



**NORTHWEST RAPID TRANSIT  
PROJECT INTEGRATED MANAGEMENT SYSTEM**

**WASTE MANAGEMENT RECYCLING PLAN**

**FOR**

**SYDNEY METRO NORTHWEST  
OPERATIONS, TRAINS and SYSTEMS PPP**

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# Waste Management and Recycling Plan Approval Records

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FUNCTION	POSITION	NAME	SIGNATURE	DATE
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Approved by	NRT CEO	Mark Elliott		29/11/18

## Amendment Record

Changes made to this document since its last revision, which affect its scope or sense, are marked in the right margin by a vertical bar ( | ).

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# 1 Introduction

This *Waste Management and Recycling Plan* (WMRP) outlines the construction environmental management arrangements by which Northwest Rapid Transit (NRT), in partnership with Transport for NSW (TfNSW), is delivering the Operations, Trains and Systems (OTS) Public Private Partnership (PPP) component of the North West Rail Link (NWRL) Project, now renamed as 'Sydney Metro Northwest'.

Note: In June 2015, TfNSW changed the project's name to Sydney Metro Northwest (from the North West Rail Link) to reflect its role in Sydney's new railway network. Any references to the North West Rail Link in this plan can be assumed to be referring to the Sydney Metro Northwest. Similarly, the Rapid Transit Rail Facility (RTRF) is now known as the Sydney Metro Trains Facility (SMTF).

## 1.1 OTS PPP

Sydney Metro is Australia's largest public transport project. Sydney Metro Northwest, formerly known as the North West Rail Link, is the first stage of Sydney's new fully-automated metro system and will open to customers in the first half of 2019.

Stage 2, Sydney Metro City & Southwest, will extend metro rail under Sydney Harbour, through the CBD and southwest to Bankstown.

The \$8.3 billion Sydney Metro Northwest will deliver eight new railway stations and 4,000 commuter car parking spaces to Sydney's growing North West. Services will start with a train every four minutes in the peak. The project also includes the upgrade and conversion of five existing railway stations to metro standards.

The OTS contract is a 15-year PPP project – the largest in the history of New South Wales as well as the largest of the three delivery contracts for Sydney Metro Northwest.

Northwest Rapid Transit is delivering Sydney's new generation metro trains; building the new stations and car parks; installing tracks, signalling, mechanical and electrical systems; building and operating the RTRF at Tallawong Road; upgrading and converting the railway between Epping to Chatswood to rapid transit standards; and operating Sydney Metro Northwest – including all maintenance work.

## 1.2 Purpose and Application

This WMRP describes how NRT will manage waste during Phase 1, ECRL Conversion, Phase 2, Norwest Pedestrian Link, 33kV Underground Feeder Powerline Works and Rouse Hill Temporary Bypass Powerline works of the delivery of the NWRL OTS contract.

Figure 1 below illustrates the delineation of the Phase 1, ECRL Conversion and Phase 2 of the OTS Works.

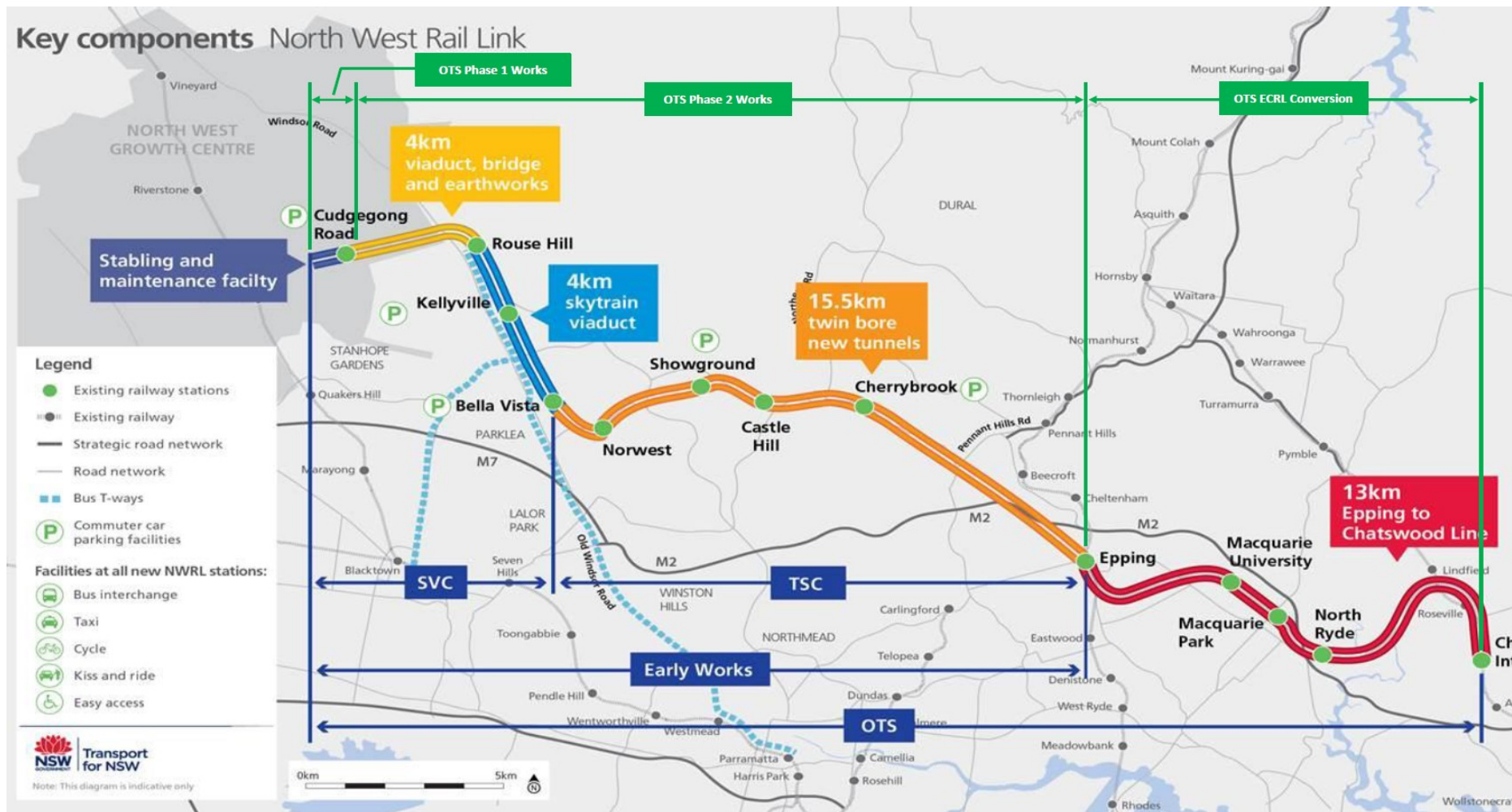


Figure 1 Schematic of NWRL OTS Phase 1, ECRL and Phase 2 Works



The NWRL OTS Phase 1 covers the works associated with the delivery of the RTRF and the Cudgegong Precinct Enabling Works, being the works west of Cudgegong Road and including the initial earth works in the vicinity of Cudgegong Road Station – see Figure 2 below.

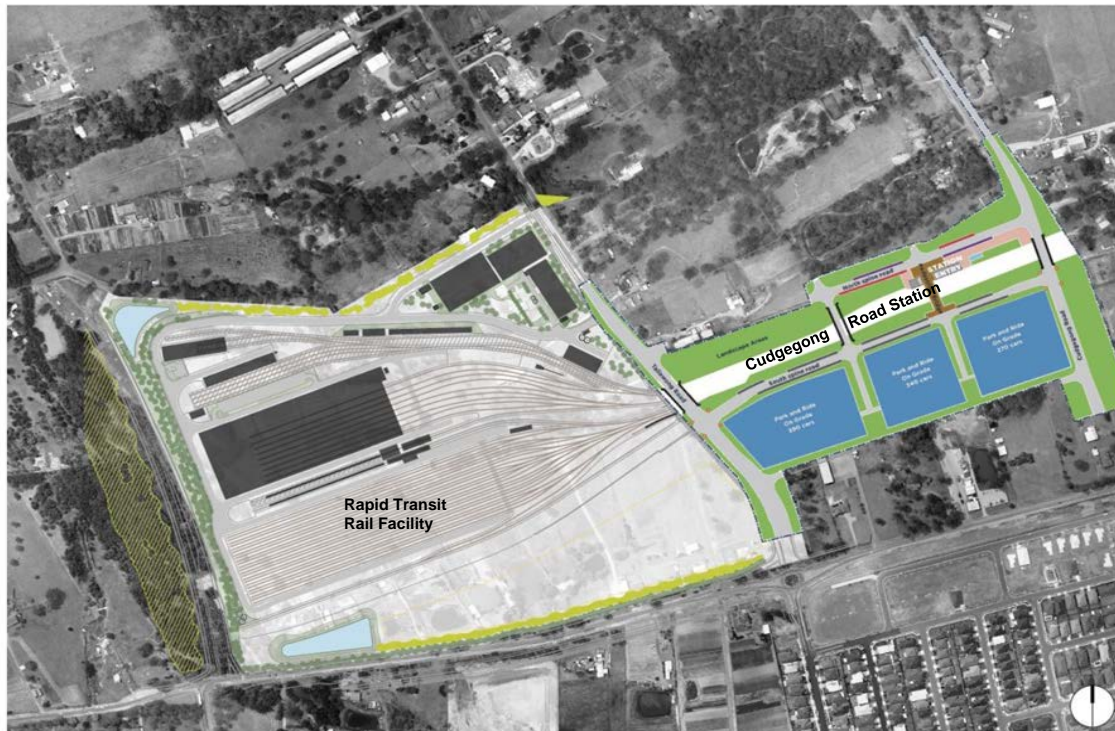


Figure 2 Indicative NWRL OTS Phase 1 Site: RTRF and Cudgegong Road Station

The ECRL Conversion works refer to the conversion of the existing Epping to Chatswood Rail Line to rapid transit. See Figure 3 below.

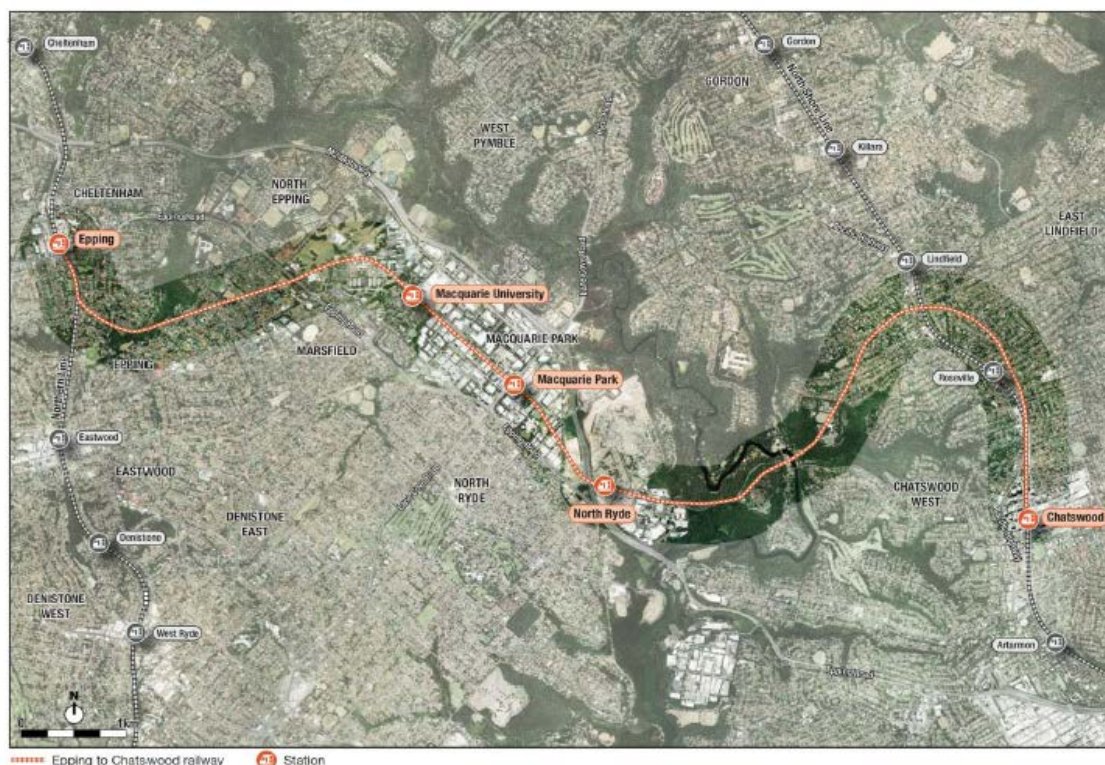


Figure 3 Indicative ECRL Conversion Works Area

Phase 2 Works refer to the construction of:

- New railway stations and precincts at Rouse Hill, Kellyville, Bella Vista, Norwest, Showground, Castle Hill and Cherrybrook (connecting to the Phase 1 works to the west and ECRL conversion works to the south-east. These works include the major civil construction work areas, including but not limited to the seven stations sites and six sites associated with the above rail corridor from Bella Vista to the Phase 1 work areas.
- Services facilities at Cheltenham and Epping
- Rail infrastructure and systems
- Infrastructure such as road works, pedestrian/cycle facilities, landscaping associated with construction of precincts and stations.

The scope of Phase 2 Works is demonstrated Figure 4 in below. Phase 2 is shown as the new NWRL alignment (green alignment) with ECRL conversion works shown as the existing alignment (blue alignment).



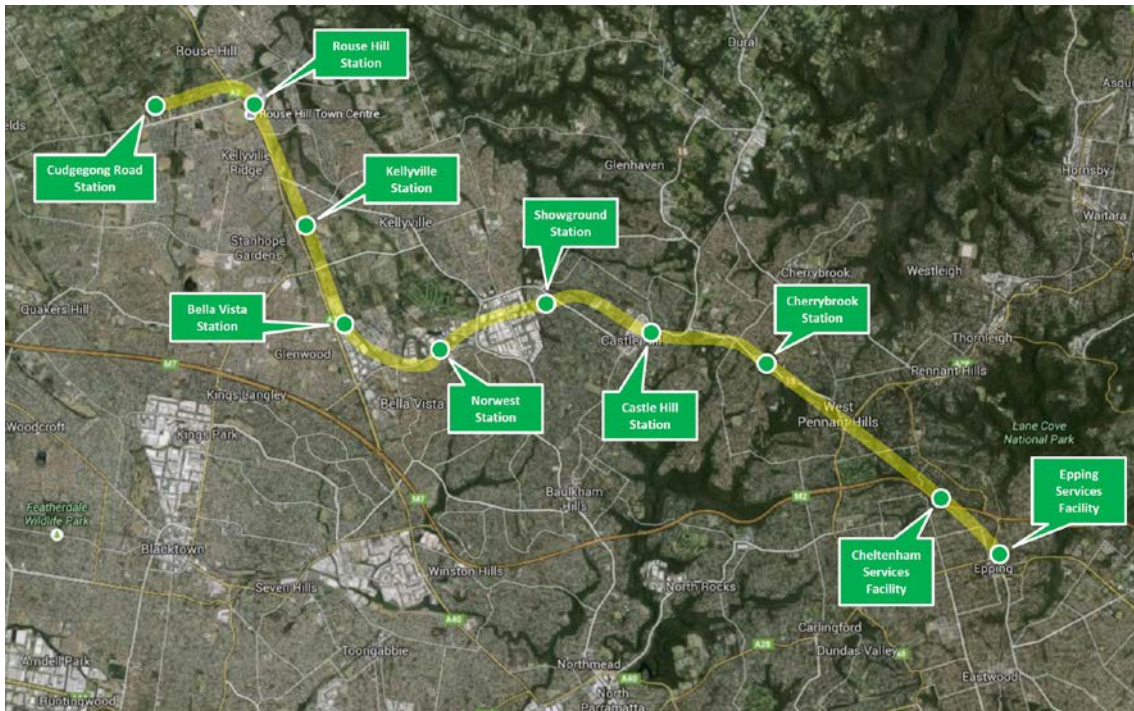


Figure 4 Indicative NWRL OTS Phase 2 Works Areas

Norwest Pedestrian Link works refer to the installation of an underground pedestrian link and second station entry on the northern side of Norwest Boulevard at Norwest Station. See Figure 5.

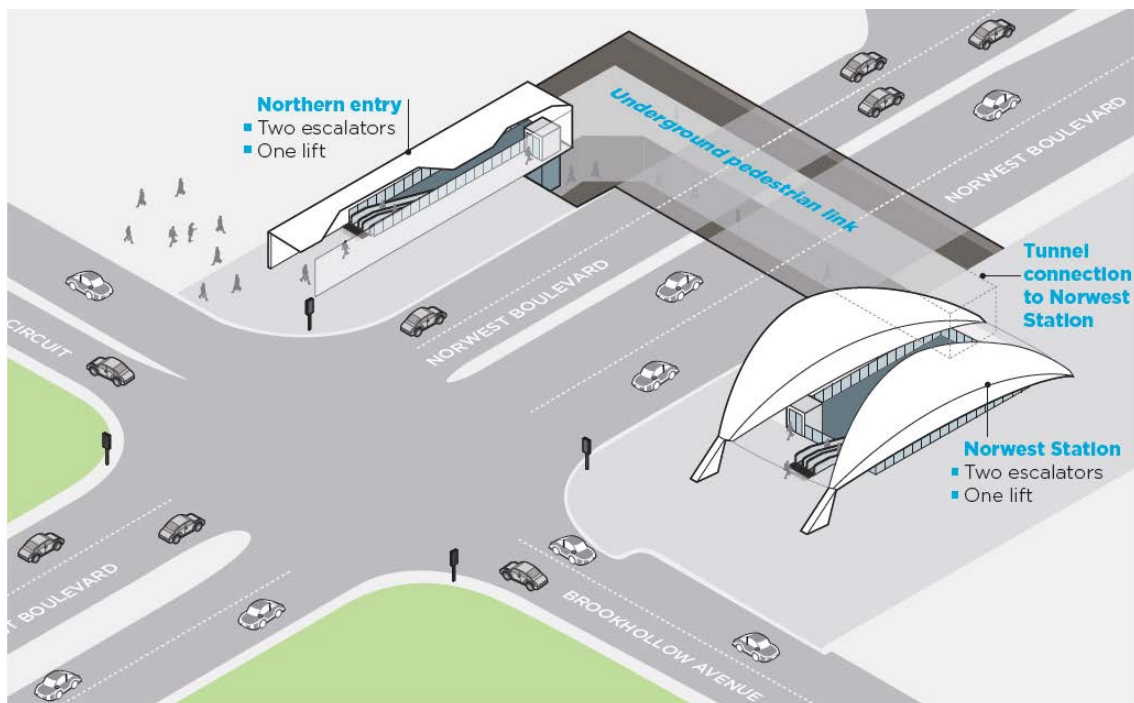


Figure 5: Artist Impression of the Norwest Pedestrian Link

The 33kV Underground Feeder Powerline works refer to the building and maintaining a new five kilometre 33kV feeder power line between Ausgrid's Willoughby Sub transmission Substation and the TfNSW Chatswood North Traction Substation. The



proposal is required to provide dedicated, independent 33kV connection in order to meet the reliable supply of electricity requirements for this project. See Figure 6.

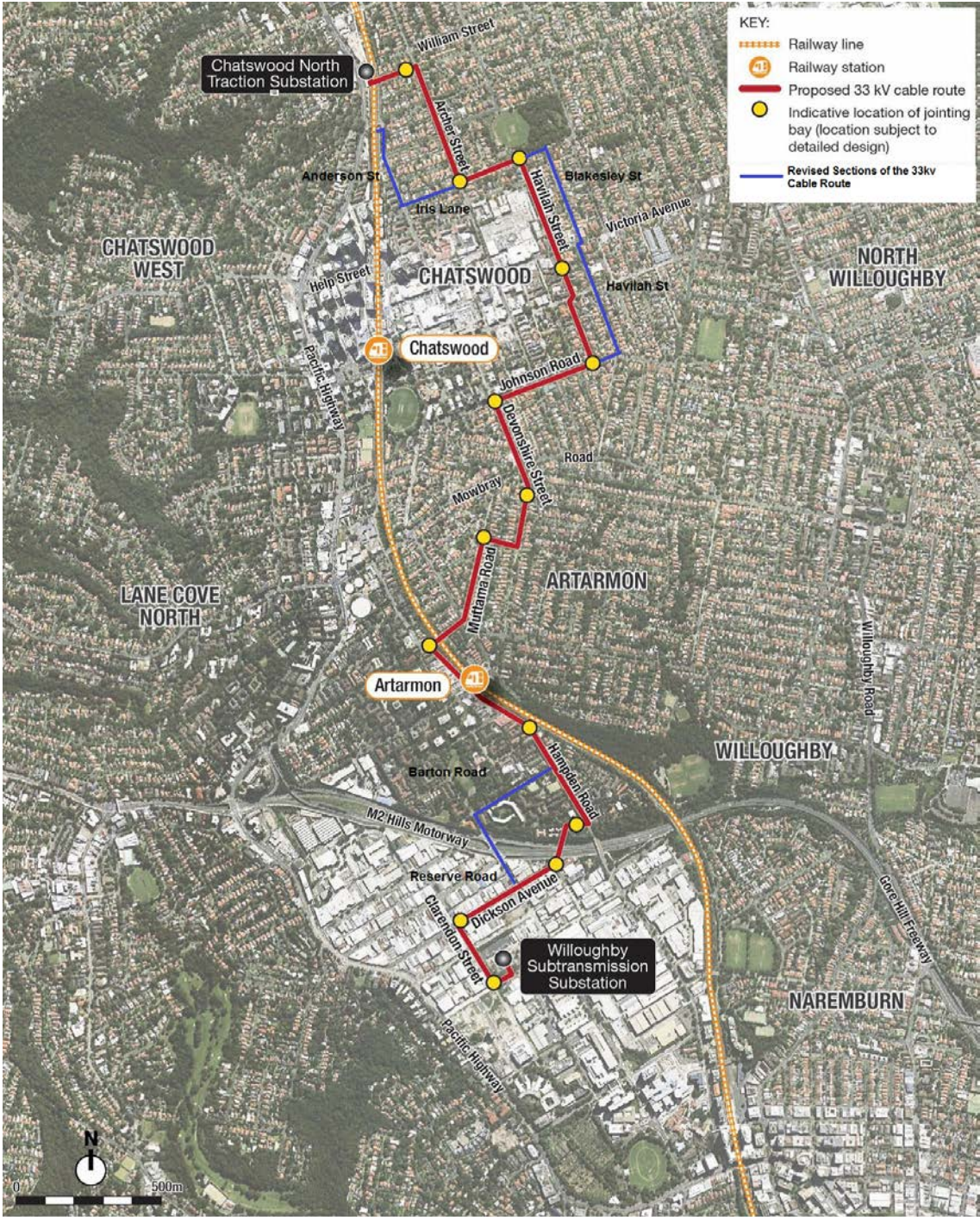


Figure 6: Overview of the 33kV Underground Feeder Powerline Route

The Rouse Temporary Bypass Powerline involves the construction of a temporary powerline from the southern side of the Sydney Metro Windsor Road Bridge crossing Schofields Road, running underground through Castlebrook Memorial Park transitioning back to overhead and crossing Windsor Road to the Rouse Hill traction substation located south of Sanctuary Drive. The purpose of the temporary powerline is to enable energisation and commissioning of the rail systems associated with the construction of Sydney Metro Northwest. See Figure 7 below:





Figure 7 - Rouse Temporary Bypass Powerline Work Area

Specifically, this Sub Plan:

- Describes the legislative framework specific to waste and relevant guidelines that must be followed
- Identifies the types of waste streams expected to generate
- Identifies key waste risks and impacts associated with the works
- Describes procedures that will be used for management of waste and recycling initiatives and targets.

This Plan is a sub plan of the Phase 1, ECRL Conversion, Phase 2, Norwest Pedestrian Link and 33kV Underground Feeder Powerline Works Construction Environmental Management Plan (CEMP). The relationship of this Plan to other NRT Plans is described in detail below in Section 1.4.

## 1.3 Waste Management and Recycling Objectives and Targets

This WMRP addresses the following requirements:

- OTS Project Deed, Operations, Trains and Systems, Exhibit 1, Scope and Performance Requirements, Appendix 54 – Project Plan Requirements, Section 3.17
- OTS Project Deed, Operations, Trains and Systems, Exhibit 1, Scope and Performance Requirements, Appendix 50 – Sustainability Requirements, Section 2.6.1
- Project Planning Approval - Rapid Transit Rail Facility (ref SSI-5931) – All Conditions applicable to Phase 1 NWRL OTS works

- Project Planning Approval (and Modification 20 May 14) – NWRL Stage 2 – Stations, Rail Infrastructure & Systems (SSI-5414) – applicable to Phase 1 NWRL OTS works, as defined in Staging Report
- ECRL Conversion Determination Report Conditions of Approval
- Applicable Environmental Management Measures from Project EISs:
  - Environmental Impact Statement 2 (EIS2) and Submissions Report (including – NWRL Stage 2 Stations, Rail Infrastructure and Systems (2012/3)
  - Environmental Impact Statement and Submissions Report – Tallawong Road, Rouse Hill Rapid Transit Rail Facility (JBA 2013).
- ECRL Conversion Review of Environmental Factors (Parsons Brinkerhoff, 10 October 2014) and Submissions Report (Parsons Brinkerhoff, 5 February 2015)
- Norwest Pedestrian Link Review of Environmental Factors (Parsons Brinkerhoff 4 June 2015) and Submissions Report (Parsons Brinkerhoff, 1 October 2015)
- Norwest Pedestrian Link Determination Report Conditions of Approval
- Willoughby to North Chatswood 33kV Underground Feeder Powerline Review of Environmental Factors (Parsons Brinkerhoff 20 October 2015) and Submissions Report (Parsons Brinkerhoff 9 March 2016)
- 33kV Underground Feeder Powerline Determination Report Conditions of Approval
- Rouse Hill Temporary Bypass Powerline Environmental Impact Assessment (EIA)
- NWRL Construction Environmental Management Framework (Rev 1.4)
- Applicable Legislative Obligations.

The Compliance Matrix in Annexure A details how the WMRP complies with the requirements of the applicable CoAs requiring the Plan to be prepared and approved and provides a comprehensive list of compliance requirements, environmental documents and the contract documents.

NRT's waste management and recycling objectives and targets for the delivery of the Phase 1, ECRL Conversion, Phase 2, Norwest Pedestrian Link ,33kV Underground Feeder Powerline Works and Rouse Hill Temporary Bypass Powerline Works of the NWRL OTS Contract are:

- Minimise waste throughout the project life-cycle.
- Waste management strategies will be implemented in accordance with the *Waste Avoidance and Resource Recovery Act 2001* management hierarchy as follows:
  - Avoidance of unnecessary resource consumption
  - Resource recovery (including reuse, reprocessing, recycling and energy recovery)
  - Disposal.

These objectives conform to TfNSW's objectives as described in the NWRL Construction Environmental Management Framework.

## 1.4 NRT Environmental Management System

In accordance with the OTS Project Deed, Exhibit 1, Scope and Performance Requirements, Section 5.2, NRT must implement and maintain an effective Management System, which addresses all its obligations under the Deed.

The Management Systems must seamlessly integrate all NRT's systems and processes, including those related to rail safety and rail accreditation quality, environmental, sustainability, health and safety and they must accommodate, coordinate and give effect to the Project Plans.

Details of NRT's Integrated Management System including the integrated relationship of the WMRP with the other Project Plans and with the delivery Core Processes are contained in the Project Management Plan. As improvements are made to the processes and systems, these will be reflected in updates to the relevant Project Plans. All elements of the Integrated Management System will reside on Aconex as controlled copies. An intranet will contain a front page to the Integrated Management System with links between documents, processes and forms utilising the Aconex search engine.

## 1.5 Approval before Submission

The WMRP and future updates are to be approved by NRT's CEO before being submitted to TfNSW.

## 1.6 Certification by Independent Certifier

This WMRP and any future update is to be submitted, in accordance with the provisions of clause 8 of the Deed, to TfNSW for comment and to the OTS Independent Certifier for certification prior to its implementation by NRT.

## 1.7 Update and Ongoing Development

The *WMRP* is incorporated as Appendix 76 of the Deed.

The *WMRP* will be updated regularly in accordance with the requirements of the *Deed*, clause 8 and annually as required in *Exhibit 1, Scope and Performance Requirements, Appendix 54 – Project Plan Requirements, Table 1*.

NRT will undertake the ongoing development, amendment and updating of the *WMRP* to ensure it remains consistent with Project priorities, risk management, client requirements and Project objectives, taking into account:

- The status and progress of NRT's activities
- Changes in the design, delivery and operations processes and conditions
- Lessons learnt during delivery and operations
- Changes in other related Project Plans
- Requirements and matters not covered by the existing Project Plans

- Changes to Plans resulting from any comments from the OTS Independent Certifier
- Changes to Project Plans as directed by TfNSW's Representative under the Deed.



## 2 Legal and Other Requirements

### 2.1 Legislation

The key legislation relevant to management of waste includes:

- *Environmental Planning and Assessment Act 1979*
- *Protection of the Environment Operations Act 1997*
- Protection of the Environment Operations (Waste) Regulation 2005
- *Waste Avoidance and Resource Recovery Act 2001*

The CEMP provides further detail of the obligations for NRT resulting from the above legislation.

### 2.2 Compliance Requirements

Compliance requirements, pertinent to waste management and recycling, from the CoA, supporting documents and the EPL are listed in Annexure A.

All compliance requirements associated with this sub plan including the Revised Environmental Management and Mitigation Measures (REMM) from the NWRL Project environmental impact assessment, and the ECRL REF and submissions report that are pertinent to this sub plan are tracked and report via the OTS compliance tracking program developed in accordance with CoA D5((a)–(h)).

### 2.3 Guidelines and Standards

Additional guidelines and standards relating to the management of waste and recycling include:

- Waste Classification Guidelines, Part 1: Classifying Waste (EPA November 2014)
- Waste Classification Guidelines, Part 4: Acid Sulfate Soils (DECCW August 2009)
- NSW Government's Waste Reduction and Purchasing Policy
- Environmental Best Practice Guidelines for Concreting Contractors (DEC 2004)
- Local government guidelines for waste/recycling as appropriate
- Australian Dangerous Goods Code 7th Edition (ADG7) (National Transport Commission, October 2011)
- TfNSW Standard Requirements TSR E1 – Environmental Management
- General resource recovery exemptions under Part 6, Clause 51 and 51A of the Protection of the Environment Operations (Waste) Regulation 2005
- Government Resource Efficiency Policy (GREP)

## 2.4 Environment Protection Licence (EPL)

Obligations governing the management, classification, handling and movement of waste are defined in the EPL. The EPL is issued by the Environment Protection Authority (EPA) for scheduled activities on the licensed premises.

Waste generated outside the site will not be received at the site for storage, treatment, processing, reprocessing or disposal on the site unless expressly permitted under the EPL.

## 3 Roles and Responsibilities

All NRT personnel have a role in ensuring the strategies and procedures set out in this plan are implemented. The key roles and their responsibilities are outlined in Table 1 below.

Table 1 Roles and Responsibilities

Project Director	Managing the delivery of the OTS Works including overseeing implementation of waste management and recycling processes initiatives and procedure
Environment Manager	<p>Responsible for managing ongoing compliance with the project's environmental management documents.</p> <p>Responsible for ensuring all waste management and recycling activities are performed in an environmentally compliant and responsible manner</p> <p>Responsible for managing ongoing compliance with the CoA, environmental document requirements.</p> <p>Responsible for administration of compliance the EPL</p>
Design Manager	<p>Facilitate innovation of waste management and recycling in design and delivery strategies.</p> <p>Ensure relevant waste management requirements are addressed in design development</p>
Commercial Manager	Ensure that relevant waste management obligations are addressed in procuring materials and services
Construction Manager	Drive the successful delivery of the construction process, in relation to waste management
Senior Sustainability Manager	Track and report waste management and recycling elements against sustainability targets
Environment Coordinator	Monitor and report on waste management and recycling during construction
Project Engineer	Implement waste management and recycling activities during construction works

## 4 Waste Streams

### 4.1 Overview of Waste Streams

This waste data is based on the 'audited' waste data from the John Holland Rail business for the financial year 2013-14 – it represents an average (non-earth works waste) from over 25 rail infrastructure projects nationally with an estimated value of \$840m (approx.).

In order to develop a forecast of waste which is 'normalised against a dollar value waste targets for different precincts range from 7t/\$M to 20t/\$M.

To improve our management of wastes we have required that our waste management company report no more than 10% of waste using the term general or mixed and instead waste is reported by material type. This will allow a better focus on problem waste types as the project progresses.

We will be targeting a recycling rate of 90% for all construction wastes

Waste streams anticipated during the delivery of the works are shown in Table 2.

Prior to reuse on site or disposal off site, all materials used will be classified in accordance with the *Waste Classification Guidelines, Part 1*.

No waste would be permitted to be received on site, unless permitted by the EPL.

Table 2 Waste Streams

Waste Stream	Estimate of Quantities (tonnes)								Dispose or Recycle
	Phase 1		ECRL	Phase 2 (including Part 5 Approval works)					
	RTRF	Cudgegong Rd	ECRL	Above Ground	Below Ground	Track Systems	High Voltage	Service Facilities	
General mixed construction waste	816.42	784.47	164.70	2353.41	3677.43	1307.69	457.19	163.99	Recycle (90%)
Concrete	597.85	574.46	120.61	1723.38	2692.95	957.61	334.80	120.09	Recycle
Timber/Wood	251.85	241.99	50.81	725.98	1134.41	403.39	141.03	50.59	Recycle
Hazardous Waste	219.18	210.60	44.22	631.80	987.24	351.06	122.74	44.03	Dispose
Liquid Waste	216.36	207.90	43.65	623.69	974.58	346.56	121.16	43.46	Dispose
Metals	103.79	99.73	20.94	299.19	467.51	166.25	58.12	20.85	Recycle
Asphalt	44.56	42.82	8.99	128.46	200.74	71.38	24.96	8.95	Recycle
Paper/Cardboard	33.69	32.37	6.80	97.12	151.76	53.96	18.87	6.77	Recycle
Plastic	11.68	11.22	2.36	33.66	52.60	18.70	6.54	2.35	Recycle
Oil & Lubricants	3.34	3.20	0.67	9.61	15.02	5.34	1.87	0.67	Recycle
Tyres	1.25	1.20	0.25	3.60	5.63	2.00	0.70	0.25	Dispose
Solvents	0.01	0.01	0.01	0.04	0.06	0.02	0.01	0.01	Dispose
Glass	0.01	0.01	0.01	0.04	0.06	0.02	0.01	0.01	Recycle

Waste Stream	Estimate of Quantities (tonnes)								Dispose or Recycle
Co-mingled Recyclables	0.01	0.01	0.01	0.02	0.03	0.01	0.01	0.01	Recycle
<b>Totals</b>	<b>2300</b>	<b>2210</b>	<b>464</b>	<b>6630</b>	<b>10360</b>	<b>3684</b>	<b>1288</b>	<b>462</b>	

## 5 Aspects and Impacts

The key aspects and impacts in relation to the management of waste and recycling during the OTS Works are listed in Table 3 below.

Table 3 *Aspects and Impacts*

Aspects	Potential impacts
Construction materials	<ul style="list-style-type: none"> <li>• Recyclable waste incorrectly directed to landfill</li> <li>• Excess waste directed to landfill</li> <li>• Over use of materials for packaging</li> </ul>
Contamination	<ul style="list-style-type: none"> <li>• Contamination of soil, surface and/or groundwater from the inappropriate storage, transport and disposal of wastes</li> <li>• Spoil for reuse generated during earthworks requiring treatment/disposal</li> </ul>
Litter	<ul style="list-style-type: none"> <li>• Waste not placed in appropriate bins resulting in litter</li> <li>• Waste (litter) entering environment outside of the project site</li> </ul>
Pests	<ul style="list-style-type: none"> <li>• An increase in vermin from the incorrect storage, handling and disposal of putrescible waste from construction compounds</li> </ul>
Soil and water	<ul style="list-style-type: none"> <li>• Pollution from the incorrect storage, handling and disposal of waste</li> </ul>
Social	<ul style="list-style-type: none"> <li>• Odour created from incorrect waste storage in ancillary facility</li> <li>• Visual amenity degraded by litter</li> <li>• Dust or sediment from unmanaged waste</li> </ul>

## 6 Materials Management Strategy

Throughout the Delivery Period of the OTS Works, NRT personnel will be encouraged to identify and evaluate opportunities for reuse.

This is supported by the NRT procurement principles that require assessment of:

- How and where to best source any required materials or services
- Whether it is best to manage that process from a central location or at a local level (as outlined in the *Delivery Sustainability Management Plan*).

It is further supported through the NWRL Sustainability Strategy Benchmarking process which includes the two objectives below specific to materials management:

### 1 Objective 10: Waste and Material Efficiency

Reduce materials use and minimise waste through the project life-cycle. Identify materials with lower environmental footprint

### 2 Objective 14: Supply Chain and Workforce Legacy

Influence contractors, subcontractors and materials suppliers to adopt sustainable practices in support of the NWRL Environment and Sustainability Policy.

The above strategy will be implemented in all stages of the Delivery Phase and include

- Classification of materials and potential waste streams
- Procurement
- Use and disposal of on-site materials.

Details of how the strategy addresses each of these aspects are outlined below.

## 6.2 Waste Hierarchy and Classification

During delivery of the OTS Works waste will be prioritised according to the principles of a resource management hierarchy embodied in the WARR Act. The hierarchy is:

- 1 Avoidance of unnecessary resource consumption
- 2 Resource Recovery (including reuse, reprocessing, recycling and energy recovery)
- 3 Disposal.

Incorporation of the Waste Classification Guidelines in the process for materials classification prior to despatching the waste offsite will ensure that all materials are correctly managed and that the maximum quantities of materials will be available for reuse and recycling either on or off site. Use of the guideline will also ensure that waste is directed to the correct facility for processing.



## 6.3 Waste Avoidance and Minimisation

### 6.3.1 GREP Reporting

In 2014 the Government Resource Efficiency Policy was announced. Its purpose is to reduce NSW government agency operating costs by implementing resource efficiency measures.

The policy applies to all general government sector agencies and it strongly recommends local government, state-owned corporations, public trading enterprises and public financial enterprises also take action.

The GREP includes measures, targets and minimum standards to drive efficiency in energy and water use and waste and also improving air quality.

NRT will supply information on request to TfNSW to allow TfNSW to report on:

- Total quantities of wastes being generated and recycled in each of the four waste areas
- Total quantities of materials being purchased which contain recycled content.

### 6.3.2 Design

As part of the of the design process, and during planning for delivery of the OTS Works, consideration was given to the potential reuse of materials. These include:

- Materials available on site
- Materials available as a result of other contractors' works
- Materials available as an output from construction activities.

Initiatives identified during the design and planning phases of the OTS Works have been incorporated into the waste Section of the *Delivery Phase Sustainability Management Plan* and are listed below.

### 6.3.3 Purchasing and Procurement

Based on the procurement credits in the ISCA IS Rating Tool, NRT commits to the following:

#### *Pro-1 Commitment to sustainable procurement*

- There is a commitment to consider environmental aspects in the procurement process
- The commitment also requires social and economic aspects to be considered in the procurement process
- The sustainable procurement commitments are publicly stated
- Sustainable procurement commitments are embedded within sustainability objectives and/or targets.

#### *Pro-2 Identification of suppliers*

- Potential suppliers requested to provide details of their environmental policies and implementation measures
- Potential suppliers requested to provide details of their sustainability policies and implementation measures.

#### *Pro-3 Supplier evaluation and contract award*

- Supplier evaluation considers sustainability aspects through use of multi-criteria analysis or other scored means
- Supplier contracts incorporate sustainability objectives and/or targets.

#### *Pro-4 Managing supplier performance*

- Suppliers have sustainability objectives and/or targets.

### 6.3.4 Reuse and Recycling Strategies

Throughout the design process, NRT has maintained an environment that encourages and facilitates the reuse and recycling of materials, where possible. The targets for waste in the Delivery Phase are:

- Recycle 90% of construction and demolition recyclable waste
- 60% of office waste to be recycled or alternatively beneficially reused.
- Negotiate and implement packaging take-back arrangements with suppliers where practicable
- Beneficially reuse 100% of clean spoil on site where possible, or alternatively off site.
- Reuse formwork wherever possible either on site or off site.
- Mulch all appropriate cleared vegetation (excluding weeds) and either store onsite for future reuse or ensure it is sent to an off-site compost facility.
- Cut-fill balance site works to avoid excess or import of spoil
- Enable waste segregation in the design process by including space for the collection and segregation of waste with appropriate marking (e.g. signage) and controls (e.g. lockable lids), located away from sensitive receptors (e.g. water courses).
- Noise hoarding, site fencing etc. would be reused or shared, between sites and between construction contractors where feasible and reasonable
- Assets removed from the ECRL corridor would be reused in the Sydney Trains Network where possible, depending upon the condition of the asset. This would be subject to further discussions with Sydney Trains.
- Where permitted by the EPL, recycled materials would be used on site in accordance with the 'resource recovery exemptions' under clause 51 of the Protection of the Environment Operations (Waste) Regulation 2005. This would include recycled concrete, recovered aggregates etc. NRT would require

documentation from the generator that the materials are free of asbestos and meet the testing requirements of the relevant exemption.

More specific detailed is contained in the Sustainability Management Plan.

### 6.3.5 Topsoil

All topsoil proposed for reuse within the project will be subject to paedology testing by a NATA accredited laboratory and will include pH, salinity, cation oxygen exchange capacity, plant available phosphorous, total organic matter, total nitrogen and carbon/nitrogen. Testing will be undertaken at the rate of 1/500m<sup>3</sup> of topsoil with three sampling horizons per test, and a recommendation on topsoil conditioning and treatment will then be provided by an appropriately qualified soil scientist, with the agreed outcomes incorporated into the final design for the works.

The topsoil of areas infested with weeds will be stripped using scrapers, dozers and excavators and transported to stockpiles in the scrapers or articulated dump trucks.

Clean material, to be agreed with an ecologist during investigations, will be used to cap stockpiles to prevent weed growth, with weeds expiring after being covered for a period of time.

## 6.4 Waste Classification

There are six waste classifications or waste 'classes':

- Special waste
- Liquid waste
- Hazardous waste
- Restricted solid waste
- General solid waste (putrescible)
- General solid waste (non-putrescible).

Waste would be classified in accordance with the Waste Classification Procedure, and the NSW EPA Waste Classification Guidelines.

## 6.5 On-site Handling, Transportation and Disposal

### 6.5.1 On-site Handling

Materials segregation and recycling facilities will be provided on site. This will include:

- Reusable materials will be stored separately, in secure facilities
- Recyclable waste will be stored separately from other waste
- Storage areas will be secured and materials will be collected on a regular basis

- Work sites will be kept free of litter and good housekeeping will be maintained
- Vermin proof bins will be used on site
- Waste oil, other liquid wastes and spillages will be collected and stored in bunded areas.
- All waste would be removed from the site when work is completed

NRT will not cause, permit or allow any waste generated:

- outside the premises to be received at the premises, except for recycled materials from the Sydney Trains rail corridor or the Sydney Trains recycling facility or materials that meet the EPA's Resource Recovery Exemptions.
- at the premises to be disposed of at the premises, except as permitted in Condition O5.3 of the EPL

Excavated material suitable for re-use within the premises may be transported from one part of the premises or the Sydney Trains rail corridor or Sydney Trains recycling facility to another part of the premises by road in accordance with EPL Condition O5.4.

The locations of material storage facilities are identified in the *Site Environmental Plans (SEPs)*.

## 6.5.2 Waste Transportation

Where waste cannot be reused on site, it will be transported off site using an appropriately licensed waste management contractor.

All transport vehicles will be covered and tailgates secured prior to trucks leaving the work site. All vehicles will be appropriate for transport of the waste as classified.

## 6.5.3 Receiving Facilities

Facilities used for the receiving of waste will be appropriately licensed to accept the classified waste type. The Environment Planning and Approvals Manager will review the licence of the receiving facility before any waste is transported.

The Sydney Trains Chullora Recycling Facility (Lic. 7515) is licenced to receive waste for the recycling of spoil and ballast from rail activities.

## 6.5.4 Contaminated Spoil

- Storage:
  - Contaminated spoil would be segregated from clean material
  - Signage and bunting/fencing would be placed around it
  - The material would be covered and bunded dependent upon the nature of the contaminant and the associated risks
- Treatment:

- Treatment of contaminated spoil would be dependent upon the nature of the contaminant and volume of spoil
- Advice would be obtained, where relevant, on treatment options for example acid sulphate soils; bioremediation of hydrocarbon impacted soils
- Disposal:
  - Contaminated soil that is unable to be treated would be classified in accordance with the EPA Waste Classification Guidelines
  - The spoil would be taken a licenced waste facility for disposal. The environment team would review the licence of facility to ensure the spoil can be disposed of.

### 6.5.5 Liquid Waste

In accordance with the waste classification guidelines, Liquid waste means any waste (other than special waste) that:

- has an angle of repose of less than 5 degrees above horizontal
- becomes free-flowing at or below 60 degrees Celsius or when it is transported
- is generally not capable of being picked up by a spade or shovel
- is classified as liquid waste under an EPA gazettal notice.

If the waste meets the criteria outlined above, it is classified as liquid waste, and no further assessment for classification is required.

Liquid wastes (e.g. waste oil) are to be stored in appropriate containers in bunded areas until it can be transported off-site for disposal at a licenced facility. Bunded areas must have the capacity to hold 110% of the liquid waste volume for bulk storage.

Sediment laden water would be managed in accordance with the Soil and Water Management Plan. Where evidence of contamination is present (oil, grease) further testing would be carried out, and appropriate treatment or disposal if required.

Concrete washout water would be contained within the washout area and allowed to either evaporate or harden. In the event that capacity is reached, it would be removed by vacuum truck or pumped to an appropriately bunded container.

Waste from non-destructive digging would be taken offsite for disposal. Where there are significant quantities of waste, a bunded area would be established to allow the waste to be dried out and then reused on site where applicable.

Sanitary wastes from temporary site amenities would be removed by a licenced contractor and taken to an appropriately licenced liquid waste facility for treatment or disposal in accordance with Sydney Water and OEH requirements.

## 7 Training Review and Reporting

### 7.1 Training

Personnel will receive training appropriate to their role in waste management and recycling on the project. Ongoing toolbox talks covering the requirements for waste management and recycling will be used to raise awareness among the wider project team.

Responsibility for waste management and recycling will rest with the Construction Team, supported by the Environment and Sustainability Team.

Personnel within the Construction Team will be responsible for the day to day management of environmental and social aspects associated with waste management and recycling including:

- Waste and recycling identification and minimisation
- Site management of materials (including waste and recycling)
- Document control and reporting of waste and recycling.

### 7.2 Monitoring and Reporting

Implementation of waste management and recycling measures will be reviewed and verified in regular inspections by the NRT. Compliance records will be retained centrally on the Project Pack and will include:

- Records of inspections in relation to waste management and recycling activities, including weekly inspections of waste storage facilities
- Records detailing the beneficial re-use or recycling of material either within the project or at off-site locations
- Waste tracking forms and dockets for any material disposed of to land-fill sites
- Waste register detailing the date, types and quantities of waste disposed and the receiving facility
- GREP reports.

### 7.3 Review and Improvement

Records associated with waste management and recycling will be regularly audited and reviewed.

Any aspects identified as having potential for improvement or requiring corrective action will be recorded and addressed in accordance with the project review and improvement process outlined in the CEMP

## Annexure A . Compliance Matrix and Mitigation Measures

ID	Measure	Timing	Requirement	Responsibility	Reference
<b>EIS Environmental Management Measures</b>					
1.	All waste would be assessed, classified, managed and disposed of in accordance with the Waste Classification Guidelines (DECC, 2008).	During Construction	RTRF EIS REMM W1 EIS 2 REMM W1	Environment Coordinator Project Engineer	Section 6.4
2.	All waste materials removed from the sites would only be directed to a waste management facility lawfully permitted to accept the materials.	During Construction	RTRF EIS REMM W2 EIS 2 REMM W2	Environment Coordinator Project Engineer	Section 6.5.3
3.	Excavated material and spoil would be beneficially reused on the NWRL project site or other sites, where feasible and reasonable, in accordance with the NWRL spoil use hierarchy.	During Construction	RTRF EIS REMM W3 EIS 2 REMM W3	Environment Coordinator Project Engineer	Spoil Management Plan Section 6.1 and 6.2
4.	Appropriate storage, treatment and disposal procedures would be implemented for any contaminated spoil	During Construction	RTRF EIS REMM W4 EIS 2 REMM W4	Environment Coordinator Project Engineer	Section 6.5.4
5.	Cleared site vegetation would be mulched for reuse in rehabilitation and landscaping works. Topsoil generated during site preparation activities would be stockpiled for reuse in landscaping activities.	During Construction	RTRF EIS REMM W5 EIS 2 REMM W5	Environment Coordinator Project Engineer	Section 6.3.4 Section 6.3.5
6.	Initial and ongoing education would be provided to staff and sub-contractors regarding the importance of appropriately managing waste.	During Construction	RTRF EIS REMM W6 EIS 2 REMM W6	Environment Coordinator Project Engineer	Section 7.1

ID	Measure	Timing	Requirement	Responsibility	Reference
7.	Recyclable wastes, including paper at site offices, would be stored separately from other wastes. Storage facilities would be secure and recyclables collected on a regular basis.	During Construction	RTRF EIS REMM W7 EIS 2 REMM W7	Environment Coordinator Project Engineer	Section 6.3.4
8.	Reusable materials would be stored separately, in secure facilities.	During Construction	RTRF EIS REMM W8 EIS 2 REMM W8	Environment Coordinator Project Engineer	Section 6.3.4
9.	Worksites would be free of litter and good housekeeping would be maintained.	During Construction	RTRF EIS REMM W9 EIS 2 REMM W9	Environment Coordinator Project Engineer	Section 6.5.1
10.	Vermin proof bins would be utilised onsite.	During Construction	RTRF EIS REMM W10 EIS 2 REMM W10	Environment Coordinator Project Engineer	Section 6.5.1
11.	Waste oil, other liquid wastes and spillages would be collected and stored in bunded areas.	During Construction	RTRF EIS REMM W11 EIS 2 REMM W11	Environment Coordinator Project Engineer	Section 6.5.1
12.	Waste truck loads would be covered, and tailgates secured prior to trucks leaving the worksite.	During Construction	RTRF EIS REMM W13 EIS 2 REMM W13	Environment Coordinator Project Engineer	Section 6.5.2
13.	Centralised reporting and auditing of waste volumes and disposal destinations would be employed.	During Construction	RTRF EIS REMM W14 EIS 2 REMM W14	Environment Coordinator Project Engineer	Section 7.2
14.	Construction waste would be minimised by accurately calculating materials brought to the site and limiting materials packaging.	During Construction	RTRF EIS REMM W15 EIS 2 REMM W15	Environment Coordinator Project Engineer	Section 6.3.4



ID	Measure	Timing	Requirement	Responsibility	Reference
15.	Materials such as noise hoarding, site fencing, and so on) would be reused or shared, between sites and between construction contractors where feasible and reasonable.	During Construction	RTRF EIS REMM W16 EIS 2 REMM W16	Environment Coordinator Project Engineer	Section 6.3.4
<b>Project Approval Specific Conditions</b>					
16.	All waste materials removed from the site shall only be directed to a waste management facility or premises lawfully permitted to accept the materials.	During Construction	RTRF SSI-5931 CoA C17	Environment Coordinator Project Engineer	Section 6.5.3
17.	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 under the Protection of the Environment Operations Act 1997, if such a licence is required in relation to that waste.	During Construction	RTRF SSI-5931 CoA C18 OTS SSI-5414 CoA C46	Environment Coordinator Project Engineer	Section 4.1
18.	All liquid and/or non-liquid waste generated on the site shall be assessed and classified in accordance with Waste Classification Guidelines (Department of Environment, Climate Change and Water, 2009), or any superseding document.	During Construction	RTRF SSI-5931 CoA C19	Environment Coordinator Project Engineer	Section 6.4
<b>Northwest Rail Link Construction Environmental Management Framework</b>					
19.	The following waste objectives will apply to the construction of the project: Minimise waste throughout the project life-cycle. Waste management strategies will be implemented in accordance with the Waste Avoidance and Resource Recovery Act 2001 management hierarchy as follows: <ul style="list-style-type: none"> <li>Avoidance of unnecessary resource consumption.</li> <li>Resource recovery (including reuse, reprocessing, recycling and energy recovery).</li> <li>Disposal.</li> </ul> Targets for the recovery, recycling or reuse of construction waste, and beneficial reuse of spoil will be provided by the Principal Contractor.	During Construction	NWRL CEMP Framework Section 17.1	Environment Coordinator Project Engineer	Section 1.3

ID	Measure	Timing	Requirement	Responsibility	Reference
20.	<p>NWRL Principal Contractors will develop and implement a Waste Management and Recycling Plan which will include as a minimum</p> <ul style="list-style-type: none"> <li>i. The waste management and recycling mitigation measures as detailed in the environmental approval documentation.</li> <li>ii. The responsibilities of key project personnel with respect to the implementation of the plan.</li> <li>iii. Waste management and recycling monitoring requirements.</li> <li>iv. Compliance record generation and management.</li> </ul>	Before Construction	NWRL CEMP Framework Section 17.2	Environment Manager	<p>This Plan</p> <p>This Table</p> <p>Section 3</p> <p>Section 7.2</p>
21.	<p>Principal Contractors will undertake the following waste monitoring as a minimum:</p> <ul style="list-style-type: none"> <li>Weekly inspections will include checking on the waste storage facilities on site.</li> <li>All waste removed from the site will be appropriately tracked from „cradle to grave“ using waste tracking dockets.</li> </ul>	During Construction	NWRL CEMP Framework Section 17.2	<p>Environment Coordinator</p> <p>Project Engineer</p>	Section 7.2
22.	<ul style="list-style-type: none"> <li>Principal Contractors will report all necessary waste and purchasing information to TfNSW as required for TfNSW to fulfil their WRAPP reporting requirements.</li> <li>Compliance records will be retained by the Principal Contractors in relation to waste management including records of inspections and waste dockets for all waste removed from the site</li> </ul>	During Construction	NWRL CEMP Framework Section 17.2	<p>Environment Coordinator</p> <p>Project Engineer</p>	Section 7.2
23.	<p>Waste Mitigation</p> <p>Examples of waste management and recycling mitigation measures include:</p> <ul style="list-style-type: none"> <li>All waste will be assessed, classified, managed and disposed of in accordance with the Waste Classification Guidelines (DECC, 2008).</li> <li>All waste materials removed from the sites will be directed to an</li> </ul>	During Construction	NWRL CEMP Framework Section 17.3	<p>Environment Coordinator</p> <p>Project Engineer</p>	<p>Section 6.4</p> <p>Section 6.5.3</p>

ID	Measure	Timing	Requirement	Responsibility	Reference
	<p>appropriately licensed waste management facility.</p> <ul style="list-style-type: none"> <li>The use of raw materials (noise hoarding, site fencing, etc...) will be reused or shared, between sites and between construction contractors where feasible and reasonable</li> <li>Recyclable wastes, including paper at site offices, will be stored separately from other wastes.</li> </ul>				<p>Section 6.3.4</p> <p>Section 6.3.4</p>
<b>Project Deed Requirements</b>					
24.	Materials which are not suitable for incorporation in the OTS Works must be removed from the Construction Site and disposed of at a construction waste recycling facility, or alternatively re-used, to the maximum extent possible	During Construction	Project Deed Main Body – Section 6.5.7 (b)	Environment Coordinator Project Engineer	Section 6
25.	<p>In addition to the plans required by the Environmental Documents, the Construction Environmental Management Plan must also include, as separate sub-plans:</p> <ul style="list-style-type: none"> <li>Waste Management and Recycling Plan.</li> </ul>	Before Construction	Project Deed App 54 – Section 3.17 (k)	Environment Coordinator Project Engineer	This Plan
26.	The Waste Management and Recycling Plan must identify quantities of waste that will be recycled, beneficially re-used or disposed of, and demonstrate how the quantities identified for recycling or beneficial re-use have been maximised	During Construction	Project Deed App 54 – Section 3.17 (n)	Environment Manager	Section 4.1 Section 6
<b>EPL Requirements</b>					
27.	<p>Waste management</p> <p>The licensee must assess, classify and manage any waste generated at the premises in accordance with the Waste Classification Guidelines Part 1 : Classifying Waste, April 2008 (Waste Guidelines) prior to dispatching the waste offsite.</p>	During Construction	O5.1	Environment Manager	Section 6.4
28.	<p>The licensee must not cause, permit or allow any waste generated:</p> <p>(a) outside the premises to be received at the premises, except for recycled</p>	During Construction	O5.2	Environment Manager	Section 6.5.1

ID	Measure	Timing	Requirement	Responsibility	Reference
	<p>materials from the Sydney Trains rail corridor or the Sydney Trains recycling facility or materials that meet the EPA's Resource Recovery Exemptions.</p> <p>(b) at the premises to be disposed of at the premises, except as permitted in Condition O5.3.</p> <p>Note: For the purposes of this condition the Sydney Trains rail corridor is the licenced premises defined in environment protection licence 12208. For the purposes of this condition the Sydney Trains recycling facility is the licenced premises defined in environment protection licence 7515.</p>				
29.	Excavated material suitable for re-use within the premises may be transported from one part of the premises or the Sydney Trains rail corridor or Sydney Trains recycling facility to another part of the premises by road.	During Construction	O5.3	Environment Manager	Section 6.5.1

#### ECRL Determination Report Conditions of Approval

30.	Prior to the commencement of construction, a Waste Management Plan {WMP} shall be prepared which addresses the following matters:	Before Construction	ECRL CoA 34(a)	Environment Manager	This Plan
31.	the environmental management measures in the EIA;	Before Construction	ECRL CoA 34()i	Environment Manager	Annexure A
32.	appropriate measures to re-use removed assets within the Sydney Trains network, subject to Sydney Trains approval;	Before Construction	ECRL CoA 34(a)ii	Environment Manager	Section 6.3.4
33.	appropriate measures to address the beneficial reuse of spoil, including spoil management targets and reporting	Before Construction	ECRL CoA 34(a)iii	Environment Manager	Refer to Spoil Management Plan
34.	waste handling and storage;	Before Construction	ECRL CoA 34(a)iv	Environment Manager	Section 6.5
35.	disposal of wastes including cleared vegetation, contaminated materials, glass, metals and plastics, hydrocarbons {lubricants and fuels} and sanitary wastes:	Before Construction	ECRL CoA 34(a)v	Environment Manager	Section 6.4 Section 6.5

ID	Measure	Timing	Requirement	Responsibility	Reference
36.	procedures for classifying waste in accordance with OEH's Waste Classification Guidelines; and	Before Construction	ECRL CoA 34(a)vi	Environment Manager	Section 6.4 Waste Management Procedure Spoil Classification Procedure
37.	Procedures for the recovery of resources from waste where this is beneficial and does not harm the environment or human health, in accordance with the 'resource recovery exemptions' under clause 51 of the Protection of the Environment Operations (Waste) Regulation 2005.	Before Construction	ECRL CoA 34(a)vii	Environment Manager	Section 6.3.4
38.	The WMP is to demonstrate the manner in which a target of at least 90 percent of construction waste generated during site preparation and construction of projects is to be diverted from landfill and either recovered, recycled or reused.	Before Construction	ECRL CoA 34	Environment Manager	Section 4.1 Section 6.3

**ECRL Conversion Submissions Report Revise Environmental Management Measures**

39.	Where possible, construction wastes would be diverted from landfill and reused or recycled within the proposal areas or through an appropriate recycling contractor	During Construction	REMM I1	Environment Coordinator Project Engineer	Section 6.3.4
40.	Construction materials that contain minimal embodied energy would be utilised.	During Construction	REMM I2	Project Engineer	Refer to Sustainability Management Plan
41.	Construction materials would be purchased in accordance with an established procurement strategy that prioritises the selection of materials that utilise best practice recycled material content and sustainability ratings	During Construction	REMM I3	Project Engineer	Refer to Sustainability Management Plan
42.	Site disturbance and unnecessary excavation would be minimised.	During	REMM I4	Project Engineer	Refer to

ID	Measure	Timing	Requirement	Responsibility	Reference
		Construction			Construction Soil and Water Management Plan
43.	Materials from any demolition works would be reused or recycled where practicable.	During Construction	REMM I5	Project Engineer	Section 6.3.4
44.	Formwork would be reused where possible.	During Construction	REMM I6	Project Engineer	Section 6.3.4
45.	Sewage waste would be disposed of by a licensed waste contractor in accordance with Sydney Water and OEH requirements.	During Construction	REMM I7	Environment Coordinator Project Engineer	Section 6.5.5

#### Norwest Station Subsurface Pedestrian Link and Northern Entry REF

46.	Adopt the wider Sydney Metro Northwest waste management targets for the proposal, that include: <ul style="list-style-type: none"> <li>• 100 per cent beneficial reuse of usable spoil</li> <li>• 95 per cent beneficial reuse of construction and demolition waste</li> </ul>	Before Construction	Norwest Pedestrian Link REF EMM 65	Environment Manager	Section 6.3.4
47.	Deliver the proposal in accordance with TfNSW waste-management policies. Adopt the waste and resource management hierarchy in all work method statements	Before Construction	Norwest Pedestrian Link REF EMM 66	Environment Manager	Section 6.2
48.	Report and audit waste volumes and disposal destination. Construction waste would be minimised by accurately calculating materials brought to the site and limiting materials packaging.	During Construction	Norwest Pedestrian Link REF EMM 67	Project Engineer Environment Coordinator	Section 7.3
49.	All waste would be assessed, classified, managed and disposed of in accordance with the <i>Waste Classification Guidelines Part 1: Classifying Waste</i> (NSW EPA, 2014)	During Construction	Norwest Pedestrian Link REF EMM 68	Project Engineer Environment Coordinator	Section 6.4

50.	Prepare a waste and resource management plan (WRMP) as a sub-plan of the CEMP. As a minimum describe the measures for handling, storing and classifying waste when 'onsite' and its subsequent disposal offsite to the relevant licenced facility	Before Construction	Norwest Pedestrian Link REF EMM 69	Environment Manager	This Plan
51.	Excavated material and spoil would be beneficially reused on the project site or other sites, where feasible and reasonable, in accordance with the waste hierarchy.  Recyclable wastes, including paper at site offices, would be stored separately from other wastes. Storage facilities would be secure and recyclable collected on a regular basis.	During Construction	Norwest Pedestrian Link REF EMM 70	Project Engineer Environment Coordinator	Section 6.3.4
52.	Initial and ongoing education would be provided to staff and sub-contractors regarding the importance of appropriately managing waste.	Before Construction  During Construction	Norwest Pedestrian Link REF EMM 71	Environment Manager	Section 7.1

#### Willoughby to North Chatswood 33kV Underground Feeder Powerline Submissions Report Revised Environmental Management Measures

53.	Construction waste would be managed through the waste hierarchy established under the <i>Waste Avoidance and Recovery Act 2001</i> , which comprises the following principles: 1. <i>Avoidance of waste</i> – minimise the amount of waste generated during construction by avoiding unnecessary resource consumption (i.e. avoid the use of inefficient plant and construction equipment and avoid materials with excess embodied energy, waste and excessive packaging). 2. <i>Resource recovery</i> – reuse, reprocess and recycle waste products generated during construction to minimise the amount of waste requiring disposal. 3. <i>Disposal</i> – where resources cannot be recovered, dispose of them appropriately to minimise the potential adverse environmental impacts.	Construction	REMM 17	Environment Coordinator Project Engineer	Section 1.3
54.	The following key waste mitigation and management strategies would be implemented throughout construction and would be governed by the existing Sydney Metro Northwest Construction Environmental Management Plan: <ul style="list-style-type: none"> <li>■ Target waste recycling of 90 per cent of construction and demolition recyclable waste and 60 per cent of office waste to be recycled or alternatively beneficially reused.</li> <li>■ Target beneficial reuse of 100 per cent of clean spoil on-site as backfill material within the trenched area where possible, or alternatively off site.</li> </ul>	Construction	REMM 18	Environment Coordinator Project Engineer	Section 6

<ul style="list-style-type: none"> <li>■ Enable waste segregation in the design process by including space for the collection and segregation of waste with appropriate marking (e.g. signage) and controls (e.g. lockable lids), located away from sensitive receptors (e.g. water courses).</li> <li>■ Noise hoarding, site fencing etc. would be reused or shared, between sites and between construction contractors where feasible and reasonable.</li> <li>■ Construction materials that contain minimal embodied energy would be utilised, where possible.</li> <li>■ Construction materials would be purchased in accordance with an established procurement strategy that prioritises the selection of materials that utilise best practice recycled material content and sustainability ratings.</li> <li>■ Site disturbance and unnecessary excavation would be minimised.</li> </ul>				
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**Rouse Hill Temporary Bypass Powerline EIA**

55.	<ul style="list-style-type: none"> <li>• All waste would be classified in accordance with the Waste Classification Guidelines (DECCW 2009) and transported to a place that can lawfully accept the waste</li> <li>• Where possible, construction wastes would be diverted from landfill and reused or recycled</li> <li>• All waste would be removed from the site when work is completed</li> </ul>	Construction	EIA Control Measure	Environment Coordinator Project Engineer	Section 6.2 Section 6.3.4 Section 6.5.1
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## Annexure B Glossary

Term	Definition
<b>AEC</b>	Areas of Environmental Concern
<b>AHIMS</b>	Aboriginal Heritage Information Management System
<b>AMS</b>	Activity Method Statement
<b>ANZECC</b>	Australian and New Zealand Environment Conservation Council
<b>ARI</b>	Average Recurrence Interval
<b>ARMCANZ</b>	Agriculture and Resources Management Council of Australia and New Zealand
<b>ASS</b>	Acid Sulfate Soil
<b>Blue Book</b>	Managing Urban Stormwater: Soils and Construction (Landcom 2004)
<b>BOM</b>	Bureau of Meteorology
<b>CAQMP</b>	Construction Air Quality Management Plan
<b>CBD</b>	Central Business District
<b>CCAMP</b>	Construction Compounds and Ancillary Facilities Management Plan
<b>CEEC</b>	Critically Endangered Ecological Community
<b>CEMF</b>	Construction Environmental Management Framework
<b>CEMP</b>	Construction Environmental Management Plan
<b>CFFMP</b>	Construction Flora and Fauna Management Plan
<b>CHMP</b>	Construction Heritage Management Plan
<b>CNVIS</b>	Construction Noise and Vibration Impact Statement
<b>CNVMP</b>	Construction Noise and Vibration Management Plan
<b>CoA</b>	Condition of Approval
<b>CoPC</b>	Contaminants of Potential Concern
<b>CPESC</b>	Certified Professional in Erosion and Sediment Control
<b>CSWMP</b>	Construction Soil and Water Management Plan
<b>DACHA</b>	Darug Aboriginal Cultural Heritage Assessments
<b>DACHi</b>	Darug Aboriginal Land Care Inc.
<b>DCAC</b>	Darug Custodian Aboriginal Corporation
<b>DECC</b>	Department of Environment and Climate Change (now OEHS and EPA)
<b>DECCW</b>	Department of Environment, Climate Change and Water (now OEHS and EPA)

Term	Definition
<b>DLALC</b>	Darkinjung Local Aboriginal Land Council
<b>DLO</b>	Darug Land Observations
<b>DLWC</b>	Department of Land and Water Conservation (now NSW Office of Water)
<b>DP&amp;E</b>	Department of Planning and Environment
<b>DPI</b>	Department of Primary Industries
<b>DTAC</b>	Darug Tribal Aboriginal Corporation
<b>EM</b>	Environment Manager
<b>EC</b>	Environmental Coordinator
<b>ECRL</b>	Epping to Chatswood Rail Link
<b>EEC</b>	Ecologically Endangered Community
<b>EIA</b>	Environmental Impact Assessment
<b>EIL</b>	Ecological Investigation Levels
<b>EIS</b>	Environmental Impact Statement
<b>EIS 1</b>	EIS for SSI-5100 – NWRL Early Works and Major Civil Construction Works (Incorporating Staged Infrastructure Modification Assessment)
<b>EIS 2</b>	EIS for SSI-5414 – NWRL works associated with the construction and operation of stations and wider precincts, service facilities, rail infrastructure and systems
<b>EMS</b>	Environmental Management System
<b>EP&amp;A Act</b>	<i>Environmental Planning and Assessment Act 1979</i>
<b>EP&amp;A Regulation</b>	Environmental Planning and Assessment Regulation 2000
<b>EPA</b>	Environment Protection Authority
<b>EPBC Act</b>	<i>Environmental Protection and Biodiversity Conservation Act 1999 (Cth)</i>
<b>EPL</b>	Environment Protection Licence
<b>EPM</b>	Environmental Planning and Approvals Manager
<b>ER</b>	Environmental Representative
<b>ERP</b>	Emergency Response Plan
<b>ESCP</b>	Erosion and Sediment Control Plan
<b>GDE</b>	Groundwater Dependant Ecosystems
<b>GREP</b>	Government Resource Efficiency Policy
<b>IC</b>	Independent Certifier

Term	Definition
<b>IFD</b>	Intensity-Frequency-Duration
<b>IJV</b>	Infrastructure Joint Venture (of NRT)
<b>ITP</b>	Inspection and Test Plan
<b>JHET</b>	John Holland Event Tracking
<b>JHPL</b>	John Holland Propriety Limited
<b>LCPL</b>	Leighton Contractors Propriety Limited
<b>LOR</b>	Limits of Reporting
<b>MLALC</b>	Metropolitan Local Aboriginal Land Council
<b>NEPM</b>	National Environment Protection Measure
<b>NHMRC</b>	National Health and Medical Research Council
<b>NOW</b>	NSW Office of Water
<b>NPW Act</b>	<i>National Parks and Wildlife Act 1974</i>
<b>NPWS</b>	National Parks and Wildlife Service
<b>NRT</b>	Northwest Rapid Transit
<b>NTU</b>	Nephelometric Turbidity Units
<b>NWRL</b>	North West Rail Link (now Sydney Metro Northwest)
<b>OEH</b>	Office of Environment and Heritage
<b>OpCo</b>	OTS Operating Company
<b>OTS</b>	Operations, Trains and Systems
<b>PAD</b>	Potential Archaeological Deposit
<b>PASS</b>	Potential Acid Sulfate Soil
<b>PIMS</b>	Project Integrated Management System
<b>PIRMP</b>	Pollution Incident Response Management Plan
<b>PMF</b>	Probable Maximum Flood
<b>POEO Act</b>	<i>Protection of the Environment Operations Act 1997</i>
<b>PPP</b>	Public Private Partnership
<b>Project</b>	Sydney Metro Northwest OTS Project
<b>Project Approval</b>	Minister for Planning and Infrastructure's Approval for SSI-5414, SSI-5931 and TfNSW's Approval for the ECRL Conversion Works
<b>RAP</b>	Registered Aboriginal Parties

Term	Definition
<b>REF</b>	Review of Environmental Factors
<b>REMM</b>	Revised Environmental Mitigation Measures
<b>RFP</b>	Request for Proposal
<b>RFT</b>	Request for Tender
<b>RMS</b>	Roads and Maritime Services
<b>RTRF</b>	Rapid Transit Rail Facility (now Sydney Metro Trains Facility)
<b>RTRF EIS</b>	EIS for SSI-5931 – Rapid Transit Rail Facility
<b>SDS</b>	Safety Data Sheet
<b>SEP</b>	Site Environment Plan
<b>SEPP</b>	State Environmental Planning Policy
<b>SES</b>	State Emergency Service
<b>SEWPaC</b>	Department of Sustainability, Environment, Water, Population and Communities (now Department of the Environment)
<b>SM</b>	OTS Sustainability Manager
<b>SMP</b>	Spoil Management Plan
<b>SMTF</b>	Sydney Metro Trains Facility (formerly the Rapid Transit Rail Facility)
<b>Spoil</b>	Material generated by excavation into the ground
<b>SPR</b>	Scope and Performance Requirements
<b>SQERM</b>	Safety, Quality and Environment Risk Management
<b>SSI</b>	State Significant Infrastructure
<b>SVC</b>	Surface and Viaduct Civil Works
<b>SWTC</b>	Scope of Works and Technical Criteria
<b>TBM</b>	Tunnel Boring Machine
<b>TDS</b>	Total Dissolved Solids
<b>TfNSW</b>	Transport for New South Wales
<b>TRA</b>	Task Risk Assessment
<b>TSC</b>	Tunnels and Station Civil Works
<b>TSC Act</b>	<i>Threatened Species Conservation Act 1995</i>
<b>TSS</b>	Total Suspended Solids
<b>VAMP</b>	Visual Amenity Management Plan

Term	Definition
<b>VENM</b>	Virgin Excavated Natural Material – natural material (such as clay, gravel, sand, soil and rock) that is not mixed with any other type of waste and/or has been excavated from areas of land that are not contaminated
<b>WAD</b>	Works Authorisation Deed
<b>WBNM</b>	Watershed Bound Network Model
<b>WM Act</b>	<i>Water Management Act 2000</i>
<b>WMRP</b>	Waste Management and Recycling Plan
<b>WRA</b>	Workplace Risk Assessment
<b>WTP</b>	Water Treatment Plant