SUPPORTING INFORMATION for APPLICATION FOR DGR's for Declared State Significant Development (Sch. 2 of SEPP SRD) 2011

Proposed Staged Development of the Hunter Industrial Ecology Park (HIEP) Mitchell Avenue at Weston NSW

HUNTER INDUSTRIAL ECOLOGY PARK

By Industrial Ecology Australia

Document History and Status

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Hunter Development Brokerage Pty Ltd
44 Church Street, Maitland NSW 2320
PO Box 40 Maitland NSW 2320
Tel: (02) 4933 6682, Fax: (02) 4933 6683, Email: admin@hdb.com.au

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1. EXECUTIVE SUMMARY

This document has been prepared by *HDB Town Planning and Design* on behalf of *Industrial Ecology Australia* in support of a formal request for Director-General's Requirements (DGR's).

The DGR's are requested in relation to the staged development of the proposed Hunter Industrial Ecology Park (HIEP) development at Weston, NSW. Stage 1 of the project includes the co-location of two land uses identified as State Significant Development within Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). The relevant criteria are highlighted below:

Proposed 'Waste to Energy' (W2E) Electricity Generation Plant

(W2E Facility - Estimated Capital Value $80M)

20 Electricity generating works and heat or co-generation

Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that:

(a) has a capital investment value of more than $30 million, or
(b) has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance.

Proposed 'Materials Recovery Facility' (MRF)

(MRF Facility - Estimated Capacity 120,000 to 150,000 tonnes/year)

23 Waste and resource management facilities

(1) Development for the purpose of regional putrescible landfills or an extension to a regional putrescible landfill that:
(a) has a capacity to receive more than 75,000 tonnes per year of putrescible waste, or
(b) has a capacity to receive more than 650,000 tonnes of putrescible waste over the life of the site, or
(c) is located in an environmentally sensitive area of State significance.
(2) Development for the purpose of waste or resource transfer stations in metropolitan areas of the Sydney region that handle more than 100,000 tonnes per year of waste.
(3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.
(4) Development for the purpose of waste incineration that handles more than 1,000 tonnes per year of waste.
(5) Development for the purpose of hazardous waste facilities that transfer, store or dispose of solid or liquid waste classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste that handles more than 1,000 tonnes per year of waste.
(6) Development for the purpose of any other liquid waste depot that treats, stores or disposes of industrial liquid waste and:
(a) handles more than 10,000 tonnes per year of liquid food or grease trap waste, or
(b) handles more than 1,000 tonnes per year of other aqueous or non-aqueous liquid industrial waste.

The HIEP is an opportunity identified by *Industrial Ecology Australia* for an industrial precinct that will group various resource recovery/management industries together within an efficient node. The operation of the precinct will reduce reliance on landfill by increasing the capabilities of resource recovery and use of secondary materials within the Hunter Region. This will include the collection, sorting and processing of various recoverable resources from municipal, commercial, industrial, construction and demolition waste streams.

The Ecology Park will be an efficient 'green' powered multi-faceted complex that will:

1. incorporate various leading edge technologies in regards to resource recovery;
2. promote industrial symbiosis and cost efficiencies by sharing infrastructure; and,
3. manage continual improvement of industry practices.

It will be the first of its kind in Australia and a model for other future resource recovery estates.

This request for DGR's is to facilitate the progression of a Development Application for the initial stage of the HIEP which will include the foundation components for the estate including:

- a Concept Plan approval;
- the 23 lot Community Title subdivision of the land to accommodate the HIEP;
- a Community Drop Off Centre;
- a 'Waste to Energy' (W2E) electricity generation plant (SRD SEPP - SSD Sch 2) allowing the entire future HIEP precinct to run on 'green energy';
- a 'Materials Recovery Facility' (MRF) – (SRD SEPP - SSD Sch 2);
- an Administration Building containing offices, testing and research laboratory, education facilities; and,
- associated internal and external infrastructure and services.

Stage 1, as detailed above, will form the core of the Industrial Park with additional HIEP industries included in subsequent stages as industry interest gains momentum. Further details of the anticipated future development and the staging thereof, will be provided as part of the proposed Staged DA with individual Development Applications being prepared for each subsequent stage.

2. SITE DETAILS

2.1 Description

Address:	Mitchell Avenue, Weston NSW 2326 *(Figure 1)*
Property Description:	Lot 2 DP 1128108 = 0.3669ha Lot 3 DP 1128108 = 0.2618ha Lot 4 DP 1128108 = 0.3736ha Lot 796 DP 39877 = 9.25ha Lot 797 DP 39877 = 0.6638ha Lot 102 DP 1039497 = 10.94ha Total = 21.86ha
Local Government:	Cessnock City Council
Locality:	Weston
Zoning:	IN3 – Heavy Industrial (Refer to Section *4.2.1*)

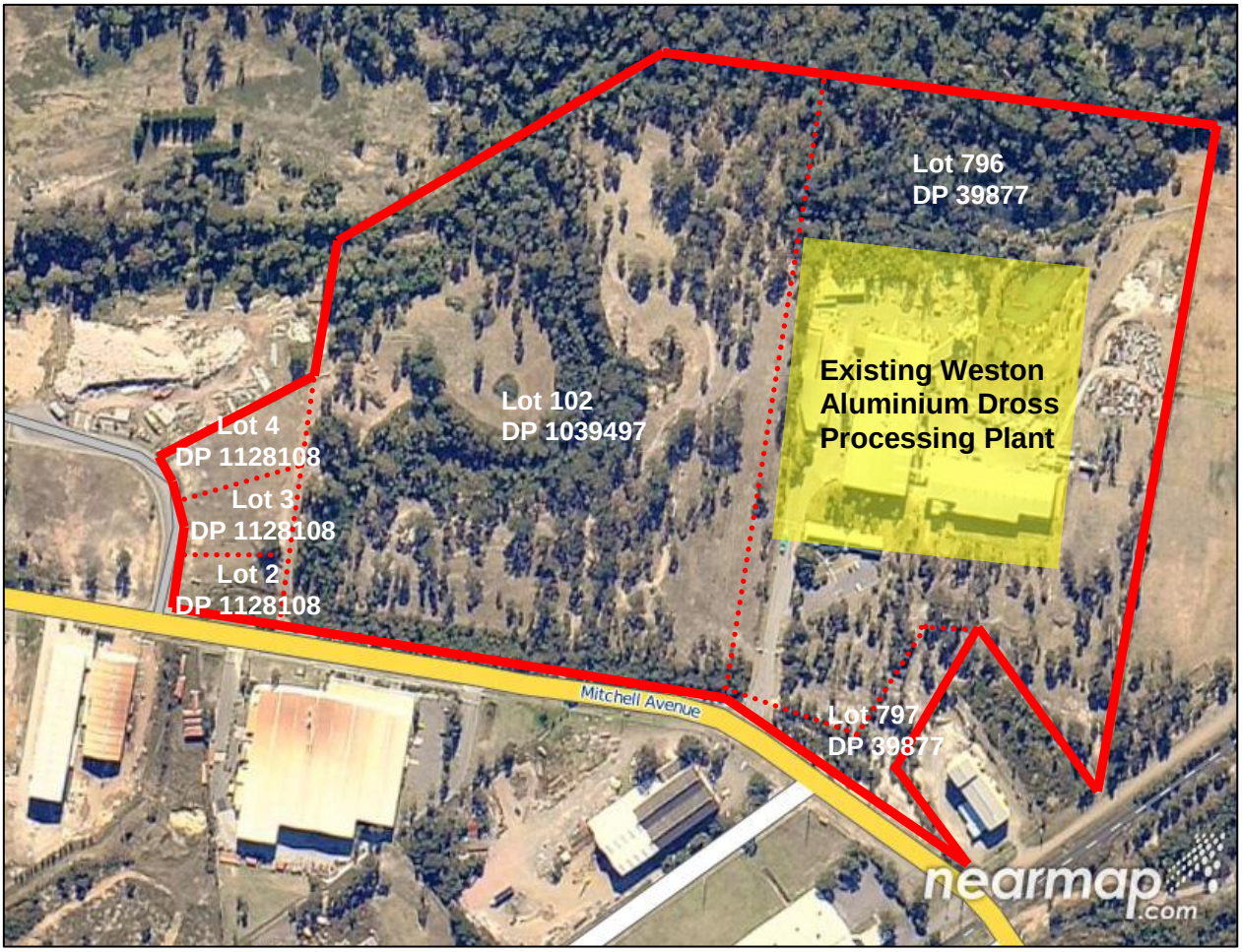


Figure 1 – Subject Site
(Source: Nearmap, accessed Jan. 2012)

2.2 Regional Context

The subject site is located within the Lower Hunter Valley Region which is the sixth largest urban area in Australia and one of the State's major centres of economic activity. The region is home to Newcastle, the state's second largest urban centre which is currently experiencing growth that is anticipated to continue as people are attracted to the region's lifestyle and opportunities.

As stated in the Lower Hunter Regional Strategy 2006,

'Economically the Lower Hunter has a strong mining and industrial manufacturing heritage upon which it is building an increasingly diverse economic base, skilled workforce and nationally significant economic infrastructure, including the world's largest coal exporting port. Building on these important economic assets will further enhance the capacity of the region to provide continued employment growth. This will require the identification of additional employment lands, as well as the renewal and revitalisation of the commercial centres in the Region'.

The HIEP is proposed near the suburb of Weston and township of Kurri Kurri located within the Hunter Valley NSW. The locality is adjacent to the Loxford and Kurri Kurri Interchanges of the new Hunter Expressway (currently under construction) which connects the New England Highway and the F3 Freeway (Refer to ***Figure 2***). Weston is approximately 40km north-west of Newcastle and 150km north of Sydney.

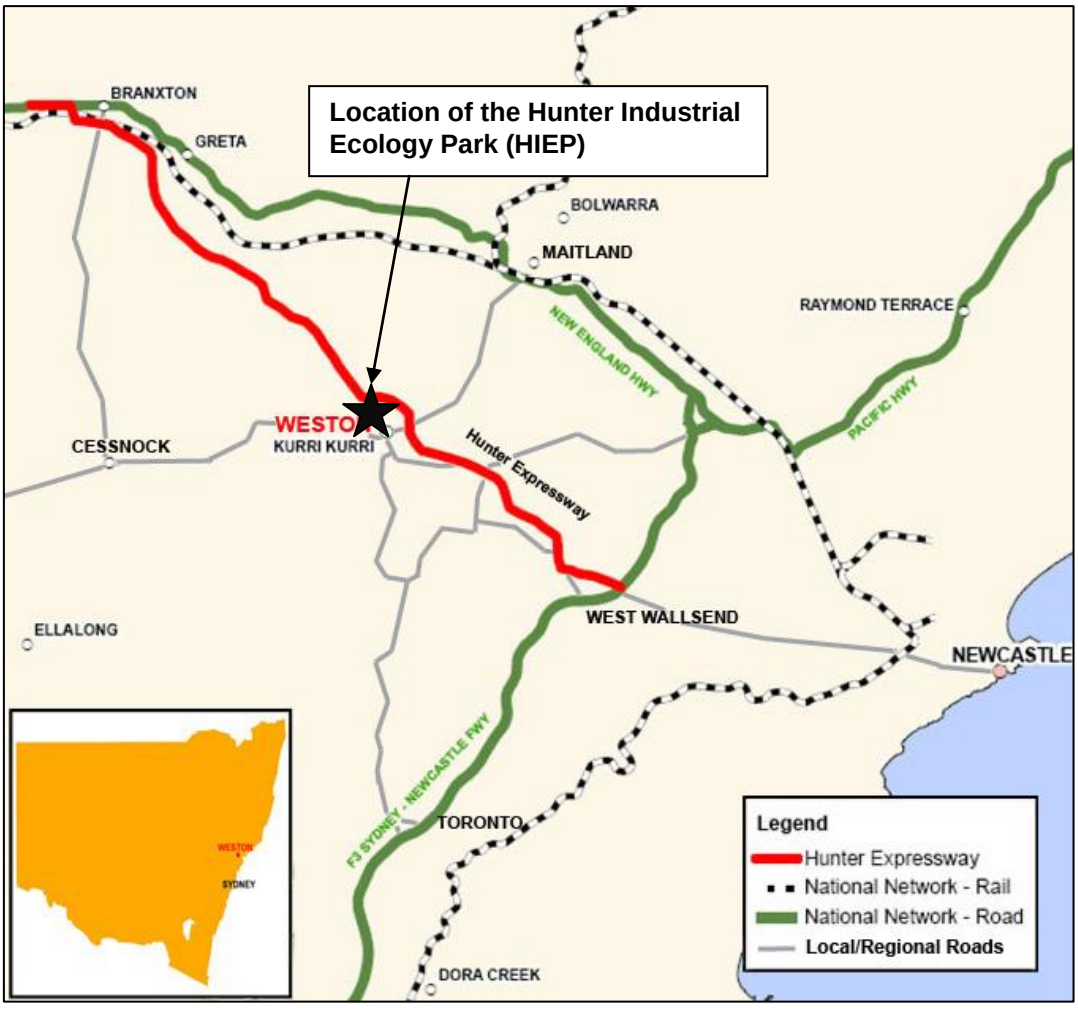


Figure 2 – Site Location

2.3 Local Context

Weston is the western suburb of the township of Kurri Kurri within the Cessnock Local Government Area. The combined population of Kurri Kurri, Weston and other adjacent suburbs of Stanford Merthyr and Pelaw Main is approximately 10,500.

Kurri Kurri and Weston have a strong coal mining heritage which has made way for various other major industries including the Kurri Kurri Aluminium Smelter (Hydro) and the Weston Aluminium Dross Processing Plant in Weston.

Access to the site is currently via Mitchell Avenue which is a sealed, lined, partially guttered two-lane/two-way road providing access to Weston to the west and Kurri Kurri to the east. Mitchell Avenue forms part of Regional Road 7766 which connects Kurri Kurri to Greta and has a posted speed limit of 60km/h.

Less than 4km to the east of the site is the Loxford and Kurri Kurri Interchanges of the new Hunter Expressway (currently under construction). The expressway will connect the New England Highway which links the Hunter Region to Queensland, and the F3 Freeway which provides direct access to Sydney and all major centres in between. The expressway will also provide direct and efficient access to many of the major centres located within the Hunter Valley, including the Port of Newcastle.

2.4 Existing Site and Surrounding Development

The site is mostly vacant and is located within an established industrial area. A portion of the site contains the existing Weston Aluminium Dross Processing Plant which is mostly confined to the central eastern half of the site (Refer to ***Figure 1***). This includes the main aluminium bi-product processing facility, associated storage and machinery sheds, administration offices, hardstand, access road and parking areas.

The western half of the site contains areas of bushland which have been subjected to various degrees of modification in the past as a result of land management practices by previous land owners and bushfire mitigation measures following consultation with the Local Fire Brigade officers.

Land to the south of the subject site (across Mitchell Avenue) contains a number of existing industrial businesses on a variety of lot sizes. The lot directly adjoining the south-eastern corner of the site contains Allight Sykes Pumps. Beyond these businesses runs the Cessnock Rail Line which currently experiences limited rail traffic.

Land to the east contains cleared and vacant crown land currently in the possession of Cessnock Council as the Reserve Trust Manager (previously used as a Dog Pound).

Land directly adjoining the site to the west contains a relatively new industrial subdivision with access available via Styles Street.

Directly adjoining the north western boundary of the site is Swamp Creek which transects the bushland adjoining the northern boundary of the site. Rural zoned land to the north is part of the buffer to the existing Hydro Aluminium Smelter which is located further north of the site.

The nearest residential areas to the site are located approximately 430m away at the western end of Mitchell Avenue, and approximately 500m to the south east of the site near the Mitchell Avenue/Maitland-Wollombi Road/Northcote Street roundabout.

2.5 Environment Features Overview

2.5.1 Topography and Hydrology

The site is characterised by predominately flat topography with a gentle slope generally running from the southeast to northwest towards Swamp Creek. Heights range from RL 22m AHD in the southeast to RL 15m AHD in the north-western Swamp Creek depression.

The entire site drains towards Swamp Creek, the bank of which forms the northern boundary of the site, and to an ephemeral tributary of Swamp Creek/Gully which bisects the western half of the site in a north-south fashion.

Advice from Cessnock Council has identified that the indicative 100 year Average Recurrence Interval (ARI) flood affects portions of the site adjacent to Swamp Creek. This flood risk has been taken into consideration in regards to the development of a Concept Plan for the HIEP.

2.5.2 Flora and Fauna

The site generally possesses disturbed vegetation coverage caused primarily from past vegetation reduction, earthworks, weed incursion, trial bike riding and under scrubbing for bush fire hazard management purposes. Concentrations of relatively undisturbed vegetation exist on the site, generally along the northern boundary and the gully bisecting the western half of the site. The more heavily vegetated areas of the site have been retained in the design of the HIEP.

3. DEVELOPMENT DESCRIPTION

3.1 Project Overview

It is proposed to subdivide the land under Community Title Subdivision provisions and in the initial stage of the HIEP, construct a 'Waste to Energy' (W2E) Plant, a 'Materials Recovery Facility (MRF)', a Community Drop Off Centre, and an Administration Centre including a Testing Laboratory, a Research Centre, an Education Centre, and a Maintenance Facility.

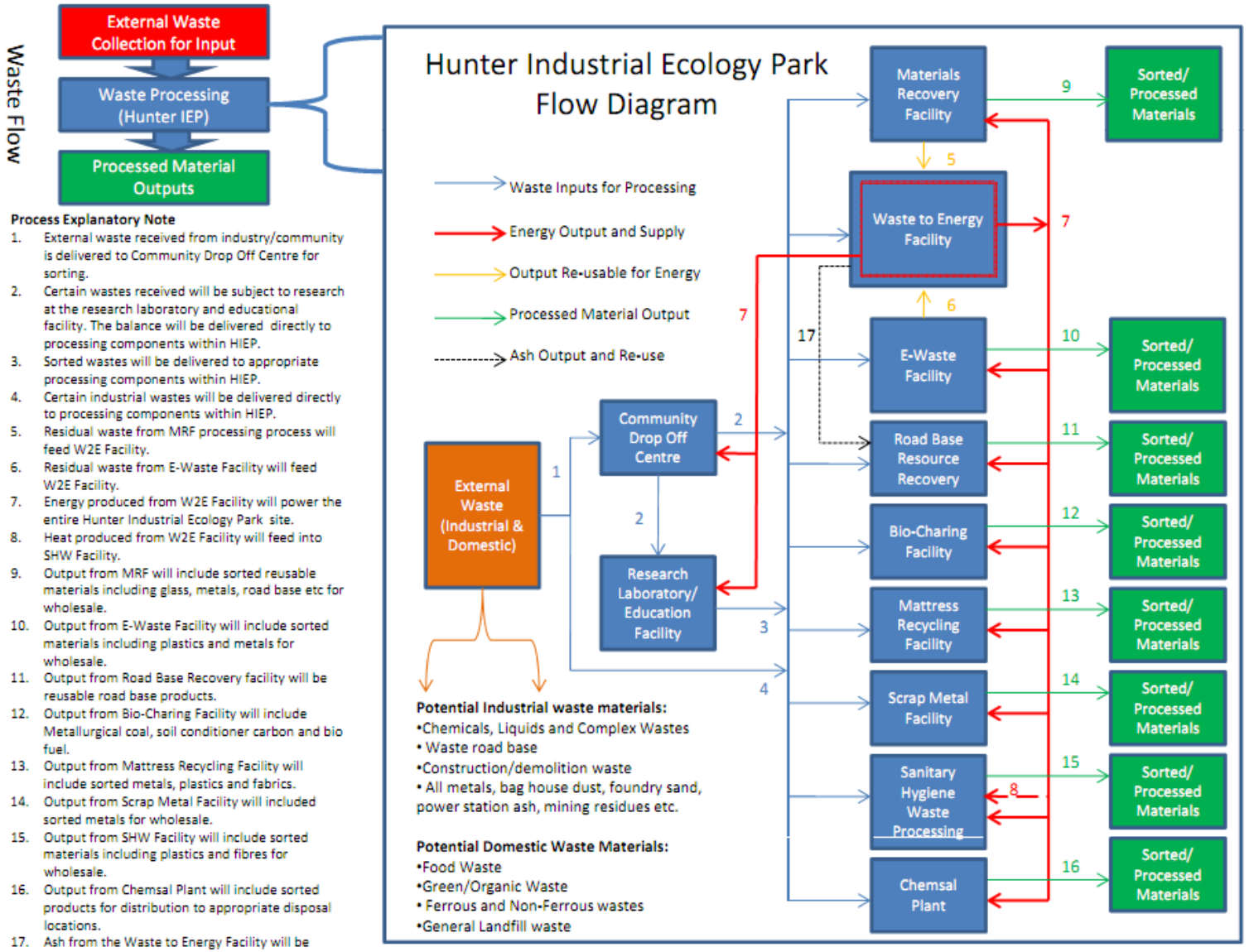
The initial components of the Ecology Park will establish this multi-faceted complex incorporating various leading edge technologies in regards to resource recovery and management. ***Figure 3*** – HIEP Component Flowchart demonstrates how the stage one uses will be interlinked with other uses proposed within the completed HIEP.

The two main facilities combined (the MRF and the W2E), will have capacity to process in excess of 200,000 tonnes per year of municipal, commercial, industrial, construction and demolition waste streams received from within the Hunter Valley. This will in turn minimise the requirement for land fill and waste storage in the region.

The 'materials recovery facility' will be the major facility that will receive, sort and recover a range of items including glass, steel, plastic, cardboard and paper for re-use. The residual waste from the MRF will feed the W2E Plant (Refer to ***Figure 3*** – HIEP Component Flowchart).

The 'waste to energy' plant will generate 'green energy' from the non-hazardous and un-recoverable waste. This energy (electricity and heat) will be utilised to power the MRF and the other components proposed within the HIEP. ***Figure 3*** demonstrates the extent of energy distribution anticipated by the W2E facility within the completed HIEP (shown with red arrows).

The subdivision works associated with Stage 1 will involve the creation of 23 lots that will accommodate all future development within the HIEP. The subdivision of the land under Community Title will form the fundamental framework for the ongoing management and monitoring of the HIEP operations.



Process Explanatory Note

1. External waste received from industry/community is delivered to Community Drop Off Centre for sorting.
2. Certain wastes received will be subject to research at the research laboratory and educational facility. The balance will be delivered directly to processing components within HIEP.
3. Sorted wastes will be delivered to appropriate processing components within HIEP.
4. Certain industrial wastes will be delivered directly to processing components within HIEP.
5. Residual waste from MRF processing process will feed W2E Facility.
6. Residual waste from E-Waste Facility will feed W2E Facility.
7. Energy produced from W2E Facility will power the entire Hunter Industrial Ecology Park site.
8. Heat produced from W2E Facility will feed into SHW Facility.
9. Output from MRF will include sorted reusable materials including glass, metals, road base etc for wholesale.
10. Output from E-Waste Facility will include sorted materials including plastics and metals for wholesale.
11. Output from Road Base Recovery facility will be reusable road base products.
12. Output from Bio-Charing Facility will include Metallurgical coal, soil conditioner carbon and bio fuel.
13. Output from Mattress Recycling Facility will include sorted metals, plastics and fabrics.
14. Output from Scrap Metal Facility will included sorted metals for wholesale.
15. Output from SHW Facility will include sorted materials including plastics and fibres for wholesale.
16. Output from Chemsal Plant will include sorted products for distribution to appropriate disposal locations.
17. Ash from the Waste to Energy Facility will be processed by the Road Base Recovery Facility.

Figure 3 - HIEP Component Flowchart

A summary of the components proposed as part of the Stage 1 works are outlined within Table 1 and Table 2 below. A more detailed explanation of the processes involved is provided in the subsequent paragraphs.

Table 1 – Stage One HIEP Waste and Resource Management Components

Component	Materials Input	Output
Community Drop Off Centre Receives and separates immediately reusable materials from mixed waste. • 0.5Ha site dedication • $2 million Capital Investment Value	Domestic Waste	• Sorted reusable materials and mixed waste.
Materials Recovery Facility (MRF) Sorts and separates various recoverable materials received for re-use. • 3-5Ha site dedication • 10,000-11,000sqm building • $30 million Capital Investment Value • 120,000-150,000 tonnes per year of waste recovered	Steel components; glass; paper; plastics; tyres; mattresses; carpet; miscellaneous construction waste ie. cement and bricks; contaminated soils; other 'landfill' type waste materials	• Sorted reusable materials including glass, metals, road base etc for wholesale • Residual waste to feed Waste to Energy Plant
Waste to Energy Plant Generates electricity and heat for use within the HIEP using waste as an energy source. • 1.5HA site dedication • $90 million Capital Investment Value • 90,000 tonnes per year of waste utilised	Combustible wastes that can not be recycled; residual wastes from MRF and E-waste facility components	• Electricity to power individual HIEP components. • Heat output to fuel the Sanitary Hygiene Waste Processing Facility and other components.

Table 2 – Ancillary HIEP Components

Component	Interconnection to Key Facilities Table 1 HIEP Uses
Subdivision Creation of 23 Lots that will accommodate the HIEP uses including the Waste to Energy Plant and the Materials Recovery Facility.	• An allocation of the lots created will accommodate the Waste to Energy Plant and the Materials Recovery Facility.
Roads and Services Provide access and facilitate linkages within the site to associated uses. Constructed by the proponent and maintained by the HIEP 'Community Management Committee'.	• Provides efficient links between SSD uses on site • Facilitates access to SSD uses
Weigh Bridge Communal weigh bridge to manage the flow of materials to and from the HIEP and its components.	• Communally utilised by SSD uses on site
Administration Centre, Laboratory, Research Centre, Education and Maintenance Facility (including Kiosk) • $5 million Capital Investment Value	• Management offices and maintenance facility. • A managed (shared) laboratory facility to test incoming materials and for the development of new products. • Provides education of the public and schools on the HIEP and recycling processes.

3.2 Waste to Energy Plant (W2E)

3.2.1 Overview

The Waste to Energy Plant will utilise gasification technology in line with the NSW State Government Policy to convert up to 90,000 tonnes per annum of non-hazardous and un-recyclable waste into energy (electricity and heat). The electricity produced from the facility will have capacity to produce approximately 9MW of electricity and will allow low pressure steam to be readily exported to adjacent industries within the HIEP for use. This will in affect increase the overall energy efficiency of the plant and the HIEP.

Unlike traditional waste incineration methods, the proposed technology to be used involves a two stage system, which initially gasifies the waste to produce synthetic gas. This gas is then transferred to a second stage where it burns more efficiently as a fuel than would be the case from a basic waste incineration system. Importantly, the process allows for efficient control of emissions and improved performance generally as an energy solution.

The energy production of the Waste to Energy Plant will be low cost and a secure source of energy which directly replaces fossil fuels and can provide significant savings for local industry. When combined with the MRF, the plant will be a crucial element in the overall integrated waste management operation of the HIEP.

The waste streams that the W2E Plant is specifically designed to receive include:

- Commercial and industrial waste;
- Municipal solid waste;
- Final non-reusable/recyclable wastes such as paper reject from the recycling process; and
- Residual wastes from other processes within the HIEP such as the Materials Recovery Facility and the E-Waste Facility.

3.2.2 Site Components

The Waste to Energy Plant will include the following key built components:

- Main Building – The building will house the majority of the processing plant. All waste will be unloaded within this building. The following sizing is estimated:
  - 15m to 19m high;
  - Ground floor area of 5,000sqm; and
  - Flue stack with a height of 50m and width of less than 3m.
- Turbine Generator Building – A smaller building to house the turbine generator will be connected to the main building with a short section of pipe. The following sizing is estimated:
  - 7.5m high; and
  - Ground floor area of 190sqm.
- Sub-station and transformer compound – Small separate building approximately 7.5m high to house the electricity sub-station and transformer associated with the plant.
- Air Cooled Condenser – A screened enclosure for the Air Cooled Condenser. The following sizing is estimated:
  - 8m in height; and
  - Footprint area of 430sqm.
- Boiler House/Combined Heat and Power Room – Separate building with pipe connections to the main building to allow for the export of steam to adjacent industrial facilities.
- Office and associated car parking

3.2 3 Material Delivery

Residual waste will be delivered to the Waste to Energy plant via the Materials Recovery Facility. This will occur through an efficient means which could include a direct conveyor network, skip trucks or equivalent. This will be determined subject to further investigation as part of the Development Application and EIS process.

All waste will be unloaded and stored within the main building of the Waste to Energy Plant. This will allow the waste to be appropriately contained and reduce the risk of any contamination.

3.2.4 Operation Hours and Employment

At this stage it is anticipated that the internal processing of materials will operate initially on a 2 x 8 hour shift basis. However, as demand dictates this may well become a continuous 24 hour operation. Intake of materials for processing will however be limited to general daytime hours of 7am to 6pm. Routine maintenance operations outside the buildings will be scheduled to take place during daylight hours. The proposed facility will provide direct employment for approximately 20 staff on-site.

3.2.5 Process Description

Figure 4 below shows the typical configuration of the Waste to Energy Plant.

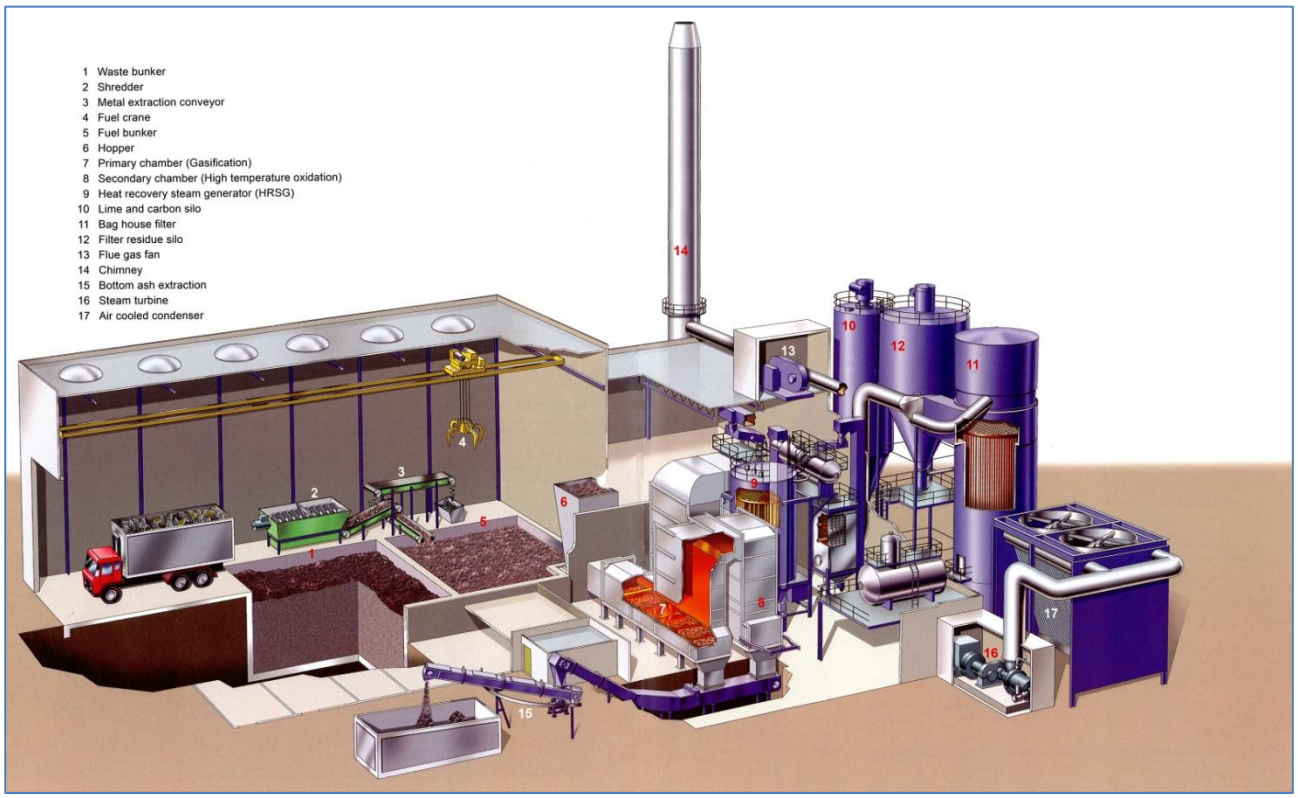


Figure 4 – Waste to Energy Process
(Source: ENERGOS)

Waste and Fuel Bunker

The waste and fuel bunker (Items 1 and 5 in ***Figure 4***) will be the key holding area for the incoming waste. The bunkers will be enclosed with fast acting doors and will be operated slightly below atmospheric pressure to create a negative pressure draw to contain odours. The air from the bunker hall will be directed through the thermal conversion process to allow it to be cleaned before being released through the stack.

Waste materials will be removed from the bunkers and passed through a shredder (Item 2) before passing across a magnet where any remaining metals will be removed. An overhead crane will operate on a pre-programmed cycle and move around the bunker to mix the fuel to create a more homogeneous mixture. The crane will then deliver the waste automatically to the fuel delivery chute to the gasification unit.

Thermal Conversion

The thermal conversion will take place in two stages. Firstly drying, pyrolysis and gasification of the fuel will be carried out in the gasification unit (Item 7) creating a synthetic gas.

From this, the gas passes to the High-temperature Oxidation Unit (Item 8) where there is a complete combustion of Carbon monoxide (CO) and Total Organic Carbon (TOC) with a final production of a flue gas with low NOx content. Changing the waste to a gas fuel means the burning environment can be finely controlled, dioxins thoroughly destroyed and Nitrogen Oxides (NOx) emissions minimised.

The ash is discharged from the gasification unit at the end and taken for offsite disposal (Item 15) or re-use in road base.

Heat Recovery Steam Generator (HRSG)

The HRSG recovers energy from the flue-gas and is connected to the high temperature oxidation unit (Item 9).

Energy Utilisation System

The boilers will deliver saturated or superheated steam to an energy utilisation system. The system will consist of a turbine with a generator and an air-cooled vacuum condenser with condensate pumps. Generated electricity will be re-distributed to adjacent facilities within the HIEP. Condensate from the air-cooled condenser will be directed to the feed-water tank of the boiler system by condensate pumps.

The turbine will be fitted with a suitable extraction point to enable steam, at the appropriate pressure, to be taken from the turbine for use by the adjacent consumers within the HIEP.

Flue-Gas Cleaning System

Flue-gas generated in the dual stage gasification process and passed through the HRSG will enter a gas cleaning system. This will be comprised of a bag-house filter (Item 11), a storage silo for lime and activated carbon (Item 10) and a filter dust silo (Item 12). Simply, the lime and activated carbon will be injected at the inlet of the bag house filter and this will absorb contaminants in the flue-gas. The contaminants are in turn filtered out and disposed of appropriately off-site, with only clean gases discharged to the atmosphere.

Control and Monitoring System

The plant will be equipped with a control and monitoring system that will provide automatic control of the process during normal operating conditions and gives the opportunity for staff to monitor the different process sections. Of particular importance will be the logging of process details, including emissions.

3.2.6 Construction Timeframe

Once all necessary permits and approvals are obtained for the Waste to Energy plant, the proposed facility would take approximately 24 months to construct, after which there would be a 2 month commissioning period.

3.3 Materials Recovery Facility (MRF)

3.3.1 Overview

The Materials Recovery Facility (MRF) will recover a range of recyclables, such as glass, steel, plastic, cardboard and paper from various waste streams including municipal, commercial, industrial, construction and demolition waste streams. Recovery will be achieved through a multi stage processing system, including a combination of processing equipment designed to separate the waste into recyclables for transfer to secondary markets. Residual material from the process will be utilised by the Waste to Energy plant for the generation of 'green' energy' (Refer to Section 3.2).

The MRF will be designed to comply with all relevant pollution control measures and will incorporate additional environmental management measures such as:

- dust suppression and extraction system within certain areas of the building;
- collection of rainwater in tanks for re-use in on-site processes; and,
- deployment of sustainable building design initiatives.

Once operational, the facility will have capacity to recover over 120,000 tonnes per year of waste with a Capital Investment Value of approximately $30million.

3.3.2 Site Components

The MRF will require a land dedication of approximately 2 hectares. The MRF site will include:

- Enclosed building to house the multi stage recovery/processing system
  - Approximately 10,000 -11,000sqm

- Approximately 1 hectare for logistics, parking, landscaping etc.

3.3.3 Material Delivery

The HIEP will have capacity to receive and process over 500,000 tonnes of waste per year. Waste collected and utilised within the HIEP will consist of, but not be limited to, the waste streams identified within Table 1. This waste will be transported directly from various sources from within the Hunter Region. Domestic Waste will be received, initially through one pilot drop off centre in

the HIEP itself, a drop off centre to cater for Cessnock LGA and four Community Drop Off Centres within the Lake Macquarie area. With a total of 10 Drop Off Centres planned for the Hunter, cumulatively these centres will allow the HIEP to service a catchment population of approximately 500,000 people per industrial ecology park.

Approval for the external Community Drop Off Centres will be obtained through separate Development Applications to the respective Councils.

3.3.4 Operational Hours and Employment

It is anticipated that the MRF facility would operate for up to 16 hours a day over two shifts, between the hours of 6am and 10pm. The facility would directly employ approximately 80 staff, including a manager, pickers, supervisors, mechanics, and operators.

3.3.5 Process

Three key processing functions will occur within the MRF:

1. Receival – waste unloading and initial screening for non-conforming waste;
2. Processing – mechanical separation equipment and manual sorting processes; and
3. Dispatch – product baling and storage prior to collection and transport to secondary markets and recovery industries.

Receival

The MRF will generally only receive non-putrescible waste from the Community Drop-Off Centres. This waste will be delivered to a receiving area within the MRF through an efficient means, likely to be either a conveyor system or by skip truck. Here the materials will be checked for any non-conforming wastes which will be extracted for use by the Waste to Energy Plant or other proposed HIEP components depending on the nature of the resource.

Once the processing materials are sorted, a front-end loader/excavator would then load the material into the processing area.

Processing

The waste will be mechanically sorted using a combination of processing equipment such as shredders, screens, density separators, magnets and optical sorters. Manual sorting will be utilised in addition to mechanical systems. Materials extracted during the processing stage will be directed into separate bins for dispatch preparation.

The MRF will apply the latest 'industry standard' technology to the extraction of recyclable materials from mixed waste streams. The equipment will be customisable to adapt to the characteristics of the waste being processed. This will additionally enable further segregation of materials as new secondary markets develop.

Specific detail of the equipment to be utilised within the MRF will be detailed at the Development Application/EIS stage.

Dispatch

Recyclable materials extracted from the MRF processes will typically include mixed paper, wood, film, soft plastics, hard plastics, ferrous and non-ferrous metals, and aggregates.

The recovered materials will be stored in designated areas and prepared as per market requirements for dispatch. Material which is non-recoverable will be reprocessed, sent to the Waste to Energy Plant or to other specialised processing industries proposed within the HIEP.

3.4 Community Drop Off Centre

The initial stage of the HIEP will include the first of the Community Drop Off Centres. It will be a pilot for a series of Drop Off Centres (10 or more) to be strategically located throughout the Region. Each Drop Off Centre will have the capacity to receive 5,000-10,000 tonnes of waste resource per year each servicing a catchment of approximately 50,000 people.

3.5 Administration Centre (incl Laboratory, Research Centre, Education and Maintenance Facility)

The Administration Centre will co-ordinate and manage the entire industrial complex in relation to monitoring and co-ordination of the efficient operation of shared facilities, control of individual land uses and movement systems (materials and vehicles), service infrastructure, external site safety, amenity and the promotion of the HIEP.

The laboratory will provide for testing of incoming materials and for research on the development of new products.

The education facility will offer education to the public and school groups about the HIEP and the recycling processes undertaken. This will include a guided walk through the park visiting the individual components and utilising observation decks and viewing windows to explain the processes involved.

3.6 Subdivision

The subdivision of the site is a crucial element in the development and management of the HIEP. It is proposed to subdivide the site into 23 lots that will accommodate various recovery and recycling activities. As previously outlined, the key focus of the HIEP is to develop an industrial precinct that will group various resource recovery/management industries together within an efficient node.

The subdivision will be designed with the connectively of future land uses anticipated, allowing the efficient allocation and use of the land. Areas identified as containing significant environmental elements will be retained within the design where possible. Issues such as flooding have been taken into consideration in the design of the HIEP.

A concept layout for the HIEP has been developed (***Figure 6***). This will be finalised subject to the EIS/DA process and further detailed investigations.

3.6 Other Ancillary Components

In addition to the Waste to Energy Plant and the Materials Recovery Facility, Stage 1 of the HIEP will include the following ancillary components:

- Roads
  - Sealed roads providing access to the HIEP and efficient links between the proposed uses.
- Drainage

  - Drainage systems will be designed to include the capture, storage and re-use of surface runoff. Water quality and quantity exiting the site into Swamp Creek will be constantly monitored and appropriate mitigation measures employed to ensure achievement of better than pre-development standards.
- Services
  - The provision of basic services including connection to electricity, telecommunications, water and sewer.
- Weigh Bridge
  - An existing weigh bridge on the site will be relocated and utilised communally by the proposed uses. The weigh bridge will manage the flow of materials to and from the HIEP.
- Landscaping and pedestrian paths.

Figure 6 – Concept HIEP Layout

4. PERMISSIBILITY AND STRATEGIC PLANNING

4.1 State Planning Context

4.1.1 Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment Act ('the Act') is the overarching governing document for all development in NSW.

Stage 1 of the HIEP project is considered 'State Significant Development' (SSD) pursuant to Division 4.1 of the Act, as it is a type declared within State Environmental Planning Policy (State and Regional Development) 2011 (Refer to Section 4.1.2).

The proponent is seeking approval of the project from the NSW Minister for Planning under the provisions of Section 89E of the Act.

4.1.2 State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 ('the SEPP') identifies development that is declared to be SSD.

Section 8(1) of the SEPP states that for the purposes of the Act, development specified within Schedule 1 or 2 of the SEPP is declared to be SSD.

Stage 1 of the HIEP satisfies more than one definition of SSD declared within Schedule 1 of the SEPP as outlined within Table 3 below:

Table 3 – HIEP State Significant Development Declaration

SEPP (State and Regional Development) 2011 Schedule 1 Definition	SSD Trigger	HIEP Component
Class 20 - Electricity generating works and heat or co-generation Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that: *(a) has a capital investment value of more than $30 million, or* *(b) has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance.*	Electricity Generation Works capital investment value: **>$30 million**	**HIEP Waste to Energy Plant.** Estimated Capital Investment Value of **$80 million**.

SEPP (State and Regional Development) 2011 Schedule 1 Definition	SSD Trigger	HIEP Component
Class 23 - Waste and Resource Management Facilities 3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.	Total resource recovery and recycling capacity: **>100,000 tonnes per year**	**HIEP Materials Recovery Facility (MRF)** ($30M) *Estimated Capacity of between 120,000-150,000 tonnes of waste per year*

Section 8(2) of the SEPP states that *'if a single proposed development the subject of one development application comprises development that is only partly State Significant Development…the remainder of the development is also declared to be State Significant Development (except so much of the remainder of the development as the Director General determines is not sufficiently related to the State Significant Development)'.*

Pursuant to Section 8(2) it is considered that the ancillary items previously listed within ***Table 2*** and reproduced below, including the subdivision of the site are additionally declared SSD. This is due to their direct relationship with the SSD components listed within ***Table 3*** and the management and operation thereof.

Extract from Table 2 – Ancillary Development

Community Title Subdivision Creation of 23 Lots that will accommodate the HIEP uses including the Waste to Energy Plant and the Materials Recovery Facility.
Roads and Services Provide access and facilitate linkages within the site to associated uses. Constructed by the proponent and maintained by the HIEP 'Community Management Committee'.
Weigh Bridge Communal weigh bridge to manage the flow of materials to and from the HIEP and its components.
Administration Centre, Laboratory, Research Centre, Education and Maintenance Facility (including Kiosk).

4.2 Local Planning Context

4.2.1 Cessnock Local Environmental Plan 2011

Land Use Zoning

The proposed HIEP site is zoned *IN3 Heavy Industrial* and *RE1 Public Recreation (adjacent to the creek)* under the Cessnock Local Environmental Plan 2011 (Refer to ***Figure 7***).

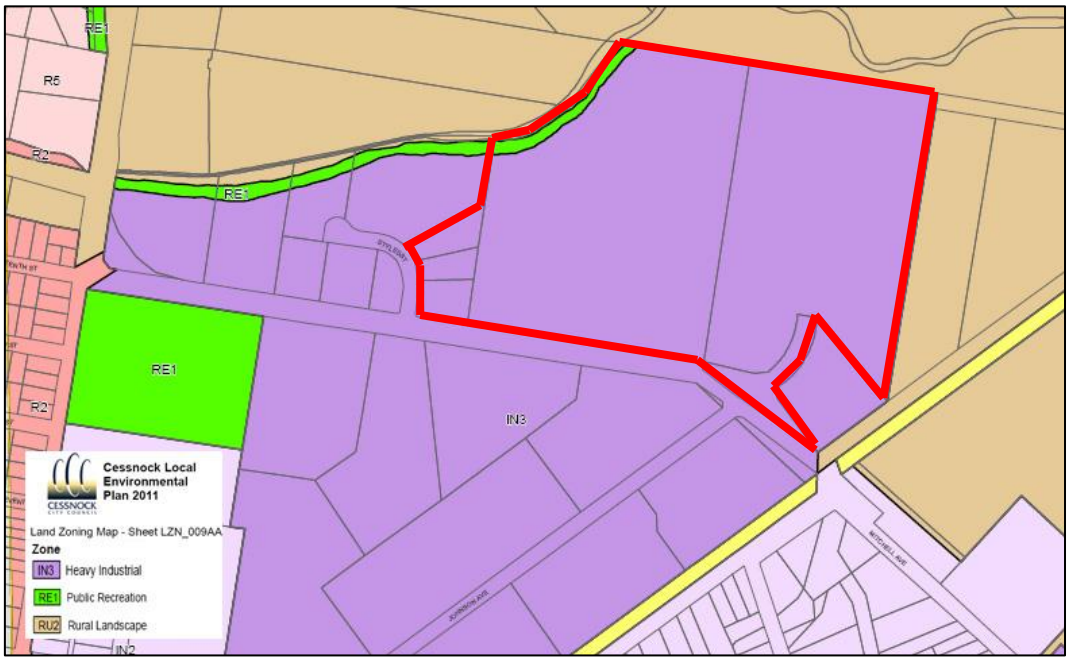


Figure 7 – Cessnock LEP 2011 Zoning Map

Zone Table

Zone IN3 Heavy Industrial

1 Objectives of zone
• To provide suitable areas for those industries that need to be separated from other land uses.
• To encourage employment opportunities.
• To minimize any adverse effect of heavy industry on other land uses.
• To support and protect industrial land for industrial uses.

2 Permitted without consent
Nil

3 Permitted with consent
Depots; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Hazardous storage establishments; Heavy industries; Landscaping material supplies; Neighbourhood shops; Offensive storage establishments; Plant nurseries; Roads; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4.

4 Prohibited
Agriculture; Airstrips; Amusement centres; Animal boarding or training establishments; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Commercial premises; Community facilities; Correctional centres; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Farm buildings; Function centres; Health services facilities; Helipads; Highway service centres; Home-based child care; Home businesses; Home industries; Home occupations; Home occupations (sex services); Industrial training facilities; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Places of public worship; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Residential accommodation; Respite day care centres; Service

stations; Tourist and visitor accommodation; Veterinary hospitals; Water recreation structures; Wharf or boating facilities; Wholesale supplies.

The following defined land uses are likely to occur within Stage 1 of the HIEP:

- ***electricity generating works***
- ***industrial activity***
- ***resource recovery facility***
- ***waste disposal facility***
- ***waste or resource management facility***
- ***waste or resource transfer station***

The following ancillary land uses may also occur within the HIEP:

- ***car parking.***
- ***commercial premises (Prohibited in the IN3 Zone)***
- ***drainage***
- ***environmental protection works***
- ***food and drink premises***
- ***function centre***
- ***information and education facility (Prohibited in the IN3 Zone)***
- ***signage***

All potential land uses are consistent with the Objectives of the Zone and are permitted with consent within the IN3 Heavy Industrial Zone, with the only exceptions being 'commercial premises' and 'information and education facility' which would be ancillary to the principal land uses and could be approved as such pursuant to Section 89E(3) of the Act.

The only works likely to be required within the RE1 Public Recreation Zone will be environmental protection works which are permissible with consent in that zone.

Constraints Mapping

Bushfire Hazard

The site is identified as being Bushfire Prone Land on the Cessnock City Council Bushfire Prone Land Mapping. The mapping has identified Vegetation Buffer areas as well as Category 1 and 2 Vegetation types on the HIEP site as shown in ***Figure 8*** below.

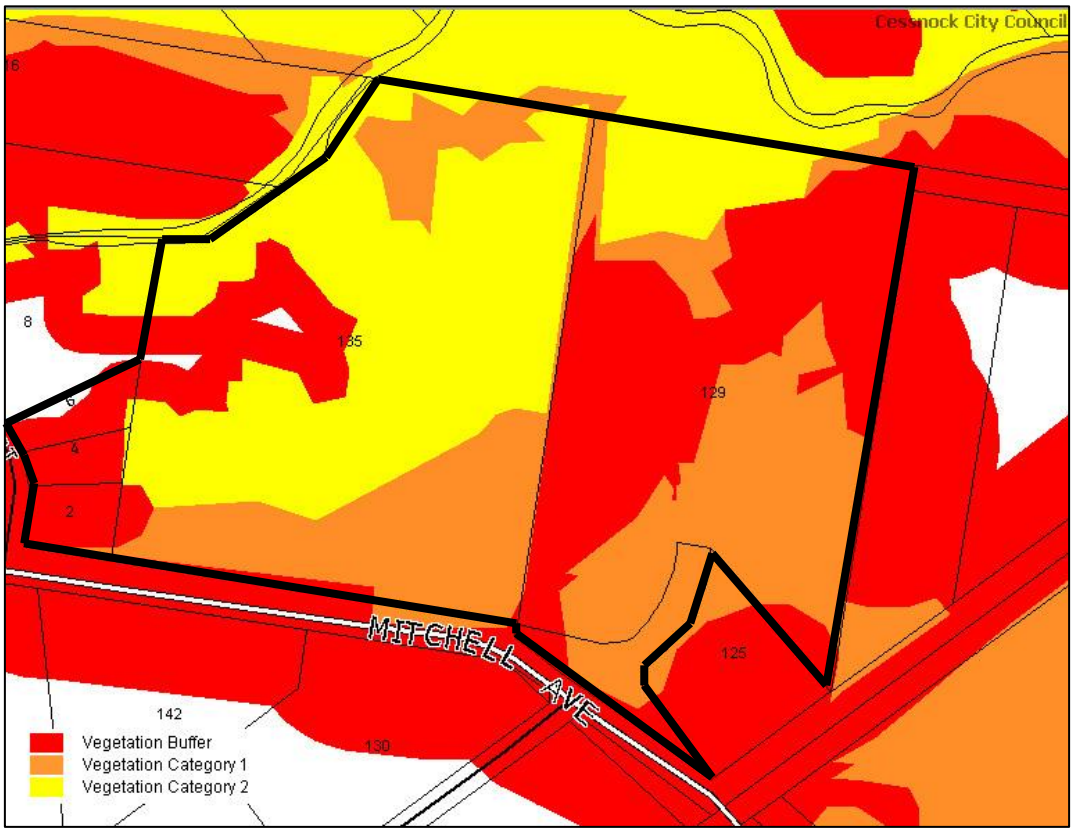


Figure 8 – Cessnock Bushfire Prone Land Map

Since the preparation of Council's Bushfire Prone Land Mapping, the vegetation on the site has been significantly modified to reduce the fuel loads in accordance with advice received from the Local Fire Service.

Vegetation Present

Aerial photography dated 1952 shows the subject site as being mostly cleared of vegetation for the purposes of cattle grazing. The only exception, being the riparian vegetation communities immediately adjacent to Swamp Creek running along the northern boundary and limited vegetation contained within the tributary to Swamp Creek bisecting the site in a circuitous manner from south to north. As a consequence, the vegetation currently on the entire site (except for the riparian vegetation) is largely regrowth since that initial clearing, and is now in a relatively fragmented state as a consequence of subsequent fire hazard reduction works.

Preliminary investigations undertaken in 2001 identified the presence of 3.6 hectares of low woodland considered to form part of the Kurri Sand Swamp Woodland which is an endangered ecological community (EEC). This woodland also contained a stand of *Eucalyptus parramattensis* subsp. *decadens*, which is a threatened species. Thirty-one (31) fauna species were recorded on the site comprising twenty (20) bird species, three (3) amphibians and eight (8) mammals (including one (1) bat). One (1) threatened fauna species, the Squirrel Glider *Petaurus norfolcensis*, was recorded on the site within the riparian vegetation.

In consultation with NSW Rural Fire Service (RFS) in 2009, the land owner (Weston Aluminium Pty Ltd) undertook bushfire hazard reduction works (Hazard Reduction Certificate dated 20th March, 2009) and has maintained those works as required by the RFS since that time. The Google Earth Map below (See ***Figure 9***) was taken earlier this year and shows the current vegetation cover on the site.

Figure 9 – Site Plan (Google Earth 2012)

Further Preliminary Investigations undertaken in Feb 2010 (post hazard reduction) identified the following ecological characteristics within the site:

1. The most intact areas of native vegetation were located: in the far north of the site associated with Swamp Creek; along the drainage lines within the site; and, along the south-east boundary.
2. As a result of the vegetation assessment, four assemblages were found to be present within the site, being:
    - Kurri Sand Swamp Woodland
    - Cabbage Gum Floodplain Woodland
    - Riparian Vegetation
    - Degraded Woodland

    (Refer to ***Figure 10*** below)

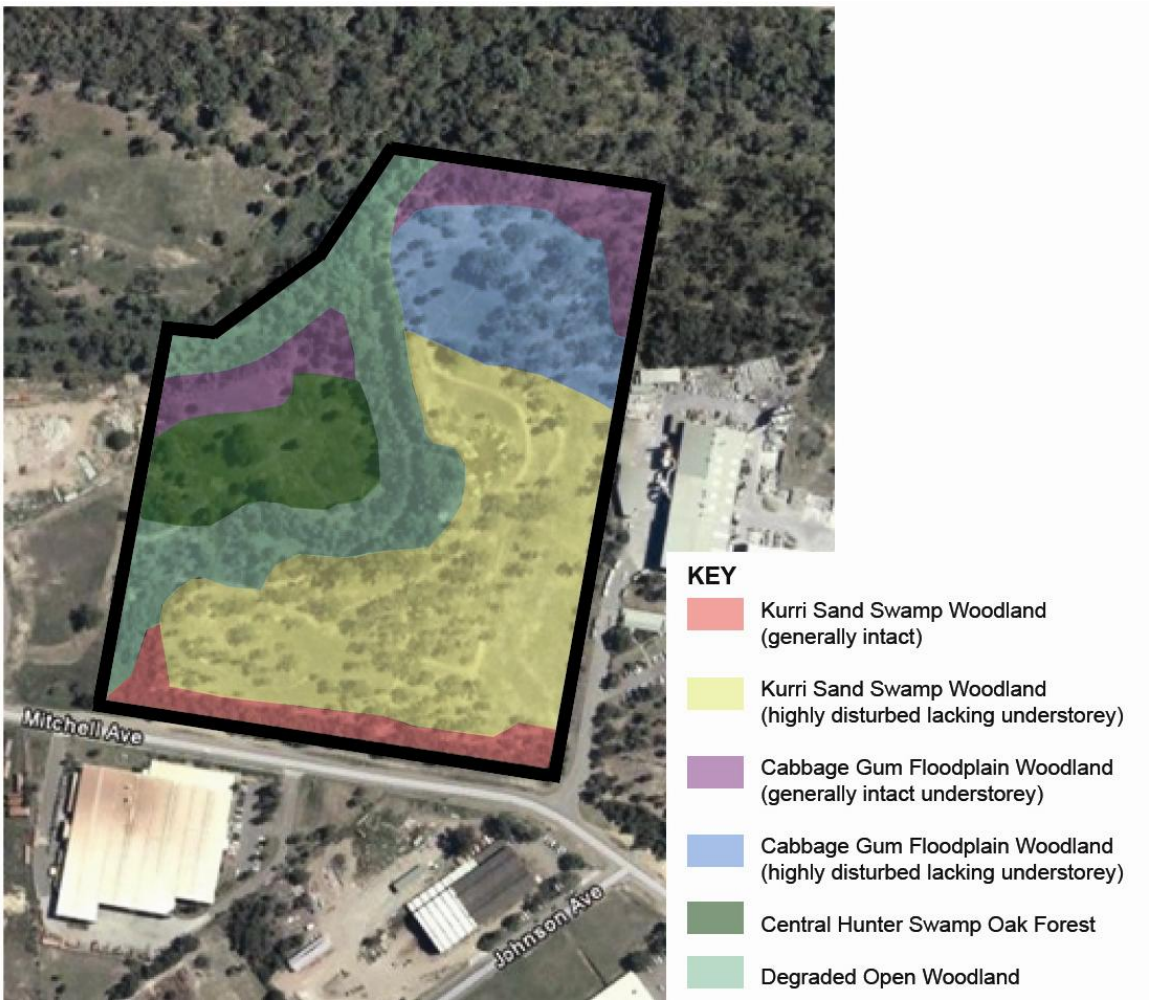


Figure 10 – Vegetation Communities Present

3. The majority of the Kurri Sand Swamp Woodland assemblage was found to be highly disturbed with the majority of the understorey having been removed or thinned.
4. The Cabbage Gum Floodplain Woodland and Central Hunter Swamp Oak Forest (which can be broadly included in the EEC River Flat Eucalypt Forest on Coastal Floodplains) were present in the areas of riparian vegetation. The Cabbage Gum Floodplain Woodland in the far north of the site was found to be relatively intact.
5. One threatened flora species, *Eucalyptus parramattensis* subsp. *decadens* (Drooping Red Gum) was found to be present within the Kurri Sand Swamp Forest. No other threatened flora species were recorded within the site during the survey.
6. Several individuals of *Grevillea montana* (ROTAP Species) were found primarily within the Cabbage Gum Floodplain Woodland in the north-east of the site. One additional ROTAP Species Macrozamia flexuosa (Cycad) was also found within the site (at least one individual recorded).
7. A viable population of Squirrel Glider (*Petaurus norfolcensis*) within the larger metahabitat was noted but are more likely to occupy the taller Cabbage Gum Floodplain Woodland to the north of the site.
8. Whilst a number of other threatened fauna species may occasionally utilise the site, none were found to be present at the time of survey most likely due to the sites proximity to residential areas and noise generating heavy industries.

9. A small number of hollow-bearing trees were found to be present within the site. Removal of these trees should be avoided where possible. Any loss of these potential habitat trees should be compensated by the erection of suitable nest boxes in suitable locations.

It should be noted that the 2010 investigations have now been superseded by further hazard reduction maintenance works since that time. As a consequence, it is assumed that the previous ecological assessment will need to be updated to reflect the current status and habitat role of the vegetation on the land. This will include a full range of Seven Part Tests and the preparation of any Species Impact Statements (SIS's) deemed necessary.

In this regard, it is assumed that the Requirements for the updated Ecological Assessment will need to be obtained from the Director-General of the NSW Office of Environment and Heritage, and that these will be incorporated into the Requirements of the Director-General of the NSW Department of Planning and Infrastructure in his response to this request.

It is anticipated that a suitable Conservation Agreement (or other similar process), will be proposed to protect and preserve any critically-endangered ecological community found on the site. It is also intended that those areas identified as having ecological value will be complemented and enhanced by an extensive planting programme and native landscape treatments proposed as a critical component of the education programme associated with the Hunter Industrial Ecology Park.

Flooding

Available information indicates that part of the subject land adjacent to Swamp Creek may be subject to flooding during a 1 in 100 year flood event. Investigations will be required in relation to the actual extent of flooding, the impact that flooding may have on development within the HIEP and conversely the implications resulting from the potential filling of flood prone land.

4.2.2 Cessnock Development Control Plan 2011

Pursuant to Clause 11 of the SRD SEPP, the provisions of a Development Control Plan do not apply to SSD.

4.3 Other Relevant NSW Legislation

4.3.1 Waste Avoidance and Resource Recovery Strategy 2007

The *Waste Avoidance and Resource Recovery Strategy* (WARR Strategy) is created under the provisions of Part 3 of the *Waste Avoidance and Resource Recovery Act 2001.*

This Strategy is a framework for the State of NSW to achieve a reduction in waste generation and to increase the recovery and use of waste and secondary materials from three major waste streams:

- Municipal waste;
- Commercial and industrial waste; and
- Construction and demolition waste.

The Strategy Progress Report released in 2010 identified that there were opportunities for improvement. Some of the key opportunities noted are outlined below. A response in relation to how the HIEP will assist in achieving these opportunities is provided.

- *Improve effectiveness of dry recyclables recovery and expand systems to recover food waste and garden organics from households.*

- *Improve recovery of paper/cardboard and establish new systems to recover food, timber pallets and plastic film from the commercial and industrial sector.*
- *Encourage greater construction and demolition waste recovery in areas outside of Sydney.*
- *Provide households with greater access to collection facilities.*
- *Build new systems for recovering materials that are currently experiencing low recovery rates.*

Comment
The HIEP will be a new facility that will increase the capacity for resource recovery and use of secondary materials within the Hunter Region.

Development within the HIEP will recover and recycle various waste resources from municipal, commercial, industrial, construction and demolition waste streams which are currently underutilised and delivered to landfill or transported out of the region for treatment.

Innovative research into developing new recovery systems for resources and improving the effectiveness of existing processes will take place within an on-site laboratory and educational facility. This will not only assist the levels of efficiency but will broaden the knowledge of recoverable resources and provide valuable information to the industry.

The HIEP has the potential to be accessible to a catchment of approximately 500,000 people through the provision of an integrated network of 10 or more Community Drop Off Centres, each serving up to 50,000 people. These centres will be developed in conjunction with local Councils and waste collection agencies within the Hunter Valley Region and will be strategically placed for high accessibility by the general public.

The total capacity of the HIEP in excess of 200,000 tonnes per year of resource recovery for Stage 1 alone, will greatly support the goals and objectives of the *Waste Avoidance and Resource Recovery Strategy*.

10. POTENTIAL IMPACT IDENTIFICATION AND ASSESSMENT

5.1 Potential Environmental Impacts

A preliminary Environmental Impact Matrix has been prepared for Stage 1 of the HIEP project which is summarised in ***Table 4***. The matrix identifies the key potential environmental impacts of the HIEP and categorises them by degree of potential impact.

Where impacts have been identified within the preliminary environmental assessment, mitigation methods have been proposed in order to minimise the risk.

Table 4 – HIEP Preliminary Environmental Impact Matrix

Factor	Potential Impact	Degree of Impact*			Proposed Mitigation
		Low	Medium	High	
Flora/Fauna	Removal or disturbance of: • Endangered ecological communities; • Threatened species; • Rare flora species; • Hollow-bearing trees.				HIEP layout to ensure: • Identified vegetation areas of high quality are retained where possible. • Supplementary planting and ongoing management of riparian corridors. • Placement of nest boxes.
Terrestrial Fauna	• Disturbance to wildlife during construction; • Disturbance to wildlife during operation; • Disturbance to a potential threatened species.				• An ecologist to be on site during vegetation removal to ensure the identification and safe removal of any identified threatened wildlife species. • Ensure construction and operation of the HIEP is undertaken in accordance with an approved Environmental Management Plan.
Flooding	• Flood impact to parts of the site within 100 year ARI area. • Impact caused from filling within the flood plain/flood way.				HIEP layout to ensure: • Areas subject to flooding are appropriately designed to minimise the impact of flooding.
Erosion and Surface/Groundwater	• Erosion during construction; • Uncontrolled stormwater runoff from construction sites into nearby waterways; • Risk of waterway contamination through accident (ie. Spillage of chemicals)				• Ensure appropriate soil retention devices are implemented in strategic locations during construction; • Ensure stormwater on site is appropriately managed; • Ensure chemical storage areas are appropriately bunded and designed to contain potential chemical spills;

Factor	Potential Impact	Degree of Impact*			Proposed Mitigation
		Low	Medium	High	
					• Ensure construction and operation of the HIEP is undertaken in accordance with an approved Environmental Management Plan.
Air Quality	• Construction dust; • Dust associated with the operation of the Materials Recovery Facility; • Emissions from 'Waste to Energy' component; • Output of odours associated with waste.				• Ensure dust watering occurs where necessary during construction; • Ensure construction and operation of the HIEP is undertaken in accordance with an approved Environmental Management Plan.
Noise	• Noise associated with general construction activities; • Noise associated with the operation of machinery on site during operation; • Noise associated with vehicle movements associated with HIEP operation.				• Ensure all machinery is regularly maintained to avoid the emission of excessive noise; • Restrict operational hours of noise intrusive machinery; • Ensure major deliveries to and from the site are undertaken within certain hours of the day; • Ensure construction and operation of the HIEP is undertaken in accordance with an approved Environmental Management Plan and within legislated requirements.
Traffic and Transport	• Increase in localised traffic during construction and operation practices. • Increased strain on local and regional roads.				• Implement necessary mitigation measures identified within a Traffic and Transport Assessment Study for the HIEP. • Ensure construction and operation of the HIEP is undertaken in accordance with an approved Environmental Management Plan.

* Degree of Impact is determined without the implementation of proposed mitigation methods.

11. JUSTIFICATION

6.1 Environmentally Beneficial Development

The HIEP will be a new facility that will increase the capabilities of resource recovery and use of secondary materials within the Hunter Region. The Park will group various resource recovery/management industries together within an efficient node that will share common resources including a 'waste to energy' electricity and heat generation facility and a state of the art research and development laboratory. The strategic grouping of these industries will create a self powered mutli-faceted complex of leading edge technology industry in regards to resource recovery/management which will be a first of its kind in Australia.

The development cumulatively supports the goals and objectives of the *Waste Avoidance and Resource Recovery Strategy* by collecting and processing various recoverable resources from municipal, commercial, industrial, construction and demolition waste streams. These streams are currently underutilised within the Hunter Region with large amounts of waste being delivered to landfill or transported out of the region for treatment unnecessarily.

The HIEP will facilitate innovative research into developing new recovery processes/systems for resources and improving the effectiveness of existing processes through the provision of an on-site laboratory and educational facility. This will not only assist the Park's efficiency but will broaden industry knowledge in regards recoverable resources.

The implementation of the HIEP and the associated external Community Drop-Off Centres will additionally have the potential to promote and encourage the responsible disposal of waste and minimise illegal dumping within the region. The highly accessible network of Community Drop-Off Centres and the cumulative capabilities for resource recovery of the HIEP will be a positive addition for waste management in the Hunter Region and offer a model for similar estates throughout Australia and possibly internationally.

6.2 Demand

The *Waste Avoidance and Resource Recovery Strategy* identifies a need for increased resource recovery capabilities outside of the Sydney metropolitan area. Newcastle/Hunter Valley is the second largest metropolitan area within NSW. There is a potential average annual population gain of around 7,500 persons over the next decade in the Lower Hunter Region alone. This population growth will have a flow-on effect increasing waste generation within the region. The HIEP has the potential to serve a population catchment of approximately 500,000 people and handle >100,000 tonnes of waste per year which will significantly assist in meeting the demands for the region.

The Hunter Valley is also home to a range of large scale industrial operations with demanding waste streams including hazardous and unique bi-products. The HIEP will be able to process a full range of recoverable resources with capabilities of adjusting to any new waste streams produced by industry or the community within the region. It will also be able to neutralise and reduce in volume the remaining waste materials for subsequent disposal to landfill.

6.3 Site Suitability and Ownership

The proposed HIEP is centrally located within the Hunter Region and is highly accessible to a large waste collection catchment. The site is within close proximity to the Hunter Expressway which is currently due for completion in 2013. The expressway will connect Kurri Kurri to the New England Highway and the F3 Motorway, and Newcastle and other settlements within the Hunter Valley.

The site is appropriately separated from incompatible land uses and is within an existing industrial area adjacent to the aluminium dross processing facility 'Weston Aluminium'.

The HIEP meets the land use provisions for the site with the land being zoned for IN3 Heavy Industrial within the Cessnock LEP 2011.

Industrial Ecology Australia is associated with Weston Aluminium Pty Ltd (WA) who currently operate a facility on the eastern portion of the proposed HIEP site that processes and recycles aluminium bi-products (dross). WA has been in operation on the site for nearly 15 years with an excellent environmental track record and integration within the community. WA is committed to further increasing the recovery of resources from putrescibles and non-putrescibles waste, generated by local Hunter Valley industries and the community.

Their current operation only requires a relatively small quantum of their total holding in this location. Given the vacant and highly disturbed nature of the majority of the holding, its proximity to transport, local services, employment and zoning, an opportunity has been identified to develop the site for compatible industrial land uses.

The development of the HIEP would increase on Weston Aluminium's current recycling processes on the site, further establishing Weston as a hub for environmentally beneficial industries.

12. CONSULTATION

Industrial Ecology Australia will undertake extensive consultation throughout the development process to ensure all interested parties have the opportunity to understand the nature of the proposed development and identify any issues or concerns. Consultation will be undertaken in accordance with a '*Communications and Stakeholder Management Strategy*' which will be prepared and submitted for approval as part of the EIS/DA.

The general objectives and actions proposed within the strategy are outlined within ***Table 5*** below.

Table 5 – HIEP Consultation Objectives

HIEP Consultation Objectives	
Objective	**Actions**
Demonstrate Passion for Partnerships	• Form trusted partnerships with the relevant State Authorities and Cessnock City Council through close and open stakeholder communication and management. • Partner with the people of the Hunter through employment opportunities and become an integral part of the community landscape and an employer of choice. • Commercial partnering at all levels leveraging the brand creation (HIEP) process and rollout strategy.
Ensure Value for Money	• Early development approval of a master/concept plan will minimise development delays for lessees. • High utilisation of local and social media for project promotion and communications.
Promote Local Participation and City Building	• Maximising the use of local resources by leveraging the expertise of the local industries through targeted supply and subcontracting strategies. • Implementing employment strategies for the operations activities that provide maximum opportunity for Hunter residents to participate in the HIEP. • Build a legacy structure for ongoing long term skills development and retention.
Ensure Low Impact Delivery	• Minimising traffic impacts through clear, concise, and timely information and use of the F3 extension. • Proactively engaging and empowering key stakeholder groups, to support the management of possible impacts to drive for positive community outcomes. • Leveraging the brand message to support a positive communications campaign.
Ensure Low Risk Delivery with No Surprises	• Managing possible stakeholder risks through close and trusted engagement. • Empowering key stakeholders with intimate project knowledge for additional HIEP support through delivery. • Develop direct communication paths with the State and Council to ensure a "no surprises" approach of delivery and provide opportunity to celebrate milestones. • Ensuring all stakeholders are kept informed of all project activities through well timed, targeted and effective communication.

The objectives outlined within ***Table 5*** are intended to be achieved through the implementation of a number of stakeholder engagement activities. ***Table 6*** outlines indicative methods of engagement

anticipated to be utilised during the development of the HIEP. These will be finalised through further discussion with relevant Government Authorities.

Table 6 – Stakeholder Engagement Activities

Engagement	Timing/Scheduling
Relevant Government Authority Briefings including: • Cessnock City Council; • Department of Planning and Infrastructure; • Office of Environment and Heritage; and • Department of Transport, Roads and Maritime Services.	Pre DA/EIS submission and as required.
Community information forums at local community centres	Prior to DA/EIS Submission. During DA/EIS assessment process.
Business community briefings	Prior to DA/EIS Submission. During DA/EIS assessment process.
Community Action Groups	As per Community Action Group schedule and as necessary.
Information Centre – Masterplan on exhibition	Concurrent with DA/EIS Submission.
Site inspection with Councillors	During DA/EIS assessment period.
Newsletter	Monthly distribution.
Website – DA information, FAQs, stakeholder feedback forum	Regular updates.
1800 Hotline	24/7 access to information.
Fact sheets	Available on website, council chambers, information centres and onsite.
Signage	Site-based information and phase updates.

Compliance with the advertising and notification requirements of the *Environmental Planning and Assessment Act 1979* will be ensured.

13. CAPITAL INVESTMENT VALUE

The estimated value of capital works and indicative employee numbers associated with the various components within the initial stage of the HIEP are estimated to be as follows:

	Capital Investment	Employees
❖ Drop Off Centre	$2M	6
❖ Waste to Energy Plant (Energy Recovery Plant)	$80M	20
❖ Materials Recovery Facility	$30M	80
❖ Administration Centre (Laboratory, Education etc)	$5M	20
❖ Subdivision Construction & Infrastructure	$5M	50

ESTIMATED TOTAL CAPITAL INVESTMENT *(for initial HIEP stage)* = Approx. $122M and 176 Jobs Plus On-Going Flow-on and Multiplier Effects

As can be seen from the above statistics, Stage 1 of the HIEP will generate, through its investment strategies and employment, significant economic benefits to the regional, state and potentially the national economies.

Ultimately, the completed HIEP will have a combined direct capital value in the order of $280 million, with potential to create approximately 445 new full time jobs.