1, *Control of Advertisements*, to the satisfaction of the City, prior to applying for a Building Permit and implemented as such for the duration of the development

11. Prior to the commencement of development, the landowner/applicant shall prepare and implement as part of the development a pipeline risk management/protection plan to the specifications and requirements of the APA Group and to the satisfaction of the City of Rockingham. The plan must detail measures to ensure public safety and protection of the high pressure natural gas pipeline in accordance with *Planning Bulletin 87 High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region*, *Petroleum Pipelines Act 1969-70*, *Australian Standard 2885-2007* and *SAA HB105 - Guide to Pipeline Risk Assessment.*

12. A fire management plan prepared in accordance with the WAPC's *Guideline Planning for Bushfire Protection Edition 2, May 2010 (in particular Appendix 3) i*s to be approved by the City of Rockingham prior to applying for a Building Permit. The approved fire management plan is to be implemented for the duration of the development.

13. Nineteen (19) long-term bicycle parking spaces must be designed in accordance with AS2890.3—1993*, Parking facilities, Part 3: Bicycle parking facilities*, prior to applying for a Building Permit.

    The bicycle parking spaces must be constructed prior to occupation of the development.

14. Two (2) male and Two (2) female secure hot-water showers and change rooms must be designed in accordance with Planning Policy 3.3.14, *Bicycle Parking and End-of-Trip Facilities*, prior to applying for a Building Permit.

    The showers and change rooms and lockers must be constructed prior to the occupation of the development, and must be retained and maintained in good condition at all times.

15. Confine all illumination to the land in accordance with the requirements of Australian Standard AS 4282—1997, *Control of the obtrusive effects of outdoor lighting*, at all times.

Advice Notes

1. This decision constitutes planning approval only and is valid for a period of 2 years from the date of approval. If the subject development is not substantially commenced within the 2 year period, the approval shall lapse and be of no further effect.
2. This Approval relates to the details provided in the application; to undertake the development in a different manner to that stated in the application, a new application for Planning Approval must be submitted to the City.
3. All works in the road reserve, including construction of a crossover, planting of street trees, and other streetscape works and works to the road carriageway must be to the specifications of the City of Rockingham; the applicant should liaise with the City of Rockingham's Engineering Services in this regard.
4. The development shall be compliant with the Department of Environment Regulation (DER) and Environmental Protection Authority (EPA) licence conditions at all times.
5. A Sign Permit must be obtained for any advertising associated with the development, including signage painted on the building; the applicant should liaise with the City's Building Services in this regard.

6. The applicant is advised of the requirement to pay for or reimburse the APA Group for any expense involved in any physical protection works to the high pressure gas pipeline, including all pipeline coating repairs, required to mitigate any likelihood of damage to the high pressure gas pipeline, to a standard deemed necessary to ensure public safety due to any changes in use of the surrounding land.

7. With respect to Condition 4, the applicant and owner should liaise with the City of Rockingham's Parks Services to confirm requirements for landscaping plans.

8. The development must comply with the *Environmental Protection (Noise) Regulations 1997*; contact the City's Health Services for information on confirming requirements.

Where an approval has so lapsed, no development shall be carried out without further approval having first been sought and obtained, unless the applicant has applied and obtained Development Assessment Panel approval to extend the approval term under regulation 17(1)(a) of the *Development Assessment Panel Regulations 2011*.

DEVELOPMENT ASSESSMENT PANEL APPROVED 12 FEBRUARY 2015

282.82 M

66.25 M

14.14 M

1 BUS, 4 VISITOR & 6 STAFF PARKING

ADMINISTRATION & EDUCATION CENTRE

25 BAY STAFF PARKING

OFFICE ROAD

GAS PIPELINE 1600 OUTSIDE BOUNDARY

GAS PIPELINE 4600 INSIDE BOUNDARY

GAS PIPELINE 11200 INSIDE BOUNDARY

271.23 M

222.99 M

Arc 54.3

69000 | 70400 | 7500 | 45500 | 12000

FIRE WATER TANK

FIRE WATER TANK

FIRE PUMP HOUSE

COVERED ASH STORE

EXPORT POWER TRANSFORMER (OPEN)

EXPORT POWER SWITCH ROOM

COVERED PLANT AREA

CHEMICAL STORE

STACK

WATER TREATMENT

FFBH

DR

CRANE ACCESS AREA

AIR COOLING

EUHX

LINED SUMP

WEIR

DRAINAGE POND (UNLINED)

WASTE DERIVED FUEL FEED / STORAGE AREA

GASSIFIER FEED PIT

GROUND LEVEL PERSONNEL ACCESS CORRIDOR

WASTE TO GASIFICATION

C.L.

LV SWITCH ROOM

TRANS-FORMER

MAIN PLANT & WDF AREA CONTROL ROOM ON LEVEL 2 (R.L.22.50) WITH OFFICES ON LEVEL 1 & STAFF FACILITIES ON GROUND LEVEL

PARTS STORE

MAINTENANCE WORKSHOP

WET STOCKPILE

DRY STOCKPILE

MRF

RECYCLABLES STORAGE BAYS

LOT 1

WEIGH BRIDGE

WEIGH BRIDGE OFFICE

GRASS

BIOLOGICAL FILTER 17Mx17M

TEMPORARY RECYCLABLES STORAGE AREA

69400

80400

35000 | 35000

SITE AREAS

TOTAL BITUMEN PAVED AREA:	21,433 m²
TOTAL LANDSCAPED AREA:	1,372 m²
TOTAL M.R.F. AREA:	5,635 m²
FUEL FEED & STORAGE AREA:	5,315 m²
TOTAL WASTE TO GASIFICATION AREA:	4,550 m²
ASH STORE:	450 m²
MAINTENANCE W/SHOP & PARTS STORE:	600 m²
VISITORS' CENTRE & ADMIN OFFICE:	405 m²
STAFF FACILITIES:	240 m²
CHEMICAL STORE:	190 m²
MAIN CONTROL ROOM:	100 m²
PLANT OFFICES:	200 m²
TOTAL BUILDING AREA:	**16,835 m²**
TOTAL SITE AREA:	**100,006 m²**

LEGEND

- 11.00 EXISTING SPOT LEVEL
- 11.00 PROPOSED LEVEL
- 4.50 PROPOSED LEVEL AT GEOFABRIC STABILISED PERIMETER 5500 INSIDE BOUNDARY
- 4.0 CONTOUR LINE & LEVEL
- G EXISTING GAS PIPELINE

SITE NOTES

FINAL CIVIL WORKS & STORMWATER DESIGN TO BE SUBMITTED AT BUILDING LICENSE STAGE & CONFORMING WITH THE REQUIREMENTS OF THE APPROVED WATER MANAGEMENT PLAN FOR THE SUBDIVISION.

BOUNDARY TO HAVE CONTINUOUS 2400 HIGH LINK MESH FENCE WITH THREE ROWS OF BARBED WIRE AT TOP. CROSSOVERS TO HAVE AUTO GALTUBE SLIDING GATES WITH ADJOINING PERSONNEL GATES.

359.61 M

0 5 10 20 50 METRES

NORTH

REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPRV'D
E	12/06/2014	FRONT BOUNDARY ACCESS ROAD REVISED FOR DEVELOPMENT APRVL			
D	18/09/2013	SITE PLAN GENERALLY REVISED FOR DEVELOPMENT APPROVAL.			
C	20/08/2013	SITE PLAN GENERALLY REVISED.			
B	5/05/2013	RECEIVALS PIT & BIOLOGICAL FILTER ADDED			
A	16/04/2013	ISSUED FOR PRELIMINARY DESIGN	DPG		

ERH / 000 / PPL / 002 PRELIMINARY ELEVATIONS

REF. DRAWING No. REFERENCE DRAWING TITLE

NEWENERGY
Suite 1, 12 Parliament Plc
WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY

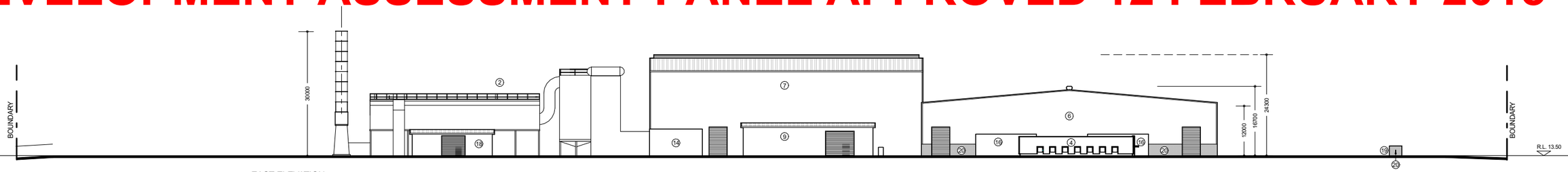
DRG-TITLE: SITE PLAN

SHEET SIZE: A1 SCALE: 1:500

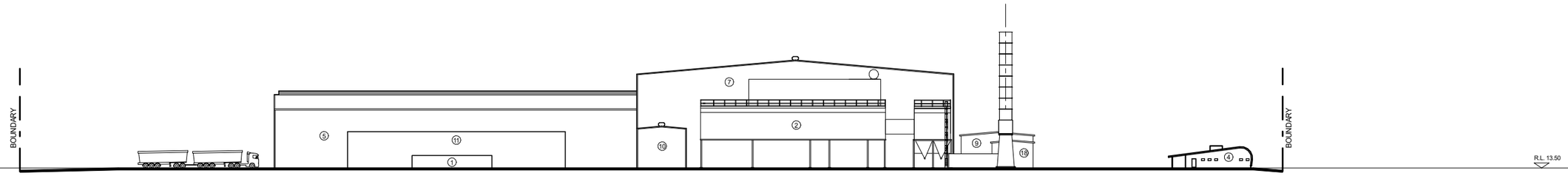
DRG No.: ERH / 000 / PPL / 001 REVISION: E

GRAPHICS

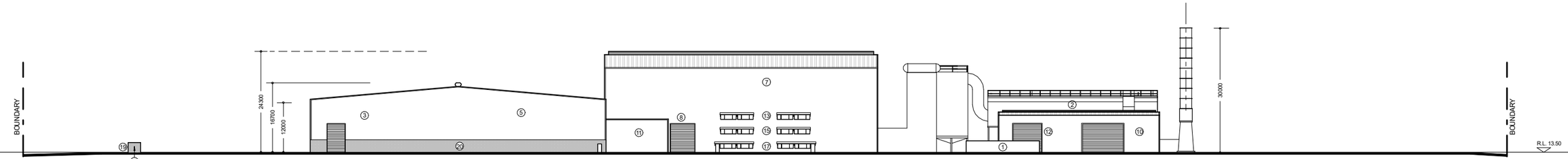
DEVELOPMENT ASSESSMENT PANEL APPROVED 12 FEBRUARY 2015



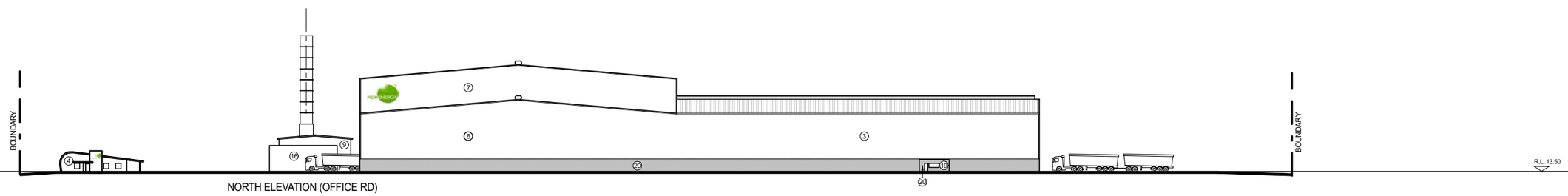
EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION



NORTH ELEVATION (OFFICE RD)

LEGEND

1. BIOLOGICAL FILTER
2. OPEN PLANT CRANE ACCESS AREA
3. TRUCK UNLOADING AREA
4. ADMIN OFFICE / EDUCATION CENTRE
5. MRF BUILDING
6. WASTE DERIVED FUEL FEED / STORAGE AREA
7. WASTE TO GASIFICATION BUILDING
8. TRANSFORMER
9. ASH STORE
10. MAINTENANCE WORKSHOP
11. RECYCLABLES STORAGE BAYS
12. PARTS STORE
13. WDF/MAIN CONTROL ROOM
14. EXPORT POWER TRANS-FORMER (OPEN)
15. PLANT OFFICES
16. FIRE WATER TANK
17. STAFF ROOM & ABLUTIONS
18. CHEMICAL STORE
19. WEIGH BRIDGE OFFICE
20. 3000H TEXTURED CONCRETE WALL PANEL

FINISHES

WALL AND ROOF CLADDING TO BE COLOURBOND STEEL SHEETING COLOUR "DUNE".

MRF BUILDING TO HAVE 3000 HIGH WASHED AGREGATE FINISH CONCRETE WALL PANELS ABOVE GROUND LEVEL.

0 5 10 20 50
METRES

		REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPRV'D
		F	23/06/2014	TEXTURED CONCRETE FINISH ADDED TO WEIGH BRIDGE OFFICE.			
		E	20/06/2014	CONCRETE WALL PANELS RENDERED & BUILDING NUMBERS CORRECTED.			
		D	12/06/2014	MRF BUILDING ELEVATIONS REVISED TO SHOW CONCRETE WALL PANELS.			
		C	14/05/2014	ADMIN ELEVATIONS REVISED & SIGNAGE ADDED.			
		B	18/09/2013	ISSUED FOR DEVELOPMENT APROVAL.			
ERH / 000 / PPL / 001	PRELIMINARY SITE PLAN	A	16/04/2013	ISSUED FOR PRELIMINARY DESIGN	DPG		
REF. DRAWING No.	REFERENCE DRAWING TITLE						

NEW ENERGY
Suite 1, 12 Parliament Plc.
WEST PERTH WA 6005

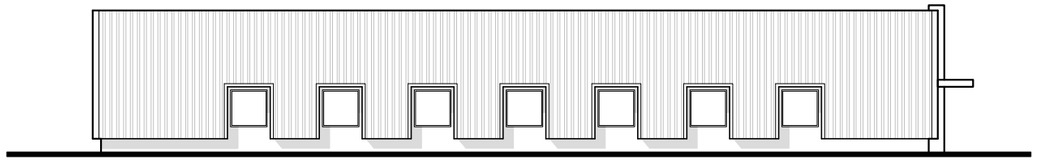
PROJECT: EAST ROCKINGHAM WASTE TO ENERGY

DRG TITLE: ELEVATIONS

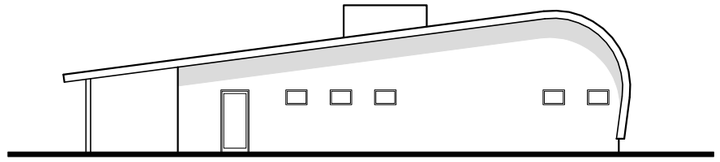
SHEET SIZE	A1	SCALE	1:500
DRG No.	ERH / 000 / PPL / 002	REVISION	F

GRAPHICS

DEVELOPMENT ASSESSMENT PANEL APPROVED 12 FEBRUARY 2015

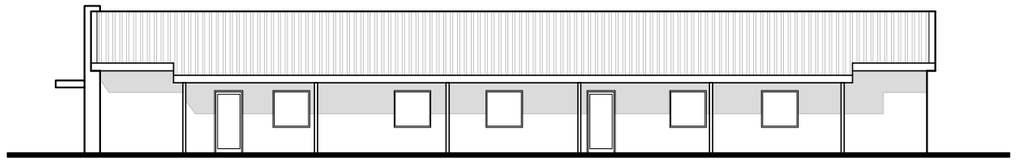


EAST ELEVATION

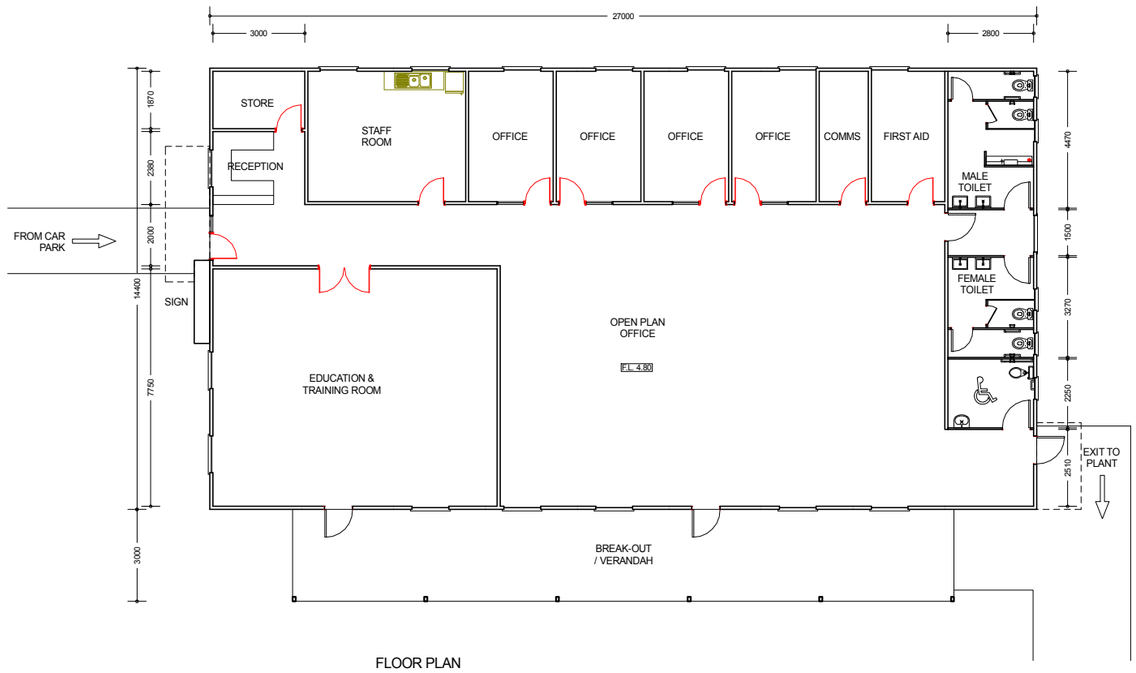


SOUTH ELEVATION

NORTH ELEVATION



WEST ELEVATION



FLOOR PLAN

NORTH

REF. DRAWING No.	REFERENCE DRAWING TITLE	REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPR'D
ERH / 000 / PPL / 001	SITE PLAN	A	14/05/2014	ISSUED FOR DEVELOPMENT APPROVAL	DPG		

NEWENERGY
Suite 1, 12 Parliament Pl,
WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY

DRG TITLE: ADMIN OFFICE / EDUCATION CENTRE

SHEET SIZE	A1	SCALE	1:100
DRG No.	ERH / 000 / PPL / 003	REVISION	- A

GRAPHICS

DEVELOPMENT ASSESSMENT PANEL APPROVED 12 FEBRUARY 2015

282.82 M

66.25 M

14.14 M

1 BUS, 4 VISITOR & 6 STAFF PARKING

ADMINISTRATION & EDUCATION CENTRE

25 BAY STAFF PARKING

OFFICE ROAD

GAS PIPELINE 1200 INSIDE BOUNDARY

GAS PIPELINE 1600 OUTSIDE BOUNDARY

GAS PIPELINE 4600 INSIDE BOUNDARY

271.23 M

69000 | 70400 | 7500 | 45500 | 12000

222.99 M

Arc 54.3

FIRE WATER TANK

GRASS

FIRE WATER TANK

FIRE PUMP HOUSE

COVERED ASH STORE

EXPORT POWER TRANSFORMER (OPEN)

EXPORT POWER SWITCH ROOM

COVERED PLANT AREA

CHEMICAL STORE

STACK

WATER TREATMENT

FFBH

DR

LINED SUMP

WEIR

DRAINAGE POND (UNLINED)

WASTE DERIVED FUEL FEED / STORAGE AREA

GASSIFIER FEED PIT

GROUND LEVEL PERSONNEL ACCESS CORRIDOR

WASTE TO GASIFICATION

C.L.

EUHX

CRANE ACCESS AREA

AIR COOLING

PARTS STORE

MAINTENANCE WORKSHOP

LV SWITCH ROOM

TRANS-FORMER

MAIN PLANT & WDF AREA CONTROL ROOM ON LEVEL 2 (R.L.22.50) WITH OFFICES ON LEVEL 1 & STAFF FACILITIES ON GROUND LEVEL

WET STOCKPILE

MRF

RECYCLABLES STORAGE BAYS

DRY STOCKPILE

LOT 1

WEIGH BRIDGE

WEIGH BRIDGE OFFICE

GRASS

BIOLOGICAL FILTER 17Mx17M

TEMPORARY RECYCLABLES STORAGE AREA

17000 | 2000 | 17000 | 2000 | 17000

69600

89400

35000 | 35000

359.61 M

0 5 10 20 50 METRES

NORTH

SITE AREAS

TOTAL BITUMEN PAVED AREA:	21,433 m²
TOTAL LANDSCAPED AREA:	1,372 m²
TOTAL M.R.F. AREA:	5,635 m²
FUEL FEED & STORAGE AREA:	5,315 m²
TOTAL WASTE TO GASIFICATION AREA:	4,550 m²
ASH STORE:	450 m²
MAINTENANCE W/SHOP & PARTS STORE:	600 m²
VISITORS' CENTRE & ADMIN OFFICE:	405 m²
STAFF FACILITIES:	240 m²
CHEMICAL STORE:	190 m²
MAIN CONTROL ROOM:	100 m²
PLANT OFFICES:	200 m²
TOTAL BUILDING AREA:	**16,835 m²**
TOTAL SITE AREA:	**100,006 m²**

LEGEND

- 11.00 EXISTING SPOT LEVEL
- 11.00 PROPOSED LEVEL
- 4.50 PROPOSED LEVEL AT GEOFABRIC STABILISED PERIMETER 5500 INSIDE BOUNDARY
- 4.0 CONTOUR LINE & LEVEL
- G EXISTING GAS PIPELINE

SITE NOTES

FINAL CIVIL WORKS & STORMWATER DESIGN TO BE SUBMITTED AT BUILDING LICENSE STAGE & CONFORMING WITH THE REQUIREMENTS OF THE APPROVED WATER MANAGEMENT PLAN FOR THE SUBDIVISION.

BOUNDARY TO HAVE CONTINUOUS 2400 HIGH LINK MESH FENCE WITH THREE ROWS OF BARBED WIRE AT TOP. CROSSOVERS TO HAVE AUTO GALTUBE SLIDING GATES WITH ADJOINING PERSONNEL GATES.

LINED SUMP | WEIR | DRAINAGE POND (UNLINED)

REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPR'D
B	12/06/2014	FRONT BOUNDARY ACCESS ROAD REVISED FOR DEVELOPMENT APRVL.			
A	18/09/2013	ISSUED FOR DEVELOPMENT APPROVAL.	DPG		

ERH / 000 / PPL / 002 — REF. DRAWING No.

PRELIMINARY ELEVATIONS — REFERENCE DRAWING TITLE

NEWENERGY
Suite 1, 12 Parliament Plc.
WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY

DRG TITLE: FLOOR PLAN

SHEET SIZE: A1 | SCALE: 1:500

DRG No.: ERH / 000 / PPL / 004 | REVISION: B

GRAPHICS

DEVELOPMENT ASSESSMENT PANEL APPROVED 12 FEBRUARY 2015

282.82 M

66.25 M

14.14 M

GARDEN BED WITH CATEGORY 1, 2 & 3 PLANT SPECIES

GARDEN BED WITH CATEGORY 2, 3 & 4 PLANT SPECIES

PARKING

ADMINISTRATION & EDUCATION CENTRE

PARKING

GATE

GARDEN BED WITH CATEGORY 4,5 & 6 PLANT SPECIES

GARDEN BED WITH CATEGORY 2, 3 & 4 PLANT SPECIES

OFFICE ROAD

SIGN

SLIDING GATE

GARDEN BED WITH CATEGORY 4,5 & 6 PLANT SPECIES

10M WIDE GARDEN BED INSIDE BOUNDARY WITH CATEGORY 1, 2 & 3 PLANT SPECIES

LINED SUMP

WEIR

DRAINAGE POND (UNLINED)

271.23 M

GARDEN BED WITH CATEGORY 4,5 & 6 PLANT SPECIES

LOT 1

WEIGH BRIDGE

WEIGH BRIDGE OFFICE

GARDEN BED WITH CATEGORY 4,5 & 6 PLANT SPECIES

SLIDING GATE

GARDEN BED WITH CATEGORY 1, 2 & 3 PLANT SPECIES

359.61 M

METRES

FIRE WATER TANK

GRASS

FIRE WATER TANK

FIRE PUMP HOUSE

COVERED ASH STORE

WASTE DERIVED FUEL FEED / STORAGE AREA

GASSIFIER FEED PIT

GROUND LEVEL PERSONNEL ACCESS CORRIDOR

WASTE TO GASIFICATION

EXPORT POWER TRANSFORMER (OPEN)

EXPORT POWER SWITCH ROOM

COVERED PLANT AREA

CHEMICAL STORE

STACK

WATER TREATMENT

FFBH

DR

CRANE ACCESS AREA

EUHX

AIR COOLING

LV SWITCH ROOM

TRANS-FORMER

MAIN PLANT & WDF AREA CONTROL ROOM ON LEVEL 2 (R.L.22.50) WITH OFFICES ON LEVEL 1 & STAFF FACILITIES ON GROUND LEVEL

PARTS STORE

MAINTENANCE WORKSHOP

MRF

RECYCLABLES STORAGE BAYS

BIOLOGICAL FILTER

GARDEN BED WITH CATEGORY 3, 4 & 5 PLANT SPECIES

GARDEN BED WITH CATEGORY 4,5 & 6 PLANT SPECIES

LINED SUMP

WEIR

DRAINAGE POND (UNLINED)

TEMPORARY RECYCLABLES STORAGE AREA

222.99 M

Arc 54.3

LANDSCAPING NOTES

1 LANDSCAPE WORKS

1.1 EXISTING TOPSOIL TO BE REMOVED AND STORED ON SITE PRIOR TO THE COMMENCEMENT OF FILLING & GRADING THE SITE TO THE NEW LEVELS. TOPSOIL TO BE SCREENED & RE-USED IN NEW GARDEN BEDS
1.2 ALL AREAS ARE TO BE FINE GRADED EVENLY TO CONFORM TO KERB LEVELS AND SURROUNDING FINISHES.
1.3 FINAL GRADING SHALL PROVIDE CONSISTENTLY SELF DRAINING FALLS TO SURFACES. SURFACES SHALL BE FREE FROM DEPRESSIONS, IRREGULARITIES AND AWKWARD AND NOTICIBLE CHANGES IN GRADE. GENERALLY, GRADES SHALL DEVIATE IN LEVEL NO GREATER THAN 20MM IN ONE LINEAR METRE.
UPON PRACTICAL COMPLETION.
1.4 UNPAVED & UNLANDSCAPED AREAS TO BE CONSOLIDATED & COMPACTED. PROVIDE EROSION CONTROL & DUST SUPRESSION MEASURES TO THE APPROVAL OF COUNCIL.
1.5 FINAL LANDSCAPE PLAN SUBJECT TO SITE WATER MANAGEMENT PLAN.

2 PLANTING

2.1 PLANTED AREAS SHALL BE MULCHED WITH A MIX OF GRAVEL & ORGANIC MULCH AS PER COUNCIL GUIDELINES TO A MINIMUM DEPTH OF 100MM.
2.2 ADVANCED TREES SHALL BE STAKED W/ 3 x 85mm DIA CCA TREATED PINE POLES. POSTS SHALL BE PAINTED BLACK AND INSTALLED TO A MIN DEPTH OF 600MM. TREES SHALL BE SECURED TO POLES W/ 3 X RUBBER TIES IN FIGURE 8.
2.3 TREES PLANTED WITH IN 1000MM OF BOUNDARY WALLS AND/OR PARKING AREAS SHALL BE INSTALLED WITHIN 600MM DEPTH NYLEX ROOT BARRIER MEMBRANE. MEMBRANE SHALL BE INSTALLED AS PER MANUFACTURERS RECOMENDATIONS.
2.4 SIGNIFICANT EXISTING TREES & SHUBS ON THE SITE MAY ONLY BE REMOVED WITH THE APPROVAL OF COUNCIL.
2.5 FINAL SELECTION OF PLANT SPECIES SUBJECT TO APPROVED FUTURE LANDSCAPE DESIGN
2.6 REFER TO SPECIES CATEGORIES AS LISTED IN APPENDIX B OF THE PLANNING POLICY 3.3.8 EAST ROCKINGHAM DEVELOPMENT GUIDELINES.

3 IRRIGATION

3.1 ALL PLANTING AND GRASSING TO BE IRRIGATED VIA A FULLY AUTOMATIC SYSTEM FROM MAINS.
3.2 ALL SHRUBS TO BE IRRIGATED W SUBSURFACE DRIPPER SYSTEM. ALL TREES TO BE IRRIGATED VIA BUBBLERS.
3.3 CONTROLLER TO BE LOCATED IN ADMINISTRATION OFFICE UNLESS OTHERWISE DIRECTED.
3.4 SLEEVES BENEATH PAVED SURFACES TO BE PROVIDED BY OTHERS.
3.5 IRRIGATION SYSTEM SHALL BE DUAL PROGRAM TO ALLOW TURF AND PLANTING AREAS TO BE WATERED SEPARATLEY.
3.6 ASCON DRAWINGS, MANUALS AND 12 MONTH WARRANTY SHALL BE SUPPLIED IN TRIPLICATE TO THE CLIENT.

4 FENCING

4.1 SIDE & REAR BOUNDARIES TO HAVE CONTINUOUS 1800 HIGH BLACK PVC COATED 60 PITCH 2.5MM GALV. WIRE CHAIN MESH FENCE TOPPED WITH 3 ROWS OF BARBED WIRE TO 2400 HIGH.
4.2 FRONT BOUNDARY TO HAVE 2100 HIGH BLACK POWDERCOATED GALV. GARRISON TYPE FENCING SET BACK 10M INSIDE BOUNDARY WITH MATCHING HINGED & SLIDING GATES AS SHOWN.

LEGEND

- 11.70 EXISTING SPOT LEVEL
- 11.00 PROPOSED LEVEL
- 4.50 PROPOSED LEVEL AT GEOFABRIC STABILISED PERIMETER 5500 INSIDE BOUNDARY
- CONTOUR LINE & LEVEL
- PRIMARY NATIVE TREE TO 8000 HIGH
- GARDEN BED WITH EXTRUDED CONCRETE BORDER
- HEAVY DUTY BITUMEN PAVING WITH NON- TRAFFICABLE EXTRUDED CONCRETE KERB.

NORTH

REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPRV'D
D	23/06/2014	LANDSCAPING AT NORTH WEST CORNER MOVED INSIDE BOUNDARY.			
C	20/06/2014	FENCING DETAILS ADDED.			
B	12/06/2014	STREET BOUNDARY LANDSCAPING REVISED FOR DEVELOPMENT APRVL.			
A	14/05/2014	ISSUED FOR DEVELOPMENT APPROVAL	DPG		

ERH / 000 / PPL / 001 — SITE PLAN
REF. DRAWING No. — REFERENCE DRAWING TITLE

NEWENERGY
Suite 1, 12 Parliament Pl
WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY
DRG TITLE: LANDSCAPING CONCEPT PLAN
SHEET SIZE: A1 — SCALE: 1:500
DRG No.: ERH / 000 / PPL / 004 — REVISION: D

GRAPHICS

DEVELOPMENT ASSESSMENT PANEL APPROVED 12 FEBRUARY 2015

OFFICE ROAD

66.25 M

14.14 M

292.82 M

222.99 M

271.23 M

Arc 54.3

359.61 M

LOT 1

LEGEND

EXISTING SPOT LEVEL

11.00 PROPOSED LEVEL

4.50 PROPOSED LEVEL AT GEOFABRIC STABILISED PERIMETER 5500 INSIDE BOUNDARY

4.0 CONTOUR LINE & LEVEL

0 5 10 20 50

METRES

NORTH

REF. DRAWING No.	REFERENCE DRAWING TITLE	REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECKED	APPRV'D
ERH / 000 / PPL / 001	SITE PLAN	A	14/05/2014	ISSUED FOR DEVELOPMENT APPROVAL	DPG		

NEWENERGY
Suite 1, 12 Parliament Pl,
WEST PERTH WA 6005

PROJECT: EAST ROCKINGHAM WASTE TO ENERGY

DRG TITLE: EXISTING & PROPOSED SITE LEVELS

SHEET SIZE	A1	SCALE	1:500
DRG No.	ERH / 000 / PPL / 005	REVISION	A

GRAPHICS jamesdarge@iinet.net.au

Minister for Environment; Disability Services; Electoral Affairs
Deputy Leader of the Legislative Council

Statement No. 1090

STATEMENT THAT A REVISED PROPOSAL MAY BE IMPLEMENTED
(*Environmental Protection Act 1986*)

EAST ROCKINGHAM WASTE TO ENERGY FACILITY

Proposal:	Proposal to amend the East Rockingham Waste to Energy and Materials Recovery Facility the subject of Statement No. 994 dated 20 January 2015.
Proponent:	New Energy Corporation Pty Ltd Australian Company Number 139 310 053
Proponent Address:	Suite 1, 12 Parliament Place WEST PERTH WA 6005
Assessment Number:	2116

Report of the Environmental Protection Authority: 1624

Previous Assessment Number: 1910 and 2159

Previous Report of the Environmental Protection Authority: 1513 and 1623

Previous Statement Number: 994

Pursuant to section 45, read with section 45B of the *Environmental Protection Act 1986,* it has been agreed that:

1. the Proposal described and documented in Table 2 of Schedule 1 may be implemented;

2. this Statement supersedes Statement No. 994, and from the date of this Statement each of the implementation conditions in Statement No. 994 no longer apply in relation to the Revised Proposal; and

3. the implementation of the Revised Proposal, being the East Rockingham Waste to Energy and Materials Recovery Facility as amended by this Proposal, is subject to the following revised implementation conditions:

Published on:

Level 12, Dumas House, 2 Havelock Street, West Perth, Western Australia, 6005.
Telephone +61 8 6552 5800 Facsimile +61 8 6552 5801 Email: Minister.Dawson@dpc.wa.gov.au

1 Proposal Implementation

1-1 When implementing the Revised Proposal, the proponent shall not exceed the authorised extent of the Revised Proposal as defined in Table 2 in Schedule 1, unless amendments to the Revised Proposal and the authorised extent of the Revised Proposal have been approved under the EP Act.

2 Contact Details

2-1 The proponent shall notify the CEO of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

3 Time Limit for Proposal Implementation

3-1 The proponent shall not commence implementation of the proposal after five (5) years from the date on this Statement, and any commencement, prior to this date, must be substantial.

3-2 Any commencement of implementation of the proposal, on or before five (5) years from the date of this Statement, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of five (5) years from the date of this Statement.

4 Compliance Reporting

4-1 The proponent shall prepare, and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 4-6, or prior to implementation of the proposal, whichever is sooner.

4-2 The Compliance Assessment Plan shall indicate:

(1) the frequency of compliance reporting;

(2) the approach and timing of compliance assessments;

(3) the retention of compliance assessments;

(4) the method of reporting of potential non-compliances and corrective actions taken;

(5) the table of contents of Compliance Assessment Reports; and

(6) public availability of Compliance Assessment Reports.

4-3 After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 4-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 4-1.

4-4 The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 4-1 and shall make those reports available when requested by the CEO.

4-5 The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.

4-6 The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO.

The Compliance Assessment Report shall:

(1) be endorsed by the proponent's CEO or a person delegated to sign on the CEO's behalf;

(2) include a statement as to whether the proponent has complied with the conditions;

(3) identify all potential non-compliances and describe corrective and preventative actions taken;

(4) be made publicly available in accordance with the approved Compliance Assessment Plan; and

(5) indicate any proposed changes to the Compliance Assessment Plan required by condition 4-1.

5 Public Availability of Data

5-1 Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), management plans and reports relevant to the assessment of this proposal and implementation of this Statement.

5-2 If any data referred to in condition 5-1 contains particulars of:

(1) a secret formula or process; or

(2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

6 Waste Acceptance Monitoring and Management

6-1 The proponent shall manage the implementation of the proposal to meet the following environmental objectives:

Demonstrate that waste types not permitted for processing, detailed in Table 2 of Schedule 1, are not processed at the East Rockingham Waste to Energy Facility by implementing conditions 6-2 to 6-8.

6-2 Prior to commissioning, the proponent shall develop (or revise) and submit a Waste Acceptance Monitoring and Management Plan to meet the objective specified in condition 6-1, which includes the following:

(1) detail the proposed monitoring methodology to:

(a) identify the supplier of each waste load;

(b) record all waste loads, including the quantities, received on site;

(c) describe the types of residual waste accepted on the site, including the source separation process for those waste types;

(d) record waste types disposed offsite; and

(2) detail a procedure to summarise the results of monitoring outlined in condition 6-2(1).

6-3 Prior to commissioning, and after receiving notice in writing from the CEO that the Waste Acceptance Monitoring and Management Plan satisfies the requirements of condition 6-2, the proponent shall:

(1) implement the approved Waste Acceptance Monitoring and Management Plan; and

(2) continue to implement the approved Waste Acceptance Monitoring and Management Plan, unless and until the CEO has confirmed by notice, in writing, that implementation is no longer required.

6-4 The proponent shall demonstrate compliance with condition 6-1 by:

(1) providing the summary required by condition 6-2(2) of the monitoring results in accordance with the requirements of the Waste Acceptance Monitoring and Management Plan, every six months from the date of commissioning, until the CEO has confirmed by notice, in writing, that monitoring is no longer required.

6-5 The proponent will retain the results of monitoring required by condition 6-4 and shall make those results available when requested by the CEO.

6-6 The proponent may review and revise the Waste Acceptance Monitoring and Management Plan.

6-7 The proponent shall review and revise the Waste Acceptance Monitoring and Management Plan as and when directed by the CEO.

6-8 The proponent shall implement the latest revision of the Waste Acceptance Monitoring and Management Plan, which the CEO has confirmed by notice, in writing, satisfies the requirements of condition 6-2.

7 Residual waste

7-1 The proponent shall manage the implementation of the proposal to meet the following environmental objective:

Ensure that the East Rockingham Waste to Energy Facility has the ability to accept residual waste only as defined in Table 3 in Schedule 1 by implementing conditions 7-2 to 7-4.

7-2 Prior to commissioning and thereafter by 31 October each year, the proponent shall develop (or revise) and submit a Waste Acceptance System Plan to apply the objective specified in condition 7-1, which includes the following:

(1) a description of the waste types that the facility could accept, if it only operated on residual waste;

(2) a description of the source separation processes, as provided by the generator of the waste, for the waste streams that are accepted at the facility;

(3) details of, and justification for, the procedures and measures that the proponent has implemented to achieve the objectives specified in condition 7-1; and

(4) a detailed description of the learnings from the previous year(s) on how the objective specified in condition 7-1 and the Waste Acceptance System Plan can be better achieved and/or improved.

7-3 Prior to commissioning, and after receiving notice in writing from the CEO that the Waste Acceptance System Plan satisfies the requirements of condition 7-2, the proponent shall immediately:

(1) implement the approved Waste Acceptance System Plan; and

(2) continue to implement the approved Waste Acceptance System Plan unless and until the CEO has confirmed by notice, in writing, that implementation is no longer required.

7-4 The proponent shall demonstrate compliance with condition 7-1 by annually undertaking an independent review of the Waste Acceptance System Plan, and reporting it to the CEO in the Annual Compliance Report required by condition 4-6.

Hon Stephen Dawson MLC
MINISTER FOR ENVIRONMENT

25 FEB 2019

Schedule 1

Table 1: Summary of the Proposal

Proposal Title	East Rockingham Waste to Energy Facility
Short Description	The proposal is for the construction and operation of a waste to energy facility at Lot 1, 26 Office Road, East Rockingham. The waste to energy facility includes a reception hall, waste bunker; combustion system; boiler; bottom ash handling and treatment area; and other associated infrastructure.

Table 2: Location and authorised extent of physical and operational elements

Column 1	Column 2	Column 3
Element	**Location**	**Authorised Extent**
Physical elements		
Waste to Energy Facility	Figure 2	Clearing of no more than 10 ha of native vegetation within the development envelope.
Operational elements		
Thermal capacity		No more than 101.8 MW thermal
Waste receival volume		Up to 300 000 tpa and 30 000 tpa of sewage waste
Emissions outputs		Shall not exceed the emissions limits specified in Annex VI of the European Union Industrial Emissions Directive (2010/75/EC) or its updates
Waste types permitted to be processed		• Bio-sludge/biosolids • Construction and demolition waste • Commercial and industrial waste • Municipal solid waste • Non-recyclable residues from material recycling facilities, waste transfer stations/depots and biological waste treatment facilities
Waste types not permitted to be processed		• Scheduled wastes, as defined by ANZECC for the *National Strategy for the Management of Scheduled Waste (1992)* • Medical waste • Radioactive waste • Asbestos • Liquid and oily wastes

Column 1 Element	Column 2 Location	Column 3 Authorised Extent
		• Contaminated soils • Tyres • Animal carcasses • Hazardous waste with a halogen content greater that 1% • Highly corrosive or toxic liquids or gases such as strong acids or chlorine or fluorine • Explosive materials

Table 3: Abbreviations and Definitions

Acronym or Abbreviation	Definition or Term
ANZECC	Australian and New Zealand Environment and Conservation Council
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or his delegate.
ha	Hectare
MW	Megawatt
Residual waste	Waste that remains after the application of a better practice source separation process and recycling systems, consistent with the waste hierarchy as described in section 5 of the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act), and the Waste Strategy approved or revised from time to time under the WARR Act.
tpa	Tonnes per annum

Figure (attached)

Figure 1 East Rockingham Waste to Energy Facility development envelope (this map is a representation of the co-ordinates shown in Schedule 2)

Figure 1: East Rockingham Waste to Energy Facility development envelope

Schedule 2

Coordinates defining the development envelope are held by the Department of Water and Environmental Regulation, Document Reference Number 2018-1530086426460.

Government of **Western Australia**
Office of the **Appeals Convenor**
Environmental Protection Act 1986

Our ref: Report 1624
Enquiries: Zoe Laing
Telephone: 6364 7990
Date: 25 February 2019

Chief Executive Officer
City of Rockingham

Attention: Mr Michael Parker *(via email: customer@rockingham.wa.gov.au)*

Dear Mr Parker

EPA REPORT 1624 – EAST ROCKINGHAM WASTE TO ENERGY REVISED PROPOSAL

Consistent with section 45(1) of the *Environmental Protection Act 1986* (the Act), the Minister for Environment has consulted with other decision-making authorities and reached agreement that the above proposal may be implemented subject to the conditions set out in Statement 1090 (attached).

The Minister has requested that I, on his behalf, provide you with a copy of this Statement pursuant to section 45(5)(a) of the Act. The Statement will be published under section 45(5)(b) as soon as practicable.

On being satisfied that there is no reason why the proposal should not be implemented, the Minister will give notice under section 45(7) of the Act to other decision-making authorities that they may exercise their statutory powers in relation to the proposal.

Please note that this letter is for advice only and no response is required.

Yours sincerely

Emma Gaunt
APPEALS CONVENOR

encl.

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