



Asset Management | Environmental Services | Spatial Intelligence | Waste Management

# Environmental Assessment and Management Plan

Stage 2 – Screening and Crushing Operations

Prepared for DC Recycling  
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Project Number TE14019

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## 1 Introduction

Dowsing Concrete Pty Ltd (Dowsing) is a family run business operating for the last 28 years conducting paving and hard landscaping civil construction works. Dowsing has recently established DC Recycling Pty Ltd (DC Recycling) in order to develop a new division of the company focusing on the recycling of inert materials. To facilitate the development of this new division of the company, Dowsing has purchased land at Lots 1, 20, 21 Berkshire Road, Forrestfield (the site) in mid-2013 with the objective to build a new office headquarters, warehouse and modern inert waste recycling facility on the site.

Inert recycling facilities reprocess construction and demolition (C&D) waste which predominantly consists of inert materials such as bricks, concrete, paving slabs, tiles, sand and gravel. These materials can be processed at recycling facilities to generate a range of Recycled Building Products including sand, roadbases and aggregates.

Dowsing currently generates a range of source separated materials including concrete slabs and bitumen through its civil construction works. Aligning with Dowsing's commitment to sustainability, these materials are currently delivered to a range of inert recycling facilities across Perth.

### 1.1 Phased Development

Talis Consultants Pty Ltd (Talis) acts on behalf of DC Recycling in obtaining relevant town planning and environmental approvals for its proposed development for the site. DC Recycling and its parent company Dowsing long term vision is to establish their office headquarters, warehouse and an inert recycling facility at the site. The development has been split into two stages:

- Stage 1: Establishment of storage for inert materials, construction of office headquarters and a warehouse; and
- Stage 2: Construction of an inert recycling facility.

The relevant approvals have been granted and construction works have now been finalised to allow commencement of storage activities on the site. Construction of the office headquarters and a warehouse as part of Stage 1 is yet to commence. As part of the Stage 2, DC Recycling is proposing to develop site further and establish an inert recycling facility.

The storage of inert materials on the site and construction of office headquarters and a warehouse as part of the Stage 1 development required appropriate town planning and environmental approvals prior to works being undertaken. The approval documentation submitted as part of Stage 1 is detailed in Table 1 below.

**Table 1: Approval Documentation for Stage 1**

Approval	Submission Date	Grant date	Approval ID
Development Approval (Shire of Kalamunda)	27 June 2013	27 May 2014	BR-08/251, BR-08/257, BR-08/259 and DA14/10121
Department of Environment Regulation (DER) Works Approval	8 July 2013	3 July 2014	5668/2014/1
DER Licence	8 July 2013	9 February 2015	L8842/2014/1
Clearing Permit	16 July 2013	24 July 2014	5702/1



Approvals for construction were granted in the form of a Development Approval, Works Approval and Clearing Permit, with the final approval being granted on the 24/7/2014. Following the grant of necessary approvals for construction, DC Recycling began works associated with Stage 1 involving the clearing of land and site preparation works for receival areas for materials from its parent company Dowsing Concrete. Works and environmental management measures detailed in the Works Approval have now been finalised and the operating licence for storage of inert materials has been granted by the DER which, in conjunction with the Development Approval, allows storage operations to commence on site.

As previously mentioned, the Stage 2 development of the site proposes to establish an inert recycling facility to the rear of the site. This Environmental Assessment and Management Plan (EAMP) forms part of the documentation required for the Section 38 of the *Environmental Protection Act 1986* (EP Act) Referral to the Environmental Protection Agency (EPA) and Development Approvals for Stage 2. The EAMP will be provided both to the EPA and the Shire of Kalamunda (the Shire).

## 1.2 Approvals

To start the approvals process for Stage 2 and to ensure that the proposed activities on site comply with all legislative requirements, DC Recycling are seeking to progress via the following process:

- Development Approval from the Shire of Kalamunda; and concurrently
- Environmental Protection Authority (EPA) Section 38 of the EP Act Referral.

To be able to operate screening and crushing on site, a Works Approval will be required for construction and a Licence for operations will also be required to be approved by the DER. These approvals will be progressed separately.

To maximise the efficiency of the approvals process, the EPA Referral and town planning approvals processes will be run concurrently.

### 1.2.1 DER Prescribed Premises Categories

Pursuant to the EP Act, the Stage 1 storage of inert materials is classified as a Category 62 (Solid Waste Depot) Prescribed Premises. In accordance with the EP Act, DC Recycling required Works Approval for the establishment of the Solid Waste Depot and will require a License for its operation.

Works Approval and Licence applications for Stage 2 will not be progressed at this time, however, it is recognised that the Stage 2 inert recycling facility will additionally be classified as a Category 13 (Crushing of Building Material) Prescribed Premise. These Prescribed Premises are detailed further in the following table.

**Table 2: Prescribed Premise Categories for Stages 1 and 2**

Stage	Prescribed Premise Category	Description
Stage 1	Category 62	Solid waste depot: premises on which waste is stored, or sorted, pending final disposal or re-use.
Stage 2	Category 13	Crushing of building material: premises on which waste building or demolition material (for example, bricks, stones or concrete) is crushed or cleaned.
	Category 62	Solid waste depot: premises on which waste is stored, or sorted, pending final disposal or re-use.



The maximum throughputs for the Category 13 and Category 62 activities proposed to be undertaken on site are shown in Table 3.

**Table 3: Maximum throughput of Prescribed Premise Categories**

Category No.	Description	Anticipated Throughput	Maximum
13	Crushing of building material	100,000 tonnes per annum	
62	Solid waste depot	100,000 tonnes per annum	

### 1.3 Purpose of the Report

DC Recycling has engaged Talis Consultants (Talis) to assist with the process of obtaining the relevant approvals for the Stage 2. To support the EPA Referral and Development Approval Application to the Shire, Talis has prepared this EAMP. The objectives of the EAMP are to:

- Describe the current condition of the site and surrounds;
- Describe the proposed operations to be undertaken at the site;
- Document the Stakeholder consultation process and responses;
- Identify any potential environmental issues associated with the proposed operations at the site; and
- Develop environmental engineering and management measures to ensure that these are managed to appropriate standards.

The EAMP focuses on Stage 2 activities and infrastructure, given that all aspects of Stage 1 have previously been considered and approved by both the Shire and DER. Stage 2 involves the following:

1. The inclusion of the crushing and screening equipment;
2. The inclusion of the infrastructure associated with the equipment; and
3. The inclusion of a gatehouse and weighbridge.

### 1.4 Scope of the Report

To achieve the objectives of the report, this EAMP consists of:

- Section 2: Site Information;
- Section 3: Existing Environment;
- Section 4: Current Site Activities;
- Section 5: Description of Proposed Development;
- Section 6: Justification of the Proposed Development;
- Section 7: Environmental Aspects;
- Section 8: Community Consultation; and
- Section 9: Environmental Management Measures.

## 2 Site Information

### 2.1 Site Location

The site is located at Lots 1, 20 and 21 Berkshire Road, Forrestfield, Western Australia. The site is situated within the Stage 1 of the Forrestfield/High Wycombe Industrial Area within the jurisdiction of the Shire of Kalamunda. A locality plan of the site is shown in Figure 1.

### 2.2 Site Identification

The site comprises of three lots with the current title details provided in Table 4. The certificate of Titles for site are provided in **Appendix A**.

**Table 4: Site identification details**

Lot No.	Diagram	Street Name	Suburb	Certificate of Title (Volume/Folio)
1	62944	Berkshire Road	Forrestfield	1661/472
20	71079	Berkshire Road	Forrestfield	1750/553
21	71079	Berkshire Road	Forrestfield	1750/552

The division of the site into Lots 1, 20 and 21 is shown through cadastral mapping in **Appendix A**.

### 2.3 Site Description

The site is comprised of three existing lots covering an area of approximately 3.06 ha. The site was previously used for rural residential purposes and contained residential housing, sheds, domestic gardens and a small olive tree orchard. As part of the works covered by the various approvals for construction of the facility, the majority of the site has been cleared of vegetation and some existing infrastructure removed. The site now consists of a cleared area with minimal remnant vegetation and one house used for residential purposes by a Dowsing employee (a caretaker residence).

### 2.4 Site Access

Access is currently provided via Berkshire Road to the south west of the site. Berkshire Road is generally accessed via Roe Highway to the south. The site is approximately 500m by road from Roe Highway which runs roughly in a north south direction, intersecting Berkshire Road.

As part of the development of the Forrestfield/High Wycombe Industrial Area, a 20m section along the north eastern boundary of the site will be acquired by the Shire and set aside as road reserve in order to build a minor street connecting Nardine and Ashby Close. At the time of writing this report, the Shire has indicated that the road construction is scheduled to start within the next 10 years.

### 2.5 Zoning

The site is located within the Stage 1 of the Forrestfield/High Wycombe Industrial Area. Stage 1 is zoned Industrial Development under the Shire's Local Planning Scheme No. 3 (LPS 3). The intent of the LPS3 for the Industrial Development Zone is to permit development for industrial purposes and for commercial and other uses normally associated with industrial development. The zone is also subject to the preparation and adoption of a structure plan.

The Forrestfield/High Wycombe Industrial Area Local Structure Plan (LSP) for Stage 1 has been written to "facilitate a Metropolitan Region Scheme (MRS) amendment from 'Rural' to 'Urban' zoning for the

subject land." MRS Amendment 1198/57 (minor amendment) was gazetted on 29th April, 2011. The LSP is intended to primarily facilitate the development of logistics and transport based industries that can take advantage of the location of the land and its proximal relationship with key transport infrastructure. The LSP, prepared in 2012, did not outline land uses but rather a range of design requirements and restrictions, mainly relating to roads and access.

As outlined previously, the site is located within an Industrial Development Area 1 (DA1) zone. The LPS3 defines the DA1 zone as "...the Industrial Development zone generally bounded by Berkshire Road, Roe Highway, Sultana Road West and Milner Road...". According to the Western Australian Government Gazette No. 75 (Friday, 10 May 2013), Amendment No.48 was made to the LPS3 for the purpose of "Modifying Table 1 (Zoning Table) of Local Planning Scheme No. 3 to include the Industrial Development zone..." as well as inserting new legislation into the LPS3 text regarding Development Contributions for Stage 1 of the Forrestfield/High Wycombe Industrial Area. As a result Stage 1 is subject to a Development Contribution Plan, which is intended to operate for a period of 10 years.

According to the Shire the Stage 1 planning work is now completed with the LSP and the Developer Contributions Schedule being endorsed by the WA Planning Commission. The area is now in a stage to be developed, in accordance with the adopted LSP and the *Forrestfield/High Wycombe Industrial Area Design Guidelines* (2012).

As part of the due diligence conducted in relation to proposed land-uses, Dowsing sought environmental, planning and legal advice in relation to the permissibility of these uses under the Shire's LPS3. All advice received by Dowsing in this regard suggested that Planning Approval for an inert recycling facility may be possible under the current LPS3 if it can be demonstrated that the proposed operations satisfies the definition of 'Industry – Light'. This use is discretionary under the LPS3 in the Industrial Development zone of Stage 1 and therefore may be approved by Council.

There are two key aspects to the definition of 'Industry – Light' in the LPS3 which require consideration and attention in progressing any approvals, that it is an industry:

- *in which the processes carried on, the machinery used, and the goods and commodities carried to and from the premises do not cause any injury to or adversely affect the amenity of the locality; and*
- *the establishment or conduct of which does not, or will not, impose an undue load on any existing or proposed service for the supply or provision of essential services.*

The Shire has recently moved to modify the LPS3 through a Scheme Amendment process. The Scheme Amendment process seeks to incorporate a definition of 'Recycling Industry' in to the current Scheme Text and make this a Prohibited Use within all zonings aside from Industry – General.

The Amendment was originally advertised in the Kalamunda Reporter on the 19 August 2014 and the public comment period was set to end on the 30th of September 2014. No other notification was provided by the Shire to landowners or potentially affected parties. As a result of this, the Shire re-advertised the proposed Amendment and public comment period ended on 4 November 2014.

The Shire has advised that the Scheme Amendment will be considered by the Council in February 2015.

## 2.6 Surrounding Land Uses

The site is located within Stage 1 of the Forrestfield/ High Wycombe Industrial Area. Stages 2 and 3 of the Forrestfield/High Wycombe Industrial Area are proposed for development in the near future (Figure 3). The Shire is in the process of preparing a District Structure Plan (DSP) for Stages 2 and 3 to identify



any new land use opportunities considered to take advantage of the proposed Forrestfield train station. A range of land use options are being considered, including (but not limited to) light industry, commercial, residential and office park. However, no land uses have yet been determined given the DSP is currently at the initial design stage. Based on Shire officer advice, it is intended that a draft DSP will be ready for presentation to Council in March 2015, to be followed by public advertising. It is anticipated that as the industrial area is developed further, the site will be surrounded by a mixture of small to large, industrial land uses.

The site is also located immediately adjacent to a pre-existing industrial area to the south that runs along the length of Berkshire Road, north of Roe Highway. This adjacent industrial area includes a variety of mixed commercial and industrial land uses.

### 3 Environmental and Social Attributes

This section provides a description of the environmental and social attributes of the site. This information has been obtained from a desktop review of relevant online databases, previous work conducted by Talis and the following VDM and ENV Australia environmental reports conducted as part of the Scheme Amendment for the area and included as Appendices in the Stage 1 LSP for the Forrestfield/ High Wycombe Industrial Area (April, 2012):

- VDM Environmental: Rezoning proposal, Berkshire Road and surrounds, Forrestfield – Environmental Review, July 2008;
- VDM Environmental: Flora and Vegetation Survey, December 2008;
- ENV Australia : Forrestfield High Wycombe Industrial Area - Stage 1 Berkshire Road Forrestfield - Local Water Management Strategy, March 2012; and
- ENV Australia: Forrestfield/High Wycombe Industrial Area, Stage 1 Berkshire Road – Forrestfield Local Water Management Strategy, May 2012.

#### 3.1 Climate

To understand the potential impact of wind, data was obtained from the Bureau of Meteorology (BOM, 2014) for the Perth Airport weather station (Site ID 009021) which is located approximately 4.7km west of the site. This information indicates that throughout the year, winds at the site are lightest during the winter months (May to August) and highest during the summer months (October to April). Throughout the year, wind arises predominantly from the east/northeast in the morning (9am) then shifts to the west/southwest and gains strength in the afternoons (3pm).

According to the BOM weather station data, annual rainfall in the vicinity of the site is approximately 773mm, the majority of which falls between May and September.

#### 3.2 Topography and Geology

##### 3.2.1 Topography

Based on the latest geographic information system (GIS) topographical contour data, the natural elevation of the site ranges from approximately 33m Australian Height Datum (AHD) along the south eastern boundary to 31mAHD along the north western border. Based on the topographical contour data, the average slope across the site is less than 1°.

##### 3.2.2 Geology and Soils

According to the Department of Agriculture and Food's Natural Resource Management Shared Land Information Platform (2014), surface soil type at the site is defined as 'Minor sandy rises (aeolian deposits) with moderately deep well drained sands overlying gravelly mottled clay.'

The Department of Water (DoW) Perth Groundwater Atlas (2014) identifies the surface geology as 'Bassendean Sand: quartz sand (dunes).'

According to the State-wide Soil Types, the soil type on site is Cb38 which is described as sandy dunes with intervening sandy and clayey swamp flats; chief soils are leached sands.

##### 3.2.3 Acid Sulfate Soils

The DER identifies Acid Sulfate Soils (ASS) as soils and sediments that contain iron sulphides. When exposed to air through excavation or drainage the ASS will react with oxygen to produce iron

compounds and sulphuric acid. ASS occur naturally in WA and are harmless when left in a waterlogged and undisturbed environment.

A search of Landgate's WA Atlas (2014) identifies the site as occurring within an ASS 'moderate to low risk' area. A 'high to moderate' ASS risk area is identified 270m to the north west of the site.

### 3.3 Flora and Fauna

#### 3.3.1 Threatened Species

Reports by VDM Environmental indicated that no rare flora and/or Threatened Ecological Communities (TEC) were present within the site. Consequently, a Clearing Permit was granted and the whole site and majority of the adjacent lots have since been cleared to allow future industrial development.

Bush Forever site number 123 which contains the presence of *Banksia attenuata* woodland TEC is located north east to the site. This TEC is located within 500m from the site.

#### 3.3.2 Bush Forever

Reports by VDM Environmental (2008) indicate that the site is adjacent to a Bush Forever site number 123 to the northeast. The LSP for Stage 1 (2012) specifies that the 'current intention is to fence those sections of the Bush Forever land that abut public roads with fencing consisting of pine posts and rails with a chainmesh infill between the posts.'

#### 3.3.3 Site Vegetation

The majority of the site has been cleared to allow future development of the site. Lots surrounding the site have been cleared for development and grazing and currently comprise houses and other buildings and structures, firebreaks, and driveways.

#### 3.3.4 Environmentally Sensitive Areas

According to a search of Landgate's online WA Atlas, the site is located within an Environmentally Sensitive Area (ESA). The previously mentioned Bush Forever site located adjacent to the north eastern boundary of the site sits within the vicinity of the ESA. The ESA mapping is likely to be dated due to the degraded nature of the Stage 1.

### 3.4 Hydrogeology and Hydrology

#### 3.4.1 Groundwater

According to the DoW's Perth Groundwater Atlas (2014), the depth to groundwater at the site ranges from approximately 1.4m to 15.5m. The Perth Groundwater Atlas also indicated that the site is not within a Public Drinking Water Source Area (PDWSA). The nearest PDWSA is classified as Priority 1 Middle Helena Catchment Area and is located approximately 5.4km east to the site.

#### 3.4.2 Surface Water

No naturally occurring surface water bodies have been identified as occurring on the site based on a review of DoW's Perth Groundwater Atlas (2014), available historical aerials and numerous site visits. The closest water body is Crumpef Creek which is located 740m to the south of the site.

### 3.4.3 Wetlands

According to Landgate's WA Atlas and Perth Groundwater Atlas, the site is located within a geomorphic wetland. There is some inconsistency between the two sources with WA Atlas identifying the site and its immediate surrounds as located within a 'Multiple Use' category wetland area while the Perth Groundwater Atlas identifies the site as being located within a 'Resource Enhancement' category wetland area.

ENV Australia's Local Water Management Strategy (LWMS) (May, 2012) was written to support the Stage 1 LSP. In relation to wetlands, the LWMS refers to a previous report conducted by ENV Australia on behalf of the Shire:

- ENV Australia: District Water Management Strategy (DWMS), Various Landholdings, Roe Highway, High Wycombe/Forrestfield, 2010

According to ENV Australia's LWMS:

*'Two Resource Enhancement wetlands (REWs) were mapped over this site within the DWMS (ENV, 2010). The larger of the two wetlands was classed as a palusplain with Unique Feature Identifier (UFI) 13977. The second and smaller wetland was classed as a sumpland, UFI 8960. The DWMS recommended that these wetlands be reclassified, as these wetlands were clearly mapped over market gardens and industrial lots. Consistent with the DWMS, ENV recommends a formal request to modify the Geomorphic Wetlands Swan Coastal Plain Dataset be submitted as soon as possible.'*

## 3.5 Cultural Heritage

### 3.5.1 Aboriginal Heritage

A search of the Department of Aboriginal Affairs' (DAA's) online Aboriginal Heritage Inquiry System (2014) identified that the site has been included in a number of Aboriginal heritage surveys. The site and the whole Forrestfield/High Wycombe Industrial Area also falls within a Registered Site (Poison Gully Creek). Based on the site's previous land uses and the degraded nature of the site and the surrounds it is anticipated that the proposed development of the site would not cause significant impacts on Aboriginal Heritage for the area. Due to the ongoing development within the Forrestfield/High Wycombe Industrial Area, referral under the section 18 of the *Aboriginal Heritage Act 1972* is not considered necessary for this particular site. The results of the desktop searches for Aboriginal heritage surveys and sites are provided in **Appendix B**.

### 3.5.2 European Heritage

The Australian Heritage Database contains a listing of significant natural, historic and Indigenous places including those in the:

- World Heritage List;
- National Heritage List;
- Commonwealth Heritage List;
- Register of the National Estate;
- List of Overseas Places of Historic Significance to Australia; and
- Places under consideration, or that may have been considered for, any one of these lists.

A search of the online Australian Heritage Database identified no sites of significant Australian heritage value within the site. One Registered Indigenous place and one National Park were identified within the suburb of Forrestfield.

A search of the State Heritage Office's State Heritage Register identified no places of heritage significance within the site. The closest state heritage site, Pioneer Park is located 650m south of the site.

### 3.6 Contaminated Site Information

The DER's Contaminated Sites Database contains a register of sites classified as:

- Contaminated – remediation required;
- Contaminated – restricted use; and
- Remediated for restricted use.

A search of the Contaminated Sites Database identified that the site is not listed as a contaminated site. The closest site classified as 'Contaminated – restricted use' is approximately 700m south west from the site.

A search of the DER Contaminated Sites Database was also conducted as part of the environmental reporting to support the TPG Stage 1 Local Structure Plan (2012) and supports the above findings.

The LSP indicates that aerial photography of the Stage 1 Industrial shows evidence of market gardens and citrus gardens land use in the north of the industrial area. These are listed by the DER as potentially contaminating activities and may require some site investigation.

Given the intended use of the site, further site investigation has not been determined to be required.

### 3.7 Sensitive Landuses

The Environmental Protection Authority's *Guidance Statement No. 3 – Separation Distances between Industrial and Sensitive Land Uses 2005* contains the recommended minimum separation distances between industrial activities, including waste management facilities, and sensitive land uses. Sensitive land uses are defined as those that are sensitive to industrial emissions and include residential developments, schools, hospitals, shopping centres and other public areas and buildings. The recommended minimum separation distances between sensitive land uses and the Prescribed Premise categories proposed for the site are shown in Table 5.

**Table 5: Recommended Separation Distances between Industrial and Sensitive Land Uses**

Category No.	Industry	Impacts			Recommended Separation Distance (m)
		Noise	Dust	Odour	
13	Crushing of building material	✓	✓	✓	1,000
62	Solid waste depot	✓	✓	✓	200

Several of the land uses surrounding the site (residential development) are classified as sensitive land uses. The closest receptor is a non-conforming residential property located approximately 10 metres from the site. The closest sensitive receptors that conform to the Shire's LPS3 is situated approximately 500m south east of the site boundary, outside the recommended 200 m separation distance for Category 62 activities, and within the recommended 1,000 m separation distance for a Category 13



Prescribed Premise. These receptors are located on the other side of the Roe Highway and Industrial landuses are situated between the receptor and the site. See Figure 4 for separation distances.

Considering the nature of proposed operations, the main environmental impacts associated with the crushing of the building materials are noise and dust. Through the implementation of this EAMP, DC Recycling will be able to manage all potential impacts of their operations such that the existing separation distance to the sensitive and industrial receptors is sufficient. It is anticipated that, by adopting appropriate environmental engineering and management measures (described in Section 9), off-site emissions and impacts will be minimal. The environmental management measures contained within this EAMP represent best practice for a facility of this nature and scale.

### 3.8 Summary of Environmental and Social Attributes

A summary of the existing environmental and social attributes of the site is shown in Table 6.

**Table 6: Summary of Environmental and Social Site Attributes**

Attribute	Comment
Topography	Elevation of the site ranges from 31 mAHD to 33 mAHD. The site slopes down from the south eastern boundary towards the north western border. The site is relatively flat with the average slope across the site being less than 1°.
Geology	Bassendean Sand: quartz sand (dunes).
Flora and Fauna	No native flora or fauna are located within the site.
Environmentally Sensitive Areas	The site is located within an ESA. The ESA mapping is likely to be dated due to the degraded nature of the Stage 1.
Groundwater	Depth to groundwater ranges from 14m to 15.5m. The site is not located within a PDWSA.
Surface Water	No surface water bodies are located within the site. Closest surface water body is approximately 730m of the site.
Aboriginal Heritage	The site and the whole Forrestfield/High Wycombe Industrial Area falls within a Registered Aboriginal Heritage Site. Based on the site's previous land uses and the degraded nature of the site and the surrounds there will be no significant impacts on Aboriginal Heritage as a result of the proposal. Due to the ongoing development within the Forrestfield/High Wycombe Industrial Area, referral under the section 18 of the Aboriginal Heritage Act 1972 is not considered necessary for this particular proposal.
Australian Heritage	No listed Australian heritage sites within the site.
Local Government Heritage	No listed Local Government heritage sites within the site.
Contaminated Site Information	The site is not classified as a contaminated site on the DER's Contaminated Sites Database.

## 4 Current Site Activities

DC Recycling commenced works associated with Stage 1 involving the clearing of land and site preparation works for receival areas for materials from its parent company Dowsing Concrete in July 2014. The storage of inert materials on the site as part of the Stage 1 development required appropriate town planning and environmental approvals prior to works being undertaken.

Approvals for construction were granted pursuant to Development Approval, Works Approval and Clearing Permit applications, with the final approval being granted on the 24/7/2014. Following the grant of necessary approvals, DC Recycling began works associated with the construction of Stage 1 involving the clearing of land and site preparation works for receival areas for materials from its parent company Dowsing Concrete. Works and environmental management measures detailed in the Works Approval were finalised late 2014 and an operating Licence was granted on 9 February 2015.

As part of the Stage 1 land use of the site DC Recycling is now accepting clean, source separated inert materials from its parent company Dowsing Concrete. The inert materials have generally consisted of concrete, asphalt and sand.

### 4.1 Site Licence

The site is currently licensed pursuant to Part V of the EP Act as a Prescribed Premises Category 62 – Solid Waste Depot (License No. L8842/2014/1). The license period commenced on the 9 February 2015. Under the *Environmental Protection Regulations 1987*, the current facility is described as a “premises on which is stored or sorted pending final disposal or re-use”.

As defined in condition 1.3.1 of the license, DC Recycling is limited to accept the following materials on site:

- Clean fill; and
- Inert Waste Type 1 as defined within the *DEC Landfill Waste Classification and Waste Definition 1996* (as amended) as follows:  
*‘Non-hazardous, non-biodegradable wastes containing contaminant concentrations less than Class I landfill acceptance criteria but excluding paper and cardboard, and materials that require treatment to render them inert (e.g. peat, acid sulfate soils).’* Examples include:
  - o Building and demolition waste (e.g. bricks and concrete); and
  - o Asphalt waste.

The maximum annual quantity of materials on site is limited to 40,000 tonnes.

In the event of DC Recycling being successful in the approval processes with the Shire and the EPA to begin the processing of these materials through its proposed inert recycling facility, DC Recycling will require a Works Approval for the construction of the new facility and a subsequent amendment to its current License to approve the proposed operational expansion as part of the Stage 2 development of the site.

## 5 Description of Proposed Development

This section provides a description of DC Recycling's proposed Stage 2 operations at the site. As part of Stage 1 of the proposal, DC Recycling is stockpiling inert materials generated by their parent company. DC Recycling is now seeking to gain the relevant approvals to establish an inert recycling facility at the site which will involve crushing and screening of the material currently approved to be stored on site. Site designs and landscaping plans for Stage 1 were approved by the Shire on May 2014 and have been used as a basis to progress the site's development to accommodate the Stage 2 operations. These are contained in **Appendix C**.

The site layout and operations that are summarised within the following section have been prepared in accordance with the relevant legislative and guidance documents, including:

### **Legislation:**

- Environmental Protection Regulations 1987;
- Environmental Protection (Controlled Waste) Regulations 2004;
- Environmental Protection (Noise) Regulations 1997; and
- DER Landfill Waste Classification and Waste Definitions.

### **Guidance Documents:**

- The Shire of Kalamunda Local Planning Scheme No. 3;
- The Shire of Kalamunda's Local Planning Scheme No. 3 - *Forrestfield/High Wycombe Industrial Area Design Guidelines*;
- C&D Inert Facility guidelines;
- DER Guidelines for *Managing Asbestos at Construction and Demolition Waste Recycling Facilities* (2012); and
- Dust Management Guidelines.

The description of the proposed development has been grouped into the following sub-sections of this EAMP:

- Site Design;
- C&D Source Material;
- Material Acceptance;
- Material Processing;
- Storage of Recycled Building Products;
- Operational Hours;
- Staffing;
- Infrastructure, Equipment and Machinery;
- Traffic Movements;
- Landscaping; and
- Security.

A plan illustrating the proposed layout of the whole site is shown in Figure 5. More detailed design for the crushing/screening plant, recycling and storage areas, gatehouse and weighbridge are contained in Figure 6, Figure 7 and Figure 8.

## 5.1 Site Design

The site design of DC Recycling's proposed C&D recycling facility has been developed to ensure that it is functional, efficient and is designed to best suit the site and surrounding areas. The site design incorporates best practice design solutions to achieve DC Recycling's strategic objective of providing quality Recycled Building Products. It also builds on the approvals previously granted by the Shire for Stage 1 as there are only three key points of difference between the current approved development and that which is proposed. These are:

1. The inclusion of the crushing and screening equipment;
2. The inclusion of the infrastructure associated with the equipment; and
3. The inclusion of a gatehouse and weighbridge.

All other details remain unchanged and therefore have approval from the Shire as part of the Stage 1 activities (**Appendix C**).

The site is constrained by building and planning requirements which restrict the development of roads and buildings within a designated distance from the site boundary. The Shire of Kalamunda's *Local Planning Scheme No. 3 - Forrestfield/High Wycombe Industrial Area Design Guidelines (2012)* (Design Guidelines) provides an outline of the building requirements to establish infrastructure within the Forrestfield/High Wycombe Industrial Area. In accordance with the Design Guidelines, the following constraints have been accommodated within the site design and approved Landscaping Plan (approved as part of Stage 1):

- 6m landscaped verge from roads;
- 20m set back between main streets and office/administration building;
- 3m set back between side boundaries and buildings to encourage ventilation and natural light;
- 10m set back between minor streets and office/administration building;
- Two car bays per 100m<sup>2</sup> of industrial area, or one bay per employee plus two visitor bays, whichever is greater;
- Areas for loading bays, vehicle manoeuvring and outdoor storage areas are to be located separate from visitor and staff parking areas;
- External loading bays not visible from primary street frontages, have access that is safe and convenient, and be located at the side or rear of properties; and
- Service and haulage vehicle parking areas are to be separated from visitor and staff parking areas.

In addition, the site design has incorporated a landscaped screen (previously approved as part of Stage 1) surrounding the site to further increase the amenity of the site as detailed in **Appendix C**. The loss of this land to incorporate the vegetation screen is seen by DC Recycling as an appropriate measure to increase the acceptance of the proposed C&D recycling facility.

The layout of the site caters for light vehicle parking and an administration office towards the front of the site, a workshop catering for storage and workshop requirements in the middle of the site, and a gatehouse, weighbridge and inert recycling operations towards the rear of the site (Figure 5). The front and back of house operations will be kept separate via a road network which splits heavy and light vehicle access. It is important to note that the majority of this infrastructure has already been approved as part of Stage 1 (**Appendix C**).

The heavy vehicle entrance is dual lane and located in the southern corner of the site adjacent to Berkshire Road. This roadway provides access for the heavy vehicles to the weighbridge and the inert

recycling facility to the rear of the site (Figure 7). A single weighbridge system will be utilised initially to cater for the majority of traffic movements. A gatehouse and viewing platform will be constructed at the weighbridge for the inspection of loads and data gathering (Figure 8). The site design and site road network allows for the utilisation of the weighbridge upon both entering and exiting the site. Upon entering and once weighed, the heavy vehicles travel in a clockwise direction around the perimeter of the inert recycling area. Travelling in one direction further minimises conflicts between vehicles. Vehicles are directed where to unload and/or be loaded in a designated area. The inert processing area is broken into three sections including inert acceptance area, recycling plant area and storage of recycled product area. Upon exiting the site, the vehicles either exit over the weighbridge (if necessary) or exit via a slip lane back onto Berkshire Road.

The light vehicle entrance is at the northern end of the boundary with Berkshire Road and provides access to the visitor and staff parking at the front of the site. Additional parking is provided at the side of the workshop and along the eastern boundary of the site. The design of the road network should minimise potential conflicts and operational inefficiencies associated with combining the heavy and light vehicles.

It is anticipated that the development of the site will utilise recycled concrete, asphalt and concrete as hardstand material. The recycled concrete will be utilised for the unsealed hardstand at the rear of the site where inert recycling operations will be undertaken. An asphalt seal will be utilised for the light vehicle access and parking areas at the front of the site. The heavy vehicle roadway leading from the entrance to the weighbridge will be concreted to minimise maintenance requirements. The intention of DC Recycling is to also minimise dust amenity issues and therefore have elected to asphalt and concrete the hardstand surfaces towards the site's frontage.

## 5.2 C&D Source Material

DC Recycling will be supplied with a constant source of clean source separated C&D materials by their parent company Dowsing Concrete. This material is generated from the construction, demolition and maintenance works undertaken by Dowsing Concrete across the Perth Metropolitan Area as part of daily operations. Currently Dowsing Concrete utilises numerous other inert recyclers to recycle these materials. It is anticipated that Dowsing Concrete will supply approximately 100,000 tonnes per annum of inert recyclable materials to the DC Recycling facility.

DC Recycling will focus on establishing strong working relationships with a variety of private and public companies in order to obtain further quantities of clean source separated inert materials suitable for recycling. The companies may include concreters, earth moving companies, civil construction and demolition companies and landscapers. DC Recycling will provide access for public customers such as the Shire, its residents and surrounding local governments with more sustainable disposal alternative for inert material as opposed to landfill. By establishing strong working relationships with other companies, DC Recycling hopes to source a reliable supply of clean source separated C&D material in order to develop a quality recycled product.

## 5.3 Material Acceptance

DC Recycling proposes to accept clean uncontaminated inert waste material at the site. Targeting clean waste streams will minimise processing difficulties and increase the quality of the recycled product. As previously mentioned, some of these materials will be generated from DC Recycling's parent company, Dowsing Concrete. In addition, DC Recycling will cater for the drop off of inert materials from commercial customers, local and regional governments, earth works companies, construction and demolition companies, landscapers and the general public. Through enforcing strict

material acceptance policies and targeting clean waste streams, DC Recycling will be able to provide a quality recycled product to the local and wider community.

The inert waste materials can also be referred to as construction and demolition (C&D) waste based on their source of origin. These materials include concrete, asphalt, tiles, bricks, sands, gravels and soils. As previously mentioned, DC Recycling aims to accept these materials in source separated loads which minimises processing times and improves product quality. However, undesired materials are occasionally found within the loads accepted on site. These include non-recyclable inert materials, timber, metal, plastics and small volumes of green waste. If loads entering the site are suspected to contain undesired materials an entry to the site is refused, however if found on site, undesired materials will be separated from the inert waste streams and held prior to being taken off site for disposal to an inert (Class I) and/or a putrescible (Class II / III) landfill.

As previously mentioned, DC Recycling will employ strict waste material acceptance policies to ensure contaminated loads are not accepted. Of particular importance, relevant to C&D recycling facilities, is asbestos identification and management. If asbestos is identified, DC Recycling will take all necessary actions to remove the asbestos from the site in accordance with the current approved Asbestos Management Plan (**Appendix D**) that will be updated as required prior to recycling operations commence.

Asbestos was utilised extensively in the construction of buildings and structures until 1990. There is therefore a risk that asbestos may be received at C&D recycling facilities presenting health risks to staff and the wider community. DC Recycling has developed the Asbestos Management Plan pursuant to the DER's *Guidelines for Managing Asbestos at Construction and Demolition Waste Recycling Facilities* (2012) (Asbestos Guidelines) which describes the minimum requirements for operational procedures, monitoring, testing and general management at C&D recycling facilities with the aim to minimise the risk of:

- Asbestos being received and processed at inert recycling facilities;
- Asbestos emissions being generated within and from inert recycling facilities; and
- Asbestos contamination of the Recycled Building Products generated at the facilities.

DC Recycling is confident that the material acceptance policies and Asbestos Management Plan will ensure asbestos does not adversely affect staff, the wider community or the quality of the recycled building products.

Materials accepted at the site will be directed across the weighbridge for inspection, data collection, invoicing and directions prior to unloading. A visual inspection will be undertaken utilising a raised platform adjacent to the weighbridge. This will provide DC Recycling with the ability to confirm load types and identify contaminated loads. Any contaminated loads identified will be refused entry to the site and directed to an appropriate disposal facility.

## 5.4 Material Processing

### 5.4.1 Sorting

Once the material inspection is complete, all trucks entering the waste processing area at the back of the site are directed to the material acceptance area to allow sorting for the preparation of the recycling activities. As DC Recycling will mainly be accepting clean, source separated materials, only simplistic sorting of materials will be required which will be achieved by having designated areas for the deposition of the various types of materials including sand, concrete and asphalt.

It is anticipated that clean inert materials are unloaded to a specific rubble stockpile. In addition, a sand stockpile will be used to store sand prior to being processed, and large waste concrete items will be stored separately from the rubble stockpile for accessibility purposes. DC Recycling personnel will direct traffic to the proper unloading spot, where trucks and trailers will self-unload the inert waste material by lifting one end of the trailer so that the load falls out due to gravity. Members of public would typically unload materials by hand at their designated area.

Some undesired materials and asbestos might not become apparent until the unloading process. Therefore DC Recycling will inspect unloading activities. If undesired materials are identified within the loads prior to unloading, customers will be charged a monetary penalty and directed to an appropriate disposal facility. If asbestos materials are identified during the unloading, the unloading will be stopped and customer fined. Unloaded material will be isolated and contained and transported according to the *Environmental Protection (Controlled Waste) Regulations 2004* to an appropriate disposal facility.

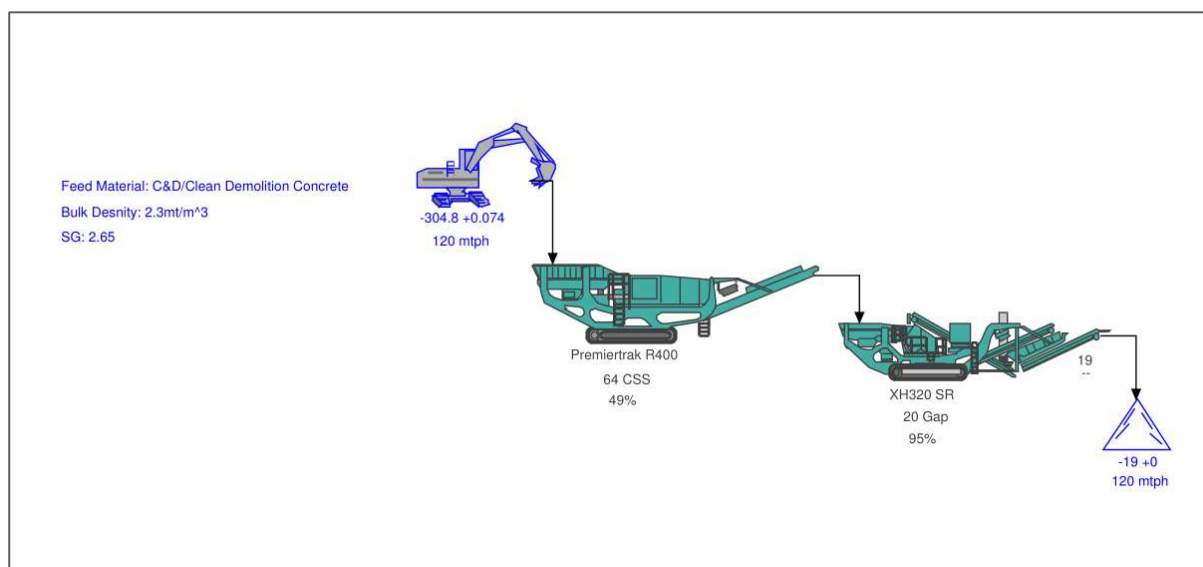
#### 5.4.2 Inert Processing

Following the sorting process, the remaining materials are passed through a crushing system to reduce them to the appropriate size. The stockpiled materials are processed via screening, sorting and crushing to produce a range of Recycled Building Products including recycled sands, road base and drainage aggregates.

First, inert materials will be loaded to the hopper of a jaw crusher for primary crushing by using an excavator or similar. The excavator will operate from a 4.0 m high earth ramp and feed the material into the crusher that will be located inside a 5.0 m high three-sided enclosure. The structure will consist of concrete cast in-situ retaining wall allowing stockpiling of inert materials against the outside wall of the enclosure. DC Recycling is proposing to utilise a Powerscreen® XR400S Jaw Crusher as the primary crushing mechanism that allows crushing to a 64mm closed side setting (CSS). Crushed material is then conveyed to the Horizontal Impactor (Powerscreen® XH320X) for secondary crushing and screening. In the horizontal impactor, material enters via the crusher opening and slides down the inlet chute where it is struck by the blowbars fixed within the rotor. This initial impact breaks the inert material which is then accelerated towards the top apron where more reduction takes place on impact. This material then falls back onto the blowbars and the cycle is repeated until the material is small enough to pass between the top apron and blowbar. Further reduction occurs on the bottom apron until the material can again pass through the gap and discharge from the underside of the crusher.

Should an uncrushable object enter the chamber, the overload cylinders will relieve and allow the object to pass. The cylinders will then return to the pre-set crushing position. The crushed materials are then feed through a series of screens which can be set to different gauges depending on the desired Recycled Building Products. The pre-set gap is adjusted to 20 mm, which allows crushing to a particle size of 19mm. The proposed plant setup is shown in Plate 1 below and the technical specifications for both Jaw Crusher and Horizontal Impactor are contained in **Appendix E**.

## Plate 1: Proposed Plant Layout



### 5.5 Storage of Recycled Building Products

Through the inert recycling operations on site, DC Recycling proposes to generate valuable Recycled Building Products and in doing so divert materials from landfill. The inert materials are processed via sorting and crushing to produce a range of recycled products including recycled sands, road base, and drainage aggregates.

Recycled Building Products will be stored in designated stockpiles within the recycled product area. It is anticipated that recycled products will be used throughout the Perth Metropolitan Area by Dowsing Concrete and large civil construction contractors on private, State and Local Government projects to allow the sustainable procurement of construction projects. In addition, DC Recycling will aim to achieve Main Roads Western Australia specification for its recycled concrete road base to prove its commitment to providing quality recycled building products.

### 5.6 Material Transport

The Recycled Building Products generated will be taken off site at regular intervals during the day using 25 tonnes semi-trailers and 24 tonnes truck and trailer combinations. Based on the initial annual throughput of 100,000 tonnes, DC Recycling on average would take approximately 13 loads on site per day (Table 9). Therefore, DC Recycling has the capacity to take around 200 tonnes of recycled product on site per day. The maximum capacity of the crusher is 120 tonnes per hour (tph), which illustrates that DC Recycling will have excessive treatment capacity in comparison to the amount of inert materials being received on a daily basis, and the recycling facility would be operational only couple hours per day.

All undesired materials will be taken off site to an appropriately licenced landfill facility.

The outgoing Recycled Building Products will exit over the weighbridge to confirm that correct loads are taken off site. This also allows DC Recycling to ensure that the Main Roads WA regulations mass limits for trucks are not exceeded and the type of vehicle is suitable to transport specific type of materials.



## 5.7 Operational Hours

DC Recycling is proposing that the site will operate from Monday to Friday 7:00am to 5:00pm and Saturday 7:00am to 3:00pm. The site will be closed on Sundays and public holidays. It is anticipated that for the first two years the site will be operated on a campaign basis, with material being stored in stockpiles for one month followed by the crushing operations for a week or on a campaign basis.

The hours of operation are considered to be standard for a business in an industrial area and DC Recycling are committed to maintaining the amenity of the area and have adopted those operational hours that align with local and state government guidelines associated with noise regulation within industrial areas.

## 5.8 Staffing

Currently, DC Recycling employs two staff members to manage the inert material storage area. Once the recycling operations commence, 1-2 extra employees are needed to operate the gatehouse/weighbridge and the machinery/equipment.

Site staff will be suitably qualified and additional training will be provided to familiarise staff with the day-to-day operations of a recycling facility and quality management system.

Proposed staffing is detailed in Table 7 along with the specific responsibilities.

**Table 7 Site Staff and Responsibilities**

Position	Responsibilities
Site Manager	<ul style="list-style-type: none"> <li>• Ensuring implementation of this EAMP, Environmental Management System (EMS) and associated management plans;</li> <li>• Taking direct action in the event of any incident that causes, or has the potential cause adverse effects on local air quality;</li> <li>• In the event of a community complaint, ensure that each is recorded and addressed within an appropriate timeframe;</li> <li>• Conduct daily monitoring of conditions and reporting on dust management measures carried out;</li> <li>• Ensuring all staff are capable of carrying out dust management measures; and</li> <li>• Keeping open lines of communication with all staff to gain feedback on dust management across the site.</li> </ul>
Gatehouse Staff	<ul style="list-style-type: none"> <li>• Inspection of incoming loads;</li> <li>• Refusing loads and imposing penalties as required;</li> <li>• Record keeping; and</li> <li>• Liaison with Site Manager on conditions of incoming loads to ensure appropriate dust management measures are conducted.</li> </ul>
General Operators	<ul style="list-style-type: none"> <li>• Undertaking waste inspection and processing;</li> <li>• Managing stockpiles;</li> <li>• Isolating and storing asbestos;</li> <li>• Labelling;</li> <li>• Safe transportation of asbestos;</li> </ul>

	<ul style="list-style-type: none"> <li>• Carrying out general site operations as defined by their role;</li> <li>• Assisting to mitigate the potential dust emissions from their task by undertaking all reasonable dust management measures available to them; and</li> <li>• Providing feedback to Site Manager regarding potential sources of dust emission and success of dust management measures.</li> </ul>
Quality and Systems Manager	<ul style="list-style-type: none"> <li>• Conducting sampling;</li> <li>• Managing product testing process and results;</li> <li>• Managing record keeping;</li> <li>• Ensuring compliance with legislative requirements;</li> <li>• Ensuring implementation of the EMS and associated management plans;</li> <li>• Occupational Health and Safety;</li> <li>• Maintaining open lines of communication with site Management regarding compliance; and</li> <li>• Updating induction training as part of review of EMS and associated management plans.</li> </ul>

## 5.9 Infrastructure, Equipment and Machinery

The following Table 8 outlines the infrastructure, equipment and machinery associated with the recycling activities which are anticipated to be utilised on site

**Table 8 Infrastructure, equipment and machinery to be utilised on site**

Type	Make/Model	Amount	Comments
Gatehouse		1	Initial screening of the incoming waste.
Weighbridge		1	Utilised for waste data gathering and management.
Water/Reticulation systems		1	Used for dust control within the material handling, processing and storage areas.
Jaw Crusher	Powerscreen® XR400S	1	Primary crushing, machinery permanently on site and consist of: <ul style="list-style-type: none"> <li>• 120 tph jaw crusher;</li> <li>• Feed hopper;</li> <li>• Conveyor belts; and</li> <li>• Built-in dust suppression system for crusher mouth, product conveyor feed and discharge points.</li> </ul>
Horizontal Impactor	Powerscreen® XH320X	1	Secondary crushing, machinery permanently on site and consist of: <ul style="list-style-type: none"> <li>• 120 tph impact crusher;</li> <li>• Feed hopper;</li> <li>• Pand feeder;</li> <li>• Conveyor belts;</li> <li>• Built-in screens; and</li> </ul>

			<ul style="list-style-type: none"> <li>Built-in dust suppression system for product conveyor feed and discharge points.</li> </ul>
Loader		1	Permanently on site
Tracked Excavator	Noise reduced EX02 or similar	1	Permanently on site
Semi-trailers		2	25 tonnes semi-trailers used for haulage of material to and from site.
Truck and Trailer combination		6	12 tonnes truck and 12 tonnes trailer combination used for haulage of material to and from site.
Water Cart		1	Not permanently on site, utilised on site during dry summer months if required.

### 5.10 Traffic Movements

As mentioned earlier the heavy vehicle entrance is dual lane and located in the southern corner of the site adjacent to Berkshire Road. This roadway provides access for the heavy vehicles to the weighbridge and the inert recycling facility to the rear of the site. Upon passing through the gatehouse and weighbridge, the heavy vehicles travel in a clockwise direction around the perimeter of the inert recycling area. Travelling in one direction further minimises conflicts between vehicles. Upon exiting the site, the vehicles either exit over the weighbridge (if necessary) or exit via a slip lane back onto Berkshire Road.

The light vehicle entrance is at the northern end of the boundary with Berkshire Road and provides access to the visitor and staff parking at the front of the site. The design of the road network should minimise potential conflicts and operational inefficiencies associated with combining the heavy and light vehicles.

It is anticipated that a total of 66 vehicles will enter and exit the site daily. This equates to 40 light and 25 heavy vehicles as described in Table 9 below. Undesired materials obtained from sorting processes will be stored in designated hardstand areas prior to being transported off site for recycling or disposal. For the purposes of traffic assessment, this has been assumed to occur on daily basis.

Traffic movements on site have been estimated based on the following assumptions:

- Capacity of the semi-trailers is 25 tonnes;
- Capacity of truck and trailer combination is 24 tonnes;
- Site is operational 8-10 hours per day; and
- The anticipated capacity of the recycling operations is 100,000 tonnes per annum.

**Table 9 Traffic movements to and from site daily, weekly, monthly and annually**

Vehicle Type	Purpose	No of traffic movements to and from site			
		Per day	Per week	Per month	Per annum
Light	Staff/visitors	40	240	1040	12480
Heavy	Dowsing Concrete/Commercial	13	79	342	1389
	DC Recycling	12	73	316	3797
	Residue to landfill	1	6	26	312
<b>TOTAL</b>		<b>66</b>	<b>398</b>	<b>1725</b>	<b>17978</b>



### 5.11 Landscaping

The site is subject to building and planning requirements which define the landscaping requirements. Landscaping Plan for the site was prepared as part of the Stage 1 application process and the plan was approved by the Shire on 27 May 2014 (see **Appendix C**). This plan specifies the landscaping design along the front and rear boundaries of the lot. The Stage 2 application process will not vary from this approved design. This vegetation screen will also help to minimise travel of dust emissions from site traffic and recycling operations.

### 5.12 Security

DC Recycling will endeavour to provide a safe and secure inert recycling facility for staff and the wider community. Fencing, lockable gates and external lighting will be erected in accordance with the Shire's Design Guidelines. It is anticipated that these measures will deter vandals and criminals, however if security difficulties occur security alarms, security patrols and CCTV cameras may be utilised. In addition, daily closing procedures will be put in place that specify that all buildings, offices, machinery and equipment will be locked and secured to ensure unauthorised entry, use or theft is prevented.

## 6 Justification / Benefits for the Proposed Development

There are a number of benefits associated with DC Recycling's proposal to expand their current site operations to provide inert material recycling and processing at the site. These can be categorised as benefits to the Shire, the local community and the environment.

DC Recycling will provide public customers such as the Shire, its residents and surrounding local governments with more sustainable disposal alternative for inert material as opposed to landfill. Further the proposed facility will help to support the advancement of the whole industrial development area, which currently is not attracting industrial operators due to the restrictions in land-use and lack of supporting infrastructure such as appropriate road network, water and sewage services.

In 2010, C&D waste accounted for over 55% of all materials landfilled in WA. In addition, only 29% of C&D waste materials were recycled, diverting these valuable materials from landfill. However, this recovery rate is extremely low in comparison to the other States of Australia and developed international countries. The Western Australian State Waste Strategy "Creating the Right Environment" has set a State-wide landfill diversion target for C&D materials of 60% by 2015, further increasing to 75% by 2020. These diversion targets represent a considerable improvement on the current recycling rate of 29% and will only be achieved with inert recycling facilities and appropriate waste collection systems. DC Recycling is contributing to this target by proposing to set up a C&D recycling facility and diverting waste from the landfill. Consequently C&D recycling will also recover valuable resources and minimise the amount of virgin materials to be excavated.

The construction, demolition and maintenance works undertaken by Dowsing Concrete across the Perth Metropolitan Area generate approximately 100,000 tonnes per annum of inert recyclable materials. Currently Dowsing Concrete utilises numerous other inert recyclers to recycle these materials and it is considered as a sensible business move and a natural progression for Dowsing Concrete to set up its own recycling facility. Dowsing Concrete purchased the site with a vision of creating the operational headquarters and the inert recycling facility in a location that is logistically well positioned and allows for an easy service of Dowsing Concrete operations across Perth Metropolitan Region.

## 7 Environmental Aspects

To ensure that appropriate management measures are devised, Talis has identified all key potential environmental aspects associated with the proposed operations at the site. These include:

- Noise;
- Dust;
- Asbestos
- Odour;
- Stormwater;
- Traffic;
- Litter; and
- Vermin

The source and potential impacts associated with these aspects are described in the following sections.

### 7.1 Noise

Noise emissions have the potential to affect amenity at the site and surrounding areas. Noise will be generated on site as a result of:

- The operation of equipment such as the jaw and impact crusher;
- Vehicle movements on the site; and
- On site movement of materials such as tipping onto the tipping pad and loading the feed conveyor.

The *Environmental Protection (Noise) Regulations 1997* contain the allowable assigned noise levels at premises receiving such emissions, as shown in Table 10. Under the Regulations, noise sensitive premises include residences and education facilities. The properties immediately adjacent to and surrounding the site are classified as industrial and utility premises.

**Table 10: Assigned Noise Levels**

Premises receiving noise	Time of day	Assigned Level (dB)*		
		L <sub>A10</sub>	L <sub>A1</sub>	L <sub>Amax</sub>
Noise sensitive premises at locations further than 15 metres from a building directly associated with a noise sensitive use	All hours	60	75	80
Industrial and utility premises	All hours	65	80	90

\* L<sub>A10</sub> is the L<sub>A Slow</sub> value that may not be exceeded for more than 10% of the representative assessment period

L<sub>A1</sub> is the L<sub>A Slow</sub> value that may not be exceeded for more than 1% of the representative assessment period

L<sub>Amax</sub> is the L<sub>A Slow</sub> value that may not be exceeded at any time

L<sub>A Slow</sub> is the reading in decibels obtained using the frequency-weighting characteristic (A) and the time-weighting characteristic (S).

The sound levels generated by the crushing and recycling operations on site were modelled by Sealhurst in February 2015. The modelling report is contained in **Appendix F**.

Noise modelling was undertaken to determine a feasible and practical noise mitigation strategy for crushing and screening operations on site. A series of noise mitigation options and scenarios (16 in total) were investigated and the final preferred selected noise mitigation comprises the construction

of a 5.0 m high three-sided enclosure to an area of the processing yard where crushing and screening operations will take place. The plant will be fed from a 4.0 m high earth ramp via excavator.

For the purpose of the assessment it was determined that the operations had to be able to comply with the Assigned Noise Level (ANL) limits shown in Table 10 (adjusted for tonality -5dB(A)) applicable at the identified nearest sensitive receptor, the caretaker residence property, which was deemed to be "Industrial" as per the DER's advice.

The noise models were based on the proposed site layout, positioning of crushing/screening plant (Powerscreen® XR400S and XH320X) and the excavator, noise data provided by the manufacturer and the noise measurements conducted on site for the tracked excavator (EX02) in accordance with ISO 3746:1996 as well as the associated traffic onsite. For the purposes of the modelling the following was assumed:

- The recycling plant is located in the middle of the materials processing area approximately 50 m from the site boundary at the closest location;
- The source height is 4 m; and
- The receiver height is 1.5 m at site boundary.

Based on the preliminary assessment scenario of 'do nothing', the noise emissions from the crushing/screening plant and tracked excavator operations are anticipated to exceed the applicable ANL limits, adjusted for tonality penalties, of LA<sub>T10</sub> 60dB. Hence, as with the majority of facilities undertaking similar operations within WA, a number of scenarios were modelled to develop noise-compliant operations. Based on the operational limitations of the site it was decided to proceed with the scenario where the crushing and screening plant is placed inside the 5.0 m high, three-sided enclosure and the material is fed to the crusher via 4.0 m high earth ramp.

Noise modelling results contained in **Appendix F** show that the excavator is the main source of overall noise emissions. Noise levels from the crushing and screening operations will be largely dependent on the type of material passing through.

The management measures that will be implemented to manage noise emissions at the site and ensure they do not exceed the ANLs are described in Section 9.1.

## 7.2 Dust

The proposed development has the potential to generate dust during number of operational stages, including:

- Unloading of waste materials;
- Processing of waste materials;
- Movement of materials around the site;
- Storage of Recycled Building Products and undesired materials; and
- Vehicle movements.

The generation of dust may impact the welfare and amenity of the surrounding areas, and cause health problems to workers at the site and surrounding land users if transported off site. The dust management measures that will be adopted at the site are described within Section 9.2.

## 7.3 Asbestos

Asbestos is a hazardous material utilised in construction works up to 1990 in Western Australia and, in a respirable form, represents a serious risk to human health. As the site will accept inert waste materials,



there is the potential for asbestos or asbestos containing material (ACM) to be brought on site within contaminated loads. There is also a risk that asbestos may contaminate the Recycled Building Products generated at the site. Asbestos therefore represents a hazard to both personnel and contractors at the site, surrounding land users and the wider community.

The asbestos management measures that will be adopted at the site are described within Section 9.3.

#### 7.4 Stormwater

Stormwater is generated as the result of precipitation onto uncovered areas of the site. Rainwater which falls onto the buildings on site is to be stored in a nominal 10,000 L water tank to be used for dust suppression.

Due to the relatively small size of the site, only small volumes of stormwater will be generated. Stormwater at the site is diverted towards and discharged via six on site soak wells to ensure that no surface water flows off the site.

Stormwater that comes into contact with putrescible waste or an area previously containing waste is classified as leachate. Any undesired materials will be removed from the load on the acceptance area, transferred to a designated storage areas and taken off site for recycling or disposal. As no putrescible waste is accepted on site the likelihood of putrescible waste coming into contact with stormwater at any stage of the operations is unlikely and as a result, no leachate is anticipated to be generated at the site.

The management measures to be adopted for the management of stormwater are outlined in Section 0.

#### 7.5 Traffic

Traffic movements on site will include:

- Entry and exit of delivery vehicles;
- DC Recycling's front end loader moving waste materials from the tipping pad to the feed conveyor;
- Collection vehicles for the transportation of undesired materials off site; and
- Staff movements.

On site traffic movement has the potential to generate noise, dust and create an occupational health and safety risk to workers at the site. In the short term, the number of traffic movements is not anticipated to increase significantly from current levels. It is possible that in the future, additional movements of delivery and collection vehicles will be required to process a greater volume of waste at the site.

The management measures that will be adopted to ensure that any impacts resulting from traffic movements at the site are appropriately managed are described in Section 9.5.

#### 7.6 Litter

Litter may be generated at the site as a result of the movement of waste and poor housekeeping practices, particularly during windy conditions. As well as reducing visual amenity, litter can attract vermin to the site and may affect surrounding land uses if allowed to migrate off site.





The management measures that will be utilised to control the generation of litter at the site are described in Section 9.6.

### 7.7 Odour

Odour may be generated from the storage of odorous putrescible wastes at the site. Significant odour emissions may reduce amenity values for site workers and surrounding land users as well as attracting vermin. As no putrescible wastes are accepted on site, the likelihood for odour emissions is considered to be negligible.

Despite this, the management measures that will be implemented to ensure that potential odour impacts are appropriately managed on site are outlined in Section 9.7.

### 7.8 Vermin

Vermin such as rats, mice, birds and insects may be attracted to waste management facilities. If uncontrolled, vermin can present a health risk to site workers and surrounding land users. As the site does not accept any food waste, the potential for vermin to be attracted is low. Vehicle movements and use of machinery are also likely to deter vermin from the site.

The management measures that will be implemented to control vermin are outlined in Section 9.8.

## 8 Community Consultation

Community consultation is an important part of the DC Recycling's vision of setting up an inert waste recycling facility on site. Throughout the progression of Stage 1 of the development, DC Recycling has been in regular contact with the Shire, the lot and business owners surrounding the site.

### 8.1 Community Consultation Program

No separate community consultation has taken place during the preparation of Stage 2 as it is anticipated that additional consultation will occur during various advertising requirements through the Local and State Government approvals processes. Further to this however, DC Recycling has informed surrounding lot and business owners throughout the development of Stage 1. In addition, DC Recycling organised a stakeholder Information Session on 14 October 2014 to allow discussion around the proposed Scheme Amendment No. 68 and the development, or lack thereof, within Stage 1 of the Forrestfield/High Wycombe Industrial Development Area. Approximately 25-30 lot and business owners and Shire representatives attended the meeting. This forum was also utilised to discuss DC Recycling's plans for Stage 2.

### 8.2 Community Consultation Feedback

DC Recycling has consulted 10 businesses in the immediate vicinity of the site in relation to their proposed operations and has received no negative feedback.

The key issues raised at the Information Session by the stakeholders were more general in nature and are summarised below:

- The road network has been designed to only accommodate 27m trucks as opposed to the larger road-trains utilised for logistics which are 36.5m in length. This is a significant flaw for intention for Stage 1 to be a logistics and transport area and is presenting significant constraints to current landholders and potential future investors;
- Stage 1 is zoned 'Industrial Development' which significantly constrains opportunities for its industrial use as only selected land uses are permissible within the area;
- Limited progress in terms of addressing road development which is what the Development Contribution is ostensibly for. Lack of access means lack of sales and lack of development;
- Changing and increasing restrictions such as the proposed Scheme Amendment being contemplated by the Shire in terms of the use of the land in question is not supporting the development of the area;
- Each landowner is required to provide services to their own lots. This is again a significant financial outlay which could be better managed through a cooperative or strategic approach that the Shire could take, potentially utilising the Development Contribution as one mechanism to look at providing water, power and sewerage to each Stage, rather than individual lot owners implementing individual solutions; and
- The cost associated with land purchase as well as the Shire's requirement to pay upfront a significant Development Contribution present very real constraints to potential purchasers of land.

During the meeting a preliminary Land Use Concept Plan was put forward to allow more flexible industrial within the Stage 1, which received support from the participants.



### 8.3 Further Consultation

DC Recycling is proposing to utilise the advertising requirements under Local and State Government approval processes to supplement the community consultation already undertaken.

## 9 Environmental Management Measures

To ensure the potential environmental impacts identified will be appropriately minimised and managed, DC Recycling will implement the engineering and management measures described in the following sections.

### 9.1 Noise Management

As mentioned previously, there are several sources of noise associated with the proposed development including operation of equipment and machinery, vehicle movements and the movement of materials. Currently, the most significant source of noise is the movement of vehicles at the site.

To ensure that noise emissions are minimised as part of the Stage 2 proposal, the following measures will be implemented on site:

- Noise emissions from site operations will be controlled to ensure compliance with the Noise Regulations including:
  - Crushing and screening is undertaken inside a 5.0 m high three-sided structure (concrete cast in-situ retaining wall); and
  - Excavator is operating from a 4.0 m high earth ramp and feeds the material into the crusher inside the closure.
- Waste receipt and the operation of equipment and machinery on site will be restricted to operational hours only;
- Vehicles will be restricted to a maximum speed of 5 km per hour (km/h) at the site;
- Noise reducing workplace procedures will be adopted such as tipping waste onto the tipping floor and into storage areas slowly and from the lowest height possible;
- The use of reverse beepers as a safety strategy will be replaced with alternative visual safety devices (where practical and appropriate);
- Vegetation screens will be developed and maintained, where appropriate, surrounding the site; and
- All equipment and machinery will be maintained in good working condition.

Noise modelling conducted for the site demonstrates that the management measures listed above will be sufficient to appropriately manage noise emissions at the site and ensure compliance with the *Environmental Protection (Noise) Regulations 1997*.

### 9.2 Dust Management

To manage the generation of dust on site, DC Recycling will implement the following management measures:

- Both the jaw and impact crusher will include an inbuilt dust suppression system consisting of sprinklers over the hopper, end of the conveyor and other discharge points;
- A sprinkler system will be incorporated within the material acceptance, processing and storage areas;
- Vehicles will be restricted to a maximum speed of 5 km/h at the site;
- Site operations will be stopped during periods of high winds;
- Vehicles will enter and exit the site via sealed access road;
- The site will be cleaned of dust, dirt and sand on a daily basis;
- All inert waste materials will be confined within the designated storage area;

- Undesired materials such as non-recyclable inert materials, timber, metal and plastics and small volumes of green waste will be stored in designated hardstand areas prior to being transported off site for recycling or disposal;
- The shade cloth on the perimeter fence will be maintained to restrict the offsite movement of any dust generated;
- Vegetation screens will be developed and maintained, where appropriate, surrounding the site;
- Water cart will be utilised on site as required (mainly on internal roads); and
- Materials will be dampened prior to processing.

As mentioned previously, rainfall onto the buildings on site will be stored in a nominal 10,000 L water tank. Based on current rainfall, these are anticipated to be filled by rainfall for the majority of the year. During the dry summer months, additional water for dust suppression will be supplied by a water cartage contractor.

It is anticipated that the implementation of the engineering and management measures listed above will be sufficient to manage dust at the site.

### 9.3 Asbestos Management

To minimise the potential for asbestos or ACM to be received at the site, generation of asbestos emissions and the contamination of the Recycled Building Products, the following managements measures will be put in place:

- The requirement for no asbestos to be contained in incoming loads is clearly communicated to DC Recycling customers;
- All loads brought to the site will be directed across the weighbridge which will allow for identification of the source and type of load as well as primary inspection for potential ACM. If any loads are identified to contain asbestos or ACM, entry to the site will be refused;
- Upon acceptance, the risk of each load containing asbestos will be assessed. Once a risk classification has been allocated, loads will be taken to the appropriate unloading area, with separate designated areas for low and high risk loads;
- If suspect ACM is identified during the waste inspection but is not able to be easily removed by hand, the load will be assumed to be contaminated, isolated and directed off site to an appropriate disposal facility. If the suspect material is able to be removed by hand it will either be assumed to be ACM, put into an appropriate container or wrapped, and transported to an appropriate disposal facility, or it will be further tested on site;
- Staff will continue to inspect materials for asbestos or ACM during processing and, if suspect material is identified, DC Recycling will stop operations and handle material according to the procedures product testing procedure; and
- Dust management procedures will be implemented to reduce the potential for asbestos fibres to be released.

An Asbestos Management Plan (**Appendix D**) has already been prepared and approved for the Stage 1 operations and it is expected that this plan will continue to be utilised. Where the DER requires changes to this document (as part of the Part V approvals process) DC Recycling will update the plan in accordance with the DER's *Guidelines for managing asbestos at construction and demolition waste recycling facilities*. The Asbestos Management Plan (current or revised) will be implemented once the recycling operations on site commence.



## 9.4 Stormwater Management

To ensure that stormwater on site is appropriately managed, the following management measures will be adopted:

- Rainfall onto buildings will continue to be stored for use in the dust suppression system to minimise the quantity of stormwater requiring management through recycling; and
- Stormwater will continue to be collected in the current drainage system and discharged via on site soak wells.

As the quantity of stormwater will not increase as a result of proposed operations, the continuation of the current stormwater management measures already approved as part of Stage 1 will be sufficient to ensure that the appropriate management continues.

## 9.5 Traffic Management

To minimise any potential impacts of traffic movements at the site, the following management measures will be implemented:

- A maximum speed of 5 km/h will be applied to all vehicles on site and clearly displayed at the entrance to the site;
- All vehicles will be maintained in good working condition; and
- All vehicles will be required to comply with the traffic management system at the site.

Initially, the number of vehicle movements is not anticipated to increase significantly as a result of the proposed development. As part of the expected growth in operations, traffic movements on site may increase, however it is anticipated that these measures will be sufficient to manage traffic at the site in the future. In addition, the strong surrounding road network is anticipated to be adequate to support additional vehicle movements to and from the site.

DC Recycling will monitor the number of traffic movements at the site to ensure that any potential impacts of increased traffic movement are appropriately managed using current measures.

## 9.6 Litter Management

Due to the nature of the proposed D&C recycling operations, the generation of litter is anticipated to be minimal.

To ensure that the generation of litter is minimised and appropriately managed at the site, the following management measures will be implemented:

- Undesired materials will be stored in designated hardstand areas prior to being transported off site for recycling or disposal;
- The shade cloth on the perimeter fence will be maintained to ensure any litter generated is not able to migrate to neighbouring premises; and
- Any litter generated around the site and along fence lines will be collected on a daily basis as part of routine housekeeping procedures.

These management measures are anticipated to enable DC Recycling to appropriately manage litter at the site.



## 9.7 Odour Management

To ensure that the generation of odour at the site is appropriately minimised and managed, the following management measures will be implemented:

- Customers will be informed that only inert materials will be accepted;
- Loads from Dowsing's construction sites will be inspected upon collection and not removed until free of undesired materials;
- All loads will be inspected at the weighbridge from the viewing platform;
- All loads will be inspected when unloading;
- Undesired materials will be stored in designated hardstand areas prior to being transported off site for recycling or disposal;
- If any odorous materials are found, these will be scheduled to be removed from the site as soon as practicable; and
- Odour levels at the site will be observed by staff during their day-to-day activities and action taken if required.

It is anticipated that these management measures will enable DC Recycling to appropriately manage potential odour impacts at the site.

## 9.8 Vermin Control

To control vermin at the site, the following management measures will be implemented:

- Customers will be informed that only inert materials will be accepted;
- Loads from Dowsing's construction sites will be inspected upon collection and not removed until free of undesired materials;
- All loads will be inspected at the weighbridge from the viewing platform;
- All loads will be inspected when unloading;
- Undesired materials will be stored in designated hardstand areas prior to being transported off site for recycling or disposal;
- The generation of odour and litter will be minimised through the implementation of appropriate management measures including waste inspection; and
- Should any significant vermin issues be experienced, DC Recycling will utilise professional services to eradicate vermin at the site.

These management measures are anticipated to adequately manage vermin at the site.

## 9.9 Security

The site is surrounded by a 1.8 m chain wire fence in accordance with the Shire's Design Guidelines. The entrance gate to the site is closed outside operational hours to ensure access for unauthorised vehicles and persons is restricted. To ensure the security of the site is not compromised, the following practices will be adhered to:

- The perimeter fence will be inspected and maintained on a regular basis;
- The entrance gate will be locked securely outside of operational hours; and
- The onsite alarm system and internal and external CCTV system may be utilised if security is a concern.



## 9.10 Community Liaison

DC Recycling will maintain a register for complaints relating to their operations at the site. The complaints register will be maintained to provide surrounding land users and members of the community an opportunity to record any concerns regarding operations at the site. Any comments received will be given due consideration by DC Recycling and responded to if required.

## 9.11 Summary of Proposed Management Measures

A summary of the proposed management measures to be implemented at the Site is shown in

Table 11.

**Table 11: Summary of Proposed Management Measures**

Aspect	Management Measures
Noise	<ul style="list-style-type: none"> <li>• Noise emissions from site operations will be controlled to ensure compliance with the Noise Regulations including:               <ul style="list-style-type: none"> <li>○ Crushing and screening is undertaken inside a 5.0 m high three-sided structure (concrete cast in-situ retaining wall); and</li> <li>○ Excavator is operating from a 4.0 m high earth ramp and feeds the material into the crusher inside the closure.</li> </ul> </li> <li>• Waste receipt and the operation of equipment and machinery on site will be restricted to operational hours only;</li> <li>• Vehicles will be restricted to a maximum speed of 5 km per hour (km/h) at the site;</li> <li>• Noise reducing workplace procedures will be adopted such as tipping waste onto the tipping floor and into storage areas slowly and from the lowest height possible;</li> <li>• The use of reverse beepers as a safety strategy will be replaced with alternative visual safety devices (where practical and appropriate);</li> <li>• Vegetation screens will be developed and maintained, where appropriate, surrounding the site; and</li> <li>• All equipment and machinery will be maintained in good working condition.</li> </ul>



Aspect	Management Measures
Dust	<ul style="list-style-type: none"> <li>Both the jaw and impact crusher will include an inbuilt dust suppression system consisting of sprinklers over the hopper, end of the conveyor and other discharge points;</li> <li>A sprinkler system will be incorporated within the material acceptance, processing and storage areas;</li> <li>Vehicles will be restricted to a maximum speed of 5 km/h at the site;</li> <li>Site operations will be stopped during periods of high winds;</li> <li>Vehicles will enter and exit the site via sealed access road;</li> <li>The site will be cleaned of dust, dirt and sand on a daily basis;</li> <li>All inert waste materials will be confined within the designated storage area;</li> <li>Undesired materials such as non-recyclable inert materials, timber, metal and plastics and small volumes of green waste will be stored in designated hardstand areas prior to being transported off site for recycling or disposal;</li> <li>The shade cloth on the perimeter fence will be maintained to restrict the offsite movement of any dust generated;</li> <li>Vegetation screens will be developed and maintained, where appropriate, surrounding the site;</li> <li>Water cart will be utilised on site as required (mainly on internal roads); and</li> <li>Materials will be dampened prior to processing.</li> </ul>
Odour	<ul style="list-style-type: none"> <li>Customers will be informed that only inert materials will be accepted;</li> <li>Loads from Dowsing's construction sites will be inspected upon collection and not removed until free of undesired materials;</li> <li>All loads will be inspected at the weighbridge from the viewing platform;</li> <li>All loads will be inspected when unloading;</li> <li>Undesired materials will be stored in designated hardstand areas prior to being transported off site for recycling or disposal;</li> <li>If any odorous materials are found, these will be scheduled to be removed from the site as soon as practicable; and</li> <li>Odour levels at the site will be observed by staff during their day-to-day activities and action taken if required.</li> </ul>
Stormwater	<ul style="list-style-type: none"> <li>Rainfall onto buildings will continue to be stored for use in dust suppression system to minimise quantity of stormwater requiring management through recycling; and</li> <li>Stormwater will continue to be collected in the current drainage system and discharged via on site soak wells.</li> </ul>
Traffic	<ul style="list-style-type: none"> <li>A maximum speed of 5 km/h will be applied to all vehicles on site and clearly displayed at the entrance to the site;</li> <li>All vehicles will be maintained in good working condition; and</li> <li>All vehicles will be required to comply with the traffic management system at the site.</li> </ul>
Litter	<ul style="list-style-type: none"> <li>Undesired materials will be stored in designated hardstand areas prior to being transported off site for recycling or disposal;</li> <li>The shade cloth on the perimeter fence will be maintained to ensure any litter generated is not able to migrate to neighbouring premises; and</li> <li>Any litter generated around the site and along fence lines will be collected on a daily basis as part of routine housekeeping procedures.</li> </ul>

Aspect	Management Measures
Vermin	<ul style="list-style-type: none"> <li>• Customers will be informed that only inert materials will be accepted;</li> <li>• Loads from Dowsing’s construction sites will be inspected upon collection and not removed until free of undesired materials;</li> <li>• All loads will be inspected at the weighbridge from the viewing platform;</li> <li>• All loads will be inspected when unloading;</li> <li>• Undesired materials will be stored in designated hardstand areas prior to being transported off site for recycling or disposal;</li> <li>• The generation of odour and litter will be minimised through the implementation of appropriate management measures including waste inspection; and</li> <li>• Should any significant vermin issues be experienced, DC Recycling will utilise professional services to eradicate vermin at the site.</li> </ul>
Security	<ul style="list-style-type: none"> <li>• The perimeter fence will be inspected and maintained on a regular basis;</li> <li>• The entrance gate will be locked securely outside of operational hours; and</li> <li>• Onsite alarm system and internal and external CCTV system will be utilised if security on site is a concern.</li> </ul>
Community Liaison	<ul style="list-style-type: none"> <li>• The register for community or surrounding land users to raise concerns will be maintained and responded to if required.</li> </ul>

## 10 Conclusion

Dowsing has recently established DC Recycling in order to develop a new division of the company focusing on the recycling of inert materials. To facilitate the development of this new division of the company, Dowsing has purchased land at Lots 1, 20, 21 Berkshire Road, Forrestfield (the site) in mid-2013 with the objective to build a new office headquarters, warehouse and modern inert waste recycling facility on the site. The development has been split into two stages:

- Stage 1: Establishment of storage for inert materials and construction of office headquarters and a warehouse; and
- Stage 2: Construction of an inert recycling facility.

The construction works associated with Stage 1 to allow storage of inert materials have now been completed and operations have commenced in accordance with a Development Approval and DER Licence.

The majority of the operations for Stage 1 remain unchanged (and therefore approved). The key changes for Stage 2 are:

1. The inclusion of the crushing and screening equipment;
2. The inclusion of the infrastructure associated with the equipment; and
3. The inclusion of a gatehouse and weighbridge.

This Environmental Assessment and Management Plan (EAMP) forms part of the documentation required to progress the Local and State Government approvals required for Stage 2. The current process being pursued by DC Recycling involves a referral to the EPA pursuant to Section 38 of the EP Act and an application for Development Approval through the Shire. The EAMP will be provided both to the EPA and the Shire and will also be utilised in any subsequent approvals process pursuant to Part V of the EP Act.

DC Recycling currently generates a range of source separated materials including concrete slabs and asphalt through its civil construction works. These materials can be processed at inert recycling facilities to generate a range of Recycled Building Products including sand, roadbases and aggregates. In accordance with its sustainability goals, DC Recycling is proposing to progress their existing and approved operations at Berkshire Road to a C&D recycling facility in order to utilise inert waste materials as Recycled Building Products and to divert waste from the landfill.

This EAMP provides the site design of DC Recycling's proposed C&D recycling facility. The design has been developed to ensure that it is functional, efficient and is designed to best suit the site constraints and ensure no unacceptable impacts to the environment or amenity of the surrounding area. The site design incorporates best practice design solutions to achieve DC Recycling's strategic objective of providing quality Recycled Building Products. To ensure the potential environmental impacts identified in this EAMP will be appropriately minimised and managed, DC Recycling will implement the engineering and management measures described in Section 9. These measures cover noise, dust, asbestos, stormwater, traffic, litter and vermin management, security, and community liaison.

The main environmental impacts associated with recycling operations include noise and dust. A number of dust management measures will be implemented to control dust from the operations, including e.g. water suppression systems, sprinklers and operational restrictions during windy periods. Sealhurst conducted a noise modelling for the site to demonstrate compliance of the operations with the Noise Regulations. As a result of this work, the operations will incorporate a 5.0 m high three-sided enclosure, and the excavator will operate from a 4.0 m high earth ramp. The proposed plan for the



site will also maximise the distance of operations to the site boundaries and hence the nearest receptors. These measures will ensure compliance with the requirements of the *Environmental Protection (Noise) Regulations 1997*.

Dust and noise management measures (as well as the range of other proposed measures) will be implemented to ensure that emissions are appropriately managed and controlled. In summary, it is demonstrated that Stage 2 can be progressed without any unacceptable impact to the environment and the surrounding land users.

# References

ENV Australia: Forrestdfield High Wycombe Industrial Area - Stage 1 Berkshire Road Forrestdfield - Local Water Management Strategy, March 2012.

ENV Australia: Forrestdfield/High Wycombe Industrial Area, Stage 1 Berkshire Road – Forrestdfield Local Water Management Strategy, May 2012.

ENV Australia: District Water Management Strategy (DWMS), Various Landholdings, Roe Highway, High Wycombe/Forrestdfield, 2010.

Environmental Protection Act 1986

Environmental Protection Regulations 1987

Environmental Protection (Controlled Waste) Regulations 2004

Environmental Protection (Noise) Regulations 1997

DER Guidelines for Managing Asbestos at Construction and Demolition Waste Recycling Facilities, 2012.

DER Landfill Waste Classification and Waste Definition 1996 (as amended)

The Shire of Kalamunda Local Planning Scheme No. 3

The Shire of Kalamunda's Local Planning Scheme No. 3 - Forrestdfield/High Wycombe Industrial Area Design Guidelines

The Environmental Protection Authority's Guidance Statement No. 3 – Separation Distances between Industrial and Sensitive Land Uses 2005

VDM Environmental: Rezoning proposal, Berkshire Road and surrounds, Forrestdfield – Environmental Review, July 2008

VDM Environmental: Flora and Vegetation Survey, December 2008

# Figures

**Figure 1: Locality Plan**

**Figure 2: Site Layout**

**Figure 3: Staged Development of Forrestfield/High Wycombe Industrial Area**

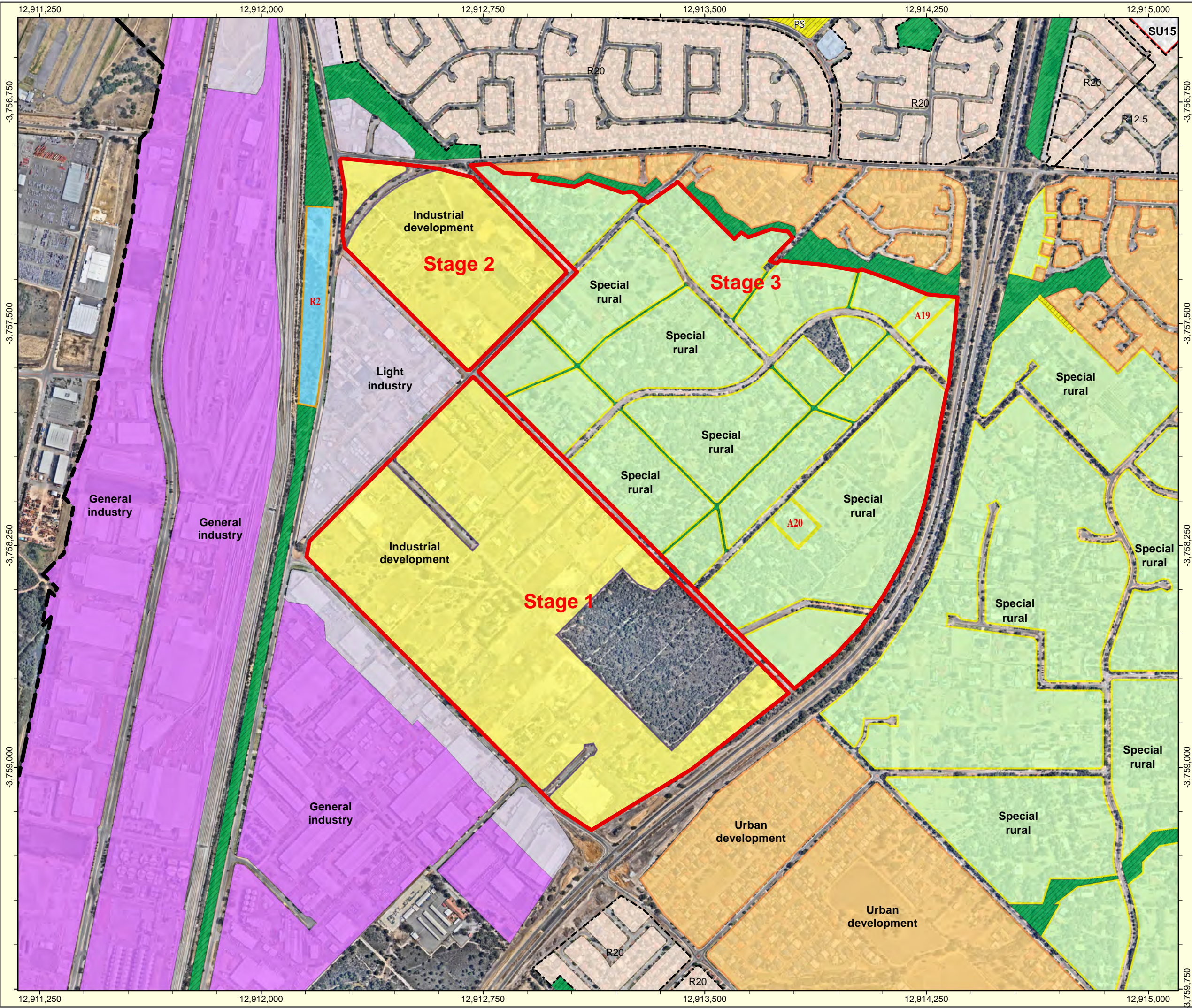
**Figure 4: Separation Distances**

**Figure 5: Proposed and Approved Site Operations**

**Figure 6: Detailed Plan for Stage 2**

**Figure 7: Elevations and Detailed Design for Crushing/Screening Plant**

**Figure 8: Elevations and Detailed Design for Gatehouse and Weighbridge**



**LEGEND**

- Industrial Development Stages

**LPS - Zones and Reserves**

zone

- Commercial
- General industry
- Industrial development
- Light industry
- Local open space
- Mixed use
- Public purposes
- Residential
- Special rural
- Special use
- Urban development



**CURRENT ZONING AND DEVELOPMENT STAGES**  
Dowsing Stage 2 EAMP

0 50 100 200 300 400 500  
Meters

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere  
Projection: Mercator Auxiliary Sphere, Datum: WGS 1984, Units: Meter

Scale @ A3: 1:12,000	Prepared: B Jones
Date: 17/12/2014	Checked: N King
Revision: Rev A	Reviewed: E Vestola
Project No: TW14019	

Figure 03

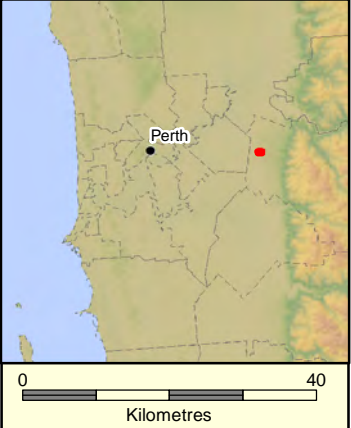


**LEGEND**

- Site Boundary
- Lot Boundaries
- Roads

**Site Features**

- Pre-existing property to be cleared
- Stockpile area
- Vegetation to be cleared
- Vegetation to potentially remain



**SITE LAYOUT**  
Dowsing Stage 2 EAMP

N

0 25 50 100 150 200 250  
Meters

Coordinate System: GDA 1994 MGA Zone 50  
Projection: Transverse Mercator, Datum: GDA 1994, Units: Meter

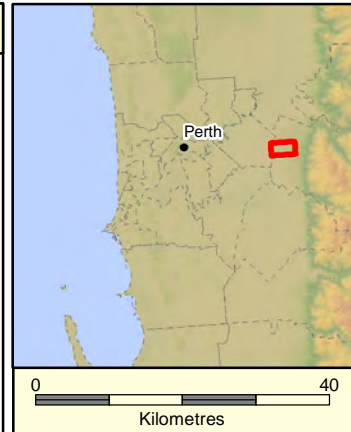
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Date:	17/12/2014	Checked:	N King	<b>Figure 2</b>	
Revision:	Rev A	Reviewed:	E Vestola		



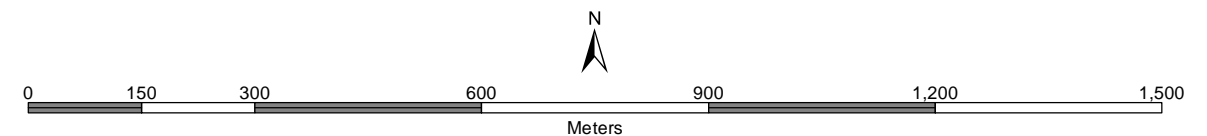


**LEGEND**

- Site Boundary
- Roads



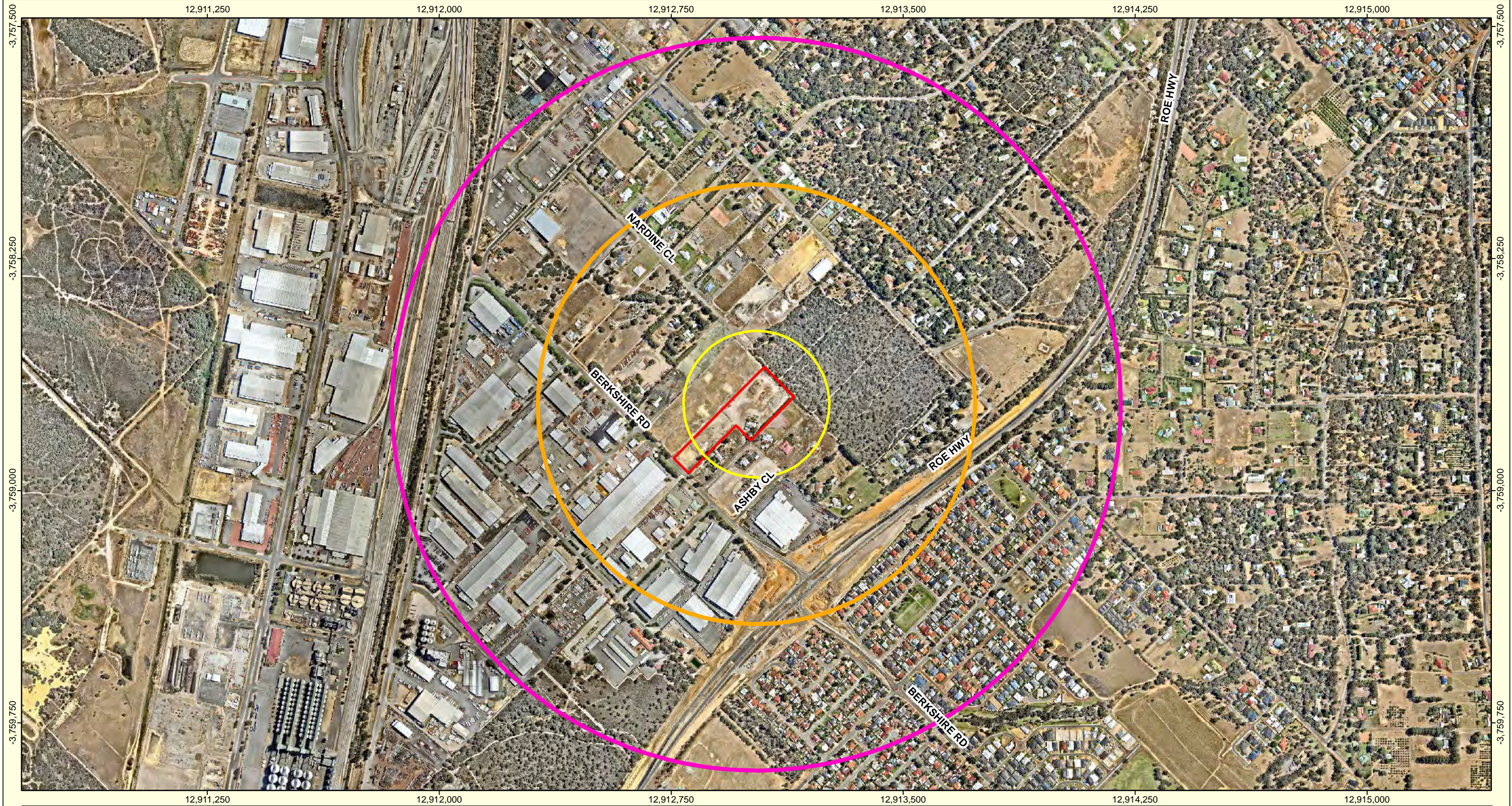
**SITE LOCALITY**  
Dowsing Stage 2 EAMP



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere  
Projection: Mercator Auxiliary Sphere, Datum: WGS 1984, Units: Meter

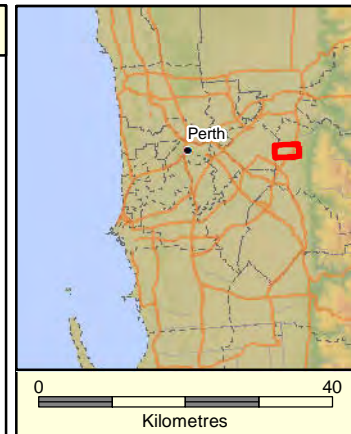
Scale @ A3:	1:10,000	Prepared:	B Jones	Project No:	TW14019
Date:	17/12/2014	Checked:	N King	<b>Figure 1</b>	
Revision:	Rev B	Reviewed:	E Vestola		



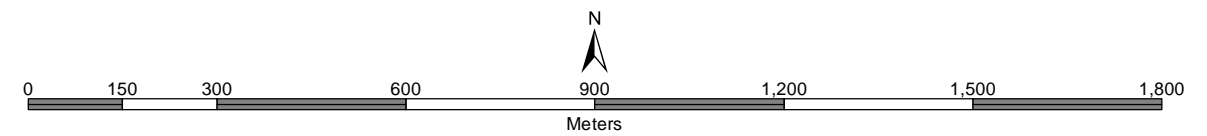


**LEGEND**

- 200m EPA recommended separation distance
- 600m
- 1000m
- Site Boundary



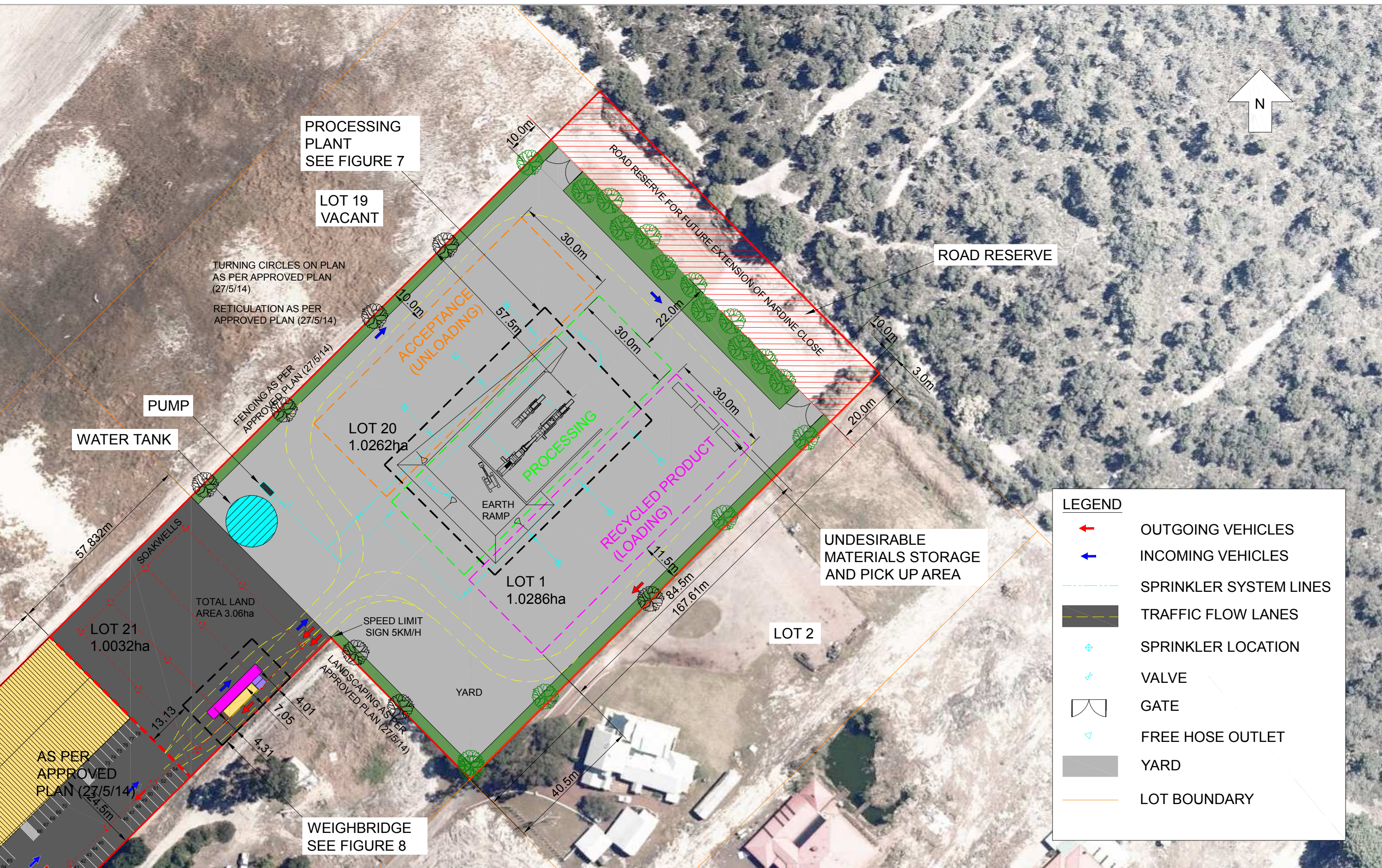
**SEPARATION DISTANCES**  
Dowsing Stage 2 EAMP



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere  
Projection: Mercator Auxiliary Sphere, Datum: WGS 1984, Units: Meter

Scale @ A3:	1:12,000	Prepared:	B Jones	Project No:	TW14019
Date:	17/12/2014	Checked:	N King	<b>Figure 4</b>	
Revision:	Rev A	Reviewed:	E Vestola		





**LEGEND**

- OUTGOING VEHICLES
- INCOMING VEHICLES
- SPRINKLER SYSTEM LINES
- TRAFFIC FLOW LANES
- SPRINKLER LOCATION
- VALVE
- GATE
- FREE HOSE OUTLET
- YARD
- LOT BOUNDARY

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No.	Date	Drawn By	Checked By	Amendment / Issue	App.
C	13/02/15	AM	EV	Issue for Report	AM
B	17/12/14	AM	EV	Issue for Report	AM
A	21/11/14	AM	EV	Issue for Report	AM

Project: **Environmental Assessment Management Plan**

Title: **Detailed Plan for Stage 2**

Drawn by:	AU	Job No:	TE14019
Checked by:	EV	File No:	TE14019DG001
Approved by:	AM	Dr. No:	6
Scale:	1:1000 (A3)	Rev:	C
Date:	13/02/15		



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**NOTES**

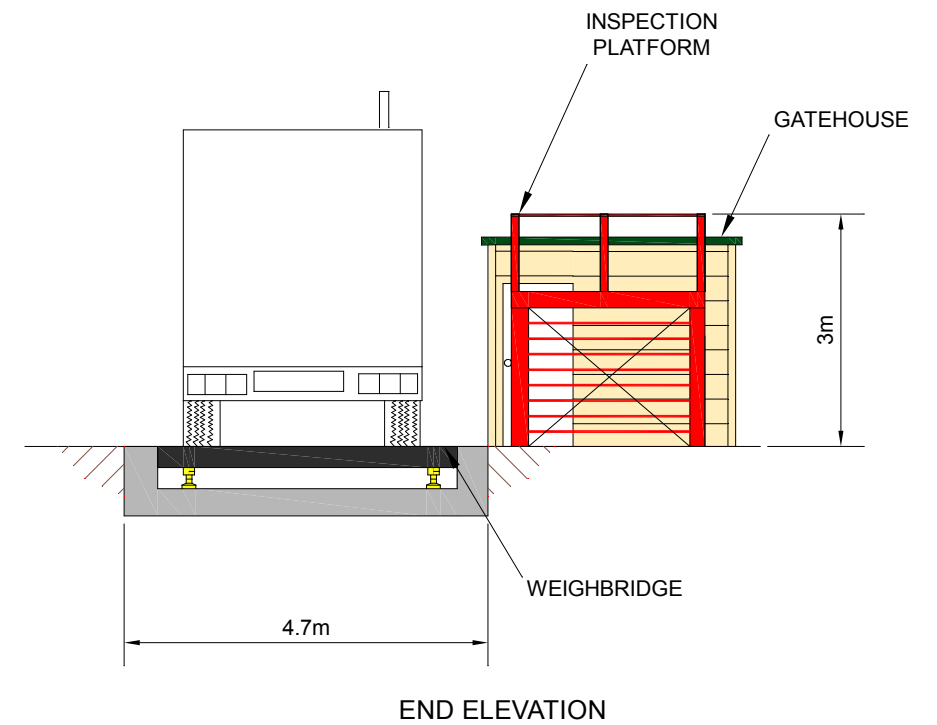
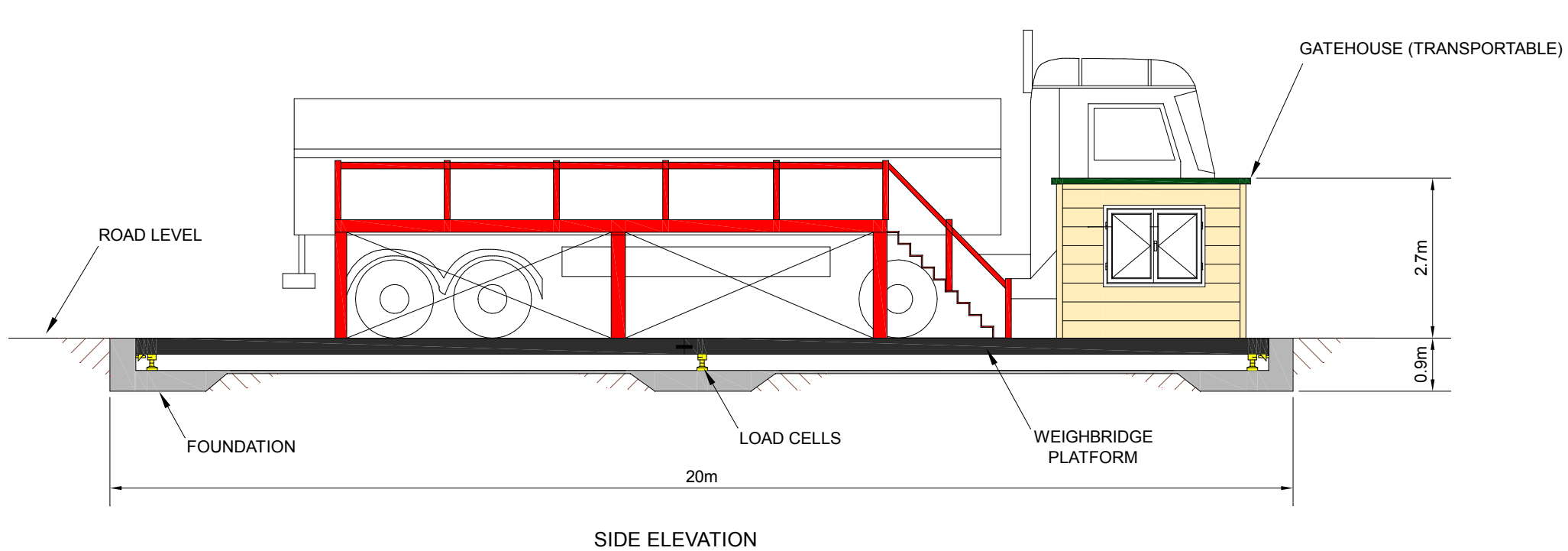
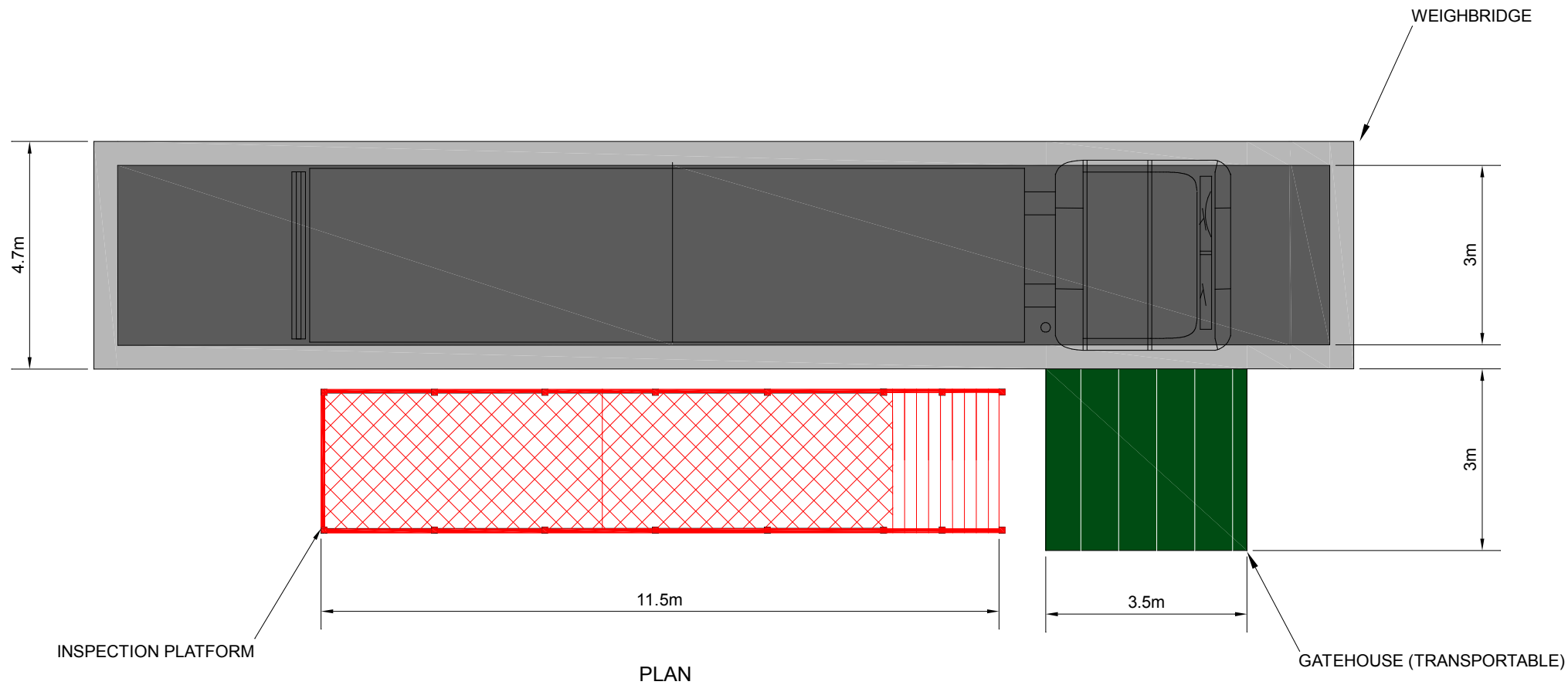
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C	13/02/15	NLU	EV	Issue for Report	AM
B	17/12/14	NLU	EV	Issue for Report	AM
A	21/11/14	NLU	YGO	Issue for Report	AM

Project: **Environmental Assessment Management Plan**

Title: **Proposed and Approved Site Operations**

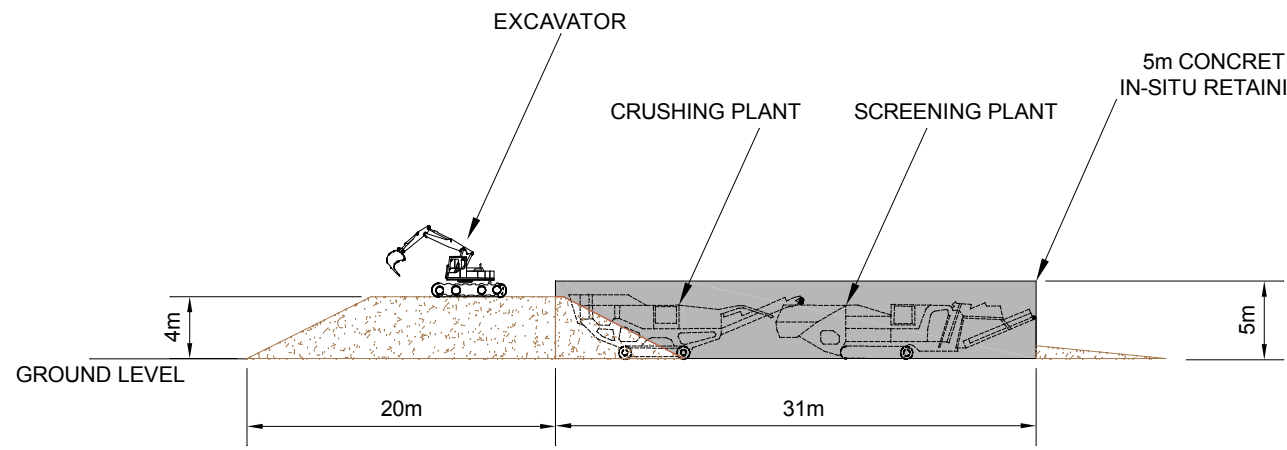
Drawn by:	AU	Job No:	TE14019
Checked by:	EV	File No:	TE14019DG001
Approved by:	AM	Dwg. No:	5
Scale:	1:1250 (A3)	Rev:	C
Date:	13/02/15		



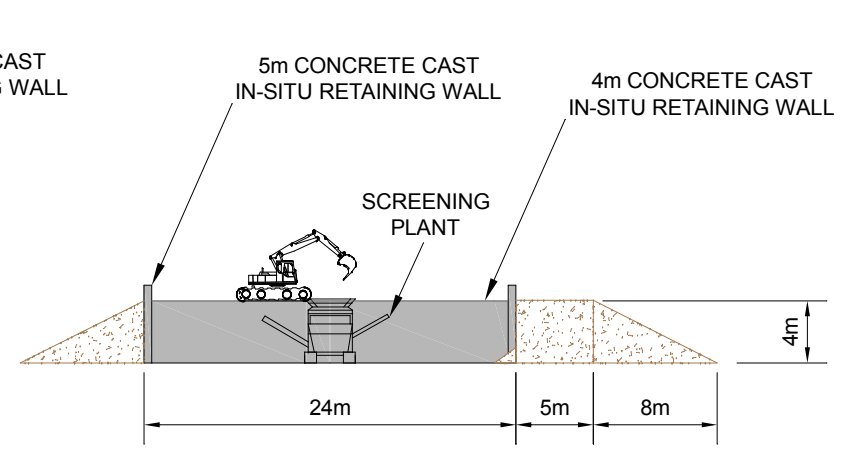
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No.	Date	Drawn By	Checked By	Amendment / Issue	App.
A	13/02/15	NU	YGO	Issue for Report	AM

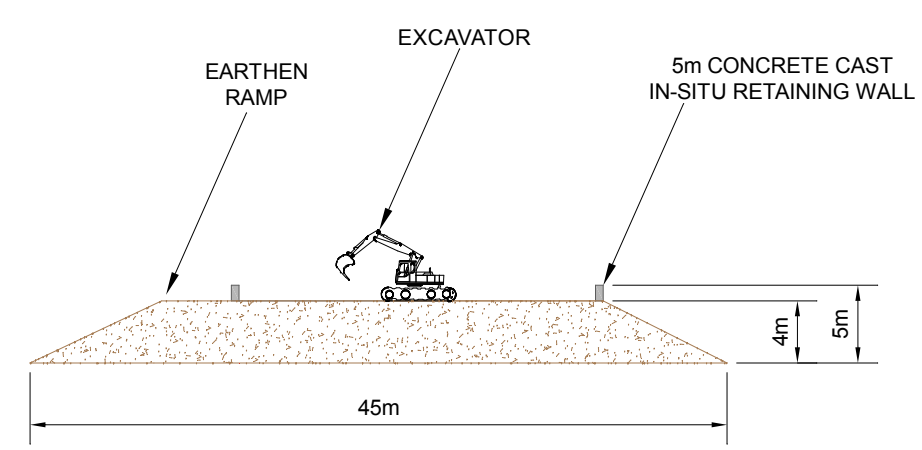
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Checked by:	EV	File No:	TE14019DG001
Approved by:	AM	Dwg. No:	8
Scale:	1:100 (A3)	Rev:	A
Date:	13/02/15		



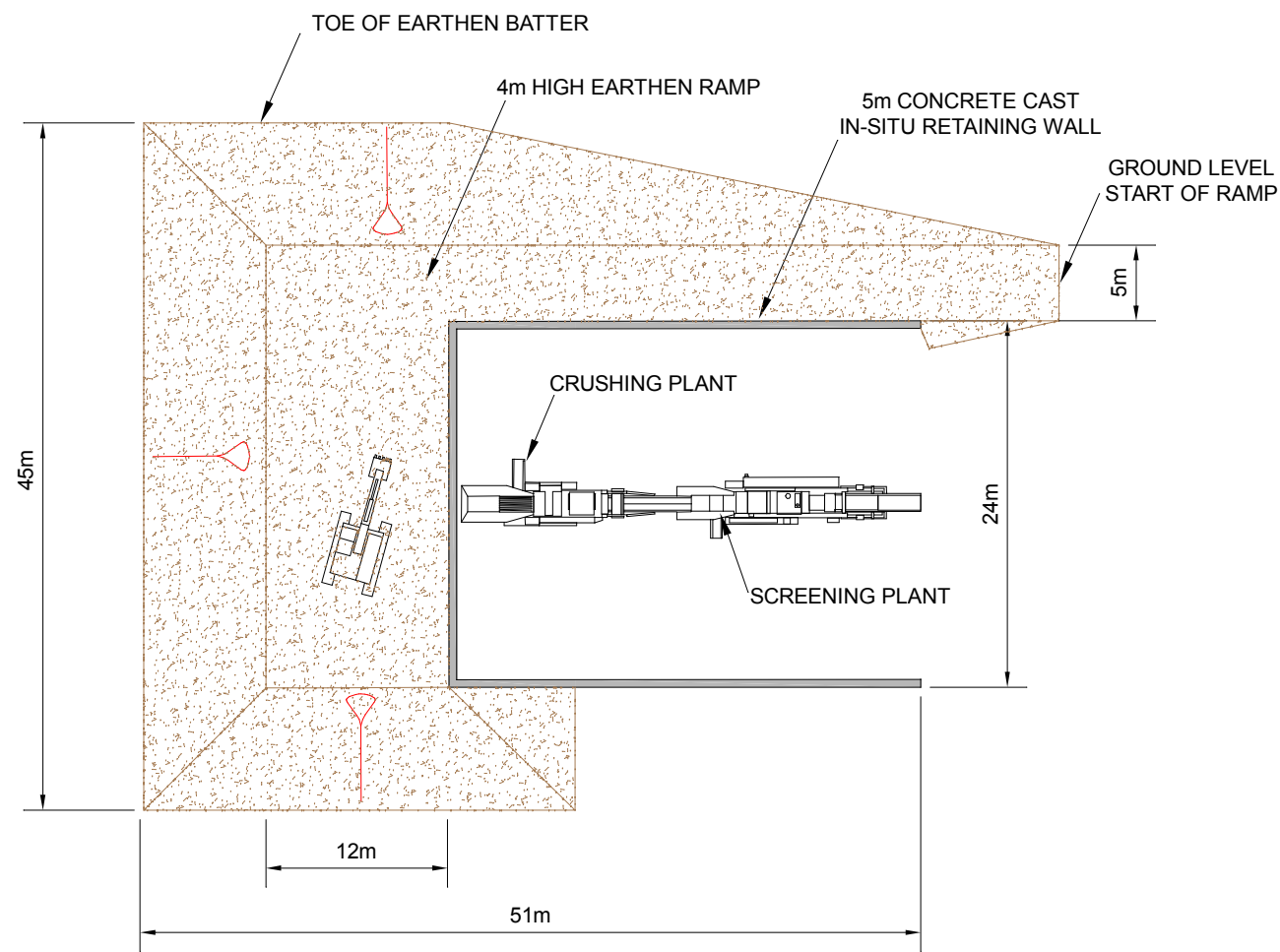
SECTION THROUGH SIDE - PROCESSING PLANT



FRONT VIEW - PROCESSING PLANT



REAR VIEW - PROCESSING PLANT



PLAN VIEW - PROCESSING PLANT



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A	13/02/15	NU YGO		Issue for Report	AM

Project:  
**Environmental Assessment Management Plan**

Title:  
**Elevations & Detailed Design for Crushing/Screening Plant**

Drawn by:	AU	Job No:	TE14019
Checked by:	EV	File No:	TE14019DG001
Approved by:	AM	Dwg. No:	7
Scale:	1:500 (A3)	Rev:	A
Date:	13/02/15		