Prepared for:
Civil Lake on behalf of Lake Macquarie City Council

Construction Environmental Management Plan
Sustainable Resources Centre - Teralba

January 2012
Teralba Sustainable Resource Centre

Construction Environmental Management Plan

Prepared for
CiviLake

Prepared by
AECOM Australia Pty Ltd
Level 21, 420 George Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia
T +61 2 8934 0000  F +61 2 8934 0001  www.aecom.com
ABN 20 093 846 925

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**Date**  
13 January 2012

**Prepared by**  
Joshua Lasky

**Reviewed by**  
Scott Jeffries

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<th>Revision Date</th>
<th>Details</th>
<th>Authorised</th>
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<td>3</td>
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAR</td>
<td>Basic Right Turn</td>
</tr>
<tr>
<td>CEMP</td>
<td>Construction Environmental Management Plan</td>
</tr>
<tr>
<td>CMA</td>
<td>Catchment Management Authority</td>
</tr>
<tr>
<td>DP&amp;I</td>
<td>Department of Planning and Infrastructure (previously DoP)</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Assessment</td>
</tr>
<tr>
<td>EEC</td>
<td>Ecologically Endangered Community</td>
</tr>
<tr>
<td>ENM</td>
<td>Excavated Natural Material</td>
</tr>
<tr>
<td>EPL</td>
<td>Environmental Protection Licence</td>
</tr>
<tr>
<td>ESCP</td>
<td>Erosion and Sediment Control Plan</td>
</tr>
<tr>
<td>KLALC</td>
<td>Koompathoo Local Aboriginal Land Council</td>
</tr>
<tr>
<td>LEL</td>
<td>Lower Explosive Limit</td>
</tr>
<tr>
<td>LMCC</td>
<td>Lake Macquarie City Council</td>
</tr>
<tr>
<td>MSB</td>
<td>Mine Subsidence Board</td>
</tr>
<tr>
<td>OEH</td>
<td>Office of Environment and Heritage (previously DECCW)</td>
</tr>
<tr>
<td>OHSMP</td>
<td>Occupational Health and Safety Management Plan</td>
</tr>
<tr>
<td>RFS</td>
<td>Rural Fire Service</td>
</tr>
<tr>
<td>RTA</td>
<td>Roads and Traffic Authority</td>
</tr>
<tr>
<td>SEPP</td>
<td>State Environmental Planning Policy</td>
</tr>
<tr>
<td>SWMP</td>
<td>Soil and Water Management Plan</td>
</tr>
<tr>
<td>VENM</td>
<td>Virgin Excavated Natural Material</td>
</tr>
<tr>
<td>WARR</td>
<td>Waste Avoidance Resource Recovery Strategy</td>
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</table>
1.0 Introduction

1.1 Purpose of the CEMP

This Construction Environmental Management Plan (CEMP) details the environmental management and control measures which are to be implemented in association with construction activities for the Teralba Sustainable Resource Centre (the Facility) to ensure the works are managed so as to reduce adverse impacts on the environment.

This CEMP has been prepared to satisfy the requirements of condition 1, Schedule 6 and condition 1, Schedule 3 of the project approval for the Facility (MP08_0079), namely:

“The Proponent shall prepare and implement a Construction Management Plan for the development to be carried out to the satisfaction of the Director-General. The plan shall be submitted to the Director-General for approval prior to the commencement of construction”. and

“The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or decommissioning of the Project”.

It also has been prepared to meet the Statement of Commitments for the project, which specify include the preparation of a CEMP as follows:

A CEMP be prepared covering:
- site security and access;
- site signage requirements (including contact numbers) and hours of operation;
- sediment and erosion control, soil / stockpile management and stormwater management;
- noise control;
- air quality control (dust and odour);
- hazardous materials (fuels etc) storage, use, refuelling and maintenance , emergency response etc;
- measures required to be implemented for the proposed excavation works;
- waste management;
- traffic management ;
- material tracking and documentation;
- procedures for safely working in and around the electrical easement;
- groundwater and acid sulphate soil management (where excavations are required);
- Imported Fill Quality Plan;
- EEC protection / landscape;
- heritage (contingency in event aboriginal artefacts encountered);
- Bushfire Management Plan;
- monitoring requirements; and
- contingencies.

The CEMP specifies actions, responsibilities, conformance requirements and mitigation activities to be followed during the construction phase of the Facility.

The mitigations and measures detailed in this plan are required as a minimum to achieve compliance with the requirements of the project approval and commitments contained within the Environmental Assessment (EA), Submissions Report and Statement of Commitments.
No work is to commence onsite unless this CEMP has been determined acceptable to CiviLake and approved by the CiviLake Manager and the Director-General of DP&I.

This CEMP is a live document and will be reviewed and updated where necessary to reflect changes introduced by the project team, site specific outcomes, non-conformances and recommendations arising out of inspections, meetings and audits. Minor revisions will be endorsed by the Manager CiviLake, however any major revisions will also require review and endorsement by the Director-General of DP&I.

This CEMP should be read in conjunction with other Teralba Sustainable Resource Centre plans including:
- Occupational Health and Safety Management Plan (OHSMP); and
- Biodiversity and Offsets Management Plan.

1.2 Objectives of the CEMP

The objectives for the Teralba Sustainable Resource Centre CEMP are summarised in Table 1:

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Targets</th>
<th>Execution</th>
</tr>
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<tbody>
<tr>
<td>Compliance with Environmental Legislation</td>
<td>100% Compliance with all legal requirements</td>
<td>Review of Audit reports</td>
</tr>
<tr>
<td>Compliance with Conditions of Approval</td>
<td>100% Compliance with conditions of consent</td>
<td>Review of Audit reports</td>
</tr>
<tr>
<td>Avoidance of environmental harm</td>
<td>Compliance with CEMP and environmental procedures</td>
<td>- Installation and monitoring of environmental controls</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Environmental reporting, auditing and recording</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Awareness and education</td>
</tr>
<tr>
<td>Conformance with best practice environmental management procedures</td>
<td>Conduct environmental site inductions</td>
<td>- Training of personnel in CEMP measures</td>
</tr>
<tr>
<td></td>
<td>- Achieve targets in sub-plans and checklists</td>
<td>- Environmental monitoring and audits</td>
</tr>
<tr>
<td></td>
<td>- Undertake environmental inspections</td>
<td>- Review of non-conformance register</td>
</tr>
<tr>
<td></td>
<td>- Undertake audits as per audit program</td>
<td>- Review of environmental reports</td>
</tr>
<tr>
<td></td>
<td>- Report and log all environmental incidents and non-conformances</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Assign and complete corrective actions in designated timeframe</td>
<td></td>
</tr>
<tr>
<td>Maintain commitments to stakeholders and community</td>
<td>Minimal complaints</td>
<td>Review of complaints register</td>
</tr>
<tr>
<td></td>
<td>- Respond to all complaints within a 48 hour period</td>
<td></td>
</tr>
</tbody>
</table>
1.3 Document Control

This CEMP will be issued to the Site Supervisor and relevant extracts to other parties as controlled copies. A distribution list of documents issued will be maintained by the Project Manager.

Revisions to this CEMP may be required during the project to reflect changing circumstances. Revisions may result from:
- Management review;
- Audit (either internal or external);
- Complaints or non-conformance reports; and
- Changes in legislation.

As described in Section 1.1, minor revisions will be endorsed by the Manager CiviLake with major revisions requiring review and endorsement by the Director-General of the DP&I. The CEMP Management Review/Audit procedure is described in Section 10.1.

In addition, CiviLake shall comply with condition 7, Schedule 6 of the project approval which requires:

"From the commencement of the construction of the project, the Proponent shall make the following information publicly available on its website as it is progressively required by the approval:
   a) a copy of all current statutory approvals;
   b) a copy of the current plans and programs required under this approval;
   c) a summary of the monitoring results of the Project, which have been reported in accordance with the various plans and programs approved under the conditions of this approval;
   d) a complaints register, which is to be updated on a monthly basis;
   e) a copy of the Three Yearly Reviews (over the last 6 years); and
   f) any other matter required by the Director-General".

Compliance with the above condition 7 will be the responsibility of the Project Manager.

1.4 Records

The Project Manager shall maintain environmental records as part of the project records. The following records will be maintained during construction:

Table 2 - Records

<table>
<thead>
<tr>
<th>Record</th>
<th>Type</th>
<th>Minimum length of time to keep record from completion of construction</th>
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<tbody>
<tr>
<td>Daily Diaries</td>
<td>Hard copy</td>
<td>7 years</td>
</tr>
<tr>
<td>Inspections</td>
<td>Electronic copy</td>
<td>7 years</td>
</tr>
<tr>
<td>Waste Dockets (if any)</td>
<td>Hard copy</td>
<td>7 years</td>
</tr>
<tr>
<td>Monitoring Results (including test results as required)</td>
<td>Electronic copy</td>
<td>7 years</td>
</tr>
<tr>
<td>Audit Reports</td>
<td>Electronic copy</td>
<td>7 years</td>
</tr>
<tr>
<td>Incident Reports</td>
<td>Electronic copy</td>
<td>7 years</td>
</tr>
<tr>
<td>Training Records (e.g. Induction)</td>
<td>Electronic copy</td>
<td>7 years</td>
</tr>
<tr>
<td>Complaints Records</td>
<td>Electronic copy</td>
<td>7 years</td>
</tr>
<tr>
<td>Monthly Environmental Management Reports</td>
<td>Electronic copy</td>
<td>7 years</td>
</tr>
<tr>
<td>Materials Tracking Documentation</td>
<td>Hard Copy</td>
<td>7 years</td>
</tr>
</tbody>
</table>
2.0 Compliance Requirements

2.1 Conditions of Approval
Refer to Appendix A for the conditions of approval for the Teralba Sustainable Resource Project. Conditions of approval relevant to the construction phase have been incorporated within this CEMP.

2.2 Legislative Compliance
The environmental compliance requirements and legislative context of this Project are listed below and addressed in the Environmental Assessment for the Facility. The primary statutory instruments applicable to this project include but are not limited to those listed in the following sub-sections.

2.2.1 State Legislation
- Environmental Planning and Assessment Act 1979
- Protection of the Environment Operations Act 1997
- Threatened Species Conservation Act 1995
- National Parks and Wildlife Act 1974
- Native Vegetation Act 2003

2.2.2 State Environmental Planning Policies
- State Environmental Planning Policy (Major Development) 2005
- State Environmental Planning Policy (Infrastructure) 2007
- State Environmental Planning Policy 14 – Coastal Wetlands
- State Environmental Planning Policy 33 – Hazardous and Offensive Development
- State Environmental Planning Policy 44 – Koala Habitat
- State Environmental Planning Policy 55 – Remediation of Land
- State Environmental Planning Policy No 71 – Coastal Protection

2.2.3 Regional Context
Draft Newcastle-Lake Macquarie Western Corridor Planning Strategy (DoP, 2009)

2.2.4 Local Planning Instruments and Controls
Lake Macquarie Local Environmental Plan 2004
- Clause 15 – Land Zoning
- Clause 16 – Development Consent – Matters for Consideration
- Clause 17 - Provision of Essential Infrastructure
- Clause 29 – Building Heights
- Clause 30 – Control of Pollution
- Clause 31 - Erosion and Sediment Control
- Clause 32 - Flood Prone Land
- Clause 33 - Bush Fire Considerations
- Clause 35 - Acid Sulphate Soils
- Clause 60 - Development on Land Adjoining Zones 5, 7 (1), 7 (4) and 8
2.3 Approvals, Licences, Permits

The following environmental approvals, licences or permits are associated with the Project and must be obtained:

- An Environmental Protection Licence (EPL) under the Protection of the Environment Operations Act 1997 is required for the operation of a waste recycling facility, from the NSW Office of Environment and Heritage (OEH) prior to commencement of operation.

- A Section 91 Licence is required to be obtained under the Threatened Species Conservation Act 1995 to collect seeds from the *Angophora inopina* trees on the western boundary a part of the biodiversity offsets strategy

- In the event of an Aboriginal artefact or site being discovered during the works, work in the area shall cease, and OEH shall be notified. In this situation, a qualified archaeologist shall be engaged to survey any sites or artefacts and the relevant Aboriginal community representatives shall be contacted. Under the National Parks and Wildlife Act 1974, a permit is required from the OEH for consent to disturb or destroy any Aboriginal artefact or site

- In the event of any relic (artefact or site over 50 years of age) being discovered during works, work in the area shall cease, and OEH shall be notified. In this situation, a qualified archaeologist shall be engaged to survey any sites or artefacts. Pending advice from Council and the Heritage Office, an excavation permit, under the Heritage Act, 1977 to allow the destruction or removal of the relic is likely to be required.

- Ausgrid approval is required prior to installation of the high voltage power supply including pole mounted substation to the Site.

- Approval from Hunter Water is required prior to installing the water main to supply the Site.

- As per condition 14a, Schedule 4 of the conditions of approval for the project, the proposed on-site sewage treatment system is required to be operated in accordance with a Network Operator’s Licence under the Water Industry Competition Act 2006, should this Act be applicable to the Site. This is to be confirmed prior to operation of the on-site sewage system.

Note the above list in not necessarily comprehensive and CivLake shall ensure necessary approvals, licences and permits are obtained where applicable for all construction activities.

2.4 Consultation with Key Agencies

Consultation has been undertaken with key agencies throughout the preliminary design phase and environmental assessment of the Facility, including:

- OEH (previously DECCW);
- RTA;
- Lake Macquarie City Council (LMCC);
- DP&I Hunter Region;
- DP&I Heritage Branch;
- Hunter – Central Rivers Catchment Management Authority (CMA);
- Industry and Investment – Fisheries;
- Industry and Investment – Mining;
- NSW Office of Water;
- NSW Rural Fire Service (RFS);
- Ausgrid (previously EnergyAustralia);
- Mine Subsidence Board (MSB)'
- Hunter Water’ and
- Koompathoo Local Aboriginal Land Council (KLALC).
Issues raised by each of the above agencies are included in the EA, Section 4.2.

In addition submissions were received following the exhibition of the EA from DoPl, OEH, RTA, Office of Water, Hunter Water, Rural Fire Service and the Hunter Regional Development Corporation and were responded to in the Submissions Report and in a Post Submissions letter dated 11 March 2011.
3.0 Existing Environment

The subject site comprises Lots 42, 43, 53 and 54 in DP 16062, The Weir Road, Teralba (the Site) and has a total area of approximately seven hectares. The Weir Road adjoins the southern edge of the Site. Access to the property via the Weir Road is from two directions, Barnsley to the west and Teralba to the southeast.

The property is located approximately 2km north of the village of Teralba and consists almost entirely of cleared, open and weedy pasture. However, threatened and significant ecological communities and flora species surround the Site up to its boundary.

The Site is located in an alluvial back swamp approximately 200m south of Cockle Creek. The closest point of the creek is approximately 200m from the proposed Facility. A SEPP 14 Wetland exists 200m to the south of the Site and a number of vegetation communities adjoin the Site to the north, west and east. Shallow unlined drainage channels flow east from the Site through an existing drainage pathway and eventually into the wetland. The groundwater levels measured at the Site range from around 0.5m RL in dry periods and 1.5-1.8m RL measured following high rainfall.

The land is elevated approximately 1m relative to the adjoining land, due to the previous land use of sanitary disposal involving the deposition of biosolids over the Site. Fill depths of greater than 2.9 m have been recorded. Locally the Site is gently undulating, and the ground surface is hummocky and irregular due to the presence of fill on the Site. The ground surface contains troughs approximately 1m in depth. Generally the Site slopes at <5° to the south. Surface soils consist of loose sand and clayey sand fill.

Bushland buffers the Site to the north, south, east and west. The nearest building is the LMCC owned and operated Teralba Worm Farm Waste Education Centre, which is approximately 300m to the east of the Site. The nearest residential property is approximately 300m to the south-east of the Site on Martin Place in Edgeworth and there are some residential properties some 800m to the south-west of the site on the Weir Road. Riparian vegetation covers the entire strip between Edgeworth and the Site. The Edgeworth Sewage Treatment Works is approx 400m to the north of the site.

An Ausgrid (formerly EnergyAustralia) electricity easement bisects the site running east-west with 132kV power transmission lines.

An aerial photograph of the site area is shown below as Figure 1.
Figure 1 – Aerial Photograph of Site Area
4.0 Project Description

4.1 General Description of the Project

The purpose of the proposed development is to receive and recycle up to 200,000 tonnes per year of construction and green waste material for reuse within CiviLake operations and resale to the construction industry. Materials that would be stored, sorted, reprocessed and stockpiled on the Facility include concrete, asphalt, recycled asphalt pavement, road base, green waste, bricks, tiles and soil. After reprocessing, materials would be stored on-site, tested to any necessary OEH requirements, then sold.

The Site would be filled over a period in the order of three years, as fill becomes available from CiviLake works or third party suppliers on a campaign basis. It is expected that the majority of fill would be obtained from spoil generated from construction projects. All fill used in the construction of the facility would be tested to ensure it meets the requirements of VENM and/or ENM or other material approved by the OEH.

A description of the design process, proposed site layout and Facility operations are provided in the EA. The proposed site layout is presented in Figure 2 below.

Figure 2 – Proposed Site Layout

4.2 Scope of Construction Works

The anticipated staging of the Facility’s construction phase is summarised below:

- **Stage 1** (in the order of three years)
  - *Filling the Site to design levels* - The Site would be raised around 2m to 3m above existing levels, in order to ensure that the proposed Facility is clear of the 100 year flood level, and to provide sufficient freeboard volume to minimise uncontrolled stormwater discharge from the Site. An estimated 200,000 tonnes of fill is required to raise the Site to its proposed level. Prior to the commencement of filling, clearing, grubbing and some re-grading of the Site will occur.
  - *Completing site remediation including installing the capping layer* - The filling of the Site also provides a remediation function, being a cap and contain strategy, although the entire 2m to 3m may not be
required for this purpose. The gradual filling of the Site ensures that any impacted soils onsite as a result of previous uses are managed on-site so as to minimise potential risk to the environment or human health. Impacted soils would be capped by the placement of capping layer materials to prevent exposure to site occupiers or workers.

- **Installing water treatment ponds** – The treatment ponds would be installed during this first stage of construction. Temporary sediment storage basins will be provided during construction (generally in the same vicinity as the permanent water treatment ponds). The intention is that the temporary sediment basins will be shaped as the construction of the Facility progresses, where practicable, to become the permanent water treatment ponds and subsequently lined. Further details of the temporary Sediment Basins and other erosion and sediment control measures for the Site are included in the Construction Soil and Water Management Sub-Plan.

- **Landscaping** - An embankment would be constructed which runs around the perimeter of the proposed Facility to raise the Site level above the 100 ARI flood level. The embankment would vary in height from 1m to 1.9m and have batter slopes typically of 3:1 and would be vegetated with appropriate native species for stabilisation and amenity. Three primary treatment types are proposed for the landscape treatment of the Site; bush regeneration, entry treatment and perimeter planting as discussed in the Landscape Management Plan in Appendix M of the EA. A specialised planting palette is also proposed for water treatment elements.

- **Fencing** - A security fence would be erected on top of the perimeter embankment and surround the proposed Facility. Low impact fencing (stock fencing) would run around the perimeter of the Site boundary, sufficient to preclude stock from the proposed landscape restoration areas. Where this fencing passes through EEC's, it is to be very low impact, in that no trees would be removed in order to erect the fence, and the fence would deviate from the boundary line as required to achieve protection of EEC’s.

- **Construction of site access** - All access for operation of the proposed Facility would be via a single entry / exit point located at the centre of the Site along The Weir Road. In order to facilitate this access, a new two lane – two way road is proposed to intersect The Weir Road in a Basic Right Turn (BAR) arrangement. The new access road leading into the Facility would be sealed for the length from The Weir Road to the weighbridge and 20m beyond. Internal access and circulation is provided via an access road in the order of 6m wide. This access road has been designed to accommodate all weather haul access and would be managed as a one-way system, in order to avoid internal traffic conflicts during operation. Temporary construction access until the entry intersection is constructed is discussed in Section 7.10. of this CEMP.

- **Installation of weighbridge** (as soon as sufficient fill has been placed in the weighbridge area) – a 60-tonne weighbridge would be situated at the entry to the Facility, approximately 70m from The Weir Road to allow for truck queuing.

- **Installation of at least one of the storage sheds** (so construction vehicles can be securely stored) - measuring 24m x 18m x 6m, the shed would be located north east of the administration office along the eastern boundary of the proposed Facility and would be fabricated of steel and trim deck colour wall sheeting and constructed over slab on ground.

- **Installation of power, water and telecommunications supply to the Facility.**

- **Installation of product bins** - A series of 7m x 10m x 2m product storage bins would be located along the south western boundary of the proposed Facility. These bins, which would be constructed of large concrete blocks, have been situated away from processing areas to avoid operational risks.

- **Stage 2** (to be completed shortly after Stage 1)
  - **Installation of remaining buildings including additional storage shed and office building.**
  - **Connection of services to buildings.**

- **Stage 3** (greater than five years)
  - **Installation of pug mill and concrete batch plant to the Facility.**

The cap would be fully installed prior to any waste processing taking place. CiviLake may however, commence importation of feedstock prior to completion of the filling, provided the water management system and weighbridge
have been installed, after a portion of the Site adequate to stockpile feedstock has been filled to final design levels and subject to OEH providing a licence to commence such activities. Any operational activities would be subject to completion of the Operational Environmental Management Plan and obtaining the EPL from the OEH.

4.3 Construction Site Facilities

The following considerations will be made when selecting the location for the construction site compound within the development:

- Within the footprint of the proposed development and not encroaching on any ecological endangered communities;
- Locate office, amenities, dry storage and any chemical storages above flood level and away from natural surface drainage lines;
- Suitable vehicle access;
- Separate storage for fuels, chemicals and hazardous goods, inside bunded area(s) above flood levels;
- Minimise potential for work near dry vegetation which could cause fire; and
- If lighting is required for night-time security, locate lights to avoid nuisance to neighbours.

All site sheds and other facilities will present a neat appearance with safety signs erected as required. The site compound area will be regularly maintained and will be kept tidy and free of rubbish. Covered rubbish bins will be provided.
5.0 Structure and Responsibilities

The project shall be managed by the project delivery team as per the list presented below.

During the construction period, all personnel including the Project Manager, Site Supervisor, Work Assistants and engaged Contractors have general responsibilities in the development of a positive Environmental Management culture and for ensuring all activities are conducted in a manner which is consistent with the CEMP. Specific project responsibilities in relation to environmental management are shown below:

Manager CiviLake

The Manager of CiviLake is responsible for:
- Approving the CEMP;
- Approving any revisions to the CEMP;
- Approving appointment of the Project Manager;
- Periodic management review of the CEMP and its implementation;
- Investigating any serious incidents, complaints or non conformances and ensuring necessary corrective action is implemented.

Section Manager Projects

The Section Manager Projects reports to the Manager CiviLake and may be delegated responsibilities in relation to the CEMP by the Manager CiviLake.

Project Manager

The Project Manager reports to the Section Manager Projects and is responsible for the day-to-day management of environmental performance on the project. The Project Manager is ultimately accountable for the implementation of the requirements contained within this CEMP. The Project Manager is responsible for:
- assisting in preparing and implementing the CEMP;
- instructing project personnel on how to comply with environmental policy and procedures;
- ensuring the Site Supervisor is aware of and complies with the environmental obligations as detailed within this CEMP;
- ensuring that employees, contractors and sub-contractors are aware of, and comply with, the conditions of approval and requirements of the CEMP relevant to their respective activities;
- arranging periodic monitoring and inspection by suitably trained personnel;
- regular site inspections and the active pursuit of opportunities to enhance environmental outcomes;
- tracking and reporting environmental performance;
- tracking and compliance against the conditions of approval for the scope of works being performed;
- monthly evaluation of how effectively environmental controls are performing;
- initiating remedial measures when environmental deficiencies are observed or in response to environmental complaints;
- restriction of construction activities affected by an environmental deficiencies until remedial action has been taken;
- maintaining environmental performance records;
- engaging consultants where required to provide support in relation to implementing the CEMP; and
- investigating any incidents or complaints and ensuring necessary corrective action is implemented (in consultation with Section Manger and Manager CiviLake for significant incidents / complaints).
Site Supervisor

The Site Supervisor will report to the Project Manager and is responsible for:-
- Managing employees / contractors and construction activities on a daily basis to ensure the appropriate environmental controls are implemented and maintained in accordance with the requirements of the CEMP;
- Ensuring all staff are inducted into the site and undertake daily tool box talks;
- Undertake daily site inspections of environmental controls and maintain records of environmental actions;
- Reporting any environmental management concerns or incidents immediately to the Project Manager;
- Recommending improvements to the CEMP to the Project Manager; and
- Implementing any corrective actions issued as a result of any site inspections, audits or meeting.

Works Assistants and Contractors

The Work Assistants and Contractors will report to the Site Supervisor and are responsible for:-
- Implementing the CEMP as they apply to their works; and
- Reporting any environmental management concerns or incidents immediately to the Site Supervisor.
6.0 Environmental Risk Assessment

Environmental aspects and potential construction stage environmental impacts have been identified based on the Environmental Assessment and supporting studies, the Consent Conditions and CiviLake and AECOM general experience on construction projects as shown on Table 5.

The Risk Assessment Matrix in Table 3 has been used to assess the unmitigated risk of each individual environmental aspect relevant to the construction of the Facility.

The level of risk assessed from the matrix informs the level of mitigations required for that environmental aspect. These risks are to be mitigated through the application of measures identified in this CEMP.

### Table 3 Risk Assessment Matrix

<table>
<thead>
<tr>
<th>Probability</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>M</td>
</tr>
<tr>
<td>2</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>3</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>4</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
</tr>
</tbody>
</table>

The following table provides explanatory notes on the selection of the consequence and probability for each environmental aspect.

### Table 4 Risk Matrix Explanation

<table>
<thead>
<tr>
<th>Probability</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Almost Certain</td>
<td>Expected to occur, quite common.</td>
</tr>
<tr>
<td>B Likely</td>
<td>Will probably occur, has happened.</td>
</tr>
<tr>
<td>C Possible</td>
<td>Might occur at some time.</td>
</tr>
<tr>
<td>D Unlikely</td>
<td>Could occur at some time although unlikely.</td>
</tr>
<tr>
<td>E Rare</td>
<td>Might occur at some time in exceptional circumstances.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Probability</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Almost Certain</td>
<td>Expected to occur, quite common.</td>
</tr>
<tr>
<td>B Likely</td>
<td>Will probably occur, has happened.</td>
</tr>
<tr>
<td>C Possible</td>
<td>Might occur at some time.</td>
</tr>
<tr>
<td>D Unlikely</td>
<td>Could occur at some time although unlikely.</td>
</tr>
<tr>
<td>E Rare</td>
<td>Might occur at some time in exceptional circumstances.</td>
</tr>
</tbody>
</table>

- Major: Major environmental harm. e.g., major pollution incident causing significant damage or potential to health or the environment.
- Significant: Long term or serious environmental damage.
- Moderate: Moderate environmental impact.
- Minor: Minimal environmental harm.
- Insignificant: Little or no environmental harm.
Table 5  Environmental Aspects and Environmental Risk Assessment

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Potential Construction Stage Impact</th>
<th>Probability</th>
<th>Consequence</th>
<th>Risk Ranking</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site security and access</td>
<td>Unauthorised dumping of waste materials on the Site</td>
<td>C</td>
<td>2</td>
<td>High</td>
<td>Refer Section 7.2</td>
</tr>
<tr>
<td></td>
<td>Entry of unauthorised persons or vehicles onto the Site</td>
<td>C</td>
<td>3</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Sedimentation and erosion control and</td>
<td>Erosion of sediments from stockpiles or exposed areas</td>
<td>B</td>
<td>2</td>
<td>High</td>
<td>Refer Section 7.5</td>
</tr>
<tr>
<td>construction stormwater management</td>
<td>Discharge of sediment laden stormwater leading to potential impacts to downstream environment</td>
<td>B</td>
<td>2</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant flood during construction</td>
<td>C</td>
<td>3</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td>Excessive noise generated by truck and vehicle movements</td>
<td>C</td>
<td>3</td>
<td>Medium</td>
<td>Refer Section 7.6</td>
</tr>
<tr>
<td></td>
<td>Sleep disturbance from construction noise</td>
<td>D</td>
<td>2</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Air Quality and Dust</td>
<td>Generation of dust from soil stockpiles and other exposed areas</td>
<td>B</td>
<td>3</td>
<td>High</td>
<td>Refer section 7.7</td>
</tr>
<tr>
<td></td>
<td>Generation of dust during handling of soil</td>
<td>B</td>
<td>3</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Generation of dust from vehicle movements</td>
<td>C</td>
<td>4</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unacceptable emissions from vehicles / plant</td>
<td>D</td>
<td>4</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Hazardous Materials</td>
<td>Leaking or spillage of fuels or chemicals stored or used on the Site leading to potential impacts</td>
<td>C</td>
<td>1</td>
<td>High</td>
<td>Refer Section 7.8</td>
</tr>
<tr>
<td></td>
<td>to soil, groundwater or surface water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Explosion of fuels or chemicals stored or used on the Site</td>
<td>E</td>
<td>1</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Waste Management</td>
<td>Inappropriate disposal of waste</td>
<td>D</td>
<td>2</td>
<td>Medium</td>
<td>Refer Section 7.9</td>
</tr>
<tr>
<td></td>
<td>Not minimising generation of waste</td>
<td>D</td>
<td>4</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Traffic Management</td>
<td>Traffic causing congestion or damage on local roadways</td>
<td>D</td>
<td>3</td>
<td>Medium</td>
<td>Refer Section 7.10</td>
</tr>
<tr>
<td></td>
<td>Traffic incident / accident</td>
<td>D</td>
<td>2</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Materials Management</td>
<td>Unintended mixing of materials (clean vs yet to be validated etc)</td>
<td>C</td>
<td>2</td>
<td>High</td>
<td>Refer Section 7.11</td>
</tr>
<tr>
<td>Electricity</td>
<td>Safety risks from working in and around the easement</td>
<td>C</td>
<td>1</td>
<td>High</td>
<td>Refer Section 7.12</td>
</tr>
<tr>
<td>Aspect</td>
<td>Potential Construction Stage Impact</td>
<td>Probability</td>
<td>Consequence</td>
<td>Risk Ranking</td>
<td>Controls</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-------------</td>
<td>--------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Transmissions Easement</td>
<td>Potential damage to electrical transmission infrastructure</td>
<td>D</td>
<td>2</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Groundwater and ASS Management</td>
<td>Management of potentially contaminated groundwater if encountered during excavation activities (i.e. dewatering requirements)</td>
<td>C</td>
<td>3</td>
<td>Medium</td>
<td>Refer Section 7.13</td>
</tr>
<tr>
<td></td>
<td>Encountering ASS during excavation activities</td>
<td>D</td>
<td>3</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Fill Importation</td>
<td>Importation of material that does not meet VENM / ENM classification or another classification approved by OEH</td>
<td>C</td>
<td>2</td>
<td>High</td>
<td>Refer Section 7.14</td>
</tr>
<tr>
<td></td>
<td>Importation of contaminated material</td>
<td>C</td>
<td>2</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inability to demonstrate that imported material meets approved classification</td>
<td>C</td>
<td>2</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Contamination management</td>
<td>Covered in remedial action plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flora and Fauna</td>
<td>Potential unintentional damage to EEC beyond the south-eastern and south-western corners of the worksite</td>
<td>C</td>
<td>2</td>
<td>High</td>
<td>Refer to Biodiversity and Offset Management Plan.</td>
</tr>
<tr>
<td></td>
<td>Spread of noxious weeds</td>
<td>C</td>
<td>2</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unauthorised removal of EEC or Endangered Species</td>
<td>D</td>
<td>2</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Heritage</td>
<td>Disturbance of aboriginal artefacts or skeletal remains during excavation activities</td>
<td>E</td>
<td>2</td>
<td>Medium</td>
<td>Refer Section 7.16</td>
</tr>
<tr>
<td>Bushfire</td>
<td>Construction works causing a bushfire</td>
<td>C</td>
<td>2</td>
<td>High</td>
<td>Refer Section 7.17</td>
</tr>
<tr>
<td></td>
<td>Bushfire in area affecting construction works</td>
<td>C</td>
<td>2</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>Persons entering the Site not being aware of requirements of this CEMP</td>
<td>C</td>
<td>2</td>
<td>High</td>
<td>Refer Section 7.14</td>
</tr>
</tbody>
</table>
7.0 Environmental Management and Controls

7.1 Introduction

This section identifies the management measures which will be implemented during the construction of the development to mitigate against the environmental aspects identified in Table 5. The Project Manager will ensure that personnel responsible for undertaking the works are aware of their roles and responsibilities as detailed in this CEMP.

The following sub-plans, which are attached as appendices to this CEMP, have been prepared:
- Construction Traffic Management Sub-Plan;
- Construction Soil and Water Management Sub-Plan;
- Imported Fill Material Management Sub-Plan; and
- Bushfire Management Sub-Plan.

Where a sub-plan has been prepared for a particular issue, the environmental management activities and management measures to be implemented are detailed in the sub-plan.

It is intended that this CEMP be a live document and that it be regularly reviewed for effectiveness with procedures to be modified where considered beneficial. Procedures for review are discussed in Section 10.1.

In addition, a Biodiversity and Offset Management Plan for the Site has been prepared separately.

7.2 Site Security and Access

7.2.1 Objectives

- Prevent entrance of unauthorised people to site during construction activities; and
- Prevent importation of contaminated fill and dumping of external waste materials on site.

7.2.2 Applicable Conditions of Approval / Statements of Commitment

Condition 5 in Schedule 4 of the conditions of approval requires:
“The Proponent shall:
(a) install and maintain a perimeter stock fence and security gates on the Site; and
(b) ensure that the security gates on site are locked whenever the Site is unattended”.

7.2.3 Management Measures

1) A perimeter security fence is to be installed prior to commencement of construction and maintained through the construction period.

The fencing must be located outside areas of EEC nominated for protection (i.e. should provide physical separation between the proposed works area and the EEC). In this regard the boundary of EEC areas shall be physically marked on the Site by an ecologist prior to placement of the fence (particularly in the south-eastern and south-western corners of the Site).

2) Until such time as the entry intersection is constructed suitable temporary construction access arrangement will be used. These are discussed in the Construction Traffic Management Sub-Plan in Appendix B.

3) All entry/exit points should be monitored / controlled while the Site is open to prevent entry of unauthorised persons / vehicles. CivilLake is to develop a suitable site access protocol.

4) Access for trucks delivering fill to the Site should be managed in accordance with the Imported Fill Material Management Plan (Section 7.14).

5) All site personnel must undergo site induction including the requirements of this CEMP. For deliveries and visitors a separate smaller induction will be undertaken.
7.2.4 Monitoring and Reporting

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Frequency</th>
<th>Person Responsible</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual check that perimeter fence intact</td>
<td>Weekly</td>
<td>Site Supervisor/Project Manager</td>
<td>Weekly Inspection Checklist</td>
</tr>
<tr>
<td>Visual check that site has been properly secured (i.e. gates locked)</td>
<td>Prior to closing the Site each day and prior to any occasion where site becomes vacated</td>
<td>Site Supervisor</td>
<td>Daily Diaries</td>
</tr>
</tbody>
</table>

7.3 Hours of Operation

7.3.1 Objectives
- Prevent after hours noise and traffic impacts.

7.3.2 Applicable Conditions of Approval / Statements of Commitment
Condition 23 in Schedule 4 of the conditions of approval requires:
“The Proponent shall comply with the operating hours in the following table:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Day</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Monday – Friday</td>
<td>7 am – 6 pm</td>
</tr>
<tr>
<td></td>
<td>Saturday</td>
<td>8 am – 1 pm</td>
</tr>
<tr>
<td></td>
<td>Sunday &amp; Public Holidays</td>
<td>Nil</td>
</tr>
</tbody>
</table>

7.3.3 Management Measures
1) Construction work shall be conducted only within the approved hours as per the table in Section 7.3.2.

7.4 Site Signage Requirements

7.4.1 Objectives
- To provide safe and clear signage to facilitate ease of construction.

7.4.2 Applicable Conditions of Approval / Statements of Commitment
Condition 28 in Schedule 4 of the conditions of approval requires:
“The Proponent shall not install any advertising signs on site without the written approval of the Director-General”.
Also, the Statement of Commitments (Appendix 1 in Appendix A) states that site signage requirements are to include contact numbers and hours of operation.

7.4.3 Management Measures
1) No advertising signs to be installed on site without the written approval of the Director-General of the DP&I.
2) Site signage is to display a contact number for the Project Manager and approved hours of operation.
3) Signage is required in the electrical transmission easement as described in Section 7.12.
4) CiviLake will assess requirements for additional site signage during construction and install such signage as required.
7.4.4 Monitoring and Reporting

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Frequency</th>
<th>Person Responsible</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual check that site signage is intact and adequate</td>
<td>Prior to closing the Site each day</td>
<td>Site Supervisor</td>
<td>Daily Diaries</td>
</tr>
<tr>
<td>Visual check that site signage is intact and adequate</td>
<td>Weekly</td>
<td>Site Supervisor/Project Manager</td>
<td>Weekly Inspection Checklist</td>
</tr>
</tbody>
</table>

7.5 Soil and Water Management

Refer to the Construction Soil and Water Management Sub-Plan in Appendix C for objectives, management measures and monitoring requirements related to Soil and Water.

It is noted that Condition 9 of Schedule 4 of the conditions of approval requires:

(a) a groundwater monitoring plan that should be designed to determine trends in groundwater status before and after construction. The groundwater monitoring plan shall:

- be submitted for approval prior to commencement of construction;
- be designed to determine groundwater flow directions, rates of migration and fate of contaminants;
- include a sampling regime at the receiving water body (if required); and
- be eventually incorporated into the operational Soil and Water Management Plan

The groundwater monitoring plan meeting the above requirements has been prepared as a separate document.

7.6 Noise Management

7.6.1 Objectives

- Prevent excessive noise generated by truck and vehicle movements.

Noise emissions are capable of generating adverse noise impacts, therefore causing disturbance to neighbours and wildlife, may come from truck movements and truck generated noise from material receiving and fill placement.

The Interim Construction Noise Guideline (Table 4.1) issued by the Department of Environment & Climate Change NSW (now OEH) in July 2009 gives a management level of RBL + 10dB(A) for construction carried out within the recommended standard hours of 7am to 6pm, Monday to Friday. This results in an allowable limit of 50 dB(A) LAeq(15-minute) 15 min for residential receptors for the construction of the proposed facility.

Typical construction equipment noise levels that are likely to be associated with the construction of the recycling facility were taken from Hunter Acoustics database and predicted received construction sound pressure levels were determined at sensitive receptors. The total Sound Power Level for the worst case scenario during the construction process of the proposed facility was assessed as having a worst case received noise level of 40 dB(A) which is less than the operational noise of the facility and below the daytime target noise limits for operation, therefore, will remain non-intrusive during the construction process.

7.6.2 Applicable Conditions of Approval / Statements of Commitment

Condition 22 of Schedule 4 of the conditions of approval states that "At all times the Proponent must ensure that all vehicles, including contractor vehicles, do not use compression breaks on the main haulage routes as identified in the EA"

Condition 9 of Schedule 3 of the conditions of approval states:

"The Proponent shall ensure that all plant and equipment used for the Project is:

(a) maintained in a proper and efficient condition; and
(b) operated in a proper and efficient manner."
The Statement of Commitments requires:

Reversing alarms or audible warning devices on loaders and other equipment will be of broadband type and have levels that do not exceed 85 dB(A) when measured at a distance of 7m directly behind the rear of the equipment (Fit BBS-TEK Alarms - Medium and Light Duty Model 600-BBS087 or equivalent).

7.6.3 Management Measures

1) Restrict levels of reversing alarms and audible warning devices – these will be of a broadband type and have levels that do not exceed 85 dB(A) when measured at a distance of 7m directly behind the rear of the equipment (Fit BBS-TEK Alarms – Medium & Light Duty Model 600-BBS087 or equivalent);

2) Restrict operations to approved working hours;

3) Ensure all vehicles follow approved road access, and maintain road surfaces in good condition (i.e. minimise potholes) to avoid excessive noise being generated;

4) Ensure all vehicles, including contractor’s vehicles, do not use compression breaks on the main haulage routes as identified in the EA;

5) Ensure all plant and equipment is serviced and repaired as per the manufacturers’ specifications. Defective plant will be stood down until repaired;

6) Should evidence of excessive noise be identified then targeted monitoring may be recommended to identify the source/s of the offensive noise and the management measures would be reviewed to include any additional noise mitigation measures required; and

7) The Construction Traffic Management Plan contains additional measures for minimising traffic noise (refer Section 7.10).

7.6.4 Monitoring and Reporting

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Frequency</th>
<th>Person Responsible</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure levels of reversing alarms at a distance of 7m behind plant using a Fit BBS-TEK Alarms – Medium &amp; Light Duty Model 600-BBS087 or equivalent.</td>
<td>Following any complaints related to noise.</td>
<td>Site Supervisor</td>
<td>Noise Monitoring Record</td>
</tr>
</tbody>
</table>

7.7 Air Quality (Dust and Odour) Management

7.7.1 Objectives

- Minimise air pollution from construction activities;
- Minimise the exposure of areas for wind erosion;
- Control to the maximum extent practicable the generation of dust on site and migration of dust offsite;
- Undertaken activities with the objective of preventing visible dust emissions from the Site; and
- Minimise odour generation at the Site.

7.7.2 Applicable Conditions of Approval / Statement of Commitment

Conditions 18 and 19 in Schedule 4 of the conditions of approval require:

“The Proponent shall implement all reasonable and feasible measures to minimise the dust generated by the project.

During construction and operation, the Proponent shall ensure that:

(a) all trucks entering or leaving the Site with loads have their loads covered; and
(b) the trucks associated with the project do not track dirt onto the public road network.
(c) all areas are maintained in a condition to minimise the emission of wind-blown or traffic-generated dust;
(d) a device is provided to clean the wheels and tyres of heavy vehicles accessing the Site to prevent dust, mud and any other substance from making its way onto the surrounding road network;
(e) all road surfaces are regularly cleaned; and
(f) any mobile crusher used at the Site is fitted with appropriate dust suppression measures”.

Condition 9 of Schedule 3 of the conditions of approval states:
“The Proponent shall ensure that all plant and equipment used for the Project is:
(c) maintained in a proper and efficient condition; and
(d) operated in a proper and efficient manner.”

Condition 15 of Schedule 4 of the conditions of approval states:
“The Proponent shall not cause or permit the emission of offensive odours from the Site, as defined under Section 129 of the POEO Act.”

The Statement of Commitments states:
- Excavation/fill works will only be undertaken during periods of low wind speed;
- Exposed areas will be stabilised as soon as possible to minimise dust generation; and
- Water sprays will be used on unsealed areas and stockpiles.

7.7.3 Management Measures

1) Toolbox meetings will be held to ensure all personnel on site are made aware that if they observe excessive dust in the air leaving the Site they are to immediately inform the Site Supervisor. In such cases, the Site Supervisor will investigate the source of the dust and ensure that proper controls are in place. If those controls prove ineffective that activity will cease until methods to successfully control the dust are employed.

2) The following measures will be implemented to manage dust generation from stockpiles of soil:
   - Minimise the period and volume of stockpiling where practicable;
   - Where any long term stockpiling is required, stabilise the stockpiles with a bitumen emulsion or other suitable material; and
   - Use of water sprays on any unstabilised stockpiles – refer to Section 7.12 for spraying in the electricity easement.

3) Evaluate prevailing weather conditions - excavation/fill works to be undertaken only during periods of low wind speed.

4) Stabilise exposed areas as soon as practicable.

5) Spray water on unsealed areas.

6) Minimise the height from which dust generating material is dropped.

7) Minimise the surface area of a work zone.

8) Use plant and equipment having emissions that comply with NSW EPA criteria. Construction plant and equipment are to be maintained and serviced regularly.

9) Efficient use of plant and equipment, e.g. turning off idling plant and equipment.

10) Covering of truck loads before leaving the Site.

11) Daily visual inspections by the Site Supervisor of the immediate surrounding area to ensure no materials have been lost from vehicles entering or leaving the Site, and to assess general dust generation.

12) Visual inspection of plant on a daily basis by the Site Supervisor for excessive exhaust emissions. Defective plant will be stood down until repaired.

13) Not expected to be any offensive odours generated from the Site. If this does occur work involved is to stop temporarily, the source of odour investigated and solutions actioned such that offensive odour production does not continue.
7.7.4 Monitoring and Reporting

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Frequency</th>
<th>Person Responsible</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual inspection of site for excessive dust generation, weather conditions, truck load covers, condition of stabilised site access.</td>
<td>Daily</td>
<td>Site Supervisor</td>
<td>Daily Diaries</td>
</tr>
<tr>
<td>Visual inspection of stockpile stability.</td>
<td>Weekly</td>
<td>Site supervisor/Project Manager</td>
<td>Weekly Inspection</td>
</tr>
<tr>
<td>Toolbox talks to include reminders about reporting excessive dust from either internal or external sources, covering loads, efficient use of plant and equipment.</td>
<td>Weekly</td>
<td>Site Supervisor</td>
<td>Toolbox Record</td>
</tr>
</tbody>
</table>

7.8 Storage of Hazardous Materials

7.8.1 Objectives

- Prevent pollution arising from leakage or spillage of hazardous materials

The environmental implications relating to hazardous materials storage on site could include oil and fuel leaks during storage, refuelling and maintenance of equipment and plant. Fuel spills have the potential for ignition and fire which could spread to adjoining bushlands. Spills also have the potential to pollute soils, groundwater and surface water including the downstream SEPP14 Wetland.

7.8.2 Applicable Conditions of Approval / Statement of Commitment

Condition 13 in Schedule 4 of the conditions of approval requires:

“The Proponent shall store all chemicals, fuels and oils used on site in appropriately bunded areas, with impervious flooring and sufficient capacity to contain 110% of the largest container stored within the bund, unless double-skinned tanks are used. Any bunds shall be designed and installed in accordance with the requirements of all relevant Australian Standards, and/or OEH’s Storage and handling liquids: Environmental Protection – Participant’s Manual”.

7.8.3 Management Measures

1) Manufacturer’s instructions / Material Safety Data Sheets (MSDS) for substances and materials shall be obtained and kept in a file on site which will be readily available to site personnel when needed.

2) Requirements of Bushfire Management Sub-Plan (Appendix D) shall be implemented for any activities involving storage, use or handling of any potentially flammable materials.

3) Minimise fuel and chemical storage on site.

4) Bunds around any chemical, fuel or oil storage (to contain 110% of largest tank / container, or 25% of the total volume of all drums, whichever is greater). Any bunds shall be designed and installed in accordance with the requirements of all relevant Australian Standards, and/or OEH’s Storage and handling liquids: Environmental Protection – Participant’s Manual”. Storage should be above flood levels.

5) Spill kit to be kept onsite in a marked container (containing absorbent materials – granular, mats, and pillows) and personnel should be trained in spill clean-up and use of spill kit.

6) Training shall be provided on hazardous materials storage and use including spill kit location and use, Hazardous Substances Register etc.

7) The CiviLake procedure for the refuelling of mobile plant (excavators, front end loaders etc) will be implemented. This procedure shall include the following requirements:
   - refuelling operations will be performed no closer than 12m to the Site boundary; and
   - refuelling areas to be appropriately bunded.
8) Vehicles transporting materials on-site will be operated in a manner to prevent any loss of materials during loading, transport and unloading.

### 7.8.4 Monitoring and Reporting

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Frequency</th>
<th>Person Responsible</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual inspection of re-fuelling procedures, bunding</td>
<td>Weekly</td>
<td>Site Supervisor/Project Manager</td>
<td>Weekly Inspection Checklist</td>
</tr>
<tr>
<td>Maintain MSDS register</td>
<td>Weekly</td>
<td>Site Supervisor</td>
<td>MSDS register/Weekly Inspection Checklist</td>
</tr>
<tr>
<td>Maintain Hazardous Substances Register</td>
<td>Weekly</td>
<td>Site Supervisor</td>
<td>Hazardous Substances Register/Weekly Inspection Checklist</td>
</tr>
</tbody>
</table>

#### 7.9 Waste Management Plan

#### 7.9.1 Objectives

- To develop a plan for management of wastes on this site in accordance with the *NSW Waste Avoidance and Resource Recovery Strategy 2007* (WARR). This involves managing the waste in accordance with the waste hierarchy established under the *Waste Avoidance and Resource Recovery Act 2001*. The waste hierarchy is shown below in Figure 3.

[Figure 3 The Waste Hierarchy]

The NSW WARR aims to maximise conservation of natural resources and to minimise environmental harm from waste management and disposal of solid waste.

The specific objectives of the waste management plan include:

- Reduce waste generation associated with site construction activities;
- Where waste generation is unavoidable, promote reuse and recycling;
- Where on-site reuse or recycling is not practicable, appropriate off-site recycling or disposal facilities should be employed, ensuring the responsible treatment of all waste streams; and
- Ensuring all waste disposal is undertaken lawfully.

Minimal waste is anticipated to be generated during the construction stage as:
- There are no existing structures on site requiring demolition;
- A small team of some five persons on average are anticipated to be working on the Site during the construction phase; and
- Only minor structures are proposed and the majority of these will be prefabricated offsite.

Waste generated during the construction phase is anticipated to include:
- Daily waste from site workers (food waste, sewage etc);
- Very minor concrete waste associated with pouring of slabs for site buildings;
- Very minor asphalt waste associated with the new entry intersection;
- Green waste generated from stripping of grass from the site surface; and
- Green waste from removal of trees along the western site boundary.

Contingency procedures will also need to be in place to deal with any waste generated as a result of hazardous material spills (Section 7.8 or any non-conforming fill material that is imported to the Site refer to Section 7.14).

7.9.2 Applicable Conditions of Approval / Statement of Commitment

Conditions 2 and 10 in Schedule 4 of the conditions of approval require:

2. The Proponent must:
   (a) implement auditable procedures to:
       • ensure that the Site does not accept wastes that are prohibited; and
       • screen incoming waste loads.
   (b) ensure that:
       • staff receive adequate training in order to be able to recognise and handle any hazardous or other prohibited waste.

11. The Proponent shall ensure that only VENM and/or ENM or material approved by the OEH is used as fill.

The Statement of Commitments states that: CiviLake will develop a Waste Management Plan to be included in the CEMP and OEMP for the proposed Facility detailing the means by which CiviLake will manage recyclable and waste materials at the Site.

7.9.3 Waste Management Plan

1) Fill importation will be undertaken in accordance with the Imported Fill Material Management Plan (Refer to Section 7.14) which also includes contingency procedures to be followed in the event that unsuitable materials are delivered to Site.
2) Provision of general and recycling bins for site workers to be emptied by Council Waste Management Vehicles as required.
3) Provision of portable toilets for construction workers to be regularly emptied by a liquid waste contractor.
4) Green waste generated from tree removal will be chiped on site before being transported from the Site to be used as mulch.
5) Green waste generated from slashing of grass will be removed to a licensed waste facility.
6) Concrete waste will be temporarily stockpiled on site to eventually be used as feedstock once the facility becomes operational.
7) Any soils requiring offsite disposal will be classified in accordance with the NSW DECCW (2008) Waste Classification Guidelines before being disposed offsite to a suitably licensed facility.
8) Any hazardous liquid waste will be classified in accordance with NSW OEH guidelines before being collected by a suitably licensed contractor to be disposed of or recycled as appropriate.
7.9.4 Monitoring and Reporting

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Frequency</th>
<th>Person Responsible</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual inspection of surface, loads, bins and portable toilets</td>
<td>Weekly</td>
<td>Site Supervisor/Project Manager</td>
<td>Weekly inspection checklist</td>
</tr>
</tbody>
</table>

7.10 Traffic Management

Refer to Construction Traffic Management Sub-Plan contained in Appendix B.

7.11 Material Management (Tracking and Documentation)

7.11.1 Objectives
- To track the movement of fill material and other soil into and out of the Site during Construction.

7.11.2 Management Measures
1) The movement of materials into and out of the Site shall be documented on a daily basis.
2) A register shall be maintained of all truck loads of material imported to the Site as per the Imported Fill Material Management Plan. This register will document for each truck load – the date / time, the name of the person completing the register / undertaking inspections of the load, truck registration, source site of the material, confirmation the truck has appropriate paperwork, truck size, estimated volume of material, description of material and whether it is consistent with the approved material.
3) A register shall also be maintained for any required offsite disposal of material. Proof that the loads have reached their intended destination shall also be obtained (e.g. landfill dockets for landfills).
4) The capping layer would be measured and monitored, particularly while capping is occurring in terms of height and tonnages. With respect to height / thickness of capping, the current site survey (supplemented by additional spot levels if considered necessary) would be used to represent pre-capping conditions. Following completion of capping, the surface of the capping layer would be surveyed and compared to the initial survey to confirm the thickness. Regular survey would also be undertaken during the filling process to track levels as the fill is placed. Initially the volume of fill material imported to the Site would be estimated based on the carrying capacity of trucks entering the Site. This information would be recorded on the register of truck loads as described above. Once the weighbridge is installed all loads would be measured on the weighbridge.
5) On a monthly basis the Site Supervisor shall prepare a brief materials tracking report to be provided to the Project Manager which shall:
   - Summarise the materials movements that have occurred into and out of the Site during the month including materials importation, and export of material;
   - Daily tracking sheets forwarded to administration for electronic storage;
   - Review and comment on the completeness of the tracking documentation;
   - Identify any non-conformances; and
   - Make recommendations for any modifications to the materials tracking procedure.

7.11.3 Monitoring and Reporting

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Frequency</th>
<th>Person Responsible</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material records to admin</td>
<td>Weekly</td>
<td>Site Supervisor</td>
<td>Upload by admin to CivilLake system</td>
</tr>
<tr>
<td>Materials tracking report as per Point 5 above</td>
<td>Monthly</td>
<td>Site Supervisor</td>
<td>Materials Tracking Report</td>
</tr>
</tbody>
</table>
7.12 Electrical Transmission Easement Management

7.12.1 Objectives

- To manage safety hazards to construction workers associated with the Ausgrid (formerly Energy Australia) electrical transmission easement
- To prevent damage to Ausgrid infrastructure (transmission cables and lattice towers) within the easement during construction

An Ausgrid electrical transmission easement for a 132kV overhead power lines transects the Site from east to west as shown on Figure 4 below. A lattice tower for the power lines (TowerIU-50817) is present within the easement close to the eastern boundary of the Site.

On 20 October 2009, Ausgrid advised of the following requirements with regard to the transmission line easement:

- A 12mx12m area centred on the tower either side of the tower base be provided for access which must not be built on or have obstructions to access; and
- The total height of land build-up and stockpiles should not exceed:
  - RL of 10m for 65m from the centre of Tower number IU-50817;
  - RL of 8m for the following 30m; and
  - RL of 6m for the following 130m.

Mr Terry Perkins of Ausgrid subsequently advised that this height of land / stockpile build up allows a 7.5m clearance to the lowest conductor when the conductors are operating at 120 Deg C, a likely worst case scenario which Mr Perkins advised is in line with Ausgrid standards for clearance between roads and 132kV transmission lines.

Ausgrid advised that activities that may occur within the easement include driving/ parking of cars and trucks, operation of mobile plant (with a height limit of 4m), planting of trees, plants and shrubs up to 4m in height and storing / stockpiling of materials that would not burn.

The design for the facility has been developed taking into account the above requirements in relation to the 12m x 12m exclusion area, the land build-up requirements and height of trees allowed in the easement (for the bund planting).

Ausgrid recommended that it be consulted in relation to preparation of the construction and operational management plans and the Statement of Commitments included the commitment that Ausgrid will be consulted during preparation of the CEMP and OEMP.

To this end a meeting was held with representatives of Ausgrid to workshop potential risks and associated control measures relating to the transmission easement.

At the request of Ausgrid, AECOM also undertook a geotechnical review of the implications of the proposed development on the nearby lattice tower foundations (ref: Teralba Sustainable Resource Centre – Geotechnical Assessment of Transmission Tower Foundations, 31 May 2011). The review concluded that no adverse geotechnical risk on the tower is anticipated from the development based on the proposed development plans however it would be prudent to undertake vibration monitoring during earthworks (i.e. during compaction activities) in the vicinity of the lattice tower.

The following section provides general guidance on controls for working in the transmission easement based on consultation with CiviLake and Ausgrid. It is important to note that CiviLake must still undertake their own risk assessment and ensure that the safety documentation and procedures for the Site adequately cover the hazards / risks associated with the electrical transmission easement.
Figure 4 – Electrical Transmission Easement Location

7.12.2 Applicable Conditions of Approval / Statements of Commitment

The Statement of Commitments requires that:

Ausgrid will be consulted during preparation of the CEMP and OEMP with respect to work within the electrical transmission easement.

7.12.3 Management Measures

1) Where in doubt consult Ausgrid.

2) CiviLake shall prepare an OHS Management Plan for the project including risk assessment and safe work method statements which is to cover all safety hazards associated with the construction including with the electrical transmission easement. The following measures are provided as guidance only and do not replace the responsibility of CiviLake and any other parties on the Site to undertake risk assessments for the overall project and specific activities including in and around the transmission easement and to plan and implement appropriate control measures to ensure the construction is completed safely.

The safety plan should be prepared in accordance with WorkCover (2006) Work Near Overhead Power Lines Code of Practice 2006, a copy of which is included in Appendix E.

3) An Occupational Health and Safety Management Plan shall be prepared by CiviLake and should address potential hazards associated with the electrical easement. A risk assessment and activity specific safe work method statement should be prepared for any activity proposed to be undertaken within the easement.

4) The presence of the easement, associated hazards and safety controls shall be included prominently in the site induction to be provided to all persons entering the Site. The electrical transmission easement should also be covered in daily tool box meetings for site workers.

5) Boundary and any other fencing shall be earthed across the easement – including segmented isolation on either side of easement and electric fence insulators on barbed wires.

13 January 2012
6) Table 1 of WorkCover 2006 defines an approach distance of 3m for Ordinary Persons (defined as person without sufficient training or experience to enable them to avoid the dangers which overhead power lines and associated electrical apparatus may create) for up to and including 132KV power lines.

No work or activities may be undertaken closer than 3m to the power lines except by an Accredited Person (who has successfully completed a recognised training course relating to work near overhead power lines that has been conducted by a registered training organisation) and completion of a written risk assessment prior to the commencement of work, application of a safe system of work, which includes the use of a safety observer, and consultation with Ausgrid regarding any proposed work and compliance with any conditions imposed by the network operator for the work.

It is not expected than any work within 3m of the power lines will be required to be undertaken during the construction. However should any work that may encroach upon the 3m zone be required then the above requirements will apply.

7) To make people aware when they enter the electrical transmission easement as well as height restrictions within the easement brightly coloured PVC marker poles shall be placed at 10-15m intervals along either side of the easement boundary (not within the easement itself). The height of the marker poles shall be surveyed after installation but prior to commencement of construction to ensure they are the correct heights in accordance with Ausgrid advice, namely:

To indicate maximum allowable land build-up:
- Max RL of 10m for 65m from the centre of Tower number IU-50817;
- Max RL of 8m for the following 30m; and
- Max RL of 6m for the following 130m.

To indicate the approach distance of 3m to the cables (under 120° operating conditions):
- RL of 14.5m for 65m from the centre of Tower number IU-50817;
- Max RL of 12.5m for the following 30m; and
- Max RL of 10.5m for the following 130m.

In addition signage stating something to the effect of 'WARNING – ELECTRICAL TRANSMISSION EASEMENT – HIGH VOLTAGE 132KV ELECTRICAL CABLES ABOVE – TRANSMISSION SAFETY PROCEDURES APPLY – SEE SITE SUPERVISOR BEFORE ENTERING – NO UNLOADING OF TRUCKS WITHIN THIS AREA' shall also be placed at suitable intervals along the easement boundaries.

The following signage shall also be installed in accordance with WorkCover (2006).
8) Stockpiling within the easement during construction should be avoided where practicable. Where stockpiling within the easement cannot be avoided, then the above height restrictions for stockpiles will apply. To this end no stockpiles shall be extended above the height of the land build-up PVC markers poles. In the event stockpiling is proposed to be undertaken in the easement then a specific safe work method statement should be prepared for that activity in consultation with Ausgrid. Stockpiling within the easement should be undertaken using a front end loader and not an excavator and the loader should remain on the ground (i.e. not to mount the stockpile).

9) Truck loading or unloading should be undertaken outside of the easement. In the event that loading or unloading within the easement cannot be avoided then a specific safe work method statement should be prepared for that activity in consultation with Ausgrid. CiviLake shall introduce appropriate measures to ensure that loading / unloading does not occur within the easement and also that drivers do not inadvertently leave their trays up when driving through the easement.

10) Dust suppression during construction will predominantly be undertaken using a water cart. Dust control within the easement must be undertaken in a manner to prevent water spray from coming into contact with the conductors. CiviLake is to develop appropriate procedures to ensure that water sprays from dust suppression will not come in contact with the conductors.

11) In the event that the design envelope of any vehicles or plant on the Site could potentially allow inadvertent encroachment within 3m of the conductors (e.g. excavator with its boom full extended, semi trailer truck with its tray raised etc) then CiviLake must undertake a risk assessment in accordance with Section 4.3 of WorkCover (2006) and develop appropriate procedures to ensure that any associated risks are eliminated or controlled.

12) Any long plant (e.g. conveyor systems) should be oriented perpendicular to the transmission lines to avoid hazardous induced voltages under transmission line earth fault conditions.

13) Maintenance access for Ausgrid during construction – EA will continue to be able to access the tower along the transmission easement. CiviLake shall ensure that EA are kept advised of maintenance access to the remainder of the Site during construction.

7.12.4 Monitoring and Reporting

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
<th>Person Responsible</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual check that easement controls, heights markers and signage is in place</td>
<td>Daily</td>
<td>Site Supervisor</td>
<td>Daily Diaries</td>
</tr>
<tr>
<td>Visual Inspection that all easement controls, heights markers and signage is in place</td>
<td>Weekly</td>
<td>Site Supervisor/Project Manager</td>
<td>Weekly Inspection Checklist</td>
</tr>
<tr>
<td>Survey of height markers</td>
<td>Bi-annually</td>
<td>Project Manager</td>
<td>Survey report</td>
</tr>
</tbody>
</table>

7.13 Groundwater and Acid Sulfate Soil Management

7.13.1 Groundwater

Based on current information on groundwater levels and development plans it is considered unlikely that groundwater dewatering will be required during construction with the potential exception of during excavation of the main storage pond. The base of the pond has been designed to be above the normal groundwater level however following heavy rainfall, the groundwater level could temporarily rise above the base of the pond. Ideally the pond construction will be undertaken during dry periods to avoid requirements for groundwater dewatering.

However, should any dewatering of groundwater be required then CiviLake will engage a suitably qualified environmental consultant to assess the quality of water and to develop a suitable disposal methodology for the dewatered groundwater.

Given the contamination status of the groundwater beneath the site direct disposal to stormwater or surface water bodies would not be permissible. Potential methodologies for disposal of dewatered groundwater may include:

- Onsite treatment prior to disposal to stormwater;
- Collection of the groundwater in a tank prior to offsite disposal by a suitably licensed liquid waste contractor to a suitable liquid waste treatment facility;
- Potential use for dust suppression on site (which would need to consider any potential human health or environmental risks from contaminants in the groundwater); and
- Potential reinjection of groundwater (however this would be subject to consultation with and approval from the OEH).

Note that contamination management requirements are discussed in Section 7.14 while the requirement for a groundwater monitoring plan is discussed in Section 7.5.

7.13.2 Acid Sulfate Soils

The Acid Sulfate Soil Management Plan for the Proposed Recycling Facility at Teralba (PB 2009 ASSMP) indicates that Potential Acid Sulfate Soils (PASS) may be present from depths approximately 1m below the existing ground surface and therefore any excavations deeper than 1m may encounter PASS.

The PB ASSMP shall be followed for any excavations deeper than 1m below the current ground surface.

A copy of the ASSMP is included in Appendix F.

7.14 Contamination Management / Remediation

7.14.1 Remedial Action Plan

Remediation / management requirements to address contaminated soil / groundwater are covered in a separate remedial action plan.

7.14.2 Methane

Condition 8 of Schedule 4 of the conditions of approval states: *The Proponent shall undertake methane monitoring prior to commencement of construction. If monitoring suggests that methane is being generated at significant concentrations appropriate mitigation measures shall be included in the CEMP prior to construction commencing.*
Several rounds of pre-construction methane monitoring have been undertaken by AECOM and reported in AECOM (2010) Groundwater Investigation, Proposed Teralba Sustainable Resource Centre, The Weir Road, Teralba, NSW (November 2010 currently in draft form). Methane was detected sporadically in monitoring wells on the Site and consistently in wells to the north of the Site at levels exceeding the lower explosive level (LEL).

An Addendum to the Remedial Action Plan will cover measures required to manage methane for the final development. This will be produced prior to construction of permanent buildings on the Site.

In relation to construction, due to detections of methane concentrations above the LEL, methane is a potential safety hazard and should be covered by the Construction OHSMP for the Facility. Such measures should include:

- Not allowing smoking onsite.
- Not creating confined spaces which people have to enter without appropriate respiratory Personal Protection Equipment (PPE) and without appropriate atmospheric testing being undertaken.
- Conduct monitoring of existing groundwater wells at an appropriate frequency, including if works are undertaken in the surrounding area which may affect the ground gas regime at the site, including monitoring off-site bores,
- Installing and monitoring ground gas bores designed to target gas generating or porous strata in line with the recommendations of the Methane Monitoring Plan (see below).
- Continuous methane, carbon dioxide and oxygen gas monitoring during excavations with a portable gas monitor, with monitors set and alarmed to the lower explosive limit of methane (5% v/v) and oxygen (less than 20% v/v).
- Appropriate training of site personnel about the risks associated with methane and other ground gases.
- Ensuring all electrical equipment has undergone all appropriate safety testing.
- Documented authorisation to undertake any works which may significantly alter the current ground gas regime, works which could generate ground gas at harmful concentrations or works which may involve creating sparks or heat which may generate an explosion.
- Implementation of an emergency plan which details safe access and egress for site personnel should elevated concentrations be identified.

It is noted that a Methane Monitoring Plan will be prepared and implemented to monitor ground gas during construction to inform the design of gas mitigation measures required (if any) for the proposed final development. This will be combined with the required Groundwater Monitoring Plan. Where appropriate, the results of the methane monitoring to be implemented as part of the plan, may be used to inform and refine the monitoring required as part of the Construction OHSMP.

7.15 Imported Fill Material Management

Refer to the Imported Fill Management Plan in Appendix G for objectives, management measures and monitoring requirements related to Importation of Fill Material.

7.16 Vegetation Management

7.16.1 Applicable Conditions of Approval / Statements of Commitment

Condition 26 in Schedule 4 of the conditions of approval require:

“The Proponent shall prepare and implement a Biodiversity and Offset Management Plan for the project to the satisfaction of the Director-General. This plan must be prepared in consultation with OEH by a suitably qualified and experienced expert/s whose appointment has been approved by the Director-General, and be submitted to the Director-General for approval prior to the commencement of construction on site. The plan shall:

(a) provide for the ongoing management of the conservation areas in the south-western and south-eastern corners of the Site;

(b) ensure only native grasses and other native species from the Swamp Schleropyll Forest on Coastal Floodplains endangered ecological community are used in any revegetation or rehabilitation works;

(c) provide details of the vegetation to be removed for the site access;”
(d) ensure that at least 91 healthy mature Angophora inopina are established in an area to the east of the Site and are protected by the creation of a restriction as to user under Section 88B of the Conveyancing Act 1919, or similar

(e) provide details of the Angophora inopina offset program including:

• location;
• measures required to prepare the Site; and
• proposed monitoring program.

(f) provide details of reasonably practical measures that will contribute to the restoration of a freshwater hydrology in the SEPP 14 wetland located to the east of the Site, such as work that could prevent salt water ingress;

The Plan shall include:

(g) measures to control weeds, vermin, feral and domestic animals;

(h) details of any educational/regulatory style signage proposed;

(i) a detailed weed condition map is to be provided as a baseline from which site rehabilitation/management can be measured; and

(j) contingency measures if monitoring indicates that the project is directly affecting the condition of the SEPP 14 wetland.

The Statement of Commitments requires:

- A tree felling protocol will be developed and implemented to minimise harm to all fauna species during the clearing of trees.

- An Offsets Management Plan will be prepared by a suitably qualified consultant and providing to OEH for approval prior to commencement of construction and removal of the Angophora inopina trees along the western site boundary.

- A licence will be obtained from OEH for the collection and propagation of seed from OEH prior to collection of any seed.

- Following obtaining the licence, seed will be collected from mature Angophora inopina trees within the Site by a suitable arboriculturist/horticulturist and propagation of the seed at a suitable nursery will be commenced prior to commencement of construction and removal of the Angophora inopina trees.

- A minimum of 91 healthy Angophora inopina trees will be established in a suitable offset area nearby the Site (resulting in an offset ratio of 7:1 for the 13 Angophora inopina trees to be removed on the Site).

- Monitoring and maintenance of the Angophora inopina offset area will be undertaken in accordance with the approved Offsets Management Plan.

- The Angophora inopina offset area would be formally protected in perpetuity by a suitable legal mechanism, likely to be a S88B-E Covenant on the title of the land.

As mentioned in Section 7.1, a Biodiversity and Offset Management Plan has been prepared separately covering the above conditions.

In addition, the Statement of Commitments requires:

- A site perimeter fence (stock fence) will be installed prior to the commencement of construction works to prevent accidental intrusions into adjoining areas of natural vegetation, particularly the swamp and wetland areas.

- Temporary fences or barriers will be installed on the development side of the surveyed edges of the EEC in the south-eastern and south-western corners of the property during construction to protect the EEC from accidental intrusions by machinery and to prevent inappropriate stockpiling of soil and building materials in the EEC areas.

- Runoff and sedimentation from the proposed works areas will be managed during the construction phase using current best practice sediment and erosion control measures.
- A protocol for the prevention of *Phytophthora cinnamomi* infection of native plants will be developed and implemented during construction.

- All species to be used for rehabilitation and restoration of retained natural areas and the embankment will be of local provenance.

- Weed control protocols will be developed and implemented. These protocols will include all weeds from areas cleared during construction being completely removed from the Site and not allowed to enter adjacent habitat.

- Significant weeds will be controlled along the perimeter of the Site in the area of the landscaped embankment wall and prevented from invading adjoining natural bushland.

### 7.16.2 Management Measures

#### 7.16.2.1 Weed Management Protocol during Construction

The pad for the SRC will be built up gradually over a period of several years. The Site adjoins Endangered Ecological Communities (EEC). Given the long time frame over which the works will take place, the irregular timing of filling operations, and the potential for a multitude of weed species to be imported with the fill, weed colonisation of the Site is likely to be a persistent problem. Weeds from the Site have the potential to colonise the adjoining EEC's.

The objective of this weed management protocol is to minimise the risk of weed invasion to the adjoining EEC's.

The following management measures will be applicable:

- Regularly eradicate all weeds to the Site at minimum monthly intervals, and more frequently as required sufficient to stop weeds seeding;

- Install a sediment fence at the proposed works area boundary to act as a boundary marker within which weed eradication is to take place, and to reduce the potential for herbicide drift from weed spraying close to the boundary;

- Undertake the filling process in such a way that areas not subject to current works are kept under a dense sterile cover crop sufficient to minimise weed colonisation opportunities (or where this is not practicable to ensure appropriate weed eradication), hold the soil and minimise win-blown soil loss from the Site. Cultivate soil surface of areas proposed for cover crop sufficient to provide a suitable seed bed for germination and establishment;

- Facilitate the inspection of adjoining bushland on a twelve monthly basis by a qualified botanist to assess the extent of any weed colonisation emanating from the Site. The botanist is to undertake a baseline study prior to commencement of the works, against which any weed incursion from the Site can be measured. All work within adjoining bushland areas is to be undertaken with reference to the Phytophthora management protocol prepared for this project. Where weed colonisation occurs, and it is considered by the botanist to be of a serious nature, report findings to Council and seek instruction with regard to the need for permits or other requirements necessary to facilitate eradication of the weeds. Undertake weed eradication in accordance with Council instructions; and

- Construction workers are not to be permitted to access areas outside of the proposed works boundary to minimise opportunities for spread of weeds, e.g. weed seed on boots.

#### 7.16.2.2 Protocol for the Prevention of *Phytophthora cinnamomi* Infection of Native Plants during Construction

A protocol for the Prevention of Phytophthora cinnamomi Infection of Native Plants during Construction has been prepared by CiviLake and is included in Appendix H.

#### 7.16.2.3 Other Management Measures

1) A site perimeter fence (stock fence) will be installed prior to the commencement of construction works to prevent accidental intrusions into adjoining areas of natural vegetation, particularly the swamp and wetland areas – this is covered in Section 7.2.

2) Temporary fences or barriers will be installed on the development side of the surveyed edges of the EEC in the south-eastern and south-western corners of the property during construction to protect the EEC from
accidental intrusions by machinery and to prevent inappropriate stockpiling of soil and building materials in the EEC areas – this is covered in Section 7.2.

3) Runoff and sedimentation from the proposed works areas will be managed during the construction phase using current best practice sediment and erosion control measures – this is covered in the Construction Soil and Water Management Sub-Plan in Appendix C.

4) Landscaping to be undertaken in accordance with the AECOM landscape plans and specification which specify all species to be used for rehabilitation and restoration of retained natural areas and the embankment will be of local provenance.

7.16.3 Monitoring

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Frequency</th>
<th>Person Responsible</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual check that perimeter fence and sediment controls intact</td>
<td>Weekly</td>
<td>Site Supervisor/Project Manager</td>
<td>Weekly Inspection Checklist</td>
</tr>
<tr>
<td>Random inspections for weeds within the Site and on the perimeter embankments</td>
<td>Minimum three-monthly</td>
<td>Project Manager or Delegate</td>
<td>Weed inspection report</td>
</tr>
</tbody>
</table>

7.17 Heritage

7.17.1 Objectives

- Have appropriate contingency measures in place to appropriately manage Aboriginal artefacts or skeletal material in the unexpected event that they be encountered during site earthworks.

The Heritage Assessment undertaken as part of the EA concluded that the proposed development is unlikely to encounter Aboriginal objects or historic relics.

The Heritage Assessment recommended that:

- should Aboriginal objects be identified during the course of construction, work should cease in that part of the study area and OEH and KLALC should be notified immediately; and
- should Aboriginal skeletal material be identified during construction, work should cease immediately and Police, OEH and KLALC should be notified immediately.

Proposed construction activities with the potential to encounter Aboriginal objects include:

- any excavations on the Site, which will mainly be limited to around the proposed ponds; and
- importation and placement of fill material.

7.17.2 Applicable Conditions of Approval / Statements of Commitment

The Statement of Commitments requires that:

- Should any objects be identified during the course of site works, all works must cease and the OEH (Hunter Branch, Environment Protection and Regulation Division, Regional Archaeologist) be contacted in regard to appropriate permit requirements.
- Should suspected skeletal material be uncovered during the course of site works, all works must cease and the OEH, the NSW Police and the NSW Coroner’s office be contacted immediately, regardless of any existing OEH permits for the proposed development.
- All contractors who work within the confines of the study area should be made aware of the NPW Act 1974 (as amended) and the fact that it is an offence to move, disturb or destroy Aboriginal objects without the prior written permission of the Director General of the OEH.

7.17.3 Management Measures

1) All personnel working on the Site are to be made aware of the NPW Act 1974 and the fact that it is an offence to move, disturb or destroy Aboriginal objects without the written permission of the Director General of the OEH.
2) Should Aboriginal objects be identified during the course of site works, all work must cease and the OEH (Hunter Branch, Environment Protection and Regulation Division, Regional Archaeologist) in regard to appropriate permit requirements along with the KLALC. Any suspected or confirmed Aboriginal objects are not to be moved, disturbed, or destroyed without approval from the Director General of the OEH.

3) Should suspected skeletal material be identified during construction, all works must cease and the OEH, the NSW Police and the NSW Coroner’s Office shall be contacted immediately along with the KLALC. Any suspected skeletal material is not to be moved, disturbed, or destroyed without approval of the above authorities.

7.17.4 Monitoring and Reporting

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Frequency</th>
<th>Person Responsible</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Induction</td>
<td>Once, before work on site commences</td>
<td>Site Supervisor</td>
<td>Induction Register</td>
</tr>
<tr>
<td>Toolbox talks reminding of processes</td>
<td>Weekly</td>
<td>Site Supervisor</td>
<td>Toolbox Record</td>
</tr>
<tr>
<td>regarding heritage items</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7.18 Bushfire management

Refer to the Bushfire Management Sub-Plan in Appendix D.
8.0 Contingencies

The following table summarises issues that can reasonably be expected to be encountered during construction and how these may be resolved.

**Table 6 - Contingencies**

<table>
<thead>
<tr>
<th>Potential Anticipated Issue</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive dust generation</td>
<td>Temporarily stop work activity that is causing dust generation. Review dust controls currently in place and assess need for additional measures. Such measures could include additional use of water sprays or cease dust-generating activity until better dust control can be achieved, temporarily cover dust producing areas etc.</td>
</tr>
<tr>
<td>Excessive odour generation</td>
<td>Monitor for odours more frequently in more sensitive weather conditions. Use odour and volatile suppressing agents to eliminate or reduce odours as required.</td>
</tr>
<tr>
<td>Excessive noise generation</td>
<td>Identify source and review noise attenuation equipment and as necessary provide silencers on noisy equipment or remove equipment from site.</td>
</tr>
<tr>
<td>Erosion and Sediment Control Ineffective</td>
<td>Stop work, review appropriateness of environmental controls in line with SWMP. Consider alternative measures. Consult Drainage Engineer if repeated/major issues occurring.</td>
</tr>
<tr>
<td>Release of fuel/oil from machinery</td>
<td>Remove source, use spill kit to remove oil, make any repairs as required.</td>
</tr>
<tr>
<td>Chemical spill/exposure</td>
<td>Stop work, refer to Section 11.1 for response procedure.</td>
</tr>
<tr>
<td>Observation of weeds</td>
<td>Undertake weed eradication program</td>
</tr>
<tr>
<td>Inspections reveal damage to Environmental Controls</td>
<td>Repair as required and assess cause of damage. Eliminate cause where possible, else strengthen control to limit impact of cause.</td>
</tr>
</tbody>
</table>
9.0 Training and Implementation

9.1 Site Induction

All employees, sub-consultants and sub-contractors must undertake a site induction prior to their commencement of work on site. The induction of employees and contractors is the Site Supervisor’s responsibility.

The site induction will inform employees of their environmental responsibilities on site. It details the most significant environmental aspects and introduces this CEMP as the management tool used to address the controls and mitigation measures required to minimise environmental impact on the Project.

The induction will cover the following:
- Contents of the CEMP;
- Critical environmental protection procedures including spill responses, emergency procedures, hazardous substances and dangerous goods handling, and monitoring of imported fill quality;
- The location of the CEMP during works; and
- General obligations.

All visitors to the Site must undergo a visitor’s induction. All visitors must be accompanied by a fully inducted member of staff.

Site personnel shall be encouraged to be proactive and report any instances of environmental control measures not operating properly.

9.2 Tool Box Talks

Tool box talks will be conducted daily by the Site Supervisor for employees and subcontractors. Tool box talks will be undertaken in response to evolving issues on the ground, particularly in response to significant environmental and safety incidents and non-conformance issues.
10.0 Compliance

10.1 Environmental Audit Program

The CEMP implementation system will be audited to ensure effective compliance with environmental controls, reporting and incident management requirements.

The audits will occur within one month of commencement of construction activities on site and every six months minimum or as required thereafter. This activity will be planned, programmed and fully documented. The audits should be undertaken by suitably qualified Council employee:

- A site visit;
- Review of weekly checklists;
- Compliance with the CEMP;
- Update on project status;
- Report on any onsite environmental incidents occurring since the last audit;
- Checks for any repeat issues; and
- Any new initiatives in environmental management.

The audits will be documented in a summary report.

Audit reports raised will be provided to the Project Manager for determining corrective action and reply. On a six monthly basis the Section Manager/Manager CiviLake shall undertake a management review of the CEMP.

CiviLake will develop and implement an auditing program for the fill importation procedures which would include review of documentation and procedures and random inspections. The procedure would be updated in response to any recommendations from these audits.

10.2 Environmental Monitoring

Monitoring that is required during the construction phase of the Facility is defined in Section 7 of this CEMP.

Measuring equipment used for monitoring shall be regularly serviced and calibrated.

A Site Validation Report would be prepared following placement of the capping layer and the additional groundwater and methane monitoring, to certify that the Site is suitable for operation of the recycling facility.

10.3 Environmental Inspections

In addition to formal auditing and monitoring identified in this CEMP, the following inspections will also be undertaken:

- On a daily basis, site supervisory staff will inspect the Site and any issues arising will be noted in the daily diaries and communicated to the Project Manager. The inspections will be conducted visually prior to commencement of each day’s work and where appropriate during the working day. A final daily inspection will also be undertaken at the end of the workday to ensure that systems and structures are in place.

- A weekly site inspection will be conducted by the Project Manager or delegate. Checklists will be used to record and report on activities for compliance with this CEMP and specific issues presenting significant environmental risks will be addressed, such as noisy works, sediment basin management, etc. An example Checklist is shown in Appendix I. Checklists may be edited to reflect changing site conditions.

Where necessary, any damage or reduced capacity of environmental control measures will be corrected. If required, environmental control measures may be upgraded.
11.0 Incident Management and Complaints

Condition 6 in Schedule 6 of the conditions of approval requires:

“The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident”.

11.1 Environmental Incidents

An environmental incident is an unplanned event which occurs on site and has the potential to result in adverse environmental impacts either on site or in the surrounding area. Environmental incidents include spills, importation of unsuitable fill material, unintended damage to native vegetation, breaching of fenced off habitat areas or injury to wildlife.

Depending on the nature of the incident and the risk posed to site personnel, all practical steps will be taken to minimise the risk of environmental damage as soon as possible after the event.

In the case of an environmental incident, actions to be taken are:

- Notify the Site Supervisor;
- Immediately cease work in that area and remove people from the immediate area;
- Notify emergency services as/if required;
- Where safe to do so, attempt to contain the hazard and prevent it from spreading;
- If the incident is a spill:
  - Use silt fences, bunding or interception pits;
  - Use absorbent materials stored on site to clean up spill;
  - Contain contaminated soil/absorbent material waste in appropriate containers, and dispose of contaminated soil/absorbent material to an appropriately licensed offsite disposal facility;
- Notify any relevant agencies when an incident causes or threatens material harm to the environment and/or an exceedance or limit of the performance criteria in the approval and/or when legislation requires;
- The Site Supervisor is to notify the Council incident hotline and Project Manager of any environmental incident;
- Temporarily repair or isolate the failed plant or equipment component;
- Sample the impacted site media be it soil and/or surface water; and
- Implement any longer term remedial measures that may be required.

In accordance with condition 6 of Schedule 6 of the conditions of approval CiviLake shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within seven days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.

The Project Manager will be responsible for notifying OEH of the pollution incident. Information to be provided under section 150 of the POEO Act includes:

- Time, date, nature, duration and location of the incident;
- Location of the place where pollution is occurring or is likely to occur;
- Nature, the estimated quantity or volume and concentration of any pollutants involved;
- Circumstances in which the incident occurred (including the cause of the incident, if known); and
- Action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution.
In order to assist the Project Manager in providing the above information, the Site Supervisor is to collect and document (to the extent practicable) the above information and forward to the Project Manager. For example, this would include taking photographs, collecting surface water samples of any unplanned water discharges both from the source of the pollution and upstream and downstream in the receiving waterway (for analysis and comparison).

Any spills or accidents, and the corrective actions undertaken, shall be documented in a Non-Conformance and Corrective Action Report.

In accordance with condition 5 of Schedule 6 of the conditions of approval within three months of the submission of an incident report under condition 6 of schedule 6 CiviLake shall review, and if necessary revise the CEMP to the satisfaction of the Director-General.

11.2 Discovery of Cultural Heritage Items

In the case of the discovery of items of cultural heritage, actions to be taken are:
- Immediately suspend work in that area;
- Fence off area to prevent further disturbance;
- Report the find to the Site Supervisor and the Project Manager. The Project Manager will inform OEH; and
- Undertake action as advised by the Project Manager.

Section 7.17 contains more detailed information in relation to Heritage Items.

11.3 Emergency Contacts

Refer to Appendix J for in case of emergency contact details.

11.4 Complaints Handling

The Site Supervisor is to be notified of any received complaints. The Site Supervisor or Project Manager (dependant on the method of complaint) is to complete the Complaints register attached in Appendix K as soon as practicable and forward a copy to the Project Manager. The Project Manager will forward a copy to the Section Manager CiviLake.

The Site Supervisor/Project Manager is to investigate the complaint within 24 hours of the receipt of the complaint (whoever is better suited), and determine corrective strategies in consultation with the Project Manager. If warranted, immediate action will be instigated; otherwise action will be taken within 48 hours of receiving the complaint.

The lodger of the complaint will be notified of any action taken.
12.0 Non-conformance

12.1 Non-Conformance and Corrective Action Report

All non-conformances noted in the Site Inspections, Audits, Incident Reports, or reported to the Project Manager by staff or other parties/authorities will be investigated and recorded in a Non-Conformance and Corrective Action Report which will be provided to the Section Manager CiviLake on a monthly basis. Details of the non-conformance, including any immediate corrective actions undertaken, are to be recorded by the Project Manager.

It is the responsibility of the Project Manager to immediately initiate corrective actions, if required. The Non-Conformance and Corrective Action Report must include details of the corrective action proposed and an appropriate close out date. Corrective Actions will include containment measures, clean-up and restoration of the affected area and of any deficient operational controls or monitoring controls. On completion, the Project Manager will re-inspect the outcomes to ensure that they are acceptable before signing, dating and filing the Non-conformance Report.

The occurrence of such an event will be brought to the attention of personnel responsible, and environmental controls will be updated to prevent a reoccurrence.

12.2 Environmental Incidents Register

The Environmental Incidents Register will detail the issue, the corrective and preventative actions proposed, and the responsibilities and timing for completion of the actions. The register will include any comments and the completion date of corrective actions.

The Project Manager shall review the Environmental Incidents Register monthly to ensure actions are completed and that controls are performing effectively. The Project Manager shall also review the CEMP to determine if the above situations require project scope changes or if the incident identifies opportunities for improvement in mitigations or work practices. A sample Environmental Incidents Register is contained in Appendix L.