

INDEPENDENT ENVIRONMENTAL AUDIT

FINAL REPORT



Proponent:	Sydney Metro
Project:	City & South West, Chatswood to Sydenham
Scope:	Waste and Spoil Management Plan Implementation
Works / Process:	TSE (Tunnels and Station Excavation)
Auditee:	John Holland CPB Ghella Joint Venture

Audit Organisation: QEM Consulting Pty Ltd
Auditor: Julie Dickson
Registration: Exemplar Global EMS Auditor Accreditation no. 13573
Audit References: QEM 1803-A16
SM18.19-081-CSW-TSE-IEA
Audit date: 11 April 2019
Report date: 23 May 2019

EXECUTIVE SUMMARY

An Independent Environment Audit was conducted of the Tunnels and Station Excavation (TSE) project works to assess compliance with relevant Planning & Assessment Approvals in relation to spoil and waste management. The audit was conducted at the TSE project office in Sussex Street Sydney and at the Crows Nest tunnelling site office on 11 April 2019, and included a site visit, interviews and a sampling of formal project records maintained by the principal construction contractor John Holland CPB Ghella (JHCPBG) joint venture.

The site visit found that appropriate waste receptacles and signage have been provided in the yard and site offices to adequately manage and segregate the various waste streams. Waste objectives have been established including 100% beneficial reuse of re-usable spoil and a commitment to achieving an ISCA IS rating. Evidence of implementation was provided through waste and sustainability reports, tracking registers, rating of spoil receival sites by re-use hierarchy, waste contractor reports and waste to destination audits.

The waste classification of soils / spoil has been undertaken by specialist waste consultants and Waste Classification Assessment Reports have been prepared and provided to inform JHCPBG on appropriate disposal and re-use options.

Evidence of appropriate transport and disposal of hazardous and trackable wastes was provided through waste tracking registers and examples of dockets and waste tracking documentation for soils contaminated with contaminants such as with lead, PCBs, and Organochlorine Pesticides. Construction, demolition and general waste meeting the criteria for EPA pre-classified wastes as General Solid Waste (GSW) (non-putrescible) and GSW (putrescible) are transported by licenced waste contractors to licenced waste facilities.

The process to ensure the lawful receival of spoil at off-site reuse locations is defined in the Spoil Management Plan, and evidence of confirmation that each disposal site can lawfully receive the spoil is provided within the Construction Waste and Recycling Management Plan (CWRMP). Evidence sighted in the CWRMP included: letters from receival locations confirming type of waste that can lawfully be accepted and copies of planning documentation (EPL, DA etc). Spoil tracking registers, registers of receival sites, samples of waste dockets, Section 143 Certificates, signed Spoil Receival Site Approval Checklist and JHCPBG daily spoil dockets provided further evidence of spoil despatch and receival to approved locations. Evidence was also provided that spoil is not transported to disposal locations until these documents are reviewed by JHCPBG and the CWRMP is updated and re-issued.

A sample of a Waste Analysis and Classification Report was sighted as evidence of in-situ assessment of incoming spoil (VENM) from the WestConnex tunnelling project.

JHCPBG applied for a NSW EPA Resource Recovery Order / Exemption (RRO/E) to beneficially re-use tunnel spoil, and are subject to the Sydney Metro tunnel spoil order November 2018. Evidence was provided that sampling and validation of the Sydney Metro tunnel spoil is undertaken in accordance with the requirements set out in the Order.

Recognising the relatively small sample of evidence assessed (in the context of the project magnitude and/or material moved off site), the audit did not identify any non-compliances to planning requirements. Two improvement opportunities were however identified.

Report Author (& Auditor):

J Dickson

Julie Dickson

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1.0 AUDIT DETAILS

1.1 Purpose

The purpose of this Independent Environmental Audit was to assess Principal Contractor JHCPBG compliance with the relevant Planning and Assessment Approvals City and Southwest (C&SW) Tunnels and Station Excavation (TSE) focusing on spoil and waste management plan implementation.

1.2 Context

Planning Approvals issued by the Department of Planning & Environment require Sydney Metro (formerly Transport for NSW) to develop an Environmental Audit Program for independent annual environmental auditing against the terms the City & Southwest (C&SW) Critical State Significant Infrastructure (CSSI) Project Approvals.

QEM Consulting Pty Ltd have been engaged by Sydney Metro Delivery Office (SMDO) Safety, Sustainability & Environment (SSE) to deliver a program of Independent Environmental Audits. As required by C&SW Planning Approval CSSI 15_7400 (A39) and the associated Environmental Audit Program, an Independent Environmental Audit was undertaken to assess compliance with Planning Approvals requirements relating to spoil and waste management for the Tunnel and Station Works (TSE) contract.

The TSE works generate a number of different types of waste including construction & demolition waste, office waste, and large volumes of spoil from tunnelling, station excavations and other civil works. The project deed, Conditions of Approval, Environment Protection Licence, and Sydney Metro Construction Environmental Management Framework impose stringent waste and spoil management requirements, and as such the Principal Contractors require effective management and disposal processes to meet these requirements.

1.3 Audit Objectives, Criteria & Scope

The Audit Objective was to assess Planning Approval compliance for the TSE works contract focusing on spoil and waste management.

Audit criteria included implementation of the Construction Waste and Recycling Management Plan, Spoil Management Plan, 17.2 of the CEMF, Appendix E6.6(h) of the SWTC and EPL plus the following Project Environmental Planning Approvals:

- CSSI 15_7400 Condition; E106
- Revised Environmental Mitigation Measures WM1, WM2, WM3

The focus of the audit was on the implementation of waste and spoil classification, re-use, treatment and/or disposal site approval and use plus related compliance records. The audit scope included implementation of the Construction Waste and Recycling Management Plan and Spoil Management Plan.

1.4 Audit Process and Methodology

The audit comprised an off-site desktop review, a Principal Contractor audit, a site inspection and a post audit assessment of documentation and records. The audit process including scoping and planning and was undertaken in accordance with the principals of AS / NZS / ISO 19011:2018 – Guidelines for Auditing Management Systems.

Further details on Auditor credentials, independence and disclaimer can be found in Appendix 2 to this report.

1.5 Auditees and Participation

Refer to full Audit Attendance list in Appendix 3.

1.6 Audit Definitions & Abbreviations

The following abbreviations and definitions apply throughout this report:

Item	Explanation
C&SW	<i>City & Southwest</i>
CEMF	<i>Construction Environmental Management Framework</i>
CSSI	<i>Critical State Significant Infrastructure</i>
CWRMP	<i>Construction Waste and Recycling Management Plan</i>
ENM	<i>Excavated Natural Material</i>
EPA	<i>Environment Protection Authority</i>
EPL	<i>Environmental Protection Licence</i>
GSW	<i>General Solid Waste</i>
Hazardous Waste	<i>Wastes that have hazardous characteristics as defined in the NSW EPA Waste Classification Guidelines 2014</i>
ISCA-IS	<i>Infrastructure Sustainability Council of Australia – Infrastructure Sustainability</i>
JHCPBG	<i>John Holland, CPB and Ghella (joint venture)</i>
MCoA	<i>Minister’s Conditions of Approval</i>
Restricted Solid Waste	<i>Waste classified using SCC and/or TCLP chemical testing</i>
SMP	<i>Spoil Management Plan</i>
Special Waste	<i>Asbestos waste, clinical and related waste, waste tyres and anything classified as special waste under an EPA gazettal notice</i>
Spoil	<i>All material generated by excavation into the ground including station boxes and tunnels</i>
TBM	<i>Tunnel Boring Machine</i>
TSE	<i>Tunnels and Station Excavation</i>
REMM	<i>Revised Environmental Management Measure</i>
SM	<i>Sydney Metro</i>
SMDO	<i>Sydney Metro Delivery Office</i>
SWTC	<i>Scope of Work and Technical Criteria</i>
VENM	<i>Virgin Excavated Natural Material</i>
Non-compliant	<i>Refer Section 2.1 overleaf</i>
Observation	
Improvement Opportunity	
Compliant	
Notable Practice	

2.0 AUDIT FINDINGS

2.1 Audit Summary

This table provides a summary of compliance against audit criteria and area of focus, indicating the number of actions required:

Focus Area	Key Criteria	STATUS			
		Compliant			Non-Compliant
		NP	IO	OBS	NC
Waste Management Plans and procedures	CEMF 17.2		2		
Waste minimisation, re-use, classification waste hierarchy, sustainability reporting	CWRMP, WM1, WM2, WM3, MCoA E106				
Spoil testing, classification and tracking (outgoing and incoming)	SMP, CWRMP, EPL Cond.O4.1, O4.2, CEMF				
Approval of spoil disposal sites – lawful acceptance by receivers	CWRMP, SMP, EPL				
Transport of waste and spoil	CWRMP, EPL Cond. O4.4				

* Note: Compliance limited to demonstrated evidence referenced in Appendix 1 and/or Audit Checklist working notes

Audit Findings are classified as follows:

Status	Explanation
Notable Practice (NP)	Outstanding positive observation about a system, process or practice, for recognition and/or sharing purposes.
Improvement Opportunity (IO)	A suggestion or opportunity to implement a good or better practice to improve efficiency, further reduce exposure to risk or improve information management. When specifically stated as a Recommendation, this requires a formal response as to a considered action, alternative action or management decision in the negative.
Observation (OBS)	Documented requirement and/or implementation issue which may not strictly affect required performance or compliance outcomes. Also termed a non-conformance (as opposed to non-compliance) in the industry, observations could be an early indication of potential non-compliance and/or an adverse performance outcome.
Non-compliant (NC)	The intent of one or more specific requirements of a condition or obligation have not been met, based on insufficient objective evidence to demonstrate required outcomes or deliverables being achieved and/or complied with.

Note: The status of 'Compliant' is determined where sufficient verifiable evidence demonstrates that intent, specific requirements or elements of a condition / obligation have been met within the scope of the Independent Audit. Consequently, there may be no resulting actions, otherwise actions commensurate with the Improvement or Observation status above will be required

2.2 Site Inspection details/outcomes

A site inspection was conducted at the Crows Nest tunnelling compound, site office and loading shed, including the observation of spoil classified as VENM was being loaded into trucks from the cavern. Evidence was provided of classification and tracking of spoil and of waste separation in the compound and office.

	
<p>Spoil loading operations – in cavern</p>	<p>Spoil loading operations – in loading shed</p>
	
<p>Waste bins and receptacles in compound</p>	<p>Waste bins in site office</p>

2.3 Detailed Findings and Agreed Action Plan

Ref	Audit Finding	Status	Priority	Agreed Action Plan
1.	The waste quantity estimates in Table 1 of the Construction Waste and Recycling Management Plan do not align with the waste metrics measured and reported.	IO	Low	<p>Agreed Action Update estimated waste quantities in Table 1 of the CWRMP to align with waste metrics measured and reported.</p> <p>Completed Date 22 May 2019</p> <p>Responsible Person Krissy Vajda</p>
2.	The CWRMP requires that <i>"all waste generated will be assessed, classified and managed in accordance with the EPA's Waste Classification Guidelines prior to despatching the waste offsite"</i> , however provides no guidance on how this will be achieved, or references the Waste and Recycling Management Procedure.	IO	Low	<p>Agreed Action Revise CWRMP to provide guidance on waste classification and include reference to the Waste and Recycling Management Procedure.</p> <p>Completed Date 23 May 2019</p> <p>Responsible Person Krissy Vajda</p>

Appendix 1: Audit documentation

The following indicates key systems, documents, reports, information and records that were reviewed, accessed or sighted during the audit process:

Documentation	Information / Records
1. Project documentation – Management Plans (general)	
Construction Waste and Recycling Management Plan Rev 55, dated 6 March 2019 (including Appendices)	
Waste and Recycling Management Procedure Rev 04, dated 22 October 2018	
Construction Environmental Management Framework Appendix D Version 3.0 16 Feb 2016 (Sydney Metro Project)	
2. Site management and documentation, training and awareness	
	Allocations spreadsheet Daily (provided to haulage contractor Bakers - records VENM, GSW-R (Recyclable) 5 April 2019
	Toolbox talk minutes at Crows Nest on 8/03/2019 re: Resource Recovery Exemption Order
	Toolbox talk meeting record 30/01/2019 – Waste management targets for the project
	Toolbox talk meeting record 14/09/18 – relating to importation of material not being checked first
	Toolbox talk 08/03/2018 – EPL waste management requirements (demolition)
	Tunnel and Station Excavation Works JHCPBG Site Specific Induction booklet Project Induction slides/pages– Environment and Sustainability (2 slides relating to waste and spoil management and one to sustainability)
3. Waste minimisation, waste hierarchy, sustainability reporting	
Sustainability Management Plan Rev 05 dated 25 March 2019	Sustainability Management Report No 18 February 2019
	Monthly Waste Report Sept 2018, January 2019
	Value Engineering Register
	Subcontractor Pack – June 2018
	Sustainability Reporting template (spreadsheet) showing waste statistics cumulative to January 2019

Documentation	Information / Records
4. Spoil and Waste Classification (waste materials - outgoing)	
Spoil Management Plan Rev 03 dated 14 September 2018	Waste Classification Assessment Crows Nest Stockpile (CNUSTP-SP1 from previous UST location) 14 Dec 2018 (Extract) Douglas Partners Report 56 – Classification – GSW (non-putrescible)
The Sydney Metro Tunnel Spoil Exemption November 2018	Waste Classification Summary for filling of southern part of station box- Crows Nest 18 June 2018 (Extract) Douglas Partners Report 41 – Classification – Special Waste – Asbestos (GSW) and GSW (non-putrescible) (with TCLP)
The Sydney Metro Spoil Order November 2018	Asbestos Clearance Report (ADE) Crows Nest June 2018 classified as asbestos soils (no ACM observed)
	Waste Classification and VENM Assessment – Pads 3A and 4A – Crows Nest 7 June 2018 Douglas Partners (extract) Report 39. Classification GSW (Putrescible) and VENM
	Waste Classification Assessment – Stockpile (CNSPUST1 from adjacent tank pit) Crows Nest 23 May 2018 (extract) Douglas Partners Report 39. Classification GSW (non-putrescible) (CT1)
	Test locations from Asbestos contamination assessment (map/plan) Crows Nest 14 June 2018
	VENM Assessment (Northern part of site – Crows Nest) 18 January 2019 Douglas Partners (Extract) Report 58 – Classification - VENM
	Waste Classification – Treated Stockpiles WLSP16 and WLSP19 – Waterloo Station site 19 July 2018 (extract) Douglas Partners Report 51. Classification GSW – non-putrescible (with TCLP) – treated for Acid Sulphate soil
	Holocene Sediment Checklist (for ASS) completed 10/11/2018 – determination – VENM clay – referencing waste Classification Report 85608.14.R062
	Waste Analysis and Classification Report SYM-08-15860– Tunnel Spoil Validation – Victoria Cross Station – ADE Consulting Group 21 March 2019 – classification. Meets Sydney Metro Road Header Tunnel Spoil Order Nov 2018
	Waste Analysis and Classification Report SYM-08-15711 WAC1– Tunnel Spoil Validation – Victoria Cross Station – ADE Consulting Group 22 Feb 2019 – classification. Meets Sydney Metro Road Header Tunnel Spoil Order Nov 2018
	Summary – Classification quantity of VENM and Resource Recovery Order (RRO) vs waste analysis classification reports and classification quantity
	Stockpile Waste Classification Assessment MVSP19 Marrickville Dive 4 May 2019 Douglas Partners (extract) Report 020 Classification – Special Waste – Asbestos – Hazardous Waste, PCB contaminated soils, Scheduled Chemicals Waste.
	EPA Letter dated 28/11/2018 – Revised Sydney Metro tunnel spoil resource recovery order and exemption (order and exemption commence 29 Nov 2018, valid to 9 August 2020).

Documentation	Information / Records
	Email 26/03/2019 – addition of two new sites to waste receival site list – TSE 113 and TSE 114 noting updated to Register from Senior Environmental Coordinator to project team
5. Waste Classification (waste/spoil materials - incoming)	
	Waste Analysis and Classification Report WCX-02-11685 (for virgin rock material) ADE Consulting Group 3/4/2017 – Classification – VENM.
6. Waste and spoil Management - Waste tracking, verification	
	Bingo monthly waste reports to July 18 to Jan 2019 – construction, demolition and general waste - shows quantities for various waste streams and recycling percentages.
	Combined Waste tracking register (spoil) to 4 April 2019 showing classification (VENM) receival sites, haulage company, Truck registration, date of removal, docket no, quantity tipped
	Waste tracker entry – ACM waste disposed at Dial a dump Eastern Creek (TSE 21) 30 June to 2 July
	NSW Waste Tracking Certificate for PCB and OCP contaminated soil from Marrickville to We Kando Chinchilla (Queensland) 27/06/2018 Waste Code M100
	Tracking Register – Marrickville for OCP and PCB waste taken to We Kando Chinchilla 26/06/2018
	Tracking Register – for ACM waste taken to Dial-a-Dump Eastern Creek 30 June and 2 July
	Waste dockets – We Kando for 2 loads of PCB and OCP contaminated soils 26 th June 2018 to Chinchilla Qld
	Waste docket – Cleanaway – disposal of lead contaminated waste 29 Mar 2019 to Kooragang Is
	Transport Certificate No 2TO0973039 – (online waste tracking system) 29/03 2019 – transport of Lead and lead compound wastes to Cleanaway at Kooragang Island
	Waste Register excerpt – 29/03/2019 lead contaminated waste disposed at TSE 34 – Cleanaway Hazardous Waste facility – matching Transport Certificate No 2TO0973039
	Docket for contaminated soil N120 from Crows Nest stockpile – Cleanaway – disposed at Kooragang Is 6 Feb 2018
	Spoil dockets (various) including No 47052 – 5/4/19 – to Penrith Lakes and Bringelly

Documentation	Information / Records
	Daily Haulage Information Sheet (Allocations) 5 and 11 April 2019 Crows Nest showing contractor, subcontractor, pick up location, disposal location, Material (VENM), Truck Rego Driver name and truck ID
	Spoil Re-use Register 20 Nov 2018
	GPS tracking data of truck movements – 12/07/2018 -
7. Approval of Receival sites	
Construction Waste and Recycling Management Plan Rev 55, dated 6 March 2019. Appendix A: Waste Disposal Locations Appendix B: Written confirmation from waste disposal sites of the waste types they can legally receive	Spoil Receival Site approval checklists (completed) 2/08/18 (single story dwelling Castlereagh); 19/11/18 (BT Leppington) 15/01/2019 (Bringelly Business Hub. Includes requirement to obtain relevant approval documents, letter from site owner and a completed, signed Section 143 Form.
	Emails 2/5/18, 5/12/18, 22/02/19 providing written confirmation that the site is approved for receipt of material listed in the Spoil Receival Checklists.
8. Monitoring, audits, inspections	
	Chain of Responsibility (CoR) Inspection report 25/03/2019 Rego NRMS04 – Primarily safety, includes axel weights, tarps cover tippers, no loose items, electronic load tarp operational
	Internal audit close-out of actions raised in internal audit 21/12/2018 (closed 8/02/2019).
	Waste to Destination audit – TSE 44 Eastern Road, Quakers Hill 4/07/2018
	Waste to Destination audit – Bingo Kembla Grange Facility 10/09/2018

Appendix 2: Audit Credentials

Audit process

This Independent Environment Audit comprised an off-site desktop review, an onsite and office audit and a post audit assessment of documentation and records. The audit assignment was undertaken by the identified QEM Consulting Pty Ltd Auditor below, with the second Auditor not directly involved in the audit conducting a peer review of the report prior to finalising.

The audit process including scoping and planning was undertaken in accordance with the principals of AS / NZS / ISO 19011:2018 – Guidelines for Auditing Management Systems.

Auditor information

Audit Organisation:	QEM Consulting Pty Ltd
Auditor & Report Author:	Julie Dickson
Auditor Qualification:	Exemplar Global EMS Auditor Accreditation no. 13573
Affiliations:	EIANZ Certified Environmental Practitioner, Reg. no. 221
Report Reviewer:	Larry Weiss
Auditor Qualification:	Exemplar Global EMS Auditor Accreditation no. 12355
Affiliations:	Member, Engineers Australia 938517

Auditor certification

The abovementioned Auditor certifies as having personally undertaken this Independent Audit and preparing the contents of this Independent Audit Report; and that the findings of the audit are reported truthfully, accurately and completely; and that he / she has exercised due diligence and professional judgement in conducting the audit. The signed Statement of Interests and Association in our services agreement with Sydney Metro confirm our Auditor's independence and absence of pecuniary interest in the audited project.

Audit disclaimer

It should be noted that this report is a snapshot in time, based on selected and supplied documentation, as well as observations on the day only, and does not purport to be a definitive confirmation of overall or potential compliance or vice-versa.

Appendix 3: Audit Attendance Register

AUDITEE: JHCPBG AUDIT: JHCPBG Waste and Spoil Management SITE: Crows Nest site and Project Office- 140 Sussex Street Sydney			11/04/2019	
NAME (print)	POSITION & ORGANIZATION		ENTRY (Initials)	EXIT (initials)
Julie Dickson	Lead Auditor	QEM	<i>JD</i>	<i>JD</i>
Rachael Labruyere	Senior Environmental Coordinator	JHCPBG	<i>RL</i>	<i>RL</i>
Cindy Liles	Environment and Sustainability Coordinator	JHCPBG	<i>CL</i>	
Robert Muir	Environmental Manager	JHCPBG		<i>RM</i>
Krissy Vajda	Manager – Environment, Approvals and Sustainability	JHCPBG		<i>KV</i>
Georgina Luck	Sustainability Lead	Sydney Metro	<i>GL</i>	<i>GL</i>
Pam Tummers	Environment & Sustainability TSE Implementation Group	Sydney Metro		<i>PTummers</i>
John O'Toole	<u>Crows</u> Nest Spoil Engineer	JHCPBG	<i>JO</i>	

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