



APPENDIX B7

Construction Waste and Energy Management Plan

Halfway Creek to Glenugie

FEBRUARY 2015



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5		

Contents

1	Introduction	1
1.1	Context	1
1.2	Background.....	1
1.3	Environmental management systems overview	1
2	Purpose and objectives	2
2.1	Purpose.....	2
2.2	Objectives	2
2.3	Targets.....	2
3	Environmental requirements.....	6
3.1	Relevant legislation and guidelines.....	6
3.2	Minister's Conditions of Approval.....	7
4	Environmental aspects and impacts	9
4.1	Construction waste streams and energy use	9
4.2	Impacts	11
5	Waste and energy management	12
5.1	Classification of waste streams	12
5.2	Waste exemptions	13
5.3	Classification of potential waste streams	14
5.4	Reuse and recycling	16
5.5	Waste Handling and Storage.....	17
5.6	Waste Disposal	17
5.7	Energy Conservation.....	17
6	Environmental mitigation and management measures	19
7	Compliance management.....	26
7.1	Roles and responsibilities	26
7.2	Training.....	26
7.3	Monitoring and inspection	26
7.4	Auditing	26
7.5	Reporting	26
8	Review and improvement	27
8.1	Continuous improvement.....	27
8.2	CWEMP update and amendment.....	27

Tables

Table 2-1 Construction waste streams and targets	2
Table 3-1 Conditions of Approval relevant to the CWEMP	7
Table 5-1 Resource recovery exemptions	13
Table 5-2 Classification of potential waste streams	15
Table 6-1 Management and mitigation measures	20

Appendices

Appendix A	Waste contact list
Appendix B	Location of waste facilities
Appendix C	Surplus material management plan
Appendix D	Example waste management register

Glossary / Abbreviations

CEMP	Construction Environmental Management Plan
CMC	Civil Mining and Construction Pty Ltd
CoA	Condition of Approval
CT	Contaminant Thresholds
DECC	Former Department of Environment and Climate Change (NSW) now NSW Office of Environment and Heritage.
DPE	Department of Planning and Environment
EEC	Endangered Ecological Community
EIS	Woolgoolga to Ballina Pacific Highway Upgrade Environmental Impact Statement (December, 2012)
ENM	Excavated Natural Material
EPA	NSW Environment Protection Authority
EP&A Act	<i>NSW Environmental Planning and Assessment Act 1979</i>
EPL	NSW Environment Protection Licence under the <i>Protection of the Environment Operations Act 1997</i> .
EWMS	Environmental Work Method Statements
FM Act	<i>Fisheries Management Act 1994</i>
Minister, the	NSW Minister for Planning
NOW	NSW Office of Water
OEH	Office of Environment and Heritage
POEO Act	<i>NSW Protection of the Environment Operations Act 1997</i>
Project, the	Halfway Creek to Glenugie Section 2 Woolgoolga to Ballina Pacific Highway Upgrade Project
ESCP	Erosion and Sediment Control Plan
Roads and Maritime	Roads and Maritime Services
SCC	Specific Contaminant Concentrations
Secretary	Secretary of the Department of Planning and Environment
SPIR	Woolgoolga to Ballina Pacific Highway Upgrade Submissions Preferred Infrastructure Report (November, 2013)
TCLP	Toxicity Characteristics Leaching Procedure
VENM	Virgin Excavated Natural Material
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2001</i>
CWEMP	Construction Waste and Energy Management Plan
WRAPP	Waste Reduction and Purchasing Policy

1 Introduction

1.1 Context

This Construction Waste and Energy Management Plan (CWEMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the upgrade of the Pacific Highway from Halfway Creek to Glenugie (the Project). The Project is Section 2 of the Woolgoolga to Ballina (W2B) Pacific Highway upgrade project, approved by the Minister for Planning in 2014.

This CWEMP has been prepared to address the requirements of the Minister's Conditions of Approval (CoA), the mitigation measures listed in the *Pacific Highway Upgrade: Woolgoolga to Ballina Environmental Impact Statement December 2012* (the EIS), the Woolgoolga to Ballina Pacific Highway Upgrade Submissions Preferred Infrastructure Report (November, 2013) (SPIR) and all applicable legislation.

The existing Glenugie Upgrade Project will tie into the northern extent of the Project. The Glenugie Project was approved separately by the Minister for Planning and relevant conditions of this approval have been referenced in the CEMP and this plan as appropriate.

1.2 Background

The EIS assessed the impacts of construction in terms of waste generation/management and resource use, within chapter 18.3. Greenhouse gas emissions and energy issues were assessed in the EIS in chapter 18.1.

The EIS identified the various waste streams that will be generated during the construction of the Project, including construction and demolition waste, vegetation waste, packaging materials and liquid wastes. It also identified opportunities to avoid, reduce and recycle waste.

The EIS identified potential impacts in regards to greenhouse gas emissions. Measures to help address greenhouse gas emissions in construction were identified.

Additional management measures were provided within the SPIR, with applicable management measures from that report included as part of this CWEMP.

1.3 Environmental management systems overview

The overall Environmental Management System for the Project is described in the Construction Environmental Management Plan (CEMP).

The CWEMP is part of the CMC environmental management framework for the Project, as described in *Section 4.1 of the CEMP*. Management measures identified in this plan will be incorporated into site or activity specific Environmental Work Method Statements (EWMS).

EWMS will be developed and signed off by environment and management representatives prior to associated works and construction personnel will be required to undertake works in accordance with the identified mitigation and management measures.

Used together, the CEMP, strategies, procedures and EWMS form management guides that clearly identify required environmental management actions for reference by CMC personnel and contractors.

The review and document control processes for this plan are described in *Section 10 of the CEMP*.

2 Purpose and objectives

2.1 Purpose

The purpose of this plan is to describe how CMC proposes to minimise the amount of waste for disposal, manage waste and reduce energy consumption during construction of the Project. This plan is an integral component of the Construction Environmental Management Plan which should be read in conjunction with this plan.

2.2 Objectives

The key objective of the CWEMP is to ensure that waste for disposal and energy use are minimised. To achieve this objective, CMC will undertake the following:

- Ensure measures are identified and implemented to minimise waste, manage waste and conserve energy throughout the construction of the project.
- Implement resource recovery to minimise waste.
- Ensure the preferred waste management hierarchy of avoidance, minimisation, reuse, recycling and finally disposal is followed.
- Provide staff with an increased level of understanding and awareness of waste and resource use management issues.
- Ensure appropriate measures are implemented to address the relevant CoA outlined in *Table 3.1 and Table 3.2*, and the mitigation measures detailed in the EIS.
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in *Section 3.1* of this plan.
- Not transfer waste across state boundaries.

2.3 Targets

2.3.1 Waste

The following targets have been established for the management of waste and energy consumption during the project:

- Avoid the unnecessary production of waste where practical to do so.
- Dispose of waste materials in accordance with legislative requirements.
- Minimise / reduce the quantities of resources to be used.
- Achieve the waste re-use / recycling targets nominated in Table 2-1

Table 2-1 Construction waste streams and targets

Construction Activity	Waste Type	Waste Classification	Likely quantity	Disposal methods	Reuse / Recycle Target
Demolition					
Removal of existing road pavement.	Asphalt	General Solid Waste (non-putrescible)	5000 m3 (12,500 Tonnes)	Onsite reuse	Reuse as roadbase or general fill or surfacing for haul roads/access

Construction Activity	Waste Type	Waste Classification	Likely quantity	Disposal methods	Reuse / Recycle Target
Fencing	Building and demolition waste (timber, fencing barbed-wire)	General Solid Waste (non-putrescible)	400 kg	Offsite Recycled	Waste to be separated and recycled off site.
Structures - Buildings	General Solid Waste (non- putrescible)	General Solid Waste (non-putrescible)	1,000 kg	Offsite recycled	Material recycled by demolition contractor
Structures-bridges and culverts	General Solid Waste (non- putrescible)	General Solid Waste (non-putrescible)	100 tonnes	Offsite recycled	Material recycled by demolition contractor
Excavation					
Cut to fill and topsoil stripping	ENM (Excavated Natural Material)	General Solid Waste (non-putrescible)	1,200,000m ³	Onsite reuse	Used as cut to fill earthworks or stockpiled for future works.
Cut to fill and topsoil stripping	VENM (Virgin Excavated Natural Material)	General Solid Waste (non-putrescible)	20,000m ³	Onsite reuse	Used as cut to fill earthworks or stockpiled for future works.
Cut to fill and topsoil stripping	Potentially Contaminated Soils	General Solid to Hazardous	0	Off site disposal	Disposal at approved facility
Piling excavations	Acid Sulfate Soils	In accordance with Waste Classification Guidelines	20 m ³	In accordance with Acid Sulfate Soils Management Procedure	Treatment and reuse or disposal at approved facility
General	Asbestos waste	Special waste	400 kg	Licenced contractor	Disposal at approved facility
Vegetation clearance					
Clearing and grubbing	Mulched vegetation	General Solid Waste (non – putrescible)	40,000 m ³	On and offsite reuse	Reuse on site or used as biofuel source
Clearing	Timber	General Solid Waste (non – putrescible)	5,000m ³	Off site reuse	Reuse by commercial timber mill
Clearing	Weeds	General Solid Waste (putrescible)	100 m ³	Offsite disposal	Disposal at landfill
Construction					
Removal of redundant utility services.	Copper and fibre cable, steel pipe, cast iron pipe, concrete water mains, plastic pipes etc.	General Solid Waste (non – putrescible)	2 tonnes	Offsite recycling	Waste to be separated and recycled off site.

Construction Activity	Waste Type	Waste Classification	Likely quantity	Disposal methods	Reuse / Recycle Target
Site compounds usage	Municipal solid waste (plastic bags, food scraps, non-recyclable containers, etc.).	General Solid Waste (putrescible)	3,000 m ³	Off site disposal	Disposal by licenced contractor
Site compounds usage	Recyclable domestic waste (milk, cartons, bottles, aluminium cans, etc.).	General Solid Waste (non-putrescible)	1,000m ³	Offsite recycling	Comingled bins, offsite recycling
Site compounds usage	Sewage waste water from port-a-loos and site compound toilets.	Liquid Waste	120kL	Offsite disposal	Disposal by licenced contractor
Plant operation	Tyres	Special Waste	240	Offsite disposal	Disposal by licenced contractor
Plant operation	Waste oils, other mechanically required liquids.	Liquid waste	15,kL	Offsite recycling	Recycled offsite by licenced contractor
Plant operation, maintenance and hydraulic fluid spills.	Oil absorbent material and oily rags.	General Solid Waste (non-putrescible).	8kL	Offsite disposal	Disposal at approved facility
Batching plant	Concrete washout water.	Liquid waste	1,000kL	Onsite reuse	Treatment and reuse
Batching plant	Excess sediment material from storage pond maintenance/clean out.	General Solid Waste (non-putrescible).	1000m ³	Onsite reuse	Treatment and reuse
Pavements	Concrete washout water.	Liquid waste	150kL	Onsite reuse	Treatment and reuse
Sediment basins/traps	Sediment sludge	General Solid Waste (non-putrescible)	2,000m ³	Onsite reuse	Used as cut to fill earthworks

Note: Quantities are estimates only and will be updated regularly for the life of the project.

2.3.2 Energy and Greenhouse Emissions

Energy consuming activities will occur over approximately two years for construction. Plant and equipment used over the construction period will be diverse, ranging from large heavy machinery through to hand tools.

The energy consumed will be fuel (petrol and diesel) and electricity. This energy use, and other construction activities, as identified below will result in the emission of greenhouse gases:

- Combustion of fuel in construction vehicle, plant and equipment operation (direct emissions)
- Electricity used at site compounds (electricity indirect emissions)
- Use of explosives (direct emissions)
- Transport of materials to and from the site (direct emissions)
- Disposal of waste from construction staff and site compounds to landfill (indirect emissions)
- Indirect emissions embodied in key construction materials, including concrete, hot mix, asphalt, aggregates and steel.

During the construction of the Project, CMC will actively promote and ensure the reduction of greenhouse gas emissions by adopting energy efficient work practices.

The construction of the Project will be an intensive energy consuming exercise, with the key contributors being the operation of construction vehicles and plant. By implementing the management and mitigation measures outlined in Table 6.1

The use of energy efficient equipment where feasible and practicable will result in:

- Reduction in fuel quantity used;
- Reduced electrical consumption;
- Reduced greenhouse gas emissions;
- Improved air quality, and
- Improved efficiency (reduced costs).

3 Environmental requirements

3.1 Relevant legislation and guidelines

3.1.1 Legislation

Legislation and regulations relevant to waste and energy management includes:

- *Environmental Planning and Assessment Act, 1979 (EP&A Act)*
- *Protection of the Environment Operations Act 1997.*
- *Protection of the Environment Operations (General) Regulation 2009.*
- *Protection of the Environment Operations (Waste) Regulation 2014.*
- *Waste Avoidance and Resource Recovery Act 2001 (WARR Act).*
- *Contaminated Land Management Act 1997.*
- *National Greenhouse and Energy Reporting Act 2007.*
- *Noxious Weeds Act 1993.*
- *Environmentally Hazardous Chemicals Act 1985.*
- *Dangerous Goods (Road and Rail Transport) Act 2008*

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Appendix A1 of the CEMP.

3.1.2 Guidelines and standards

The main guidelines, specifications and policy documents relevant to this plan include:

- Waste Classification Guidelines Part 1: Classifying Waste 2014 (EPA Publication).
- Waste Classification Guidelines Part 4: Acid Sulfate Soils 2014 (EPA Publication).
- Best Practice Waste Reduction Guidelines for the Construction and Demolition Industry (tools for Practice), Natural Heritage Trust, 2000.
- *Environmental Planning and Assessment Regulation, 2000 Schedule 2 – Waste Management Hierarchy (WHM)*
- The Excavated Public Road Material Exemption 2014 and The Excavated Public Road Material Order 2014
- NSW Government's Waste Reduction and Purchasing Policy (WRAPP)
- NSW Government Resource Efficiency Policy 2014
- NSW Office of Environment and Heritage Energy Efficiency Action Plan 2013
- NSW Office of Environment and Heritage Energy Saver Program

3.2 Minister's Conditions of Approval

The CoA relevant to this plan are listed Table 3-1 below. A cross reference is also included to indicate where the condition is addressed in this plan or other Project management documents.

Table 3-1 Conditions of Approval relevant to the CWEMP

CoA No.	Condition Requirements	Document Reference
B68.	Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the <i>Protection of the Environment Operations Act 1997</i> , if such a licence is required in relation to that waste.	Chapter 6
B69.	The reuse and/or recycling of waste materials generated on site shall be maximised as far as practicable, to minimise the need for treatment or disposal of those materials off site.	Chapter 6
B70.	All liquid and/or non-liquid waste generated on the site shall be assessed and classified in accordance with <i>Waste Classification Guidelines</i> (Department of Environment, Climate Change and Water, 2009)	Chapter 6
B71.	All waste materials removed from the site shall only be directed to a waste management facility or premises lawfully permitted to accept the materials.	Chapter 6
D25 (d) (viii)	The Applicant shall prepare and implement (following approval) a Construction Environmental Management Plan for the SSI, prior to the commencement of construction, or as otherwise agreed by the Secretary. The Plan shall be prepared in consultation with the EPA, OEH, DPI (Fisheries), NOW and DoE and outline the environmental management practices and procedures that are to be followed during construction, and shall be prepared in consultation with the relevant government agencies and in accordance with the Guideline for the Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2004). The Plan shall include, but not necessarily be limited to: (d) an environmental risk analysis to identify the key environmental performance	Chapter 5 and Table 6.1

CoA No.	Condition Requirements	Document Reference
	<p>issues associated with the construction phase and details of how environmental performance would be managed and monitored to meet acceptable outcomes, including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from the staging of the construction of the SSI). In particular, the following environmental performance issues shall be addressed in the Plan:</p> <p>(vii) measures to monitor and manage waste generated during construction including but not necessarily limited to: general procedures for waste classification, handling, reuse, and disposal; use of secondary waste material in construction wherever feasible and reasonable; procedures or dealing with green waste including timber and mulch from clearing activities; and measures for reducing demand on water resources (including potential for reuse of treated water from sediment control basins);</p>	

4 Environmental aspects and impacts

4.1 Construction waste streams and energy use

The following construction related waste streams have been identified:

- Excavation wastes
- Timber and green wastes
- Demolition wastes
- Construction wastes including:
 - Wastes generated from concrete or asphalt batching plants.
 - Waste generated from remediation of contaminated material.
 - Waste generated from Acid Sulfate Soil treatment.
 - Sediment/sludge from sediment basin desilting.
 - Waste water from tannin affected water, contaminated runoff from concrete bridge decks, water captured in excavations; and dam de-watering.
- Potential contaminated waste
 - Waste generated from chemical/spill clean-up or remediation.
- Packaging materials.
- Waste produced from the maintenance of construction vehicles and plant, which might include oils, fluids, fuels, tyres.
- Sewage and general waste from construction compounds.
- Waste from litter and cigarette butts specifically around structures and crib sheds.
- Miscellaneous wastes.
- General waste from office and compounds.
- Special waste such as asbestos.
- Hazardous waste such as flammable solids.

The following sources of construction related energy consumption (fuel and power) activities have been identified:

- Procurement and delivery of materials to site.
- Vegetation removal.
- Site establishment, including compound set up.
- Relocation and protection of services.
- Earthworks including earth and rock cuttings, blasting and retaining walls.
- Removal, relocation and compaction of excavated material in fill embankments.
- Construction of pavements, bridges and culverts.
- Demolition of structures and pavements.
- Operation of batching plants, site compounds and lighting.

- Construction plant including cranes, rollers, excavators, bulldozers, graders and water trucks.
- Removal of waste from the site.

Alternative energy sources have been reviewed for use on the project. Solar power supply for the Main Compound was assessed however due to the project timeframe it was found to be cost prohibitive. Solar power will be used where possible on remote facilities such as the automatic weather station. To minimise energy usage at the compound such strategies as the following will be implemented:

- Energy efficient lighting (e.g. LED);
- Timers on external lights;
- Air-conditioning on timers and set to 24 degrees;
- Dual flush toilets , and
- Low flow showers.

4.2 Impacts

The potential environmental impacts associated with construction waste generation and energy use include:

- Generation of large volumes of excavated materials
- Weed infestation from dispersion of seeds and so forth during clearing and access upgrading activities.
- Generation or spread of contaminated waste/soils, e.g. groundwater, used or expired chemicals, or construction materials.
- Consumption of non-renewable resources such as energy, diesel and other chemicals.
- Greenhouse gas emissions due to consumption of energy from non-renewable resources.
- Storage of waste (particularly putrescible waste) and impacts such as odour, attracting fauna

The mismanagement of waste streams has the potential to result in the following impacts;

- Excessive waste being directed to landfill
- Various type of waste being generated and stored onsite, with the potential for misclassification
- Water pollution
- Land contamination.

Earthworks would potentially generate the greatest amount of waste. To ensure the amount of waste is minimised, the construction contractor would manage earthworks requirements across the entire project, with construction staging taking into account efficient resource use and opportunities for reusing materials to limit waste generation. Roads and Maritime would also investigate whether unused resources could be used on other Pacific Highway projects.

5 Waste and energy management

5.1 Classification of waste streams

Where waste cannot be avoided, reused or recycled it will be classified and appropriate disposal will then occur. The classification of waste is undertaken in accordance with the OEH *Waste Classification Guidelines Part 1: Classifying Waste* (2014). This document identifies six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible), and describes a six step process to classifying waste. That process is described below:

Step 1: Is it 'special waste'?

Establish if the waste should be classified as special waste. Special wastes are: clinical and related, asbestos, waste tyres. Definitions are provided in the guidelines.

Note: Asbestos and clinical wastes must be managed in accordance with the requirements of Clauses 42 and 43 of the Protection of the Environment Operations (Waste) Regulation 2005.

Step 2: If not special, is it 'liquid waste'?

If it is established that the waste is not special waste it must be decided whether it is 'liquid waste'. Liquid waste means any waste that: has an angle of repose of less than 5° above horizontal becomes free-flowing at or below 60° Celsius or when it is transported is generally not capable of being picked up by a spade or shovel.

Liquid wastes are sub-classified into:

- Sewer and stormwater effluent.
- Trackable liquid waste according to Protection of the Environment Operations (Waste) Regulation 2014 Schedule 1 Waste to which waste tracking requirements apply
- Non-trackable liquid waste

Step 3: If not liquid, has the waste already been pre-classified by the NSW EPA?

The EPA has pre-classified several commonly generated wastes in the categories of hazardous, general solid waste (putrescibles) and general solid waste (non-putrescibles) in *Waste Classification Guidelines Part 1: Classifying Waste* (2014). If a waste is listed as 'pre-classified', no further assessment is required.

Step 4: If not pre-classified, is the waste hazardous?

If the waste has not been classified under Steps 1 – 3, establish if it has certain hazardous characteristics and can therefore be classified as hazardous waste.

Hazardous waste includes items such as explosives, flammable solids, substances liable to spontaneous combustion, oxidizing agents, toxic substances and corrosive substances.

Step 5: If the waste does not have hazardous characteristics, undertake chemical assessment to determine classification.

If the waste does not possess hazardous characteristics, it needs to be chemically assessed to determine whether it is hazardous, restricted solid or general solid waste (putrescible and non-putrescible). If the waste is not chemically assessed, it must be treated as hazardous.

As described in Step 5 of the Waste Classification Guidelines Part 1: Classifying Waste (2014) waste is assessed by comparing Specific Contaminant Concentrations (SCC) of each chemical contaminant, and where required the leachable concentration using the Toxicity Characteristics Leaching Procedure (TCLP), against Contaminant Thresholds (CT).

Step 6: Is the general solid waste putrescible or non-putrescible?

If the waste is chemically assessed as general solid waste, a further assessment is available to determine whether the waste is putrescible or non-putrescible. The assessment determines whether the waste is capable of significant biological transformation. If this assessment is not undertaken, the waste must be managed as general solid waste (putrescible).

5.2 Waste exemptions

Where it can be demonstrated that a specific type of waste can safely be used for another purpose, rather than being disposed of in accordance with the waste regulations, the NSW Environment Protection Authority (EPA) may grant permission for that waste to be used for the specified purpose, subject to strict conditions. Under the Protection of the Environment Operations (Waste) Regulation 2014 (2014 Waste Regulation), the EPA has the power to grant exemption from some of these requirements, where it can be demonstrated that the use of the waste is bona-fide, fit-for-purpose and causes no harm to the environment or human health, rather than a means of waste disposal. Site waste cannot be reused on site unless it can be demonstrated to comply with the resource recovery framework.

Under the new provisions of the 2014 Waste Regulation, the EPA will now issue two separate documents: a resource recovery order and a resource recovery exemption. (These replace the previous Resource Recovery Exemption system.)

<http://www.epa.nsw.gov.au/wasteregulation/recovery-exemptions.htm>

Records must be maintained as detailed in the individual Waste Order. Some relevant exemptions are detailed in Table 5.1 for a full listing of current exemptions refer to the EPA website (www.epa.nsw.gov.au/wasteregulation/recovery-exemptions.htm).

Table 5-1 Resource recovery exemptions

Order and Exemption	General Conditions
Effluent Exemption 2014	The effluent can only be applied to land for the purposes of irrigation or as a soil amendment material. The consumer must land apply the effluent within a reasonable period of time.
Excavated Natural Material Exemption 2014	The chemical concentration or other attributes of the excavated natural material listed in the Excavated Natural Material Exemption must not be exceeded. The excavated natural material can only be applied to land as engineering fill or used in earthworks. ENM handling, processing and testing requirements are outlined in detail in the exemption
Excavated Public Road Material 2014	The excavated public road material can only be stored within the road corridor at the site where it is to be applied to land. The excavated public road material can only be applied to land within the road corridor for public road related activities including road construction, maintenance and installation of road infrastructure facilities. This exemption does not apply to the land application of excavated public road material on any land outside the road corridor. The excavated public road material cannot be applied on private land. The consumer must land apply the relevant waste within a reasonable period of time.
Raw Mulch	This exemption applies to raw mulch that is, or is intended to be, applied to land as a soil

Order and Exemption	General Conditions
Exemption 2014	<p>amendment</p> <p>The consumer must land apply the raw mulch within a reasonable period of time.</p>
Recovered Aggregate Exemption 2014	<p>The chemical concentration or other attribute of the recovered aggregate listed in Recovered aggregate Exemption must be met.</p> <p>The recovered aggregate can only be applied to land for road making activities, building, landscaping and construction works. This approval does not apply to any of the following applications:</p> <ul style="list-style-type: none"> - Construction of dams or related water storage infrastructure, - Mine site rehabilitation, - Quarry rehabilitation, - Sand dredge pond rehabilitation, - Back-filling of quarry voids, - Raising or reshaping of land used for agricultural purposes, and - Construction of roads on private land unless: <ul style="list-style-type: none"> a. the relevant waste is applied to land to the minimum extent necessary for the construction of a road, and b. a development consent for the development has been granted under the relevant Environmental Planning Instrument (EPI), or c. it is to provide access (temporary or permanent) to a development approved by a Council, or d. the works undertaken are either exempt or complying e. development.
Treated Drilling Mud Exemption 2014	<p>The chemical concentration or other attribute of the treated drilling mud listed in Column 1 of Table 2 must not exceed any of the following:</p> <ul style="list-style-type: none"> - the absolute maximum concentration or other value listed in Column 3 of Table 2 of the exemption, and - the maximum average (based on the arithmetic mean) concentration or other value listed in Column 2 of Table 2 of the exemption. <p>The treated drilling mud can only be applied to land as engineering fill or used in earthworks.</p>
Reclaimed Asphalt Exemption 2014	<p>The reclaimed asphalt pavement can only be:</p> <ul style="list-style-type: none"> • Applied to land for road related activities including road construction or road maintenance activities being: <ul style="list-style-type: none"> ○ use as a road base and sub base, ○ applied as a surface layer on road shoulders and unsealed roads, and ○ use as an engineering fill material • Used as an alternative input into thermal processes for non-energy recovery purposes in the manufacture of asphalt. • The consumer must ensure that any application of reclaimed asphalt pavement to land or any use of reclaimed asphalt pavement in connection with a process of thermal treatment must occur within a reasonable period of time after its receipt

5.3 Classification of potential waste streams

The construction aspects and types of wastes, which may be generated during construction, are outlined with classifications in Table 5-2.

Table 5-2 Classification of potential waste streams

Aspect	Waste Types	Classification	Proposed reuse / Recycling / Disposal
Demolition / Site Clearing	Vegetation (logs, mulched timber, weeds)	General solid waste (non-putrescible)	All millable timber is to be milled all other vegetation will be mulched and either kept on site for soil amendment or taken offsite to be used in power generation by either the Broadwater or Condong power stations.
	Structures demolition waste	General solid waste (non-putrescible)	Effective source separation to enable reuse / recycling to be undertaken offsite.
	Concrete, asphalt and gravel	General solid waste (non-putrescible)	Reuse on site or recycling offsite
	Scrap metal	General solid waste (non-putrescible)	Recycling
	Hazardous and contaminated waste	Hazardous waste	Offsite disposal at an approved facility
Bulk Earthworks	ENM (Excavated Natural Material)	If material is taken off site classification will be carried out, based on soil tests carried out pre-construction and in accordance with the EPA Waste Classification Guidelines: Parts 1 and 2 (DECC 2008)	<i>Beneficial reuse onsite (such as general fill mounds). Balance cut and fill earthworks, where possible, to optimise reuse.</i>
	VENM (Virgin Excavated Natural Material)		<i>Or Off site disposal at an approved facility</i>
	Potentially Contaminated Soils	Hazardous waste	<i>Off site disposal at an approved facility</i>
Road Construction	Steel Reinforcing	General solid waste (non-putrescible)	Recycling offsite
	Conduits and pipes	General solid waste (non-putrescible)	Offsite disposal at an approved facility
	Concrete (solids and washouts) and asphalt	General solid waste (non-putrescible)	Offsite disposal at an approved facility
	Timber formwork	General solid waste (non-putrescible)	Reuse on site or recycled offsite
	Packaging Materials, including wood, plastic, cardboard and metals	General solid waste (non-putrescible)	Recycling offsite
	Empty oil and other drums	General solid waste (non-putrescible)	Offsite disposal at an approved facility
	Pesticides, herbicides, spill clean ups, paints and other chemicals	Hazardous waste	Offsite disposal at an approved facility
	Metals and electrical cabling	General solid waste (non-putrescible)	Offsite disposal at an approved facility
Compounds	Tyres	Special Waste	Reuse and recycling where possible. Offsite disposal at an approved

and Workshop Operation	facility		
Waste generated by the maintenance of equipment including air and oil filters and rags	General solid waste (non-putrescible)	Offsite disposal at an approved facility	
Oils, grease, fuel, chemicals and other fluids	Liquid	Recycling offsite	
Batteries	Hazardous waste	Recycling offsite	
Radiator Fluid	Hazardous waste	Offsite disposal at an approved facility	
Hydraulic Fluid	Hazardous waste	Offsite disposal at an approved facility	
Domestic waste generated by workers	General solid waste (putrescible)	Offsite disposal at an approved facility	
Sewage	General solid waste (putrescible)	Black water treatment or trade waste agreement	
Office Operation	Paper, cardboard and plastic	General solid waste (non-putrescible)	Recycling offsite
	Glass bottles and aluminium cans	General solid waste (non-putrescible)	Recycling offsite
	Ink cartridges	General solid waste (non-putrescible)	Recycling offsite
	Food Waste	General solid waste (non-putrescible)	Offsite disposal at an approved facility
	Effluent (eg STP)	Liquid	Black water treatment or trade waste agreement

5.4 Reuse and recycling

Waste separation and segregation will be promoted on-site to facilitate reuse and recycling as a priority of the waste management program as follows:

Waste segregation onsite – Waste materials, including spoil and demolition waste, will be separated onsite into dedicated bins/areas for either reuse onsite or collection by a waste contractor and transport to offsite facilities.

Waste separation offsite – Wastes to be deposited into one bin where space is not available for placement of multiple bins, and the waste is to be sorted offsite by a waste contractor.

Where sections of the existing Pacific Highway or local roads are excavated, the re-use of this material will be done in accordance with the conditions attached to the general resource recovery exemption and order, The Excavated Public Road Material Exemption 2014 and The Excavated Public Road Material Order 2014). Where this material has not been subjected to potentially contaminating sources, it can be reused within the road corridor without further testing or any specific licensing requirements. Where this material is suspected of being subject to contamination (e.g. section of road is adjacent to a service station, or an old sheep dip), testing and classification of this material will be undertaken.

Secondary waste material would be used in construction wherever feasible and reasonable. Where materials cannot be reused and recycled, all waste would be handled and disposed in accordance with the *Protection of the Environment Operations Act 1997*.

Roads and Maritime would also investigate whether unused resources could be used on other Pacific Highway projects.

5.5 Waste Handling and Storage

Where waste is required to be handled and stored onsite prior to onsite reuse or offsite recycling/disposal, the following measures apply:

- Spoil, topsoil and mulch are to be stockpiled onsite in allocated areas, where appropriate, and mitigation measures for dust control and surface water management will be implemented as per the Air Quality Management Plan and the Soil and Water Management Plan.
- Liquid wastes are to be stored in appropriate containers in bunded areas until transported offsite. Bunded areas will have the capacity to hold 110 per cent of the liquid waste volume for bulk storage or 120 per cent of the volume of the largest container for smaller packaged storage
- Hazardous waste will be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the Environmentally Hazardous Chemicals Act 1985 and the EPA waste disposal guidelines.
- All other recyclable or non-recyclable wastes are to be stored in appropriate covered receptacles (e.g. bins or skips) in appropriate locations onsite and contractors commissioned to regularly remove/empty the bins to approved disposal or recycling facilities.
- It is estimated that mulching of timber and green wastes for the project will generate significant quantities of mulch. Mulch has the potential of creating tannin affected water, which in turn has the potential of causing water pollution. Mulch stockpiles are to be managed in accordance with the Soil and Water Management Plan and 'RMS Tannins Management Guideline, Environmental Direction, Management of Tannins from Vegetation Mulch (Roads and Maritime) JANUARY 2012'.

5.6 Waste Disposal

Waste (and spoil) disposal is to be in accordance with the *Protection of the Environment Operations Act 1997* and the *Waste Avoidance and Resource Recovery Act 2001*. Wastes that are unable to be reused or recycled will be disposed of offsite to an EPA approved waste management facility following classification (*refer to section 5.1*). The location of waste management/disposal facilities are included in Appendix B. Details of waste types, volumes and destinations are to be recorded in the Waste Management Register (Appendix D).

Where possible wastes will be removed off-site to a recycling facility or will be disposed of at a licensed waste facility.

5.7 Energy Conservation

The Project Team is dedicated to implementing energy conservation best practice and the reduction of greenhouse gases by adopting energy efficient work practices including:

- Developing and implementing procedures to minimise energy use.
- Conducting awareness programs for all site personnel regarding energy conservation methods.
- Energy efficient design of site buildings;
- Design of site construction work sites to minimise unnecessary vehicle movement;
- The right size plant for the task;
- Regular servicing of site plant and equipment;

- Plant, vehicles and equipment turned off when not in use;
- Training of personnel in energy efficient best practices; and
- Use of locally sourced material where available and of suitable quality.

6 Environmental mitigation and management measures

A range of environmental requirements are identified in the various environmental documents, including the EIS, Submissions / Preferred Infrastructure Report,, Statement of Commitments, supplementary assessments, Conditions of Approval and Roads and Maritime documents, and from recent experience on similar road projects. Specific measures and requirements to address waste management and energy use issues are outlined in Table 6-1.

7 Compliance management

7.1 Roles and responsibilities

The CMC Project Team's organisational structure and overall roles and responsibilities are outlined in *Section 4.2 of the CEMP*. Specific responsibilities for the implementation of environmental controls are detailed in *Chapter 6 of this plan*.

7.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to waste and energy management issues. The induction training will address elements including:

- Existence and requirements of this sub-plan;
- Relevant legislation;
- Incident response, management and reporting;
- Waste reporting requirements;
- Requirements of the waste hierarchy;
- Waste/ recycle storage requirements;
- Energy efficient best practices; and
- Other specific responsibilities for waste and reuse management.

Further details regarding staff induction and training are outlined in Chapter 5 of the CEMP.

7.3 Monitoring and inspection

Regular monitoring and inspections will be undertaken during construction.

Additional requirements and responsibilities in relation to inspections, in addition to those in Table 6-1, are documented in *Section 8.2 of the CEMP*.

7.4 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental mitigation and management measures, compliance with this plan, CoA and other relevant approvals, licenses and guidelines.

Audit requirements are detailed in *Section 8.4 of the CEMP*.

7.5 Reporting

Reporting requirements and responsibilities are documented in the *Sections 8.4 and 8.5 of the CEMP*.

8 Review and improvement

8.1 Continuous improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

8.2 CWEMP update and amendment

The processes described in *Chapter 8 and Chapter 9* of the CEMP may result in the need to update or revise this plan. This will occur as needed.

Any revisions to the CWEMP will be in accordance with the process outlined in *Section 1.6 of the CEMP*.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 10.2 of the CEMP.

The agencies consulted during the development of this plan include: DPE, EPA, DPI (Fisheries) and Roads and Maritime.

Table 6-1 Management and mitigation measures

ID	Measure / Requirement	When to implement	Responsibility	Reference
GENERAL				
WE1	The NSW Governments Waste Management Hierarchy of “avoid-reduce-reuse- recycle- dispose” will be followed as the framework of waste management throughout the project. The reuse and/or recycling of waste materials generated on site shall be maximised as far as practicable, to minimise the need for treatment or disposal of those materials off site.	Pre-construction / Construction	Construction Manager / Environment Manager	G36 CoA B69
WE2	Waste management measures from this CWEMP will be included in relevant Environmental Work Method Statements to be developed prior to the commencement of specific activities	Pre-construction / Construction	Site Engineer / Environmental Officer	Good practice
WE3	All staff and subcontractors will undergo a site induction and ongoing toolbox talks that will detail waste minimisation and reuse management measures, including the requirements of the waste management hierarchy. Waste minimisation training will include energy consumption awareness that promotes energy conservation methods including minimising energy use by switching off equipment when not in use.	Construction	Environment Manager / Supervisor	Good Practice
WE4	Procurement of materials will be planned and managed to avoid the over-ordering of products and minimise excess packaging is to be carried out.	Construction	Site Engineer / Supervisor	Good Practice
WE5	Recycled material will be considered for use in all aspects of the project where feasible and reasonable in accordance with the NSW Government’s Waste Reduction and Purchasing Policy.	Construction	Site Engineer	G36
WE6	Weeds will be managed, handled and disposed of in accordance to The Weed Management Strategy (refer to the FFMP). If disposal is appropriate, the weed material will be transferred to a licensed waste facility.	Construction	Supervisor	Good practice
WE7	Sediment recovered from erosion and sediment control devices will be reused on site as general fill material or it will be incorporated within landscaping materials where possible.	Construction	Supervisor	Good Practice
WE8	The cut and fill balance of the project will be further refined to obtain as much material as possible for re-use on the project.	Pre-construction	Construction Manager / Environment Manager	W2B Submissions / PIR (WM1)

ID	Measure / Requirement	When to implement	Responsibility	Reference
WE9	<p>A resource use management strategy will be prepared for construction of the project and identify the hierarchy for sourcing and use of resources.</p> <p>This will include:</p> <ul style="list-style-type: none"> - Available project cutting material (including SMZ and verge material) will be used for the construction of the embankments, SMZ and verge within that section to the extent that it is suitable. - Project sections with a deficit in material will import surplus material from other project sections in preference to external sources. - Where possible, the distances that earthworks materials are moved across the project as a whole will be minimised, notwithstanding the above two requirements. - Any unsuitable material will be used for landscaping or disposed of within each project section, either for batter flattening or noise mounds or placed in stockpile. - Contractors will reduce the amount of unsuitable waste generated during excavations, where feasible (eg treatment at source) - Other locations of disposal of unsuitable material will be considered including borrow source areas created as part of the project - The generation and management of unsuitable material during project earthworks will be monitored to ensure appropriate management of the issue 	Pre-construction and construction	Construction Manager / Environment Manager	W2B Submissions / PIR (WM2)
WE10	<p>Resource use management strategy should also identify:</p> <ul style="list-style-type: none"> - Details on materials that will be sourced from the project (including location and type). - Viable material suppliers (including water) near the project. - Proposed sustainable material sources practices (such as recycled materials or use of waste water). - Materials that could be recycled and re-used on-site or transferred to other project sections. 	Pre-construction and construction	Construction Manager / Environment Manager	W2B Submissions / PIR (WM3)
WE11	Where possible, materials will be bought in bulk to minimise the amount of package required. Sources of material that have sustainable packaging design, recycled and recyclable packaging will be favoured over other material sources where cost effective.	Construction	Construction Manager / Environment Manager	W2B Submissions / PIR (WM4)
WE12	All waste material generated on-site will be dealt with in accordance with the <i>Protection of the Environment Operations Act 1997</i> and	Construction	Construction Manager / Environment Manager	W2B Submissions / PIR (WM5)

ID	Measure / Requirement	When to implement	Responsibility	Reference
	<p><i>Waste Classification Guidelines</i> Part 1: Classifying Waste (DECCW, 2014), or any superseding document.</p> <p>Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the Protection of the Environment Operations Act 1997, if such a licence is required in relation to that waste.</p>			CoA B68, CoA B70
WE13	<p>Waste minimisation and management measures will be developed based on the principles in the Waste Avoidance and Resource Recovery Act 2001, the NSW Government's Waste Reduction and Purchasing Policy, and waste exemptions including:</p> <ul style="list-style-type: none"> - Excavated Natural Material Exemption (EPA, 2014)). - Excavated Public Road Material Exemption (EPA, 2014)) - Raw Mulch Exemption (EPA, 2014) - Reclaimed Asphalt Pavement Exemption (EPA, 2014) - Recovered Aggregate Exemption (EPA, 2014) - Treated Drilling Mud Exemption (EPA, 2014) - Measures will seek to avoid, minimise, re-use, recycle, treat or dispose of waste streams during construction and address transport and disposal arrangements. 	Construction	Construction Manager / Environment Manager	W2B Submissions / PIR (WM6)
WE14	Millable timber will be harvested for reuse off site. All other felled timber will be reused on-site in the form of habitat recreation or mulch in landscaping and erosion and sedimentation controls. Where mulch cannot be reused on-site, consideration will be given to making the mulch available to the public in accordance with the Roads and Maritime Environmental Direction 25 (2012) and the Raw Mulch Exemption (EPA, 2014).	Construction	Supervisor / Environment Officer	W2B Submissions / PIR (WM7)
WE15	Where feasible, the contractor will be required to re-use materials. This could include, but is not limited to concrete formwork or surplus concrete pours.	Construction	Construction Manager / Environment Manager	W2B Submissions / PIR (WM9)
WE16	At site compounds facilities for storage of putrescible waste and on-site recycling facilities will be provided for recycling paper, plastic, glass and other re-useable materials.	Construction	Construction Manager / Environment Manager	W2B Submissions / PIR (WM11)
WE17	Regular visual inspections will be conducted to ensure that work sites are kept tidy and to identify opportunities for reuse and recycling.	Construction	Supervisor / Environment Officer	W2B Submissions / PIR (WM12)
WE18	Topsoil (weed free) will be stockpiled in accordance with Roads and Maritime criteria in allocated areas and reused for landscaping.	Construction	Supervisor / Environmental Officers	G36

ID	Measure / Requirement	When to implement	Responsibility	Reference
WE19	Any contaminated waste will be handled, separated, contained, managed and disposed of to prevent migration and further contamination.	Construction	Supervisor	CLM Act G36
WASTE DISPOSAL				
WE20	A waste register will be maintained, detailing types of waste collected, amounts, date/time and details of disposal.	Construction	Environment Manager / Environment Officer	W2B Submissions / PIR (WM3)
WE21	Waste will be managed and disposed of in accordance with the PoEO Act and the WRAPP. Wastes that are unable to be reused or recycled will be disposed of offsite at a licensed waste management facility, or premises lawfully permitted to accept the materials following classification.	Construction	Environment Manager / Environment Officer	G36 CoA B71
WE22	Oils and other hazardous liquids will be labelled and stored in a sealed container within a bunded area. Material collected from within bunded areas will be disposed off site at a waste facility approved by the EPA.	Construction	Supervisor / Environment Officer	G36
WE23	A s143 notice under the PoEO Act will be completed should the off site (on private property) disposal of road construction waste material or VENM be deemed necessary.	Construction	Supervisor / Environment Officer	PoEO Act G36
WE24	The relevant licences of waste facilities utilised for the disposal of project waste will be obtained (on a regular basis if necessary) to ensure they are legally able to accept that waste.	Construction	Supervisor	G36
WE25	The disposal of chemical, fuel and lubricant containers, solid and liquid wastes must be in accordance with the requirements of the local Council or the EPA.	Construction	Supervisor Environment Officer	/ G36
WE26	All trucks transporting wastes off site will be appropriately licensed to carry the materials to appropriately licensed waste facilities.	Construction	Site Engineer / Supervisor	G36
WE27	Sewage waste from toilets will be transported offsite by an appropriately licensed to carry the materials to appropriately licensed waste facilities.	construction	Site Engineer / Supervisor	G38
GREENHOUSE GAS AND ENERGY CONSERVATION				
WE28	Flyash content within concrete will be specified where feasible. Contractors will be required to propose recycled content construction	Pre-construction and construction	Environment Manager / Environment Officer	W2B Submissions / PIR (GHG1)

ID	Measure / Requirement	When to implement	Responsibility	Reference
	materials where they are cost, quality and performance competitive.			
WE29	Reuse of excavated road materials will be maximised as far as possible where they are cost, quality and performance competitive to reduce use of materials (with embedded energy).	Pre-construction and construction	Environment Manager / Environment Officer	W2B Submissions / PIR (GHG2)
WE30	Steel with high recycled content will be specified where feasible where they are cost, quality and performance competitive. Contractors will be required to propose recycled content construction materials where they are cost, quality and performance competitive.	Pre-construction and construction	Environment Manager / Environment Officer	W2B Submissions / PIR (GHG3)
WE31	The feasibility of using biofuels (biodiesel, ethanol, or blends such as E10 or B80) will be investigated by the contractor, taking into consideration the capacity of plant and equipment to use these fuels, ongoing maintenance issues and local sources. Works will be planned to minimise fuel use.	Construction	Environment Manager / Environment Officer	W2B Submissions / PIR (GHG4)
WE32	An energy management plan will be developed during the construction of the project. The plan will include a commitment to monitor on-site energy consumption and identify and address on-site energy waste.	Pre-construction and construction	Environment Manager / Environment Officer	W2B Submissions / PIR (GHG5)
WE33	Onsite energy consumption is to be monitored as part of the implementation of the CWEMP during construction.	Construction	Environment Manager / Environment Officer	W2B Submissions / PIR (GHG5)
WE34	Inefficient use of energy is to be identified and measures are to be taken to address on-site energy waste.	Construction	Environment Manager / Environment Officer	W2B Submissions / PIR (GHG5)
WE35	Roads and Maritime will investigate the use of LED lighting in place of incandescent lamps as part of the project's detailed design, and use them where practicable to reduce electrical energy consumption. Any energy-efficient alternatives will have to meet lighting standards for major roads.	Pre-construction	Environment Manager / Environment Officer	W2B Submissions / PIR (GHG6)
WE36	An education program will be developed and delivered to the construction personnel to promote energy-efficient work practices.	Construction	Environment Manager / Environment Officer	W2B Submissions / PIR (GHG7)
WE37	Planning the most efficient use of resources and equipment in the most efficient manner also reduces energy use and emissions.	Pre-construction and construction	Superintendent	W2B Submissions / PIR (GHG5)
WE38	Operational procedures – shutting down equipment when not in use, using the most efficient piece of equipment for each task, ensuring rework is minimised, siting of facilities, stockpiles, haul roads is optimised for distance to work areas.	Pre-construction and construction	Superintendent, Supervisor	W2B Submissions / PIR (GHG5)

ID	Measure / Requirement	When to implement	Responsibility	Reference
WE39	Maintain plant and equipment to the manufacturer's standard	Pre-construction and construction	Supervisor	W2B Submissions / PIR (GHG5)

Appendix A

Waste contact list



Waste Contractors/Recyclers			
Contractor	Contact Details/EPL Licennce No	Waste Accepted	Waste Recycled
Aarvbee Demolition and Recyclers Pty Ltd (Demolition and asbestos removal)	52 Fraser Drive Coffs Harbour 2450 NSW Ph (02)66523123 Ph (02 66525699 – Metal recycling Transporters Licence EPL #12972	Builders demolition waste Asbestos	Wood, steel, building components
Handy Bin Waste Services	25 England's Rd Coffs Harbour 2450 NSW Ph (02) 66918700 EPL Not required	Building waste, office waste, liquid waste	Plastic, glass, metals, timber, paper and cardboard
Clarence Valley Septics	PO Box 270 Maclean NSW 2463 Phone 02 6645 3100 www.clarencevalleyseptics.com.au Transporters Licence EPL#7069	Waste oil, Oily waters, Waste chemicals, Septic sludge	Oils
Grafton Regional Landfill	704 Armidale Road, South Grafton Ph: 6641 4980 EPL# 7186	<ul style="list-style-type: none"> • general waste disposal • eWaste (at no cost) • scrap metal and concrete recycling • vehicle weighbridge • small vehicle transfer station • recycling drop off facilities • vehicle wash bay • oil waste storage • household hazardous waste store • drumMUSTER compound • organics composting facility • <u>Disposal requirements for asbestos</u> 	Plastic, glass, metals, timber, paper and cardboard, oils

Appendix B

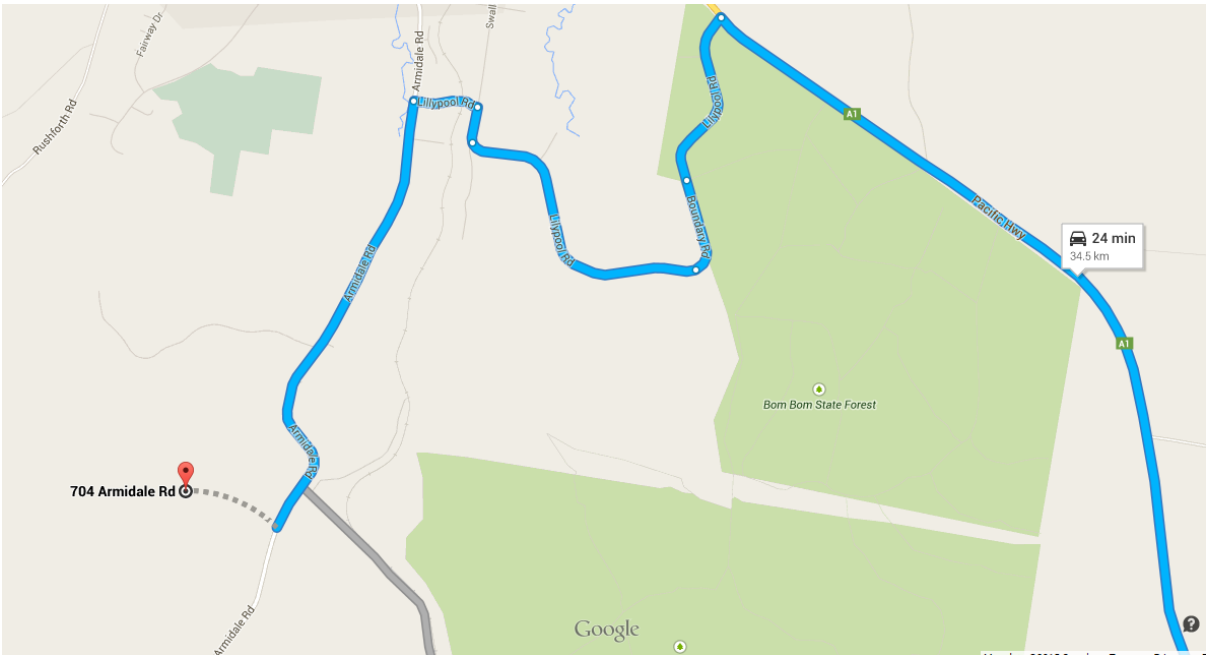
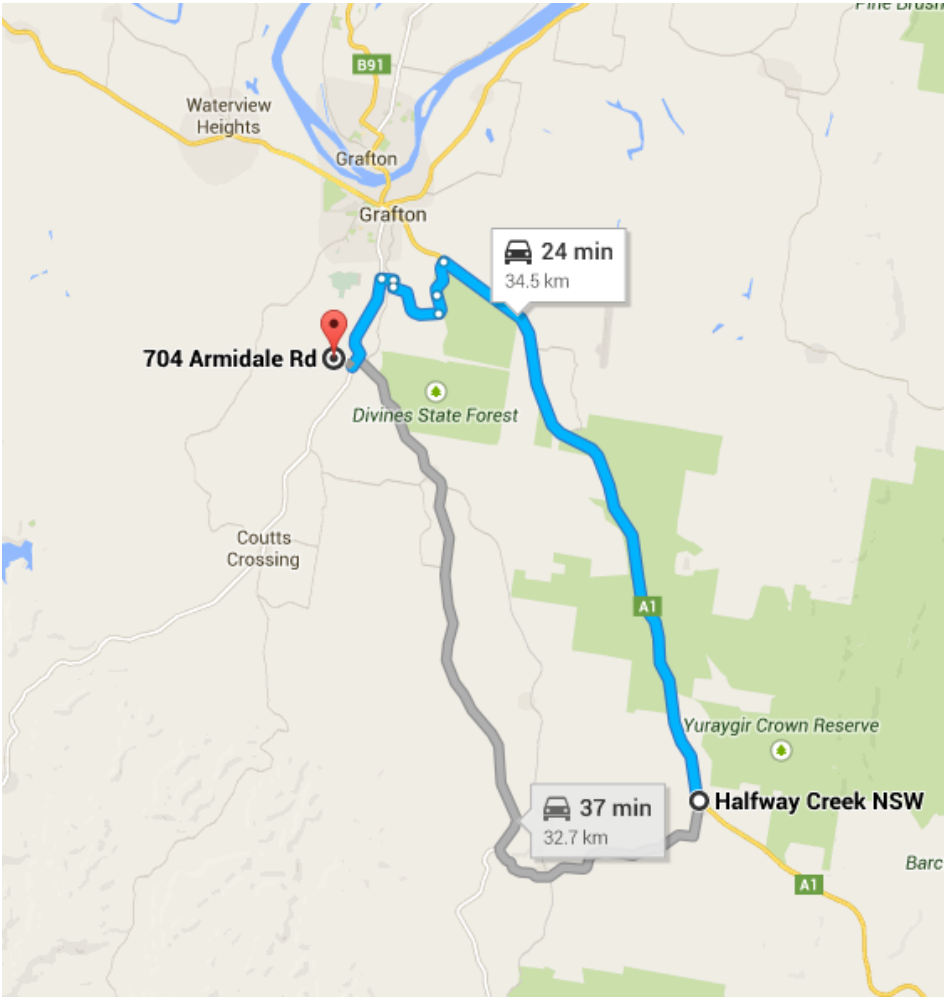
Location of waste facilities

Appendix B

Location of waste facilities

Facility	Location	Waste accepted	Hrs	Contact
Grafton Waste Transfer and Recycling Facility	Corner Duke and Kirchner Streets, Grafton	<ul style="list-style-type: none"> • small vehicle (under 2 tonne) general waste disposal • paper and cardboard commercial collection and security paper shredding service • green waste drop off facility • eWaste (no cost) • recycling of: • glass, PET & HDPE plastic • steel and aluminium cans • paper and cardboard • ferrous and non ferrous metals • motor oil, cooking oil • vehicle batteries 	8:00am - 4.30 pm 7 days	6642 6428 (BH)
Grafton Regional Landfill (see map below)	704 Armidale Road, South Grafton Ph: 6641 4980	<ul style="list-style-type: none"> • general waste disposal • eWaste (at no cost) • scrap metal and concrete recycling • vehicle weighbridge • small vehicle transfer station • recycling drop off facilities • vehicle wash bay • oil waste storage • household hazardous waste store • asbestos • drumMUSTER compound • organics composting facility • <u>Disposal requirements for asbestos</u> 	7.00am - 4.00pm Monday to Friday 8.30am - 1.00pm Saturday 10.30am - 1.00pm Sunday	
England's Rd Waste Management Facility (Coff Harbour City Council)	England's Rd Coffs Harbour	<ul style="list-style-type: none"> • Asbestos • General waste (putrescibles and non-putrescibles), • Tyres • Recycling concrete waste • Metal and glass recycling • Battery recycling 	7:30 am – 5:00pm Monday to Friday	Ph (02) 66484000

Route to Grafton Landfill.



Appendix C

Surplus material management plan



Construction Activity	Waste Type	Waste Classification	Likely quantity	Disposal methods	Reuse / Recycle Target
Demolition					
Removal of existing road pavement.	Asphalt	General Solid Waste (non-putrescible)	5000 m3 (12,500 Tonnes)	Onsite reuse	Reuse as roadbase or general fill or surfacing for haul roads/access
Fencing	Building and demolition waste (timber, fencing barbed-wire)	General Solid Waste (non-putrescible)	400 kg	Offsite Recycled	Waste to be separated and recycled off site.
Structures - Buildings	General Solid Waste (non-putrescible)	General Solid Waste (non-putrescible)	1,000 kg	Offsite recycled	Material recycled by demolition contractor
Structures-bridges and culverts	General Solid Waste (non-putrescible)	General Solid Waste (non-putrescible)	100 tonnes	Offsite recycled	Material recycled by demolition contractor
Excavation					
Cut to fill and topsoil stripping	ENM (Excavated Natural Material)	General Solid Waste (non-putrescible)	1,200,000m ³	Onsite reuse	Used as cut to fill earthworks or stockpiled for future works.
Cut to fill and topsoil stripping	VENM (Virgin Excavated Natural Material)	General Solid Waste (non-putrescible)	20,000m ³	Onsite reuse	Used as cut to fill earthworks or stockpiled for future works.
Cut to fill and topsoil stripping	Potentially Contaminated Soils	General Solid to Hazardous	0	Off site disposal	Disposal at approved facility
Piling excavations	Acid Sulfate Soils	In accordance with Waste Classification Guidelines	20 m ³	In accordance with Acid Sulfate Soils Management Procedure	Treatment and reuse or disposal at approved facility
General	Asbestos waste	Special waste	400 kg	Licensed contractor	Disposal at approved facility
Vegetation clearance					
Clearing and grubbing	Mulched vegetation	General Solid Waste (non-putrescible)	40,000 m ³	On and offsite reuse	Reuse on site or used as biofuel source
Clearing	Timber	General Solid Waste (non-putrescible)	5,000m ³	Off site reuse	Reuse by commercial timber mill
Clearing	Weeds	General Solid Waste (putrescible)	100 m ³	Offsite disposal	Disposal at landfill



Construction Activity	Waste Type	Waste Classification	Likely quantity	Disposal methods	
Construction					
Removal of redundant utility services.	Copper and fibre cable, steel pipe, cast iron pipe, concrete water mains, plastic pipes etc.	General Solid Waste (non – putrescible	2 tonnes	Offsite recycling	Waste to be separated and recycled off site.

Appendix D

Waste management register



Waste Management Register

Rev1

[illegible]