



**WestConnex Stage 3B Rozelle Interchange - Pigtail Bridge (RY01) - Site
Audit Report - 2023/SY036**

John Holland CPB Joint Venture

Pigtail Bridge

SY180068.01

1 December 2023

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SITE AUDIT STATEMENT – 2023/SY036



NSW Site Auditor Scheme

Site Audit Statement

A site audit statement summarises the findings of a site audit. For full details of the site auditor's findings, evaluations and conclusions, refer to the associated site audit report.

This form was approved under the *Contaminated Land Management Act 1997* on 12 October 2017.

For information about completing this form, go to Part IV.

Part I: Site audit identification

Site audit statement no. 2023/SY036

This site audit is a:



statutory audit



~~non-statutory audit~~

within the meaning of the *Contaminated Land Management Act 1997*.

Site auditor details

(As accredited under the *Contaminated Land Management Act 1997*)

Name Mr Brad May

Company Epic Environmental Pty Ltd

Address Suite 5, Level 9, 189 Kent Street, Sydney NSW

Postcode 2000

Phone 1800 779 363, 0400 497 512

Email bmay@epicenvironmental.com.au

Site details

Address: Brennan Street, Lilyfield, NSW

Postcode: 2040

Property description

(Attach a separate list if several properties are included in the site audit.)

Part Lot 13 Deposit Plan (DP) 1256361 (refer to attached site plan)

Local government area Inner West Council

Area of site (include units, e.g. hectares) 3,400 m²

Current zoning: Port and Employment Zone (Sydney Regional Environmental Plan No. 26 – City West)

Regulation and notification

To the best of my knowledge:

☐ ~~the site is~~ the subject of a declaration, order, agreement, proposal or notice under the ~~Contaminated Land Management Act 1997~~ or the ~~Environmentally Hazardous Chemicals Act 1985~~, as follows: (provide the no. if applicable)

☐ Declaration no. _____

☐ Order no. _____

☐ Proposal no. _____

☐ Notice no. _____

✓ **the site is not** the subject of a declaration, order, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*.

To the best of my knowledge:

☐ ~~the site has been notified to the EPA under section 60 of the Contaminated Land Management Act 1997~~

✓ the site **has not** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*.

Site audit commissioned by

Name: Charles Scarf

Company: John Holland CPB Contractors Joint Venture

Address: 84 Lilyfield Road, Rozelle

Postcode: 2039

Phone: 0438 247 725

Email: Charles.scarf@rozelleinterchange.com.au

Contact details for contact person (if different from above)

Name: Ciara Moriarty

Phone: 0417 738 136

Email: ciara.moriarty@rozelleinterchange.com.au

Nature of statutory requirements (not applicable for non-statutory audits)

- ☐ Requirements under the ~~Contaminated Land Management Act 1997~~
(e.g. management order; please specify, including date of issue)

- ☒ Requirements imposed by an environmental planning instrument
(please specify, including date of issue)

State Significant Infrastructure (SSI) 7485, issued 17 April 2018, Conditions of Approval for the WestConnex Stage 3B Rozelle Interchange, conditions relating to contaminated sites (E181 to E185) and waste (E202 to E203).

- ☐ Development consent requirements under the ~~Environmental Planning and Assessment Act 1979~~ (please specify consent authority and date of issue)

- ☐ Requirements under other legislation (please specify, including date of issue)

Purpose of site audit

☐ ~~A1 To determine land use suitability~~

~~Intended uses of the land:~~

OR

✓ **A2** To determine land use suitability subject to compliance with either an active or passive environmental management plan

Intended uses of the land: Pedestrian, and bicycle pathways (including a footbridge over City west link and minor landscape open space areas.

OR

(Tick all that apply)

☐ ~~B1 To determine the nature and extent of contamination~~

☐ ~~B2 To determine the appropriateness of:~~

☐ ~~an investigation plan~~

☐ ~~a remediation plan~~

☐ ~~a management plan~~

☐ ~~B3 To determine the appropriateness of a **site testing plan** to determine if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*~~

☐ ~~B4 To determine the compliance with an approved:~~

☐ ~~**voluntary management proposal** or~~

☐ ~~**management order** under the *Contaminated Land Management Act 1997*~~

☐ ~~B5 To determine if the land can be made suitable for a particular use (or uses) if the site is remediated or managed in accordance with a specified plan.~~

~~Intended uses of the land:~~

Information sources for site audit

Consultancies which conducted the site investigations and/or remediation:

Ramboll, WSP, AECOM and ERM

Titles of reports reviewed:

- Ramboll 2019, 'WestConnex Stage 3B – Rozelle Interchange Contaminated Land – Sampling and Analysis Plan', (SAQP), Revision D2, August 2019, (Ramboll SAQP 2019), Appendix H: Site Specific SAQP – RY01
- WSP 2020, 'Work Plan- Sub Site Area- Pigtail (Former RY01)', 20 March 2020 (Ref: PS117368-CLM-LTR-WP-RY01 RevC)

- WSP 2021, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Detailed Site Investigation', 17 March 2021 (Ref: PS117368-CLM-REP-PT RevC, Final).
- WSP 2022, 'WestConnex Stage 3B – Rozelle Interchange – Sub-Site Area Pigtail Bridge – Remediation Approach', 2 December 2022 (Ref: PS117368-CLM-MEM-Pigtail_RevE)
- WSP 2023a, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Validation Report', (Ref: PS117368-CLM-REP-Pigtail VAL RevC) 30 November 2023
- WSP 2023b, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Long Term Environmental Management Plan', 29 November 2023 (Ref: PS117368-CLM-REP-Pigtail EMP RevC)

Other information reviewed, including previous site audit reports and statements relating to the site:

- ERM 2002, 'Stage 1 and Stage 2, Brenan Street Lilyfield, Environmental Site Assessment'
- Coffey (2003), 'Additional Environmental Investigations at Brenan Street, Lilyfield NSW'
- AECOM 2016, 'WestConnex M4-M5 Link Rozelle Interchange, Stage 1 Preliminary Site Investigation'. Ref: M4M5-REP-4000-EN-030A. 19 May 2016.

Site audit report details

Title: WestConnex Stage 3B Rozelle, Pigtail Bridge – Site Audit Report – 2023/ SY036, City West Link. SY180068.01, 1 December 2023.

Report no. SY180068.01_RepSAR_SY36_PigtailBridge_Rev0 Date 23 November 2023

Part II: Auditor's findings

Please complete either Section A1, Section A2 or Section B, not more than one section.
(Strike out the irrelevant sections.)

- Use **Section A1** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **without the implementation** of an environmental management plan.
- Use **Section A2** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **with the implementation** of an active or passive environmental management plan.
- Use **Section B** where the audit is to determine:
 - (B1) the nature and extent of contamination, and/or
 - (B2) the appropriateness of an investigation, remediation or management plan¹, and/or
 - (B3) the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or
 - (B4) whether the terms of the approved voluntary management proposal or management order have been complied with, and/or
 - (B5) whether the site can be made suitable for a specified land use (or uses) if the site is remediated or managed in accordance with the implementation of a specified plan.

¹ For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Section A1

I certify that, in my opinion:

The ~~site is suitable~~ for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

- ☐ ~~Residential, including substantial vegetable garden and poultry~~
 - ☐ ~~Residential, including substantial vegetable garden, excluding poultry~~
 - ☐ ~~Residential with accessible soil, including garden (minimal home grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~
 - ☐ ~~Day care centre, preschool, primary school~~
 - ☐ ~~Residential with minimal opportunity for soil access, including units~~
 - ☐ ~~Secondary school~~
 - ☐ ~~Park, recreational open space, playing field~~
 - ☐ ~~Commercial/industrial~~
 - ☐ ~~Other (please specify):~~
-

OR

- ☐ I certify that, in my opinion, the ~~site is not suitable~~ for any use due to the risk of harm from contamination.

Overall comments:

Section A2

I certify that, in my opinion:

Subject to compliance with the **attached** environmental management plan² (EMP), the site is suitable for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

- ☐ ~~Residential, including substantial vegetable garden and poultry~~
- ☐ ~~Residential, including substantial vegetable garden, excluding poultry~~
- ☐ ~~Residential with accessible soil, including garden (minimal home grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~
- ☐ ~~Day care centre, preschool, primary school~~
- ☐ ~~Residential with minimal opportunity for soil access, including units~~
- ☐ ~~Secondary school~~
- ☒ Park, recreational open space, playing field
- ☒ Commercial/industrial
- ☒ Other (please specify):
Drainage channels, footpath, cycleway

EMP details

Title: WSP 2023b, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Long Term Environmental Management Plan'(Ref: PS117368-CLM-REP-Pigtail EMP RevC

Author:WSP

Date: 29 November 2023

No. of pages 46

EMP summary

This EMP (attached) is required to be implemented to address residual contamination on the site.

The EMP: (Tick appropriate box and strike out the other option.)

- ☐ ~~requires operation and/or maintenance of **active** control systems³~~
- ☒ requires maintenance of **passive** control systems only³.

² Refer to Part IV for an explanation of an environmental management plan.

³ Refer to Part IV for definitions of active and passive control systems.

Purpose of the EMP:

The purpose of the Long Term Environmental Plan (LTEMP) is to manage potential adverse health and environmental impacts associated with soil contamination at the site. The LTEMP provides the passive management requirements to ensure the longevity of the installed capping system and to ensure any works that penetrate the capping system are appropriately controlled.

Description of the nature of the residual contamination:

Soils containing polycyclic aromatic hydrocarbons (PAHs), heavy metals and asbestos was identified at the Crescent Civil sub-site at concentrations requiring management under the LTEMP.

Summary of the actions required by the EMP:

- Environmental awareness and training
 - 6-monthly visual inspections of capped areas
 - Maintenance of capping
 - Sets out imported fill and VENM testing and validation requirements
 - Controls to be applied during minor sub-surface works (not involving breaching of capping layer)
 - Management controls for observed breaches of containment (either hardstand or capped landscaped areas)
 - Sets out procedures for subsurface works reinstatement to ensure protection of workers and future site users
 - Sets out Unexpected finds protocols
 - Incident and emergency procedures
 - Provides complaint and environmental incident procedures and register
 - Reporting and LTEMP review requirements
-

How the EMP can reasonably be made to be legally enforceable:

The Environmental Planning and Assessment Act 1979 (EP&A Act) and State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) provides the primary mechanism for ensuring the LTEMP is enforced with respect to changes in the allowable land uses or material alterations to the site and surrounds. Future redevelopment work at the site is significant enough to require consent from the local council (Inner West Council) under the EP&A Act, which provides an avenue for enforcement as Council may require adoption of this LTEMP as a condition of development consent for the site.

The site owner (Transport for NSW) will be responsible for routine monitoring and maintenance of the LTEMP areas.

How there will be appropriate public notification:

As per condition E183 of the infrastructure approval, the Secretary of the NSW Department of Planning and Environment (or nominee) and Inner West Council (Council) are also to be provided a copy of the site audit statement. Council must provide a notification of the existence of the audit on the planning certificate/s for the site issued under section 10.7 of the EP&A Act.

Overall comments:

Section B

Purpose of the plan⁴ which is the subject of this audit:

I certify that, in my opinion:

(B1)

- ☐ The nature and extent of the contamination ~~has~~ been appropriately determined
- ☐ The nature and extent of the contamination ~~has not~~ been appropriately determined

AND/OR (B2)

- ☐ The investigation, remediation or management plan ~~is~~ appropriate for the purpose stated above
- ☐ The investigation, remediation or management plan ~~is not~~ appropriate for the purpose stated above

AND/OR (B3)

- ☐ The site testing plan:
 - ☐ ~~is~~ appropriate to determine
 - ☐ ~~is not~~ appropriate to determine

~~if groundwater is safe and suitable for its intended use as required by the Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017~~

AND/OR (B4)

- ☐ The terms of the approved voluntary management proposal* or management order** (strike out as appropriate):
 - ☐ ~~have~~ been complied with
 - ☐ ~~have not~~ been complied with.

~~*voluntary management proposal no:~~

~~**management order no:~~

AND/OR (B5)

- ☐ The site ~~can be made suitable~~ for the following uses:
(Tick all appropriate uses and strike out those not applicable.)
 - ☐ ~~Residential, including substantial vegetable garden and poultry~~
 - ☐ ~~Residential, including substantial vegetable garden, excluding poultry~~

⁴ For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Site Audit Statement

- ☐ Residential with accessible soil, including garden (minimal home grown produce contributing less than 10% fruit and vegetable intake), excluding poultry
- ☐ Day care centre, preschool, primary school
- ☐ Residential with minimal opportunity for soil access, including units
- ☐ Secondary school
- ☐ Park, recreational open space, playing field
- ☐ Commercial/industrial
- ☐ Other (please specify):

~~IF the site is remediated/managed*~~ in accordance with the following plan (attached):

~~*Strike out as appropriate~~

Plan title

Plan author

Plan date

No. of pages

~~SUBJECT to compliance with the following condition(s):~~

Overall comments:

Part III: Auditor's declaration

I am accredited as a site auditor by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997*.

Accreditation no. 1603

I certify that:

- I have completed the site audit free of any conflicts of interest as defined in the *Contaminated Land Management Act 1997*, and
- with due regard to relevant laws and guidelines, I have examined and am familiar with the reports and information referred to in Part I of this site audit, and
- on the basis of inquiries I have made of those individuals immediately responsible for making those reports and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete, and
- this statement is, to the best of my knowledge, true, accurate and complete.

I am aware that there are penalties under the *Contaminated Land Management Act 1997* for wilfully making false or misleading statements.

Signed 

Date 1 December 2023

Part IV: Explanatory notes

To be complete, a site audit statement form must be issued with all four parts.

How to complete this form

Part I

Part I identifies the auditor, the site, the purpose of the audit and the information used by the auditor in making the site audit findings.

Part II

Part II contains the auditor's opinion of the suitability of the site for specified uses or of the appropriateness of an investigation, or remediation plan or management plan which may enable a particular use. It sets out succinct and definitive information to assist decision-making about the use or uses of the site or a plan or proposal to manage or remediate the site.

The auditor is to complete either Section A1 or Section A2 or Section B of Part II, **not** more than one section.

Section A1

In Section A1 the auditor may conclude that the land is *suitable* for a specified use or uses OR *not suitable* for any beneficial use due to the risk of harm from contamination.

By certifying that the site is *suitable*, an auditor declares that, at the time of completion of the site audit, no further investigation or remediation or management of the site was needed to render the site fit for the specified use(s). **Conditions must not be** imposed on a Section A1 site audit statement. Auditors may include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section A2

In Section A2 the auditor may conclude that the land is *suitable* for a specified use(s) subject to a condition for implementation of an environmental management plan (EMP).

Environmental management plan

Within the context of contaminated sites management, an EMP (sometimes also called a 'site management plan') means a plan which addresses the integration of environmental mitigation and monitoring measures for soil, groundwater and/or hazardous ground gases throughout an existing or proposed land use. An EMP succinctly describes the nature and location of contamination remaining on site and states what the objectives of the plan are, how contaminants will be managed, who will be responsible for the plan's implementation and over what time frame actions specified in the plan will take place.

By certifying that the site is suitable subject to implementation of an EMP, an auditor declares that, at the time of completion of the site audit, there was sufficient information satisfying guidelines made or approved under the *Contaminated Land Management Act 1997*

(CLM Act) to determine that implementation of the EMP was feasible and would enable the specified use(s) of the site and no further investigation or remediation of the site was needed to render the site fit for the specified use(s).

Implementation of an EMP is required to ensure the site remains suitable for the specified use(s). The plan should be legally enforceable: for example, a requirement of a notice under the CLM Act or a development consent condition issued by a planning authority. There should also be appropriate public notification of the plan, e.g. on a certificate issued under s.149 of the *Environmental Planning and Assessment Act 1979*.

Active or passive control systems

Auditors must specify whether the EMP requires operation and/or maintenance of active control systems or requires maintenance of passive control systems only. Active management systems usually incorporate mechanical components and/or require monitoring and, because of this, regular maintenance and inspection are necessary. Most active management systems are applied at sites where if the systems are not implemented an unacceptable risk may occur. Passive management systems usually require minimal management and maintenance and do not usually incorporate mechanical components.

Auditor's comments

Auditors may also include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section B

In Section B the auditor draws conclusions on the nature and extent of contamination, and/or suitability of plans relating to the investigation, remediation or management of the land, and/or the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or whether the terms of an approved voluntary management proposal or management order made under the CLM Act have been complied with, and/or whether the site can be made suitable for a specified land use or uses if the site is remediated or managed in accordance with the implementation of a specified plan.

By certifying that a site *can be made suitable* for a use or uses if remediated or managed in accordance with a specified plan, the auditor declares that, at the time the audit was completed, there was sufficient information satisfying guidelines made or approved under the CLM Act to determine that implementation of the plan was feasible and would enable the specified use(s) of the site in the future.

For a site that *can be made suitable*, any **conditions** specified by the auditor in Section B should be limited to minor modifications or additions to the specified plan. However, if the auditor considers that further audits of the site (e.g. to validate remediation) are required, the auditor must note this as a condition in the site audit statement. The condition must not specify an individual auditor, only that further audits are required.

Auditors may also include **comments** which are observations in light of the audit which provide a more complete understanding of the environmental context to aid decision-making in relation to the site.

Part III

In **Part III** the auditor certifies their standing as an accredited auditor under the CLM Act and makes other relevant declarations.

Where to send completed forms

In addition to furnishing a copy of the audit statement to the person(s) who commissioned the site audit, statutory site audit statements must be sent to

- the **NSW Environment Protection Authority**:
nswauditors@epa.nsw.gov.au or as specified by the EPA

AND

- the **local council** for the land which is the subject of the audit.



| | | | | | | | | | | | | | | |
|-----------|--|------------------------|------------------------------|--|---|--|----------------------------------|-----|------------|-------|----------|----------------|-----------|--|
| SURVEYOR | | SEAN FOLEY | GENERAL NOTES / REFERENCES | | <div><div>Rozelle Interchange</div><div>WestConnex</div><div></div><div><div>JOHN HOLLAND</div><div>CPB CONTRACTORS</div></div></div> | | DO NOT SCALE | | DISCIPLINE | ZONE | CATEGORY | DESIGN PACKAGE | PLOT DATE | |
| | | PROJECT SURVEY MANAGER | | | | | SURV | CWL | LSC | 00_20 | 29/11/23 | | | |
| | | | | | | | AUDIT BOUNDARY PIGTAIL BRIDGE | | | | | | | |
| SIGNATURE | | | | | | | | | | | | | | |
| | | | FOR INFORMATION ONLY | | DRAWN BY | | SHEET 1 of | | | | | | | |
| | | | AUDIT BOUNDARY : RED | | SF | | | | | | | | | |
| | | | PREPARED FOR: CIARA MORIARTY | | COORDINATE SYSTEM | | | | | | | | | |
| | | | | | MGA94 Z56 | | | | | | | | | |
| | | | | | HEIGHT DATUM | | 1 | | | | | | | |
| | | | | | A.H.D | | | | | | | | | |
| | | | | | SCALE AT ORIGINAL A3 SIZE | | | | | | | | | |
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**Design
for a better
*future /***

JOHN HOLLAND CPB

**LONG TERM
ENVIRONMENTAL
MANAGEMENT PLAN**

PIGTAIL BRIDGE
PART LOT 13
DP1256361

wsp

NOVEMBER 2023

Question today *Imagine tomorrow* Create for the future

Long Term Environmental Management Plan
Pigtail Bridge
Part Lot 13 DP1256361

John Holland CPB

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ABBREVIATIONS

| | |
|----------|---|
| DSI | Detailed site investigation |
| EIL | Ecological investigation level |
| HIL | Health investigation level |
| LTEMP | Long term environmental management plan |
| mbgl | metres below ground level |
| NEPM | National Environment Protection (Assessment of Site Contamination) Measure 1999 |
| NSW EPA | New South Wales Environment Protection Authority |
| PAH | Polycyclic aromatic hydrocarbon |
| POEO Act | Protection of the Environment Operations Act 1997 |
| SWMS | Safe work method statement |
| TEQ | Toxic equivalence quotient |
| TfNSW | Transport for NSW |
| WCX3B | WestConnex Stage 3B |
| WHS | Work Health and Safety |

1 INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND

WSP Australia Pty Ltd (WSP) was commissioned by John Holland CPB Joint Venture (JHCPB) to prepare a long-term environmental management plan (LTEMP) for a sub-site area called Pigtail Bridge located to the south-west of the main site for the WestConnex Stage 3B Rozelle Interchange project (WCX3B). The sub-area pertaining to this LTEMP comprises part Lot 13 in Deposited Plan (DP) 1256361, located at Brenan Street, Lilyfield, NSW and is herein referred to as the 'site' (refer to Figures 1 and 2 of Appendix A for site location and Appendix E for the site survey plan).

Soil containing polycyclic aromatic hydrocarbons (PAHs) and asbestos was previously identified at the site during occupation by JHCPB for construction of the WCX3B project. The contaminated areas have been remediated via the construction of soil or hardstand capping layers.

1.2 PURPOSE

This LTEMP has been prepared to manage potential adverse health and environmental impacts associated with soil contamination at the site. This LTEMP provides the passive management requirements to ensure the longevity of the installed capping system and to ensure any works that penetrate the capping system are appropriately controlled. No active management is required for the site.

This LTEMP will apply indefinitely or until such a time that a site audit statement can be prepared by a NSW Environment Protection Authority (EPA) accredited site auditor stating that an EMP is not required for the site.

In handing over completed works to Transport for NSW (TfNSW), JHCPB has a contractual obligation under its Project Deed to provide all documentation that is required for TfNSW (and others) to operate and maintain the relevant works. This LTEMP forms part of such deliverables that JHCPB must handover at completion along with a Certificate of Completion ensuring that handover is on the basis that TfNSW is aware of and complies with the LTEMP requirements.

1.3 OBJECTIVES

The objectives of this LTEMP are to:

- define appropriate management and mitigation measures to be implemented to manage potential environmental and health and safety risks associated with residual subsurface soil impacted by PAHs and asbestos;
- outline the monitoring and maintenance measures required to maintain integrity of the constructed capping systems;
- ensure activities associated with any future site works are managed in a way that minimises the potential impact to the surrounding environment; and
- ensure all personnel involved are aware of environmental issues associated with residual PAHs and asbestos in soil.

The objectives are to be achieved through the application of health and safety procedures as well as the application of controls during the maintenance of utilities, site planning/preparation work and potential future excavation works at the site.

1.4 EMP REGULATORY CONTEXT

Key legislation relevant to the proposed works is listed below:

- *Contaminated Land Management Act 1997* (NSW)

- *Environment Protection and Biodiversity Conservation Act 1999* (Cmlth)
 - *Environmental Hazardous Chemicals Act 1985* (NSW)
 - *Environmental Planning and Assessment Act 1979* (NSW)
 - Landcom 2004, *Managing Urban Stormwater: Soils and Construction*
 - *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM, as amended 2013)
 - NSW EPA 2014, *Waste Classification Guidelines*
 - *Protection of the Environment Operations Act 1997* (POEO Act; NSW)
 - *Protection of the Environment Operations Regulation 2009* (POEO Regulation; NSW)
 - SafeWork Australia, 2019 *Code of Practice - How to Manage Work Health and Safety Risks*
 - SafeWork Australia, 2019 *Code of Practice - Construction Work*
 - SafeWork Australia, 2020 *Code of Practice - Excavation Work*
 - *Waste Avoidance and Resource Recovery Act 2001* (NSW)
 - *Work Health and Safety Act 2011*
 - *Work Health and Safety Regulation 2017*.
-

1.5 CURRENT/FUTURE LAND USE

The site comprises open space (garden) use with restricted public access. There will be no public access to the site with the exception of the footbridge portion of the site. The areas of the site capped using clean validated topsoil and marker layer will not be accessible to the public. It is expected that only maintenance workers will access the broader site area.

2 SITE DESCRIPTION

2.1 SITE IDENTIFICATION

The general property identification information is provided in Table 2.1 below. The location of the site is displayed on Figure 1 and the site layout is displayed on Figure 2 (Appendix A).

Table 2.1 Site details

| SITE INFORMATION | |
|-----------------------------------|---|
| Property owner | Transport for NSW |
| Property address | Brenan Street, Lilyfield, NSW |
| Legal identification (study area) | Part Lot 13 in DP 1256361 |
| Study area | Approximately 2,500 m ² |
| Current/future site use | Open space (garden) use with restricted public access, with a pedestrian footpath and footbridge. |
| Local authority | Inner West Council |
| Zoning information | Port and Employment Zone (Sydney Regional Environmental Plan No. 26 – City West) |

It is noted that the site/audit boundary has been amended since completion of the WSP (2021¹) detailed site investigation (DSI). The DSI boundary was based on the anticipated construction disturbance footprint. However, JHCPB has advised that areas within the eastern, southern, south-western and northern portions of the site were not disturbed and as such, do not form part of the project area requiring handback to TfNSW. The current site/audit area and DSI boundary are shown on Figure 2 (Appendix A).

2.2 SITE HISTORY SUMMARY

The site comprised vacant land until sometime between 1951 and 1961, following which it was utilised for apparent commercial purposes until the 1990s. Commercial uses included storage, manufacture and assemble of prefabricated building products, plastic manufacture, and dye and tool making. In 1992, the site was used as a car repair workshop, which was demolished in 1997. The site remained vacant until commencement of the WCX3B project works during late-2019/early-2020.

Further information pertaining to the history of the site is presented in the WSP (2021) DSI report.

2.3 SOILS AND GEOLOGY

A review of the Sydney 1:100,000 scale geological map (sheet 9130, edition 1, 1983) from Resources and Energy data NSW, indicated that the Site is underlain by silty to peaty quartz sand, silt and clay including ferruginous and humic cementation in places with common shell layers.

¹ WSP (2021) *WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge, Detailed Site Investigation*, ref: PS117368-CLM-REP-PT RevC, 17 March 2021

Subsurface conditions encountered at the site during the WSP (2021a) DSI comprised silty sand fill material with some gravel up to 1.5 m below ground level (bgl), overlying reworked natural sandy clay and/or imported WCX3B tunnel spoil (sand/clayey sand), overlying sandy clay/silty clay alluvium material. Sandstone bedrock was encountered during borehole drilling at a depth of approximately 5.8 mbgl in the south-western portion of the site. Fill material was observed to contain occasional anthropogenic inclusions, including plastic, ceramic and bricks.

3 SUMMARY OF CONTAMINATION AND REMEDIATION

3.1 SUMMARY OF CONTAMINATION STATUS

Fill material containing PAHs and asbestos (fibrous asbestos/asbestos fines) has been retained on the site beneath soil or hardstand capping layers. These contaminants are present in soil at concentrations that may present a potential risk to human health should exposure via dermal contact, ingestion and/or inhalation occur.

Soil investigation locations at which exceedances of human health criteria have previously been identified are shown on Figure 4 (Appendix A).

3.2 REMEDIATION ACTIVITIES

The remediation activities undertaken at the site comprised placement of a marker layer and/or soil capping layer, in addition to the removal and off-site disposal of contaminated material excavated to facilitate WCX3B construction. The marker layer provides the trigger for management controls (refer Section 5.2).

The remedial capping specifications are described in the following sections. The remediation areas are shown on Figure 3 (Appendix A).

3.2.1 GENERAL MASSED PLANTING

This capping methodology comprised:

- placement of a basal layer of permeable coloured synthetic geotextile material in unsealed areas of the site; and
- installation of a capping layer across the area comprising validated soil and a mulch layer (generally minimum 300 mm thickness, refer to Section 5.1 for further detail) with planting at the site surface.

3.2.2 NORTHERN BATTER MASSED PLANTING

The Northern Batter area comprises an area of sloping land adjoining the Sydney Light Rail corridor in the north-west of the site. Chain-wire fence restricting access to the batter from the site has been installed at the toe of the batter. Due to the approximate 45° batter grade, erosion control matting was used instead of geotextile along the Northern Batter. The capping methodology at the Northern Batter comprised:

- installation of a capping layer comprising validated soil;
- placement of erosion control matting over validated soil; and
- installation of a mulch layer (minimum 100 mm thickness).

3.2.3 HARDSTAND (FOOTPATH/CYCLEWAY)

This capping methodology comprised concrete pavement in the area comprising the pedestrian footpath. A geotextile layer was not installed prior to laying the concrete in this portion of the site.

4 LTEMP IMPLEMENTATION

4.1 IMPLEMENTATION OF THE LTEMP

Table 4.1 provides a summary of the responsibilities for the implementation and management of the LTEMP. The list of responsibilities does not replace any regulatory, planning, or licensing responsibilities of the parties in undertaking works at the property. In any instance where an inconsistency arises between this LTEMP and environmental law, the environmental law will take precedence over the LTEMP.

Table 4.1 Responsibilities

| STAKEHOLDER | RESPONSIBILITIES |
|--|---|
| Property owner (Transport for NSW) | <ul style="list-style-type: none"> — Provide the LTEMP to the parties responsible for site management and maintenance (if separate to property owner, such as Council and asset/utility owners) and attach the LTEMP to all ground maintenance contracts commissioned for the site. — Provide the LTEMP to Before You Dig Australia for implementation during intrusive works by asset/utility owners or their contractors. — Attach a copy of the LTEMP to any lease or contract for sale of the site. — Liaise with Council to include the LTEMP on any Section 10.7 planning certificate (i.e. zoning certificate) applicable to the site. |
| Property owner (Transport for NSW) or delegated authority (e.g. Council) | <ul style="list-style-type: none"> — Incorporate the LTEMP into any other management plans implemented at the site. — Review the effectiveness of the LTEMP annually and following any incident or other event that suggests the LTEMP is ineffective. — Implement and communicate improvements and amendments to the LTEMP as needed. — Provide sufficient resources, where needed, to comply with the requirements of this LTEMP. — Brief contractors of the existence of this LTEMP, and their roles within it. — Maintain records of maintenance and/or reports related to the site. |
| Council | <ul style="list-style-type: none"> — Attach a copy of the LTEMP to the Section 10.7 planning certificates. — Inform TfNSW if any reports are received through the Council Transport Management Centre relating to site. |
| Asset/utility owners Maintenance workers (including Council) | <ul style="list-style-type: none"> — Comply with the LTEMP, including relevant legislation and guidance (including the <i>Work Health and Safety Act 2011</i> and <i>Work Health and Safety Regulation 2017</i> or relevant legislation current at the time of the works) when conducting works at the property. — Inform the owner/occupant if disturbance of impacted soil may occur and/or if potential exposure to impacted soil is identified (e.g. existing containment barrier is compromised) or may result in the future. |

It is understood that the site will not be occupied by the site owner or leased for future occupation and so the responsibilities of site occupants has not been considered.

This LTEMP is prepared with the assumption that any future works on the site shall be undertaken in accordance with relevant regulations, guidelines and laws current at the date works, in NSW including but not limited to those referred to in Section 1.4.

4.2 ENVIRONMENTAL AWARENESS AND TRAINING

All site owners and maintenance workers should be made aware of this LTEMP and the requirements it contains. In particular, maintenance workers should complete the following:

- a site induction;
- familiarisation with the requirements of the LTEMP; and
- environmental emergency response training.

A record of completion of the LTEMP induction should be recorded in the log in Appendix B and a checklist of LTEMP requirements for maintenance workers is presented in Appendix D.

4.3 NON-COMPLIANCES AND LTEMP DURATION/REVIEW

Any non-compliance with this LTEMP should be recorded on the non-compliance register in Appendix C2 and communicated to the site owner.

This LTEMP will apply indefinitely or until such a time that a site audit statement can be prepared by a NSW EPA accredited site auditor stating that an EMP is not required for the site.

Review of this LTEMP by the site owner (and other parties where delegated by the site owner) should be conducted every 12 months, and would include but not be limited to the following aspects:

- review non-compliances and corrective actions during the period;
 - ensure inspections have been undertaken, including during and subsequent to any maintenance works conducted at the site, in addition to regular inspections to confirm that the capping layer is intact (refer to Table 5.1 for further details);
 - ensure maintenance recommended (if any) during inspections and/or intrusive works has been completed;
 - review whether proposed changes to land use may conflict with the LTEMP; and
 - review and update this LTEMP to meet changes in applicable regulatory requirements.
-

4.4 APPROVAL AND CONSENT REQUIREMENTS

The need for approvals or consent for any maintenance works to be undertaken at the site should be assessed by the contractors undertaking the works.

4.5 REGULATORY FRAMEWORK AND ENFORCEMENT

In order for the LTEMP to be effective it must be practical and enforceable. With respect to environmental management of the subject site, the activities identified as needing to be controlled include:

- protection of the health risk of maintenance staff involved in future subsurface works;
- ensuring subsurface works are reinstated to suitable standard for protection of future site users; and
- consideration of environmental risk as part of any future redevelopment of the site.

The WCX3B infrastructure approval² requires that “*Contaminated land must not be used for the purpose approved under the terms of this approval until a Site Audit Statement is obtained that declares the land is suitable for that purpose and any conditions on the Site Audit Statement have been complied with.*” This LTEMP has been prepared to fulfill the conditions of the site audit statement, specifically to facilitate suitability of the site subject to compliance with this LTEMP. The WCX3B infrastructure approval is subject to regulation by the NSW Department of Planning, Industry and Environment.

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and *State Environmental Planning Policy (Resilience and Hazards) 2021* (Resilience and Hazards SEPP) provides the primary mechanism for ensuring an LTEMP is enforced with respect to changes in the allowable land uses or material alterations to the site and surrounds. Of the above identified activities, future redevelopment work at the site is significant enough to require consent from the local council (Inner West Council) under the EP&A Act, which provides an avenue for enforcement as Council may require adoption of this LTEMP as a condition of development consent for the site.

The NSW Department of Urban Affairs and Planning (DUAP; now the Department of Planning, Industry and Environment) produced a guidance document titled *Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land* (NSW DUAP, 1998) which also provides guidance for Council or other planning authorities in how to assess if the land is contaminated through applying the NSW EPA investigation processes and guidelines. Along with the Resilience and Hazards SEPP (superseding *State Environmental Planning Policy 55 – Remediation of Land*; SEPP 55), the NSW DUAP (1998) guideline also makes provision for consent authorities to require a site audit statement to be prepared by a NSW EPA accredited site auditor if the consent authority consider it necessary in order for them to make their decision.

With respect to ensuring maintenance staff are protected during works and that the site surface is appropriately restored upon completion it is necessary to rely on the responsibility of TfNSW as the current owner of the site, and by delegation, their facilities management subcontractors. Both these parties have responsibilities under work health and safety (WHS) legislation which will require them to appropriately manage the risks during future subsurface maintenance works. Workers can be protected by provisions of the *Work Health and Safety Act 2011* provided they are notified of the presence of this LTEMP. Under Section 3.1 of the *Work Health and Safety Regulation 2017* a person who has a duty under the regulation to manage risks to health and safety must comply with requirements to manage risk, identify reasonably foreseeable health and safety hazards, eliminate risks to health and safety as far as practicable or if not reasonably practicable then minimise those risks. They must also maintain and review any control measures that are in place to protect worker health and safety. Risk assessment on construction projects is managed at the task level by preparation of work method statements and at the project level by preparation of WHS plans. Therefore, provided there is an adequate method for notification of the presence of the LTEMP, its recommendations can be readily built into the health and safety management of any construction project. Compliance with relevant WHS legislation is mandatory.

4.6 PUBLIC NOTIFICATION OF THIS LTEMP

The remediation of this site has been undertaken under the infrastructure approval (SSI 7485) and, under approval condition E182, the site is subject to a site audit. When a site audit statement states that the site is suitable for a particular use if managed in accordance with an EMP, the plan must be attached to the site audit statement and included in the site audit report. As per condition E183 of the infrastructure approval, the Secretary of the NSW Department of Planning and Environment (or nominee) and Inner West Council (Council) are also to be provided a copy of the site audit statement. Council must provide a notification of the existence of the audit on the planning certificate/s for the site issued under section 10.7 of the EP&A Act.

² Number SSI 7485.

5 RISK MANAGEMENT ACTIVITIES AND CONTROLS

Risk from soil contamination retained on the site may arise when contaminated soils are disturbed, including where the geotextile marker layer and hardstand capping is breached. These risks include:

- potential exposure of workers to contamination via direct contact, ingestion of soil/dust and/or inhalation of dust;
- potential erosion/discharge of contaminated soils to drains and waterways; and
- inappropriate disposal or placement of excavated contaminated soils.

Management controls will be required to be implemented for any ground disturbance activities within areas of retained contamination at the site. The capping management system to be maintained at the site is presented in Section 5.1 and controls for areas of retained contamination are discussed in Section 5.2.

5.1 CAPPING DESIGN

The remediation capping constructed at the site is described below and is shown on Figure 3 (Appendix A). A topographic survey and cross-sections showing the final landscaped surface levels and capping thicknesses are included as Appendix E. General cap arrangement drawings showing details of the geotextile, erosion matting (Northern Batter area only) and soil cap construction are presented below.

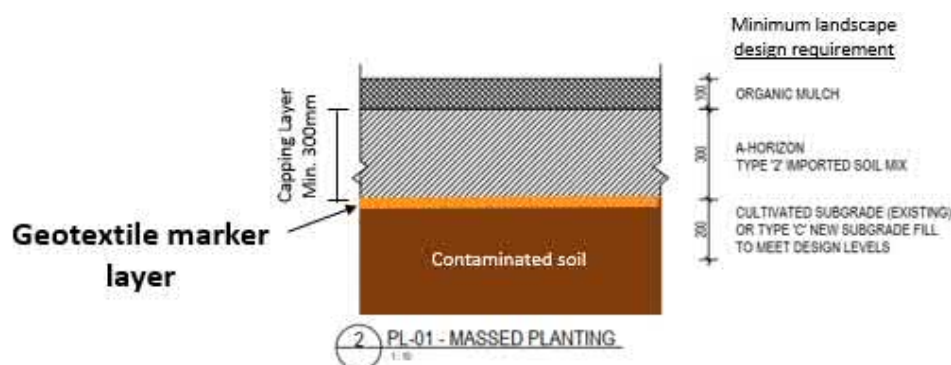
The pavement capping comprises an impervious layer of concrete, noting that a geotextile layer was not installed below the concrete pavement.

Vegetative areas (excluding Northern Batter)

- basal layer of permeable coloured synthetic geotextile material (overlying existing soils); overlain by
- capping layer comprising validated soil and surficial layer (generally minimum 300 mm thickness, refer below) of mulch.

The soil capping layer thickness at the site (excluding the Northern Batter area) is minimum 300 mm, with the exception of two minor areas in the western portion of the site where capping thickness was measured at 266 and 285 mm³ (refer to Appendix E for surveyed capping thickness).

Figure 5.1 Soil cap construction (excluding the Northern Batter)



³ Section 2, 0.000 m offset, capping thickness 266 mm; Section 7, 0.000 m offset, capping thickness 285 mm (refer Appendix E).

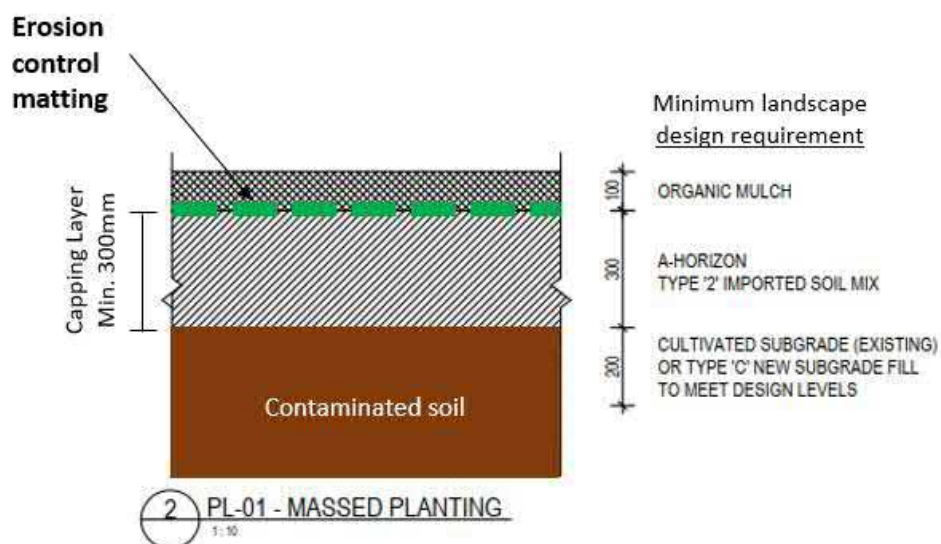
Figure 5.2 Geotextile marker layer



Northern Batter

- basal capping layer comprising validated soil (overlying existing soils); overlain by
- erosion matting layer; overlain by
- surficial layer (approximately 100 mm thickness) of mulch.

Figure 5.3 Soil cap construction at the Northern Batter



Pavement

The pavement capping comprises an impervious layer of concrete. A geotextile layer was not installed below concrete pavement.

5.2 MANAGEMENT CONTROLS

Management controls will be required to be implemented for any ground disturbance activities at the site. The controls for these areas are outlined in Table 5.1 below and in Appendix D.

Given the presence of fill material at the site, the unexpected finds procedure documented in Section 5.3 should also be implemented during works at the site.

All activities/tasks that require the engagement of contractors should be undertaken in accordance with current regulatory requirements, in particular the *Work Health and Safety Act 2011* and the *Work Health and Safety Regulation 2017* (or relevant legislation current at the time of the proposed works).

A summary of the main legislation, planning instruments and guidelines that relate to the management of contaminated land in NSW at the time of preparation of the LTEMP is provided in Section 1.4. This list should be reviewed for currency at the time of any proposed works. The advice of a suitably qualified environmental consultant, the NSW EPA, and/or Council should be sought where there is uncertainty as to the regulatory requirements.

5.3 UNEXPECTED FINDS PROCEDURE

An unexpected finds procedure shall be implemented during intrusive works at the site to ensure the health and safety of staff, contractors, and visitors with regards to potential unidentified contamination. The objective of the unexpected finds procedure is to describe procedures minimising exposure of all site users to possible contamination at the site through the development and implementation of the management systems outlined herein. It is the responsibility of the site owner to ensure that each time an action is undertaken, that the action is recorded and signed off.

Typical indicators of contamination include but are not limited to:

- unusual odours;
- stained soil;
- sheens on soil or water;
- unusual colours;
- crystalline or powdery substances;
- presence of drums
- fragments of asbestos containing material; and,
- underground storage tanks.

In the interests of ensuring worker health and safety, and protection of the environment, any unexpected findings should be handled with care including segregation of the area from general site workers and the public and obtaining specialist advice on the handling and disposal of the material.

Where unexpected finds are encountered, the following management measures shall be immediately conducted:

- Cease any further ground disturbance in the area of the find(s).
- Do not remove or unnecessarily disturb the area of the find(s).
- The discoverer of the find(s) will notify workers in the immediate vicinity of the find(s) so that work can be temporarily halted.
- The site owner will be informed of the find(s), including details regarding the location and nature of the find.
- Notify authorities needed to obtain emergency response for any health or environmental concerns (e.g. fire brigade).

- Notify any of the authorities that the site owner is legally required to notify (e.g. NSW EPA, Council).
- Restrict access to the area via placement of barricades to ensure that the area of the find(s) is adequately marked as a no-go area for workers and machinery or further disturbance and that the potential for accidental impact is avoided.
- Where feasible, ensure that any excavation/area of disturbance remains open so that the finds can be recorded and verified. Excavation/area of disturbance may be backfilled if this is necessary to comply with work safety requirements. An excavation/area of disturbance that remains open should only be left unattended if it is safe and adequate protective fencing is installed around it.

Following the immediate response outlined above a contingency plan is to be implemented. The contingency plan for the site should generally include:

- Suitably qualified environmental consultant (or occupational hygienist as appropriate) is to inspect the issue of concern and determine the nature of the issue and the appropriate approach to assessing or managing the issue.
- The environmental consultant (or occupational hygienist as appropriate) is to undertake an assessment considered necessary to determine the management strategy for the area. Assessment of occupational, public and environmental risk should be considered, particularly potential explosive or toxic gases, toxic chemicals and buried unexploded ordnance.
- If unexpected contamination is found and remediation action is considered necessary, a remediation strategy for the area is to be prepared by the environmental consultant.
- Excavated material is to be placed back into the excavation or removed from the site. Any material to be removed from site must be placed in labelled skip bins or stockpiled as instructed by the environmental consultant and tested for subsequent disposal to a licenced facility.

Development works in the area of the find(s) may re-commence, if and when outlined by the management strategy, developed in consultation with, and approved by the environmental consultant.

Table 5.1 Management controls

| MANAGEMENT CONTROL | PERSON RESPONSIBLE |
|---|--------------------|
| MAINTENANCE AND MONITORING | |
| Visual inspection of capping | |
| <ul style="list-style-type: none"> — All surfaces of the site (paved and unpaved) must be visually inspected every 6 months for breaches in containment. The inspection should document the condition of the grass surface or soil cover/planting and also record if any orange geofabric is visible. <ul style="list-style-type: none"> — Grass in good condition Y / N — Evidence of soil erosion Y / N — Orange geofabric visible Y / N — Where deterioration of the grass cover or soil surface/planting is recorded corrective landscape works should be undertaken within a 3-month period. — Where a breach is observed that may result in exposure to residual soil, repairs are to be conducted as soon as practicable. | Site owner |
| Maintenance of capping | |
| <p>General capping detail</p> <p>Landscaped areas at the site are summarised below.</p> <p><u>Vegetative areas (excluding Northern Batter)</u></p> <ul style="list-style-type: none"> — basal layer of permeable coloured synthetic geotextile material (overlying existing soils); overlain by — capping layer comprising validated soil and surficial layer (general minimum 300 mm thickness) of mulch. <p><u>Northern Batter</u></p> <ul style="list-style-type: none"> — basal capping layer comprising validated soil (overlying existing soils); overlain by — erosion matting layer; overlain by — surficial layer (approximately 100 mm thickness) of mulch. <p><u>Pavement</u></p> <ul style="list-style-type: none"> — The pavement capping comprises an impervious layer of concrete. A geotextile layer was not installed below concrete pavement. | Site owner |

| MANAGEMENT CONTROL | PERSON RESPONSIBLE |
|---|--|
| <p>Maintenance</p> <ul style="list-style-type: none"> Where additional material is required to maintain the capping layer, additional certified virgin excavated natural material (VENM¹) or excavated natural material (ENM) shall be imported to the site. If the imported fill requires testing to validate it as suitable, samples should be collected by a suitably qualified environmental consultant and analysed for heavy metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAHs), organochlorine and organophosphate pesticides (OCPs and OPPs), polychlorinated biphenyls (PCBs), per- and poly-fluoroalkyl substances (PFAS) and asbestos. If VENM is imported to the site, 1 sample per 250 m³ or a minimum of 4 samples will be analysed per source site (whichever is greater). If more than 1,000 m³ is imported to the site, one additional sample shall be obtained per 1,000 m³. If ENM is imported to site the material will be tested in accordance with the NSW EPA resource recovery exemption for ENM. <p>Should additional material be required to be imported to the site for landscaping purposes (such as topsoil, mulch, compost, etc.), these materials should be tested to validate as suitable for the site use. Sampling should be conducted at a frequency consistent with Table 3 of NSW EPA (2022) <i>Contaminated Land Guidelines: Sampling design part 1 – application</i> for volumes <200 m³ and as per <i>Column 3 – Minimum number of samples for 95% UCL</i> of Table 4 NSW EPA (2022). Samples will be analysed for heavy metals, TRH, BTEXN, PAHs, OCPs and OPPs, PCBs, PFAS, asbestos, foreign materials and/or pathogen indicators (as required). Results will be compared to the applicable human health criteria outlined in the NEPM (2013), HEPA (2020) PFAS NEMP 2.0, NSW EPA <i>The compost order 2016</i> and/or Australian Standard 4454:2012 <i>Composts, soil conditioners and mulches</i>.</p> | |
| MINOR WORKS (landscaping, subsurface works unlikely to breach cap/marker layer) | |
| <p>During minor subsurface works the following tasks must be undertaken:</p> <ul style="list-style-type: none"> The site owner must inform all personnel who may undertake subsurface work that PAHs and asbestos may be present within soil across the site. The extent of the geotextile marker layer must be communicated to all personnel who may undertake subsurface works. A safe work method statement (SWMS) must be prepared for the work. Appropriate work health and safety measures must be developed and implemented to minimise risk of exposure to contamination. <p>The SWMS shall include the following contamination control measures (as a minimum):</p> <ul style="list-style-type: none"> employ confined space entry procedures for excavations and utility pits prior to entry; workers wear appropriate personal protective equipment (PPE), e.g. gloves, eye and respiratory protection, disposable overalls which should be worn and disposed of appropriately at completion of each work shift, and use of a boot wash; | <p>Site owner</p> <p>Maintenance workers</p> |

| MANAGEMENT CONTROL | PERSON RESPONSIBLE |
|---|--|
| <ul style="list-style-type: none"> — workers avoid creating dust (e.g. use of light water sprays, avoid working in hot and windy conditions). Where dust is unavoidable wear respiratory protection; — workers do not eat, drink, or smoke during works; — workers wash hands and face immediately after works; — brush/wash excavation tools at end of each work shift. Ensure surplus materials returned to stockpile areas and avoid spreading potentially contaminated materials across site; — waste materials are managed so as not to generate dust; — during excavation works (including stormwater system maintenance works) all soil/fill materials should be considered to be potentially contaminated with PAHs and asbestos irrespective of visual/olfactory observations; — all stockpiled soil/fill materials excavated from the site be placed on sealed ground with bunds and sediment retention measures put in place immediately after the stockpile is formed; and — potentially contaminated stockpiled soil must be sampled, assessed and classified for disposal off-site at an appropriately licensed waste facility by an approved contractor in accordance with the requirements of NSW EPA (2014) waste classification guidelines. | |
| MAJOR WORKS (major civil/utility works likely to breach cap/marker layer) | |
| <p>More stringent management requirements to those listed above are a possible requirement of the Planning Authority (e.g. Council) as part of the Development Application process. These requirements may include investigation or remediation of the PAH and asbestos contaminated soils.</p> | Maintenance workers |
| <p>Management controls for an observed breach of containment (hardstand or landscaped areas) will include immediate temporary cover of the affected area with clean material or geofabric (where practicable) and fencing off of the area. For repair of the containment/cap all subsurface maintenance controls are to apply.</p> <p>During any planned works on the site that breaches the cap it is important that the planning documentation be reviewed, and the progress and status on completion of the works should be inspected by the site owner or representative. The inspections are to be carried out on a daily basis during works and at completion of works. The inspector(s) shall note at least:</p> <ul style="list-style-type: none"> — Date and personnel on site; — Activities being undertaken; — That works are being undertaken in accordance with an approved SWMS; — Level of compliance with the SWMS; and | <p>Site owner</p> <p>Maintenance workers</p> |

| MANAGEMENT CONTROL | PERSON RESPONSIBLE |
|--|-----------------------------------|
| <p>— Condition of all environmental controls.</p> <p>In the event of a non-conformance this information will be documented, and corrective actions implemented in a timely manner. Where no issues are identified the record should be kept for reference purposes.</p> <p>Should contaminated material be disturbed, this material shall be disposed off-site under appropriate waste classification or be placed/maintained beneath the geotextile marker layer and/or hardstand cap. The marker layer and/or hardstand cap shall be subsequently reinstated as per the procedure outlined below.</p> <p>Upon completion of work that breaches the cap, validation of the containment/recapping shall be conducted by a suitably qualified environmental consultant. Records demonstrating that the re-capping has been adequately installed to the correct thickness and integrity shall be maintained these records should include details of material validation and location of the re-capping. The following steps must be followed:</p> <ol style="list-style-type: none"> 1 Temporarily cover and fence area; 2 Notify site owner; 3 Engage contractor to repair hardstand or capping; 4 Site owner to engage a suitably qualified environmental consultant if repair to capping (geofabric and clean soil) is required; 5 Contractor to engage surveyor if repair to capping (geofabric and clean soil) is required to demonstrate that a sufficient thickness of material has been reinstated; 6 Environmental consultant to provide validation letter to site owner; and 7 Site owner to inspect and document that all hardstand areas have been adequately reinstated. | |
| REPORTING REQUIREMENTS | |
| Annual capping inspection report to be provided to site owner. | Site owner Maintenance workers |
| Importation suitability report (as required) to be provide to site owner prior to material import. | Site owner Maintenance workers |

¹ The *Protection of the Environment Operations Act 1997* (POEO Act) defines virgin excavated natural material (VENM) as ‘natural material (such as clay, gravel, sand, soil or rock fines): (a) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities and (b) that does not contain any sulfidic ores or soils or any other waste, and includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved for the time being pursuant to an EPA Gazettal notice.’

6 INCIDENT AND EMERGENCY PROCEDURES

Emergency procedures will be detailed and explained at the start up induction for any works being undertaken. These will include:

- the name(s) of the first aider/s on site;
- the location of first aid kits and fire extinguishers;
- emergency procedure details for the site, including contact details for emergency services and the nearest hospital;
- site addresses details and map with route to nearest hospital highlighted; and
- location of the site assembly area.

6.1 INCIDENT/EMERGENCY RESPONSE

All unplanned events, irrespective how minor, shall be reported at the first opportunity to the site owner (and other parties where delegated by the site owner). In the event that an environmental incident occurs which results in non-compliance with environmental requirements the incident will be classified as an emergency.

Any pollution or other environmental incident which occurs should be immediately managed and contained as much as can be safely done. The severity of the incident should be assessed and notification made to the appropriate parties:

- The site owner (and other parties where delegated by the site owner) should be notified of all environmental incidents.
- Appropriate regulatory authorities, such as the NSW EPA, SafeWork NSW, Council etc., should be notified as required.

Emergency contacts are listed in Table 6.1.

Table 6.1 Emergency contacts

| PERSON/AGENCY | PHONE NUMBER |
|--|-----------------|
| Site owner (Transport for NSW) | 131 782 |
| EMERGENCY SERVICES | |
| Emergency | 000 |
| Police – non-emergency (Balmain Police Station) | +61 2 9556 0624 |
| Ambulance – non-emergency (Rozelle Ambulance) | +61 2 9320 7777 |
| NSW Fire and Rescue – non-emergency (Balmain Fire Station) | +61 2 9818 2348 |
| Balmain Hospital | +61 2 9395 2111 |
| OTHER | |
| Inner West Council | (02) 9392 5000 |
| SafeWork NSW | 13 10 50 |

6.2 COMPLAINTS AND ENVIRONMENTAL INCIDENT REGISTER

The receipt of complaints will be handled and responded to according to Transport for NSW policy.

The purpose of the complaints and environmental incident register is to maintain a register of complaints from nearby residents or concerned parties, which will include a record of any action taken with respect to the complaints.

The complaints and environmental incident register is required to be completed immediately following the receipt of any complaints associated with works undertaken at the site. Written complaints should be addressed or acknowledged within five days of the complaint being received. Complaints made by telephone or in person should be addressed or acknowledged within two days of receipt. Complaints and incidents will be forwarded to Transport for NSW.

A copy of the complaints and environmental incident register is included in Appendix C.

LIMITATIONS

SCOPE OF SERVICES

This environmental site assessment report (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and WSP (scope of services). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

RELIANCE ON DATA

In preparing the report, WSP has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, WSP has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WSP will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

ENVIRONMENTAL CONCLUSIONS

In accordance with the scope of services, WSP has relied upon the data and has not conducted any environmental field monitoring or testing in the preparation of the report. The conclusions are based upon the data and visual observations and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions.

Within the limitations imposed by the scope of services, the assessment of the site and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

REPORT FOR BENEFIT OF CLIENT

The report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party in relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

OTHER LIMITATIONS

WSP will not be liable to update or revise the report to take into account any events, emergent circumstances or facts occurring or becoming apparent after the date of the report.

The scope of services did not include any assessment of the title to nor ownership of the properties, buildings and structures referred to in the report, nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

APPENDIX A

FIGURES





Image source: SixMaps

Figure 1 – Site locality plan



Image source: nearmap (3 Oct 2023)

— Site boundary - - - DSI investigation area



Figure 2 – Site layout

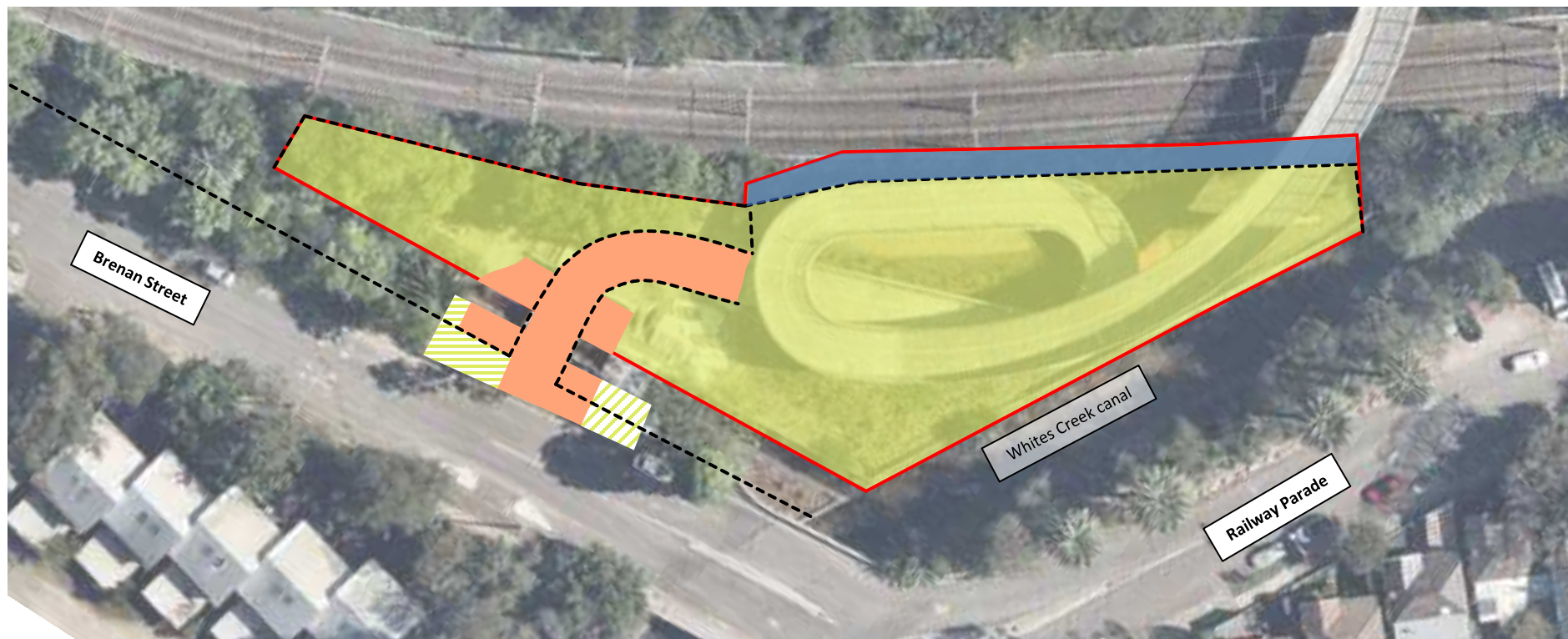


Image source: nearmap (3 Oct 2023)







- | | | |
|---|---|---|
|  Approximate site boundary |  Soil capping remediation area – northern batter (no geotextile) |  Hardstand sealed area |
|  Fencing/balustrade |  Geotextile and soil capping remediation area (massed planting) |  Landscaping only disturbed (reinstated to existing condition) |



Figure 3 – Site landform and remediation areas



Image source: nearmap (3 Oct 2023)

— Site boundary

⊗ Soil investigation location



Figure 4 – Locations of identified soil contamination during investigations

APPENDIX B

LTEMP INDUCTION REGISTER



B1 LTEMP INDUCTION REGISTER

The purpose of the induction register is to acknowledge acceptance and compliance with the procedures outlined within this LTEMP by signing the attached log. Copies of this document must be made available for review and be readily available at the job site.

The induction register is required to be completed by each person inducted into the LTEMP.

| DATE | PERSON | COMPANY | TASK/JOB | POSITION | SIGNATURE |
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APPENDIX C

COMPLAINTS AND ENVIRONMENTAL INCIDENT REGISTER



C1 COMPLAINTS AND ENVIRONMENTAL INCIDENTS REGISTER

| DATE & TIME | TYPE OF COMMUNICATION | NAME, ADDRESS, & CONTACT NUMBER OF COMPLAINANT | NATURE OF COMPLAINT | RESPONSE/ CORRECTIVE ACTION | DATE OF RESPONSE | DATE COMPLAINANT NOTIFIED OF RESPONSE TAKEN | SIGNATURE/ POSITION |
|-------------|-----------------------|--|---------------------|-----------------------------|------------------|---|---------------------|
| | | | | | | | |
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C2 NON-COMPLIANCE REGISTER

| DATE & TIME | DOCUMENTED BY | DETAILS OF NON-COMPLIANCE | DATE & TIME SITE OWNER NOTIFIED | OTHER PARTIES NOTIFIED | RESPONSE/ CORRECTIVE ACTION | DATE OF RESPONSE | DATE & TIME SITE OWNER NOTIFIED OF RESPONSE | SIGNATURE/ POSITION |
|-------------|---------------|---------------------------|---------------------------------|------------------------|-----------------------------|------------------|---|---------------------|
| | | | | | | | | |
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APPENDIX D

SUMMARY OF LTEMP REQUIREMENTS FOR MAINTENANCE WORKERS



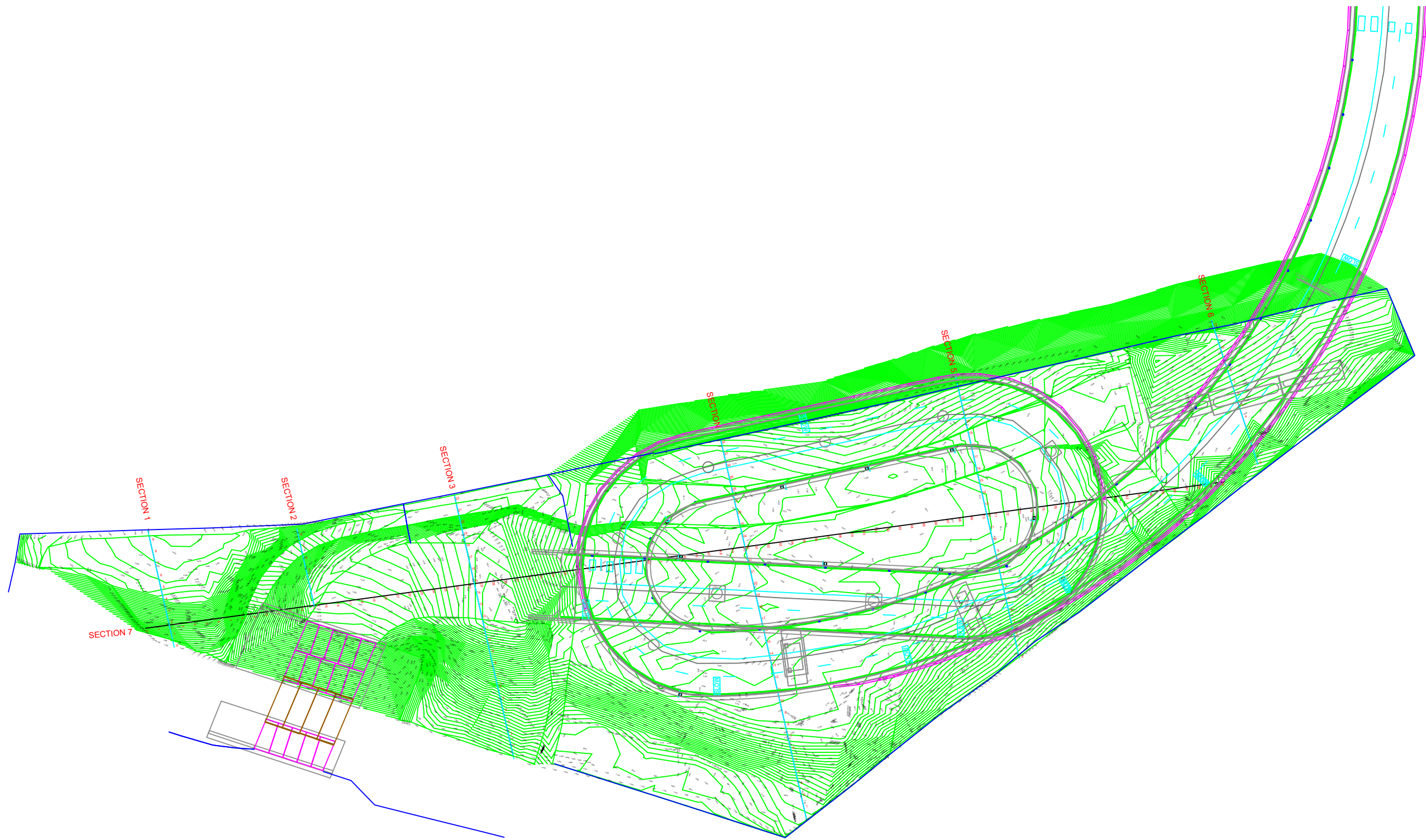
D1 SUMMARY OF LTEMP FOR MAINTENANCE WORKERS

| SUMMARY MANAGEMENT PLAN FOR MAINTENANCE WORKERS | |
|--|--------------------------|
| <u>MINOR WORKS (landscaping, subsurface works unlikely to breach cap/marker layer)</u> | |
| Including weeding, gardening, cleaning and general maintenance activities. | |
| No specific controls required, providing the works do not significantly disturb the surfacing and underlying fill materials, and do not break any hardstand or compromise surface covering in landscaped areas. | <input type="checkbox"/> |
| <u>MAJOR WORKS (major civil/utility works likely to breach cap/marker layer)</u> | |
| Including any activities that significantly disturb the surface ground cover and/or geotextile marker layer and expose the underlying fill materials, or break the hardstand surface or compromise surface covering in landscaped areas. | |
| Control measures are required to be implemented. | <input type="checkbox"/> |
| All site workers and subcontractors to complete a site induction through Transport for NSW prior to commencing any major works at the site. | <input type="checkbox"/> |
| During surface penetration Site personnel should use appropriate personal protective equipment (PPE) including: <ul style="list-style-type: none"> — Long sleeved shirt and long pants — P2 respirator or P2 dust mask — Protective gloves — Other PPE required under the WHS plan for the site works. | <input type="checkbox"/> |
| Implement good personal hygiene, including: <ul style="list-style-type: none"> — No eating, drinking, or smoking during works — Avoid contact with soil (wear gloves) — Wash hands and clothes after work — Wash hands before eating, drinking or smoking. | <input type="checkbox"/> |
| Implement dust control measures – this includes dampening of fill materials and any other exposed soil prior to and during excavation works. | <input type="checkbox"/> |
| Classify and dispose of any soils excavated from beneath the capping layer or any other surplus soils in accordance with the NSW EPA (2014) <i>Waste Classification Guidelines</i> . | <input type="checkbox"/> |
| Re-instate the geotextile and surface capping soils or hardstand surfaces following subsurface maintenance works. | <input type="checkbox"/> |
| Validate any imported fill materials required in accordance with NEPM (2013). | <input type="checkbox"/> |
| Transport for NSW representative contact details: Name: Position: Phone: E-mail: | |

APPENDIX E

SITE SURVEYS AND CROSS-SECTION

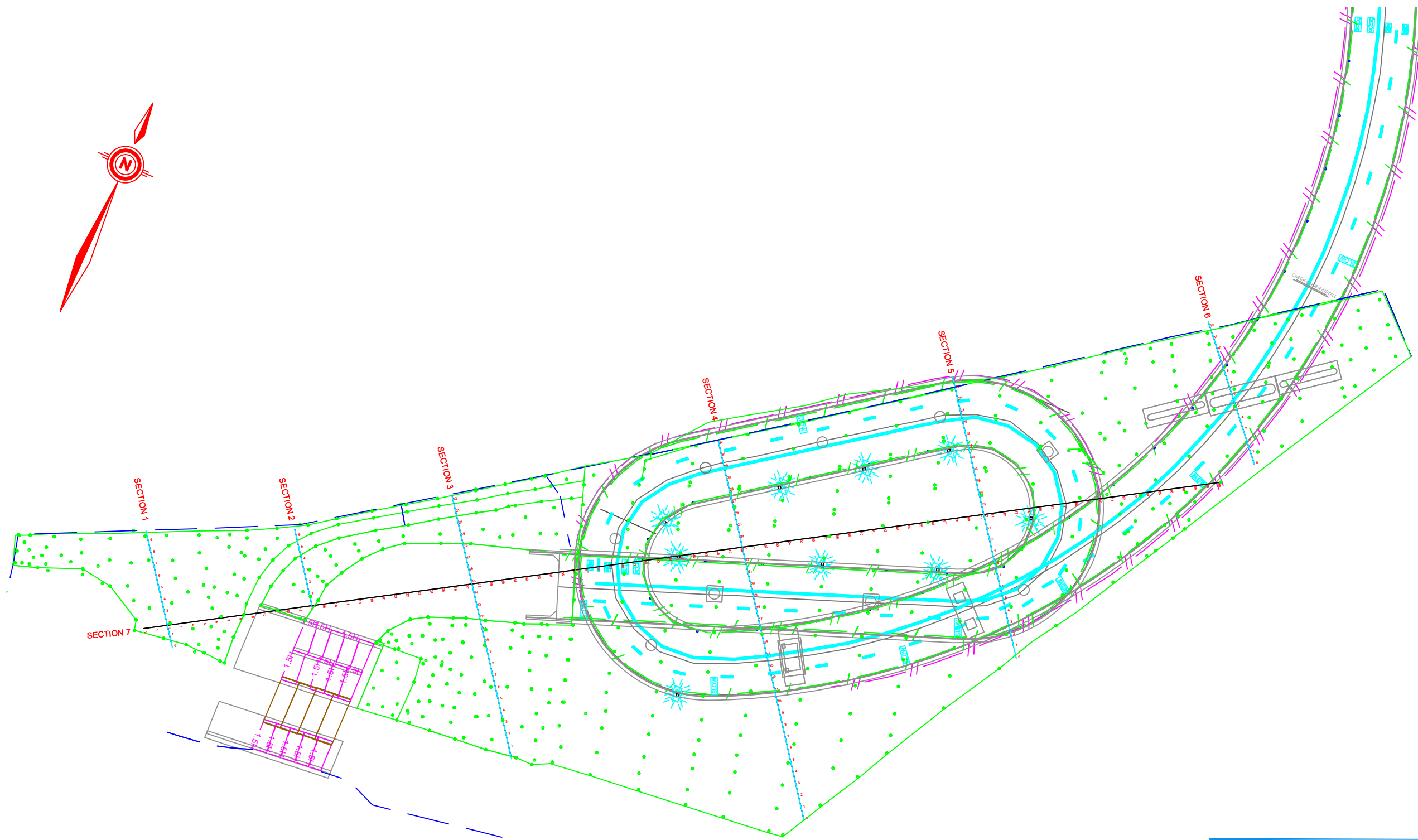




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| INSTRUMENT TYPE | | | | SURV | CWL | LSC | 00_20 | 24/11/23 | |
| SERIAL NUMBER | | | | TOPOGRAPHICAL PIGTAIL | | | | | |
| DATE OF SURVEY | | | | | | | | | |
| SIGNATURE | | | | | | | | | |
| | | | SHEET 2 of 2 | | | REVISION | | | |





TABLE

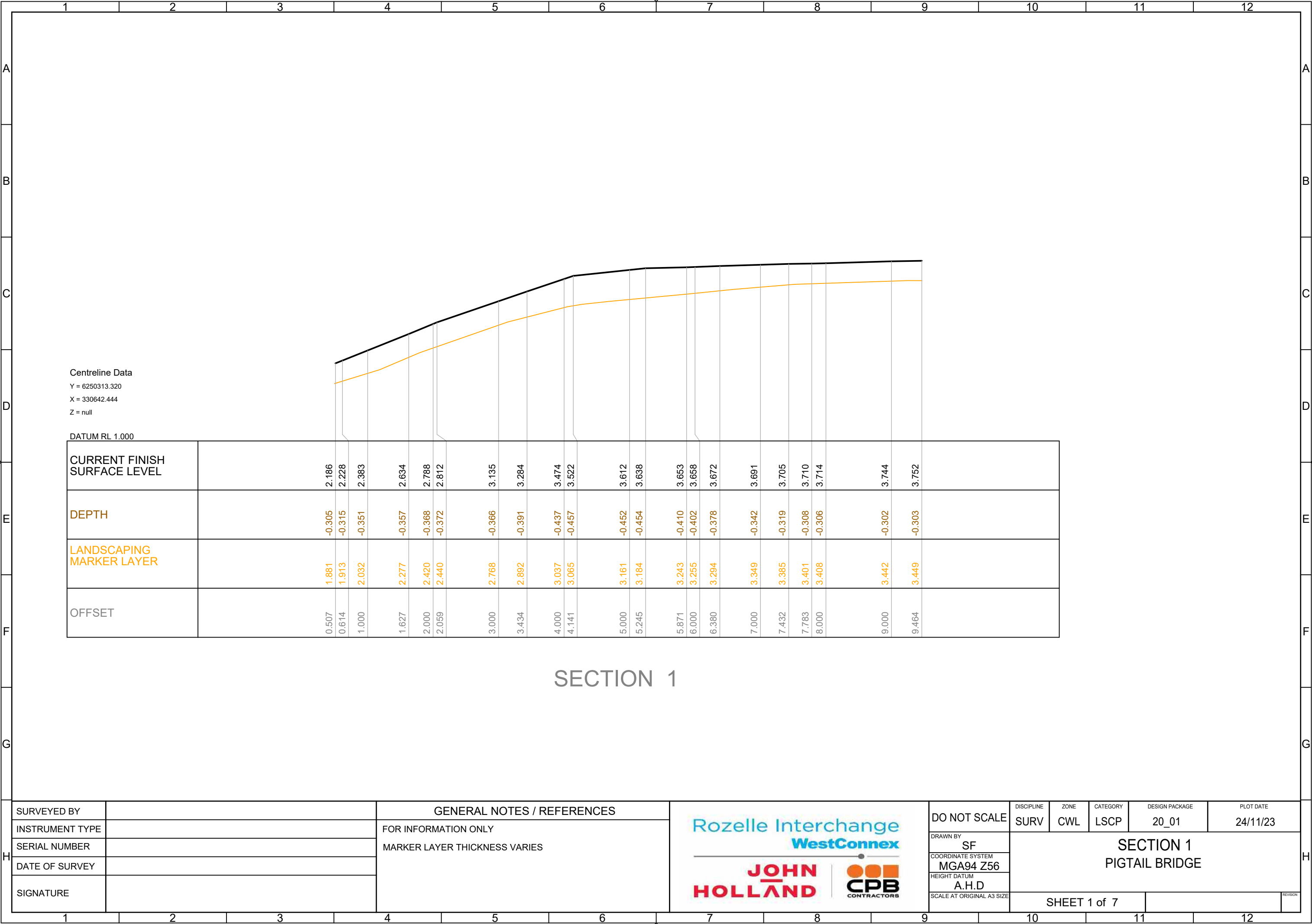
MARKER LAYER

FENCE LINE

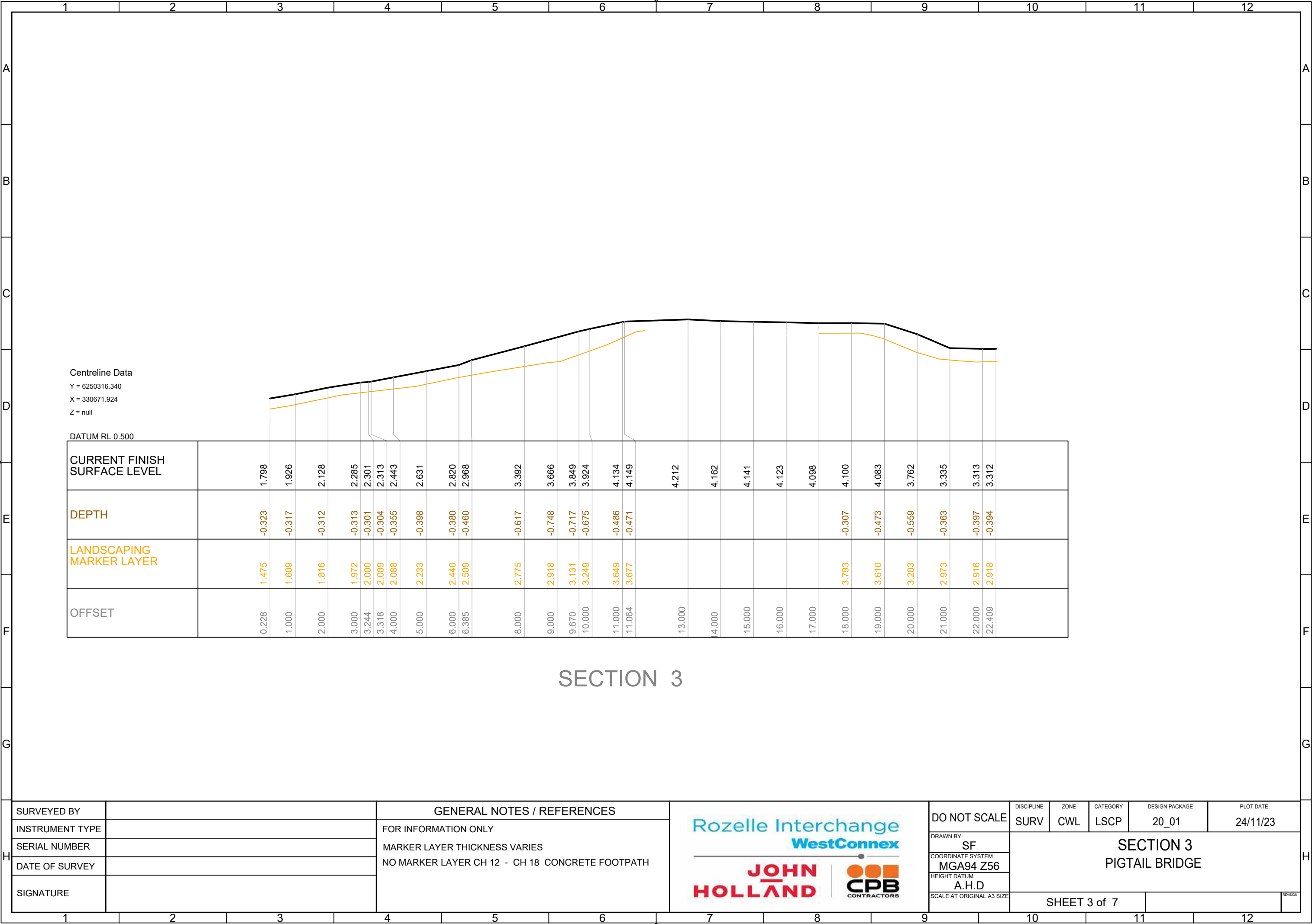
SUSPENDED LIGHT

| | | | | | | | | | | | |
|-----------------|--|--|--|------------------------------------|--------------------|-------------|-----------------|-------------------------|-----------------------|----------|--|
| SURVEYED BY | | GENERAL NOTES / REFERENCES FOR INFORMATION ONLY FOR : RP | <div><div>Rozelle Interchange</div><div>WestConnex</div><div></div><div>JOHN HOLLAND</div><div>CPB CONTRACTORS</div></div> | DO NOT SCALE | DISCIPLINE SURV | ZONE CWL | CATEGORY LSC | DESIGN PACKAGE 00_20 | PLOT DATE 24/11/23 | | |
| INSTRUMENT TYPE | | | | PLAN SECTIONS PIGTAIL BRIDGE | | | | | | | |
| SERIAL NUMBER | | | | | | | | | | | |
| DATE OF SURVEY | | | | | | | | | | | |
| SIGNATURE | | | | SCALE AT ORIGINAL A3 SIZE 1:350 | | SHEET 1 of | | 1 | | REVISION | |

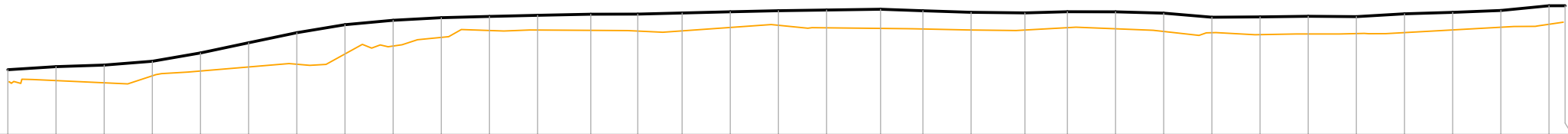
Plotted: SF PLOT1 at Thu Nov 23 15:27:58 2023



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| SURVEYED BY | | GENERAL NOTES / REFERENCES | | <div><div>Rozelle Interchange</div><div>WestConnex</div><div><div></div><div></div><div></div></div><div><div>JOHN HOLLAND</div><div>CPB CONTRACTORS</div></div></div> | DO NOT SCALE | DISCIPLINE | ZONE | CATEGORY | DESIGN PACKAGE | PLOT DATE |
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| SERIAL NUMBER | | | | | SECTION 1 PIGTAIL BRIDGE | | | | | |
| DATE OF SURVEY | | | | | | | | | | |
| SIGNATURE | | | | | | | | | | |
| | | FOR INFORMATION ONLY | | DRAWN BY SF | | | | | | |
| | | MARKER LAYER THICKNESS VARIES | | COORDINATE SYSTEM MGA94 Z56 | | | | | | |
| | | | | HEIGHT DATUM A.H.D | | | | | | |
| | | | | SCALE AT ORIGINAL A3 SIZE | | SHEET 1 of 7 | | | REVISION | |



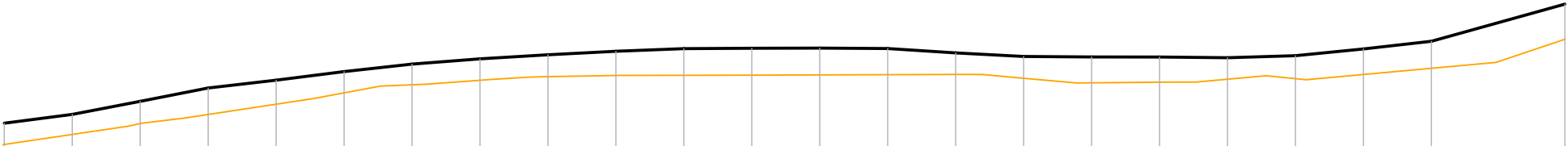
| | | | | | | | | | |
|-----------------|--|---|---|--------------------------------|-----------------------------|-------------|------------------|-------------------------|-----------------------|
| SURVEYED BY | | GENERAL NOTES / REFERENCES | <div><div>Rozelle Interchange</div><div>WestConnex</div><div></div><div><div>JOHN HOLLAND</div><div>CPB CONTRACTORS</div></div></div> | DO NOT SCALE | DISCIPLINE SURV | ZONE CWL | CATEGORY LSCP | DESIGN PACKAGE 20_01 | PLOT DATE 24/11/23 |
| INSTRUMENT TYPE | | FOR INFORMATION ONLY | | DRAWN BY SF | SECTION 3 PIGTAIL BRIDGE | | | | |
| SERIAL NUMBER | | MARKER LAYER THICKNESS VARIES | | COORDINATE SYSTEM MGA94 Z56 | | | | | |
| DATE OF SURVEY | | NO MARKER LAYER CH 12 - CH 18 CONCRETE FOOTPATH | | HEIGHT DATUM A.H.D | | | | | |
| SIGNATURE | | | | SCALE AT ORIGINAL A3 SIZE | SHEET 3 of 7 | | | | REVISION |



| Offset | Landscaping Marker Layer | Depth | Current Finish Surface Level |
|--------|--------------------------|--------|------------------------------|
| 0.000 | | | 2.346 |
| 1.000 | 2.097 | -0.312 | 2.409 |
| 2.000 | 2.074 | -0.368 | 2.442 |
| 3.000 | 2.219 | -0.302 | 2.521 |
| 4.000 | 2.319 | -0.374 | 2.693 |
| 5.000 | 2.403 | -0.502 | 2.904 |
| 6.000 | 2.459 | -0.654 | 3.113 |
| 7.000 | 2.672 | -0.606 | 3.279 |
| 8.000 | 2.836 | -0.534 | 3.370 |
| 9.000 | 3.015 | -0.409 | 3.424 |
| 10.000 | 3.150 | -0.300 | 3.450 |
| 11.000 | 3.168 | -0.305 | 3.473 |
| 12.104 | 3.161 | -0.335 | 3.496 |
| 13.079 | 3.147 | -0.352 | 3.498 |
| 14.000 | 3.150 | -0.371 | 3.521 |
| 15.000 | 3.221 | -0.325 | 3.546 |
| 16.000 | 3.266 | -0.302 | 3.568 |
| 17.000 | 3.214 | -0.369 | 3.563 |
| 18.121 | 3.202 | -0.397 | 3.599 |
| 19.000 | 3.190 | -0.378 | 3.567 |
| 20.000 | 3.168 | -0.367 | 3.535 |
| 21.118 | 3.168 | -0.355 | 3.523 |
| 22.000 | 3.217 | -0.330 | 3.547 |
| 23.000 | 3.194 | -0.351 | 3.545 |
| 24.000 | 3.138 | -0.379 | 3.518 |
| 25.000 | 3.113 | -0.321 | 3.433 |
| 26.000 | 3.072 | -0.368 | 3.440 |
| 27.000 | 3.086 | -0.367 | 3.453 |
| 28.000 | 3.094 | -0.351 | 3.446 |
| 29.000 | 3.115 | -0.390 | 3.504 |
| 30.000 | 3.170 | -0.364 | 3.534 |
| 31.000 | 3.226 | -0.347 | 3.573 |
| 32.000 | 3.287 | -0.384 | 3.671 |
| 32.334 | | | 3.672 |
| | | | |

SECTION 4

| | | | | | | | | | | |
|-----------------|--|----------------------------|---|-------------------------------|-------------------|-----------------------------|----------|----------------|-----------|--|
| SURVEYED BY | | GENERAL NOTES / REFERENCES | <div><div><div>Rozelle Interchange</div><div>WestConnex</div></div><div><div><div>JOHN HOLLAND</div></div><div><div>CPB CONTRACTORS</div></div></div></div> | DO NOT SCALE | DISCIPLINE | ZONE | CATEGORY | DESIGN PACKAGE | PLOT DATE | |
| INSTRUMENT TYPE | | | | FOR INFORMATION ONLY | SURV | CWL | LSCP | 20_01 | 24/11/23 | |
| SERIAL NUMBER | | | | MARKER LAYER THICKNESS VARIES | DRAWN BY | SECTION 4 PIGTAIL BRIDGE | | | | |
| DATE OF SURVEY | | | | | SF | | | | | |
| | | | | | COORDINATE SYSTEM | | | | | |
| | | | MGA94 Z56 | | | | | | | |
| | | | HEIGHT DATUM | | | | | | | |
| | | | A.H.D | | | | | | | |
| SIGNATURE | | | SCALE AT ORIGINAL A3 SIZE | SHEET 4 of 7 | | | | REVISION | | |

CURRENT FINISH
SURFACE LEVEL

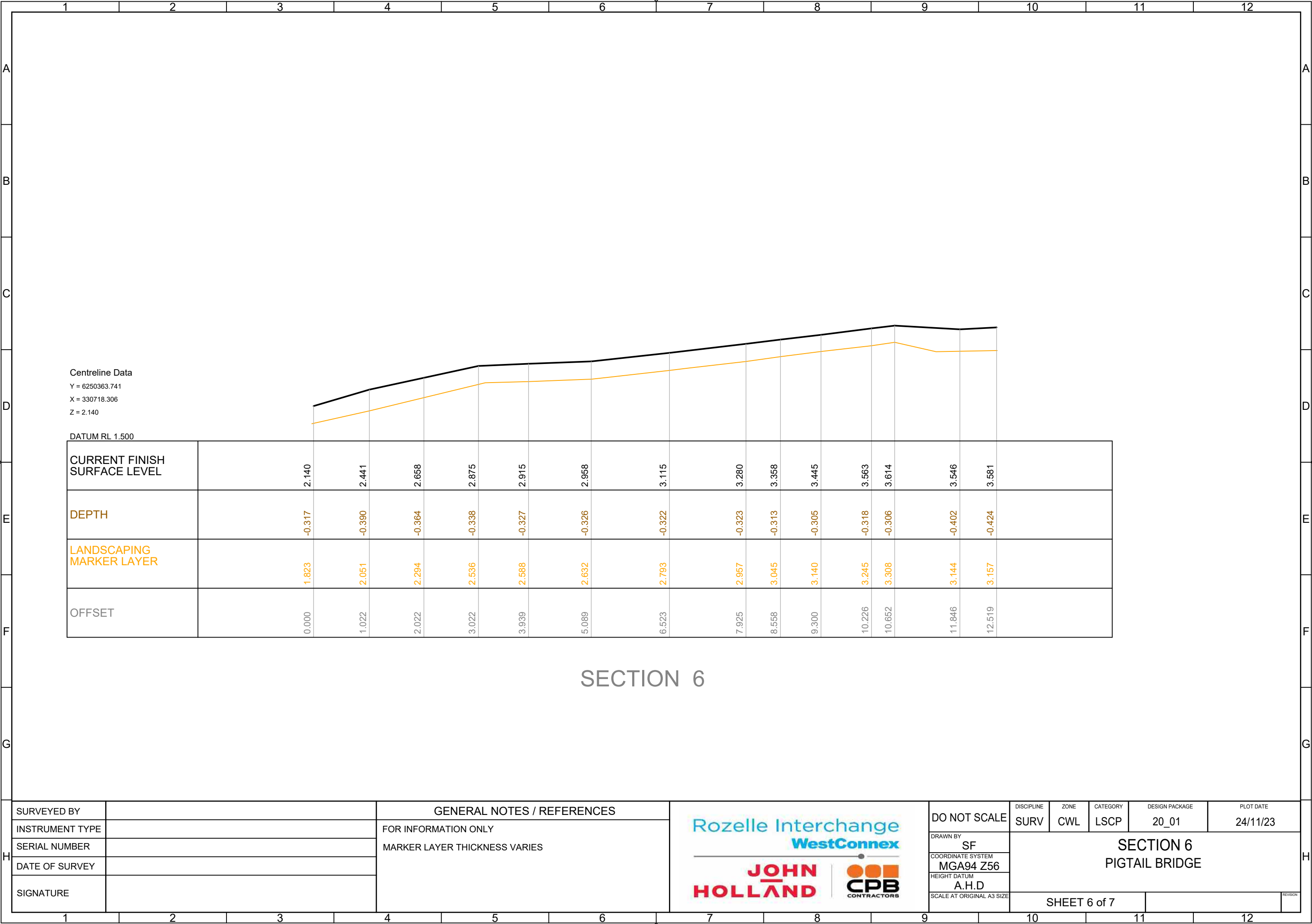
14

1

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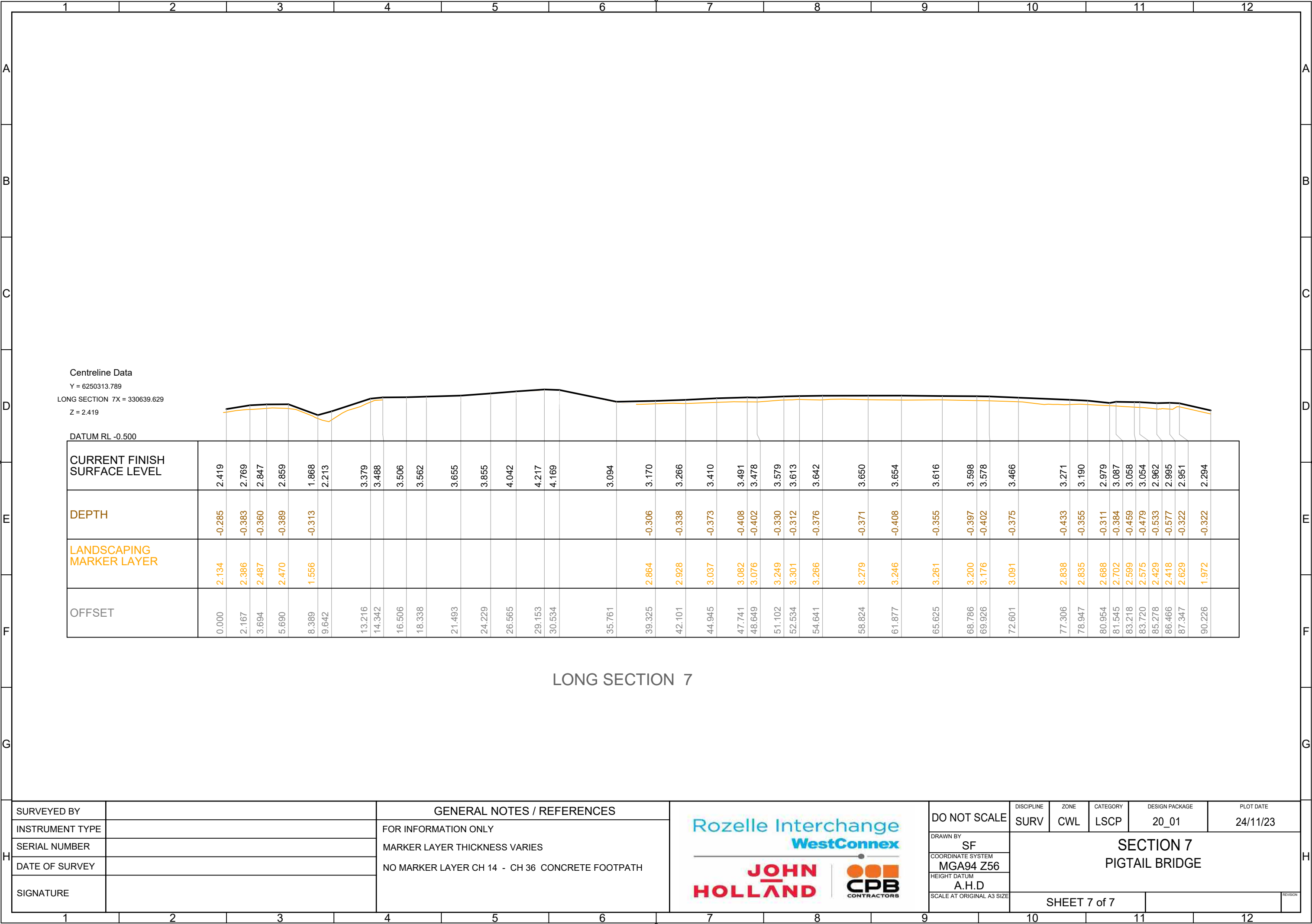
SECTION 5

| | | | | | | | | | |
|-----------------|--|-------------------------------|---|-------------------|-----------------------------|------|----------|----------------|-----------|
| SURVEYED BY | | GENERAL NOTES / REFERENCES | <div><div>Rozelle Interchange</div><div>WestConnex</div><div></div><div><div>JOHN HOLLAND</div><div>CPB CONTRACTORS</div></div></div> | DO NOT SCALE | DISCIPLINE | ZONE | CATEGORY | DESIGN PACKAGE | PLOT DATE |
| INSTRUMENT TYPE | | FOR INFORMATION ONLY | | DRAWN BY | SURV | CWL | LSCP | 20_01 | 24/11/23 |
| SERIAL NUMBER | | MARKER LAYER THICKNESS VARIES | | SF | SECTION 5 PIGTAIL BRIDGE | | | | |
| DATE OF SURVEY | | | | COORDINATE SYSTEM | | | | | |
| | | | | MGA94 Z56 | | | | | |
| SIGNATURE | | | HEIGHT DATUM | | | | | | |
| | | | A.H.D | | | | | | |
| | | | SCALE AT ORIGINAL A3 SIZE | SHEET 5 of 7 | | | | | REVISION |



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| | | | | | | | | | | |
|-----------------|--|----------------------------|--|---|---|-----------------------------|---------------------------|------------------|-------------------------|-----------------------|
| SURVEYED BY | | GENERAL NOTES / REFERENCES | | <div><div>Rozelle Interchange</div><div>WestConnex</div><div><div></div><div>JOHN HOLLAND</div></div><div><div></div><div>CPB CONTRACTORS</div></div></div> | DO NOT SCALE | DISCIPLINE SURV | ZONE CWL | CATEGORY LSCP | DESIGN PACKAGE 20_01 | PLOT DATE 24/11/23 |
| INSTRUMENT TYPE | | | | | DRAWN BY SF | SECTION 6 PIGTAIL BRIDGE | | | | |
| SERIAL NUMBER | | | | | COORDINATE SYSTEM MGA94 Z56 | | | | | |
| DATE OF SURVEY | | | | | HEIGHT DATUM A.H.D | | | | | |
| SIGNATURE | | | | | FOR INFORMATION ONLY MARKER LAYER THICKNESS VARIES | | SCALE AT ORIGINAL A3 SIZE | SHEET 6 of 7 | | |



1 INTRODUCTION AND OBJECTIVES

Mr Brad May, a Site Auditor accredited under the Contaminated Land Management Act 1997 (CLM Act) (Accreditation Number 1603) and an employee of Epic Environmental Pty Ltd (Epic), was commissioned by John Holland CPB Joint Venture (JHCPB JV) to provide the services of NSW EPA Accredited Site Auditor (Site Auditor), where required under the project's State Significant Infrastructure (SSI) approval, for land to be used for construction of the WestConnex (WCX) Stage 3B Rozelle Interchange.

The purpose of the commission is to meet the requirements of Clauses E181 to E183 of SSI Approval (No. 7485) for the WestConnex M4-M5 Link Project (Rozelle Interchange) regarding the provision of Site Audit Report (SAR) and Site Audit Statement (SAS) for land identified to be contaminated regarding suitability for the land's specified use.

The purpose of this document is to present a Site Audit Report (SAR) and Site Audit Statement (SAS) for land known as Pigtail Bridge (herein referred to as the site), including independent review of the environmental assessment reports listed in **Section 1.3 certifying that the land is suitable for its intended use, subject to compliance with an environmental management plan (i.e. Section A2 SAS).**

The site has the project designation of Pigtail Bridge RY01 and is located to the south of the Rozelle Interchange area of the WestConnex project that supports a pedestrian bridge abutment and structure that allow public access from Annandale to the Rozelle Parkland. The site location and boundary are shown in **Figure F1**, in the Figures section of this report. Further background to the audit, including NSW EPA accredited Site Auditor and the scope of the site audit, is provided in **Sections 2 and 3**. This SAS and SAR relate to the property identified in **Section 4**.

JHCPB have advised that apart from a pedestrian bridge, the site will include landscaped areas that will not be publicly accessible. However, access will be required for grounds and site maintenance workers.

Site audit details are provided in **Section 3** and are summarised in **Table 1**.

Table 1. Audit summary table

| Aspect | Details |
|----------------|---|
| Audit number | 2023/SY036 |
| Site address | Brenan Street, Lilyfield |
| Objectives | The objective of this SAR is to present independent review confirming that the site is suitable for its intended uses (refer Table 4) subject to compliance with an environmental management plan (i.e., Section A2 SAS). |
| Audit boundary | As shown Figure F1 |

1.1 Overview of Site Audits

The site audit has been conducted in accordance with the requirements of the Contaminated Land Management (CLM) Act 1997. The CLM Act describes a site audit as:

A review:

- a) *that relates to management (whether under this Act or otherwise) of the actual or possible contamination of land, and*
- b) *that is conducted for the purpose of determining any one or more of the following matters:*
 - i. *the nature and extent of any contamination of the land;*
 - ii. *the nature and extent of any management of actual or possible contamination of the land;*
 - iii. *whether the land is suitable for any specified use or range of uses;*
 - iv. *what management remains necessary before the land is suitable for any specified use or range of uses*
 - v. *the suitability and appropriateness of a plan of management, long-term management plan or a voluntary management proposal.*

In NSW, the site assessment and site audit process include the following:

1. The contaminated land consultant, or other relevant party, designs and implements the site assessment and, where required, all remediation and validation activities to achieve the stated objectives
2. The site auditor independently reviews the works undertaken to ensure that they comply with current regulations, standards and guidelines, and that the site has been assessed, remediated and validated to a standard appropriate to the proposed landuse.

Section 53B of the CLM Act describes that site audits conducted by NSW EPA accredited site auditors must:

- Contain a critical review of the information collected in relation to the site audit and must clearly set out the reasons for the findings proposed to be contained in the relevant site audit statement;
- Be undertaken in compliance with the provisions of the CLM Act and the CLM Regulations;
- Be in accordance with the guidelines made or approved by the EPA
- Have regard to the provisions of any environmental planning instruments applying to the site.

1.2 Guidelines Made or Approved by the NSW EPA

Guidelines made by EPA that are applicable to this audit are:

- Department of Environment and Conservation NSW (DEC NSW) (March 2007) 'Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination'. DEC NSW, Sydney NSW
- NSW Environment Protection Authority (NSW EPA) (December 2020), 'Underground Petroleum Storage Systems - Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019', NSW EPA Sydney NSW
- NSW EPA (August 2022) 'Sampling design part 1 – application'. Contaminated Land Guidelines. NSW EPA, Sydney NSW
- NSW EPA (August 2022) 'Sampling design part 2 – interpretation'. Contaminated Land Guidelines. NSW EPA, Sydney NSW
- EPA (June 2005) Contaminated Sites: Guidelines for Assessing Former Orchards and Market Gardens. NSW EPA, Sydney
- NSW EPA (October 2017), 'Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd edition)', NSW EPA, Sydney NSW
- NSW EPA (December 2019), 'Assessment and Management of Hazardous Ground Gases – Contaminated Land Guidelines', NSW EPA, Sydney NSW
- NSW EPA (November 2014) 'Waste Classification Guidelines – Part 1: Classifying Waste'. NSW EPA, Sydney, NSW
- NSW EPA (April 2020), 'Consultants reporting on contaminated land – Contaminated land guidelines', NSW EPA, Sydney NSW
- NSW EPA (September 2015) 'Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997'. NSW EPA, Sydney
- NSW EPA (October 2016) 'Addendum to the Waste Classification Guidelines (2014) – Part 1: classifying waste'.

Guidelines approved by the EPA are:

- NEPC (1999) National Environment Protection (Assessment of Site Contamination) Measure, Schedule A and Schedules B(1)-B(10), amended April 2013. National Environment Protection Council, Adelaide (ASC NEPM (2013))
- Australian and New Zealand Governments (ANZG) (2018), 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, August 2018)
- Australian Drinking Water Guidelines, NHMRC and Natural Resource Management Ministerial Council of Australia and New Zealand (2011)

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3, Primary Industries - Rationale and Background Information (ANZECC & ARMCANZ (October 2000)
- Department of Health and Ageing and EnHealth Council (2012) 'Environmental Health Risk Assessment: Guidelines for Assessing Human Health Risks from Environmental Hazards'. Commonwealth of Australia, Canberra
- Lock, W. H., (1996) "Composite Sampling", National Environmental Health Forum Monographs, Soil Series No. 3. SA Health Commission, Adelaide
- The Heads of EPAs Australia and New Zealand (HEPA), 'PFAS National Environmental Management Plan', Version 2.0 (Jan 2020).

Technical notes made by the EPA are:

- Department of Environment, Climate Change and Water NSW (NSW DECCW) (2010), 'Vapour Intrusion: Technical Practice Note. (Ref. 2010/774). NSW DECCW, Sydney
- NSW EPA (April 2014a) 'Best Practice Note: Landfarming'. NSW EPA, Sydney
- NSW EPA (January 2010) 'UPSS Technical Note: Decommissioning, Abandonment and Removal of UPSS'. NSW EPA, Sydney
- NSW EPA (January 2010), 'UPSS Technical Note: Site Validation Reporting', NSW EPA Sydney
- EPA (August 2015), 'Technical Note: Light Non-Aqueous Phase Liquid Assessment and Remediation'. NSW EPA, Sydney.

Further technical documents referenced by EPA are:

- Beck, P & Mann, B (2010). 'A technical guide for demonstrating monitored natural attenuation of petroleum hydrocarbons in groundwater', CRC CARE Technical Report no. 15, CRC CARE, South Australia
- Clements, L, Palaia, T & Davis, J (2009) 'Characterisation of sites impacted by petroleum hydrocarbons: National guideline document', CRC CARE Technical Report no. 11. CRC CARE, South Australia
- CRC CARE (2015) 'Technical Report No. 34. A practitioner's guide for the analysis, management and remediation of LNAPL'. CRC CARE, South Australia
- Johnston, CD (2010) 'Selecting and assessing strategies for remediating LNAPL in soil and aquifers', CRC CARE Technical Report no. 18, CRC CARE, South Australia.

1.3 Referenced Reports

The following reports were referenced or reviewed as part of the development of this SAR:

- ERM (2002), 'Stage 1 and Stage 2, Brenan Street Lilyfield, Environmental Site Assessment' (reference only).
- Coffey (2003), 'Additional Environmental Investigations at Brenan Street, Lilyfield NSW' (reference only)
- AECOM (2016), 'WestConnex M4-M5 Link Tranche 1 and Tranche 2 Factual Contamination Assessment' (reference only),
- Ramboll (2019), 'WestConnex Stage 3B – Rozelle Interchange Contaminated Land – Sampling and Analysis Plan', (SAQP), Revision D2, August 2019, (Ramboll SAQP 2019), Appendix H: Site Specific SAQP – RY01
- WSP 2020, 'Work Plan- Sub Site Area- Pigtail (Former RY01)', 20 March 2020 (Ref: PS117368-CLM-LTR-WP-RY01 RevC.
- WSP 2021, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Detailed Site Investigation', 17 March 2021 (Ref: PS117368-CLM-REP-PT RevC, Final).
- WSP 2022, 'WestConnex Stage 3B – Rozelle Interchange – Sub-Site Area Pigtail Bridge – Remediation Approach', 2 December 2022 (Ref: PS117368-CLM-MEM-Pigtail_RevE)
- WSP 2023a, 'WestConnex Stage 3B – Import Material Validation Sampling and Inspection', 1 June 2023. (Ref: PS124861-CLM-LTR-SAQP RevD)

- WSP 2023b, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Validation Report', 30 November 2023 (Ref: PS117368-CLM-REP-Pigtail VAL RevC)
- WSP 2023c, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Long Term Environmental Management Plan', 29 November 2023 (Ref: PS117368-CLM-REP-Pigtail EMP RevC)

1.4 Site Audit Report Format

The report format for this SAR is summarised in **Table 2**:

Table 2. Site audit report format

| Section | Aspects |
|-------------------|--|
| Section 2 | Audit limitations – scope and limitations of the site audit |
| Section 3 | Site audit details – basic details of the audit, including requirement and background to the audit, site auditor, audit team, meetings and correspondence |
| Section 4 | Site identification and surrounds – details the site identification and landuse and summarises the surrounding landuse and potentially sensitive human health and environmental receptors. |
| Section 5 | Environmental setting – details the desktop study of the environment at and around the site, including published soils and geological information. |
| Section 6 | Site history and activities– summarises the site history and previous activities conducted on the site |
| Section 7 | Contaminants of concern and assessment criteria – summarises the potential contaminants of concern based on-site history, the relevant environmental media and the environmental criteria used in the assessment of the site. |
| Section 8 | Site assessment program – summarises the investigations conducted at the site. Includes the objectives and scope, methodology and an assessment of the data usability based on the field and laboratory quality assurance and quality control (QA/QC). Assessment results – summarises the subsurface conditions and the analytical results from the investigations described in Section 9. |
| Section 9 | Field and analytical assessment results – Review of assessment results against relevant adopted criteria and summarises the consultant's conclusions of the assessment results described. Evaluation of the Conceptual Site Model. |
| Section 10 | Site conceptual model – discusses the site conceptual model, including relationship between sources, exposure pathways and receptors and potential for data gaps |
| Section 11 | Site status – discusses the potential environmental risk, potential for offsite migration, relevant regulatory issues and whether audit objectives have been met. |
| Section 12 | Site assessment results – Review of assessment results against relevant adopted criteria and summarises the consultant's conclusions of the assessment results described. Evaluation of the Conceptual Site Model. |

2 AUDIT LIMITATIONS

This site audit relates only to those matters relevant to the Contaminated Land Management Act 1997, which describes that “The general object of this Act is to establish a process for investigating and (where appropriate) remediating land areas where contamination presents a significant risk of harm to human health or some other aspect of the environment”. The SAS and SAR do not seek to provide an opinion regarding other aspects of the environment not related to site contamination, or to the suitability of the site in regard to:

- landuse planning and legal use of the land; and/or
- the occupational health and safety legislation; and/or
- the suitability of any engineering design.

By definition, site auditing involves the review and critique of consultants’ and contractors’ work, including, amongst others, site histories, site surveys, subsurface investigations, chemical and physical analyses, and risk assessments and modelling. Accordingly, Epic relies on the experience, expertise and integrity of the relevant organisations. The information sources referenced have been used to determine site history and local subsurface conditions. While Epic has used reasonable care to avoid reliance on data and information that is inaccurate or unsuitable, Epic is not able to verify the accuracy or completeness of all information and data made available.

Sampling and chemical analysis of environmental media are based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements and site history, not on sampling and analysis of all media at all locations for all potential contaminants.

Limited environmental sampling and laboratory analyses were undertaken as part of the investigations reviewed by Epic, as described herein. Ground conditions between sampling locations may vary, and this should be considered when extrapolating between sampling points. Except at each sampling point, the nature, extent and concentration of contamination is inferred only. Furthermore, the test methods used to characterise the contamination at each sampling point are subject to limitations and provide only an approximation of the contaminant concentrations. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history, and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this site audit are based on the available information at the time of the investigations.

As environmental sampling is based on achieving suitable sampling densities, rather than sampling all media at all locations, and analysis is based on-site histories and likely contaminants of concern, rather than analysis of all media at all locations for all potential contaminants, the absence of any identified hazardous or toxic materials at the site should not be interpreted as a warranty or guarantee that such materials do not exist at the site. Therefore, future work at the site which involves subsurface excavation should be conducted based on appropriate management plans. These should include, inter alia, environmental management plans, including unexpected findings protocols, hazardous building materials management plans, and occupational health and safety plans.

3 SITE AUDIT DETAILS

3.1 Site Audit

This SAR relates to Audit Number 2023/SY036 notified to the NSW EPA on the 08 November 2023.

3.2 Site Auditor

The EPA contaminated land accredited site auditor who has conducted this site audit was Brad May, EPA Accreditation Number 1603.

3.3 Audit Independence

As per Section 54 of the CLM Act, the Site Audit is to avoid conflicts of interest. The Site Auditor confirms that:

- there is no relation to a person by whom any part of the land is owned or occupied, and
- there is no pecuniary interest in any part of the land, or any activity carried out on any part of the land, or
- the site auditor is not reviewing any aspect of work carried out by, or a report written by, the site auditor or a person to whom the site auditor is related.

3.4 Technical Support

Assistance to the audit was provided by Epic staff. No external technical assistance apart from the audit support team was relied upon for this site audit.

3.5 Background to the Site Audit

The M4-M5 link mainline tunnels form part of the WestConnex Stage 3 works and include a new multi lane road link connecting the M4 East project at Haberfield with the New M5 project at St Peters. The JHCPB JV has been engaged to construct Stage 3B of the project, which includes the new Interchange at Rozelle and Iron Cove Link. The Rozelle Interchange is located between Lilyfield Road to the north, City West Link and The Crescent to the south, Victoria Road to the east and the Southeast Light Rail Maintenance Depot to the west. The Iron Cove link is located on Victoria Road, to the south of Iron Cove Bridge. A map showing locations of Rozelle Interchange and Iron Cove Link properties is provided in **Appendix A** (Ramboll SAQP 2019: Figure 1 and Figure 2, Dwg Nos: F001 and F002, Ver 1).

The purpose of the Site Audit is to meet the Contaminated Sites Clauses E181 to E183 of SSI 7485. Clauses E181 to E185 require:

Contaminated sites

E181 A Site Contamination Report, documenting the outcomes of Phase 1 and Phase 2 contamination assessments of land upon which the CSSI is to be carried out, that is suspected, or known to be, contaminated must be prepared by a suitably qualified and experienced person in accordance with guidelines made or approved under the *Contaminated Land Management Act 1997* (NSW).

E182 If a **Site Contamination Report** prepared under **Condition E181** finds such land contains contamination, a site audit is required to determine the suitability of a site for a specified use. If a site audit is required, a **Site Audit Statement** and **Site Audit Report** must be prepared by a NSW EPA Accredited Site Auditor. Contaminated land must not be used for the purpose approved under the terms of this approval until a **Site Audit Statement** is obtained that declares the land is suitable for that purpose and any conditions on the **Site Audit Statement** have been complied with.

E183 A copy of the Site Audit Statement and Site Audit Report must be submitted to the Secretary and relevant council for information no later than one (1) month prior to the commencement of operation.

E184 An Unexpected Contaminated Land and Asbestos Finds Procedure must be prepared and must be followed should unexpected contaminated land or asbestos be excavated or otherwise discovered during construction.

E185 The Unexpected Contaminated Land and Asbestos Finds Procedure must be implemented throughout construction.

To address the above, Ramboll were engaged by JHCPB JV in August 2019 to conduct a data gap analysis of existing contaminated land assessments and develop an ‘overarching’ Sampling, Analysis and Quality Plan (SAQP) for all of the properties that comprise the WCX Stage 3B Rozelle Interchange. The data gap analysis was largely based on the Stage 1 Preliminary Site Investigation of the Rozelle Interchange site carried out by AECOM for Sydney Motorway Corporation (SMC) in 2016 (AECOM, 2016).

As part of this work, Ramboll assessed and categorised each construction impacted property as low, moderate or high-risk with respect to site contamination. The sites that were categorised as moderate or high risk were considered to warrant further investigation to assess contamination risk and requirement for management and / or remediation. The SAQP included (in the SAQP Appendices B to Q), individual SAQPs for each identified moderate to high-risk site.

WSP were subsequently engaged (in March 2020) to prepare refined SAQPs for each moderate to high-risk site to be assessed and to carry out and report on the assessment and subsequent management/ remediation and validation of each site.

This Site Audit forms one of a number of separate Audits for the WestConnex 3B project prepared specifically with reference to the Audit area identified in **Section 4.2** (Site Identification) and as shown in **Figure F1**. Other areas of the site requiring Audit are being assessed and reported separately depending on the specific end use and expected final site configuration.

This SAR has been prepared to address the site previously known as ‘Brenan Street’ and currently referred to as ‘Pigtail Bridge’, with designation RY01. The site was categorised as a moderate risk site by Ramboll (2019), based on previous assessment including site history and limited sampling and analysis. Site history review indicated this site was used for industrial purposes including manufacture and assembly of prefabricated building products and plastic as well as a car repair shop.

3.6 Audit Meetings and Site Inspections

Project meetings and site inspections for the Pigtail Bridge site were conducted by the Site Auditor with JHCPB representatives, on the following dates:

- Site meeting inspection on 2 December 2020 completed by the Site Auditor – Brad May
- Site inspection on 17 March 2021 completed by the auditor’s assistant – Gary Bagwell
- Site inspection on 14 April 2023 completed by the Site Auditor – Brad May
- Site ‘walk past’ on 11 July 2023 completed by the auditor’s assistant – Gary Bagwell.
- Site inspection on 10 August 2023 completed by the Site Auditor – Brad May

At the time of the July 2023 site visit, the site was undergoing final capping and landscaping works, with completion details and validation of implemented remediation yet to be reported.

Photos taken during these inspections are included in the **Plates section** of the report. Key items of note during the site visits were:

- The site was fenced, with access from Brenan Street (all visits)
- The site was flat with exposed fill materials, with no pavements or vegetation (December 2020)
- Geofabric had been laid out over parts of the site (March 2021)
- Stockpiled soil and fill were located on site (December 2020)

- During all inspections, construction activities were taking place.

3.7 Site Audit Correspondence

The following Interim Audit Advice (IAA) reports were completed prior to the completion of this SAR to support development process:

- Interim Audit Advice #4 for Statutory Site Audit SY010. Review of SAQP for WestConnex Stage 3B Rozelle Interchange – RY01, RY02, and RY05 (Rozelle Railway Yard), 21 February 2020
- Interim Audit Advice #9A for Statutory Site Audit SY12/SY180068.01/9. Review of WSP Work Plan – Sub Site Area – Pigtail Bridge/ RY01 for WestConnex Stage 3B Rozelle Interchange, 12 May 2020
- Interim Audit Advice #15B for Statutory Site Audit SY012/ SY180068.01. Review of WSP Detailed Site Investigation – Sub Site Area – Pigtail Bridge/ RY01 for WestConnex Stage 3B Rozelle Interchange, 17 May 2021 (final endorsement letter)
- Interim Audit Advice #42 for Statutory Site Audit SY12/ SY180068.01. Endorsement of WSP Memo: 'Sub-Site Area Pigtail Bridge – Remediation Approach', comprising Part Lot 13 in DP 1256361, Brenan Street Lilyfield, NSW for WestConnex Rozelle Interchange, 13 January 2023.
- Interim Audit Advice #62 for Statutory Site Audit RY01/ SY180068.01. Review of WSP report 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Validation Report', 30 November 2023 (Ref: PS117368-CLM-REP-Pigtail VAL RevC)
- Interim Audit Advice #63 for Statutory Site Audit RY01/ SY180068.01. Review of WSP report 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Long Term Environmental Management Plan', 29 November 2023 (Ref: PS117368-CLM-REP-Pigtail EMP RevC)

Interim audit advice supporting this SAR is included in **Appendix B**.

4 SITE IDENTIFICATION AND SURROUNDS

The site identification and land use details, including key information used to support the development of the conceptual site model, is provided in the following sub-sections. This information has been sourced from the Sampling, Analysis and Quality Plan (SAQP) (Ramboll, 2019), the WSP Site Work Plan (WP) (WSP, 2020) and Detailed Site Investigation (DSI) (WSP, 2021), site inspection as well as relevant published literature and land use information.

4.1 Location and Layout

The site location and boundary are shown in **Figure F1**, Figure F3 presents survey markers of the construction boundary. The site is located to the south of the Rozelle Interchange precinct of the WestConnex Stage 3B project and is bound by the Lilyfield tram line and City West Link Road to the north and Whites Creek stormwater culvert, Brenan Street and Railway Parade to the south as shown in **Figure F1**. The Whites Creek stormwater culvert forms the southern boundary of the site. The current site surface consists of exposed fill materials, with no pavements and minimal vegetation. Concept drawings showing the final site landform have been included in **Appendix C**.

4.2 Site Identification

Site identification details for the property are summarised in **Table 3**.

Table 3. Site identification

| Aspect | Description |
|-----------------------|--|
| Site name | RY01 – Pigtail Bridge |
| Street Address | Brenan Street, Lilyfield, NSW. Site location and boundary is shown in Figure F1 in the Figures section of this report. |
| Lot / Deposited Plan | Part Lot 13 in Deposit Plan (DP) 1256361 |
| Local Government Area | Inner West Council |
| Area | 3400 m ² |
| Zoning | Port and Employment Zone (Sydney Regional Environmental Plan No. 26 – City West) |
| Current Use | Construction site |
| Proposed Use | Rozelle interchange infrastructure including elevated road ramp, walkway and landscaped areas |

JHCPB LV have indicated that on completion of the construction activities the site will be fenced and landscaped and maintained by the operator and will not be publicly accessible. The presence of the stormwater channels on two sides and limited access from the remaining areas restricts the use of the site.

4.3 Adjacent Land Uses

The Site is situated within an area used for residential use with the following adjacent land uses:

- North: Tram line beyond which is City West Link Road and the Rozelle Interchange area of the WestConnex project, which is being developed as parkland
- East: Whites Creek and Railway Parade, with residential properties beyond
- South: Brenan Street and residential properties beyond, as well as the Whites Creek Valley Park
- West: Open space and tram line, beyond which is the City West Link Road

The nearest environmentally sensitive receptors include:

- Whites Creek as the primary surface water receptor
- Rozelle Bay approximately 300 m downgradient from the site

4.4 Site Audit Discussion

Site identification and surrounding environment has generally been provided in the consultant reports and checked. The information is consistent with the Site Auditor's understanding of the site and the surrounding environment observed during site inspections.

5 ENVIRONMENTAL SETTING

The desktop study of the site environmental setting is summarised in Ramboll (2019) and WSP (2021) including published soil and geological information. The following sections are based on the previous reports and the relevant published literature. Where discussed, the Auditor has supplemented or provided further comment on the relevant site information.

5.1 Local Meteorology

According to the Sydney (Observatory Hill) weather station pan evaporation exceeds rainfall in many months and, in practice, most of the rainfall is lost to evapotranspiration, with only a small proportion available for recharge of groundwater resources.

5.2 Topography and Drainage

WSP (2021) refers to Google Earth (2020), which indicates the elevation of the site ranging from approximately 4m Australian Height Datum (mAHD) in the west of the site, then slopes steeply down to approximately 2 mAHD at the eastern edge. However, in June 2020, the site had been levelled with imported crushed stone backfill to create a stable piling platform.

Surface runoff from the site is expected to flow to the southeast towards Whites Creek which flows into Rozelle Bay. An open channel stormwater drain is located adjacent to the southern site boundary which flows into Whites Creek.

5.3 Geology and Soils

Reference to the 1:100 000 Sydney Geological Sheet 9130 First Edition (Geological Survey of New South Wales, Sydney 1983) indicates the Site is underlain by silty to peaty quartz sand, silt and clay including ferruginous and humic cementation in places with common shell layers.

5.4 Hydrogeology

A search for registered groundwater wells within 500m radius of the site was undertaken by WSP (2021) via the Water NSW Groundwater Online Database. Results were confirmed by the Auditor on 22 January 2021. One groundwater bore used for monitoring purposes was identified within 500m of the site.

WSP notes that groundwater was measured between 2.352 m below top of casing (mBTOC) (GW01) and 2.899 mBTOC (GW03) during groundwater sampling conducted in April 2020. It is expected that groundwater would flow towards the east from the site. Previous investigations inferred groundwater flow to be east and southeast flow directions.

5.5 Site Condition and Environment

The site is currently a fenced construction area which had been cleared of vegetation. Several pieces of waste debris including bottles, plastic and timber were noted on the site surface at the time of the WSPs site walkover (March 2020). Excavations were also being undertaken for piling works across the site. WSP understood that all infrastructure associated to the car repair workshop has been demolished.

5.6 Site Audit Discussion

The information required by NSW EPA made or approved guidelines with regard to the desktop review of the environmental setting has been provided. The Auditor sourced and confirmed additional information where it was considered relevant to the audit outcomes. The information provided is consistent with the site audit's understanding of the site conditions and environment in the vicinity of the site.

6 SITE HISTORY AND ACTIVITIES

The site history is summarised based on information from AECOM (2016), Ramboll (2019) and WSP DSI (WSP, 2021).

6.1 Land Use Information

6.1.1 Historical Land Titles

A review of the historical land titles pertaining to the site was undertaken by Ramboll (2019) dating back to 1911. For the subject lot, Ramboll reported the site owner since 2000 as being State Rail Authority NSW and then Rail Corporation NSW. Historical title information for adjacent lots indicate that the site has likely been in railway department ownership. Or was Crown land, since at least 1911.

The review of historical land titles did not include information regarding lessees on the site.

6.1.2 Historical Aerial Photographs

Desktop historical aerial photograph review of the site and surrounding areas was undertaken by Ramboll (2019). Aerial photographs from 1930, 1943, 1951, 1961, 1965, 1970, 1982, 1991, 2000, 2007, 2014 and 2015 were obtained and reviewed.

Based on the aerial photograph review, Ramboll reported that 'the site and surrounding areas were likely used for a mix of commercial/industrial purposes as well as residential to the south since before 1930. The site was occupied by a building between 1961 and 1991 and appeared vacant and disused before 1961 and after 1991'.

6.1.3 Adjacent Land use Activities

Ramboll (2019) report that land uses surrounding the site have comprised of a mixture of residential land uses to commercial/industrial uses including rail use from about c.1930. Historical adjacent land uses have included the rail and light rail line corridor, City West Link (main road) and Rozelle Railyards to the north and west of the site. Historically, the Rozelle Railyards has included a large arrangement of warehouse/industrial buildings and rail sidings, which have been progressively demolished since about 1991.

Currently, the Rozelle interchange is being conducted on the former railyards site to the north, Lilyfield Light Rail Maintenance Depot is located approximately 100m northwest of the site and general residential land use is located to the south and east of the site.

AECOM (2016) indicated the following historical land-uses had been present to the south of the site:

- Australia Prestressing Factory – 50m
- Dry cleaners (Piper Street) – 205m
- Industrial zone (7 ha) – 550m

All of these sites were upgradient of the site and therefore have the potential to have impacted groundwater at the site.

The auditor also notes:

- The former historical railyards were located to the north and northwest of the site (past the City West Link)
- Lilyfield Light Rail Maintenance Depot is located approximately 400m west of the site on Lilyfield Road
- The former White Bay power station is located approximately 950m northeast of the site. Former historical railyards use (areas north to northwest of the City West Link).

The auditor considers that these as land uses were either downgradient or cross gradient of the site, the risk of groundwater contamination from these sites affecting the subject site is low.

6.2 Environmental Records

6.2.1 NSW EPA Contaminated Land Record

A search conducted by WSP (2021) of the NSW EPA contaminated land record of notices database established under section 58 of the Contaminated Land Management Act 1997 did not reveal any records for the site or immediately surrounding land. A search undertaken by the auditor also found no records for the site, or for any site within 500 m of the site.

6.2.2 Protection of the Environment Operations Act 1997 Public Register

A search of the public register established under section 308 of the Protection of the Environment Operations Act 1997 was undertaken by WSP (2021). The site is not listed to have previously or currently hold any Environment Protection Licenses (EPLs). Apart from EPLs granted for construction of the WestConnex project, nearby (within 1km) sites are not listed as currently holding EPLs.

6.3 Chemical Use and Storage

6.3.1 Dangerous Goods

A search of the NSW SafeWork Dangerous Goods database was undertaken by Ramboll in May 2019. The search indicated that no previous or current licenses to keep Dangerous Goods have been granted for the site.

6.3.2 PFAS and Surrounding Impacts or Use

While WSP did not discuss the occurrence of PFAS in the site history during this site investigation, it was included in the soil and groundwater assessment at the site (discussed in **Section 10**).

6.3.3 Incidents and Spills

No information regarding any incidents or spills at the site was provided in the previous reports.

6.4 Services and Utilities

A 'Dial Before You Dig Search' was not provided in the WSP report. A 'Dial Before You Dig Search' was completed by the auditor on 22.01.2021 which identified that Ausgrid, Optus, RailCorp Central, TPG, Telstra, NBN, Sydney Water and Jemena Gas lines have, or previously have entered the site.

6.5 Site Audit Discussion

AECOM (2016), Ramboll (2019) and WSP DSI (WSP, 2021) presented site history information from the following sources:

- Historical aerial imagery (from 1930, 1943, 1951, 1961, 1965, 1970, 1982, 1991, 2000, 2007, 2014 and 2015)
- Historical chain of titles from 1911
- SafeWork NSW Dangerous Good License Database
- NSW EPA online registers of regulatory notices under the Contaminated Land Management Act 1997 (CLM Act) and Protection of the Environment Operations Act 1997 (POEO Act).

AECOM reports that the site was used residential purposes from about 1867 to 1911 and was likely filled in the early 1900s following this use. The site was vacant until the site was leased in the 1950s.

AECOM further reported that the site was used for industrial purposes including manufacture and assembly of prefabricated building products in the 1950s, plastic manufacturing dye and tool making in the 1960s to 1980s. From 1992 until 1997 the site was used as a car repair shop. From 1961, a large shed was located in the centre of the site, with a smaller shed located in the western portion. The buildings containing asbestos cement sheeting were demolished in 1997. Following 1997, the site has remained vacant and unused.

AECOM (2016) summarised the results of a stage 1 and 2 environmental site assessment carried out by environmental consultants ERM in 2002. ERM observed the site to contain waste materials including asbestos containing material (ACM) sheeting, gas cylinders, car parts, empty paint tins, brick and rubble. At that time, the site was unused and overgrown with vegetation.

Ramboll (2019) included historical aerial photograph review and review of historical certificates of title for the site. Information reviewed by Ramboll was consistent with the site history reported by AECOM. Ramboll also undertook a search of the SafeWork NSW dangerous goods licenses database, which did not locate any records pertaining to the site. Based on this information and site observation, the probability that underground storage tanks remain on the site is considered to be low.

WSP supplemented the known site history by undertaking and reporting an online search of NSW EPA public registers on 07 May 2020. The searches identified that the site and nearby surrounding properties (within 1km radius) were not listed under the Contaminated Land Management Act 1997 (CLM Act). The site is not listed to have previously held an Environment Protection Licence (EPL) under the Protection of the Environment Operations Act 1997 (POEO Act). Apart from the WestConnex Rozelle Interchange project which currently holds an EPL, no nearby sites are listed to currently hold EPLs under the POEO Act.

The Auditor has reviewed historical aerial photography available via Nearmap and can confirm that the redevelopment timeline presented by WSP is consistent with the historical aerial photography record.

The Auditor notes that some information was not provided in the desktop site history review, but which is listed in NSW EPA made or approved guidelines (particularly the ASC NEPM Field Checklist 'Site Information' sheet). This information includes interviews with former owners/ occupiers, details of previous site buildings and structures, chemical/ fuel storage areas and specific details of manufacturing processes conducted on site. However, the Auditor considers that this information is likely unobtainable, given the time that has elapsed since the site has become unused (i.e 24 years). While this information is unobtainable, it is not considered to be material to the outcomes of the assessment and the Audit.

WSP reports that in June 2020, the site was levelled with imported crushed sandstone backfill to create a stable piling platform. The piling platform was reported to be approximately 1.0m to 1.5 m above original ground level with clayey sand material with sandstone cobbles (crushed sandstone from Tunnel Site C).

The information provided is consistent and agrees with the site audit inspections and understanding of the site and is considered sufficient for the purposes of the site audit.

7 CONTAMINANTS OF CONCERN AND ASSESSMENT CRITERIA

7.1 Contaminants of Potential Concern

Based on the documented site history, the potential contaminants of concern were identified by WSP (2021) as follows:

- Asbestos
- Total recoverable hydrocarbon (TRH) and benzene, toluene, ethylbenzene and xylenes (BTEX)
- Polycyclic aromatic hydrocarbons (PAHs)
- Heavy metals
- Polychlorinated biphenyl (PCBs)
- Phenols
- Organochlorine and organophosphorus pesticides (OCP and OPPs)
- Volatile and semi-volatile organic compounds (VOC and SVOCs), and
- Per- and poly-fluoroalkyl substances (PFAS)

7.2 Soil Assessment Criteria

The Site Auditor has assessed soil data provided by WSP with reference to criteria from the National Environmental Protection Council (NEPC) *National Environmental Protection (Assessment of Site Contamination) Measure 1999*, as amended 2013 (ASC NEPM).

WSP (2021) have stated that the site will comprise public open space with a pedestrian path and footbridge. However, JHCPB have indicated that the site will be used for road infrastructure with landscaped areas, which will not be generally publicly accessible. However, access will be required for maintenance workers.

As a conservative approach, WSP have screened soil analytical results against criteria for both open space and commercial industrial land-use. The Auditor considers this to be an acceptable approach, given that site access controls may change in the future or that unauthorised access to the site may occur.

Following from the above, the following Tier 1 (screening) criteria were referred to.

- Human Health Assessment:
 - Health Based Investigation Levels (HIL C) - as the end use of the site is considered to most closely approximate public open space use.
 - Health Based Investigation Levels (HIL D) - considering that a large portion of the site is to be paved (as footpath and roadway turning circle), WSP has also screened soil results against both HIL-C (public open space) criteria and HSL-D (commercial /industrial) criteria for assessment of potential risks.
 - Asbestos Health Screening Levels – Recreational C, as the most conservative scenario based on proposed development.
 - Health Screening Levels (HSL C and HSL D) - for soil vapour intrusion (assumed depth to source <4 m and sand). WSP has screened soil results against both HL-C criteria and HSL-D criteria for assessment of potential risks.
- Terrestrial Ecological Assessment
 - Ecological Investigation Levels (EILs) – for urban residential and public open space. Site specific EILs were calculated based on site specific criteria (analysed for pH, CEC and clay content).
 - Ecological Screening Levels (ESL C) for petroleum hydrocarbon compounds applicable to urban residential/ open space land use. ESLs were selected assuming coarse soils (sand) at 0m to 2m depth.
- Aesthetics
 - The auditor has considered the need for assessment based on 'aesthetic' considerations as outlined in the ASC NEPM (2013).
- PFAS compounds
 - Criteria from the NEMP 2.0 2020 were adopted (Public Open Space)

- Management Limits (MLs) for petroleum hydrocarbons applicable to residential, parkland and public open space assuming coarse soils.

7.3 Groundwater Assessment Criteria

The Auditor has assessed the groundwater data provided by WSP with reference to the following Tier 1 (screening) criteria:

- Groundwater Investigation Levels (GILs) listed in the ASC NEPM for protection of aquatic ecosystems. The GILs are based on the following guidelines:
 - ANZG 2018, 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality', 2018
 - NHMRC 2011, 'Drinking Water Guidelines', 2011.

Trigger values (TVs) provided are concentrations that, if exceeded, may indicate environmental risk at the point of use and 'trigger' further investigation. The marine water 95% protection levels were adopted.

- Hydrocarbon levels in groundwater were also assessed against the ASC NEPM (2013) Health Screening Levels (HSLs) for vapour intrusion, applicable to both public open space (HSL C) and commercial industrial (HSL D) land uses
- PFAS NEMP 2.0 2020 99% species protection was also adopted to conduct Tier 1 PFAS risk assessment for groundwater.

7.4 Site Audit Discussion

Based on site inspections, the site history, and the results of the site investigations, the auditor considers that the contaminants of concern and assessment criteria proposed are generally appropriate and consistent with EPA made and approved guidelines.

8 SITE ASSESSMENT PROGRAM

The primary site investigation report reviewed for this audit was WSP (2021), which included review of previous assessment information particularly ERM (2002), Coffey (2003) and AECOM (2017).

8.1 Summary of Previous Works Completed

The table below provides a summary of the investigation, remediation, validation and management works that have taken place at the site (summarised from WSP 2021).

Table 4. Summary of previous works completed (from WSP 2021)

| Report and date | Report objectives, scope and outcomes |
|--|---|
| ERM (2002), Stage 1 and Stage 2, Brenan Street Lilyfield, Environmental Site Assessment | <p>Assessment objectives are unstated but are assumed to assess the extent of contamination in soil and groundwater at the site. At total of eleven borehole locations were carried out, with four locations undertaken in a 20 x 20 metre grid pattern and five locations targeting areas of concern. Two additional sampling locations were also undertaken along the northern extent of the site. Three boreholes were converted into groundwater monitoring wells to assess potential groundwater impacts and assess the direction of groundwater flow at the site. The report provided the following key outcomes:</p> <ul style="list-style-type: none"> • Fill material was encountered in all boreholes, with depth of fill ranging from 0.45m to 2.0m below ground level (bgl). Natural materials were encountered at all locations comprising yellow, fine-grained sand or grey/brown medium clay. • Brick, concrete, glass and wood fragments were noted in surface fill material in six sample locations, with slag and ash material noted in three locations. • Concentrations of lead and polycyclic aromatic hydrocarbons (PAHs) exceeded the applied human health residential (HIL- A) criteria (300 mg/kg and 300 mg/kg respectively). The elevated concentrations of lead were generally identified in the near surface fill material and elevated concentrations of PAHs were identified in all sample locations, except at one location. Asbestos as chrysotile was detected in two of the 11 soil samples analysed. • Groundwater flow was gauged to be in an easterly to south-easterly direction. • In groundwater, TPH, BTEX, PAHs, OCPs, OPPs, PCBs and VHCs were identified at concentrations which were either less than criteria or less than laboratory detection limits. Concentrations of copper and zinc exceeded the ANZECC (2000) criteria and ERM concluded the source of the copper and zinc may be the fill material or from past uses of the site. |
| Coffey (2003), Additional Environmental Investigations at Brenan Street, Lilyfield NSW | <p>Assessment objectives are unstated, however appear to be to assess the extent of zinc and copper contamination in soils as a supplementary assessment to ERM (2002). Scope of works included six test pits for soils assessment, excavated to depths varying from 2.7m to 3.1m bgl. Three samples (two fill and one natural) were analysed for zinc and copper, with one sample from each test pit subject to leachability testing. The report provided the following key outcomes:</p> <ul style="list-style-type: none"> • Fill was comprised of silty sand, clayey sand, gravelly clay, clay, with some gravel and rubble including bricks, concrete, glass pieces, sandstone fragments, wood, etc. and was encountered from surface to depths varying from 0.7m to 1.5m bgl across the site. The fill was underlain by fine to coarse grained, yellow, sand with some shell and fragments, to depths varying from 1.2 to 2.6m bgl and then by silty clay, grey / black, of low plasticity, with some organics and rootlets, interlaced with some clayey sand and shell horizons. Water inflow into the test pits, was observed at depths ranging from 1.5m to 2.0m bgl. • No petroleum or chemical odours were observed within the pits; however, a hydrogen sulfide odour was observed in three of the pits, likely associated with natural acid sulfate soils. • Copper concentrations in soils were all below 1,000 mg/kg, which is well below the health investigation residential (HIL-A) criteria of 6,000 mg/kg. Copper exceeded the applied provisional phytotoxic based investigation level of 100 mg/kg in three of the nine fill samples. • Zinc concentrations in soils were all below 7,000 mg/kg, which is below the health investigation residential (HIL-A) criteria of 7,400 mg/kg. Zinc exceeded the applied provisional phytotoxic based investigation level of 200 mg/kg in five of the nine fill samples. |

| | |
|---|---|
| | <ul style="list-style-type: none"> • Zinc leachate concentrations were below DAF (dilution-attenuation factor) modified trigger values; however, copper exceeded the DAF modified trigger value in one of the twelve samples analysed. • Groundwater samples from onsite groundwater wells recorded copper concentrations between 2µg/L in one well and 3µg/L in the two other wells. All of these results exceeded the ANZECC (2000) trigger value for marine water (95% conservation of species) for copper of 1.3µg/L. • Zinc concentrations in groundwater ranged between 13µg/L in the upgradient well and 14µg/L in the two downgradient wells. All of the results were below the ANZECC (2000) trigger value for marine water (95% conservation of species) for zinc of 15µg/L. |
| AECOM (2017), WestConnex M4-M5 Link Tranche 1 and Tranche 2 Factual Contamination Assessment | <p>AECOM Australia Pty Ltd (AECOM) were commissioned to carry out combined geotechnical and contamination investigations for all of the WestConnex M4-M5 Link project. The scope of work included:</p> <ul style="list-style-type: none"> • Drilling of two boreholes to depths of 50m bgl and 8.5m bgl respectively, drilled along the southern boundary of the site. • Soil sampling and analysis of two samples from one borehole and one sample from the other borehole. • Installation of a nested well in the deep well, with one well installed to 25m bgl and shallow well installed to 8m bgl. One well installed to a depth of 8.2m bgl in the other borehole. • Groundwater sampling and testing from the three wells. <p>The following outcomes were provided:</p> <ul style="list-style-type: none"> • One borehole was drilled to a depth of 50m bgl and encountered fill material consisting of a fine to coarse grained dark brown, grey sand underlain by alternating layers of sand (medium to coarse grained, dark brown) and clays (grey to light grey). Bedrock was encountered at 20m bgl and comprised a medium-grained, light brown sandstone. A nested groundwater well was installed with one installation to a depth of 25m below ground level and a shallower installation to a depth of 8m bgl. • The other borehole was drilled to a depth of 8.5m bgl and encountered a sandy gravel fill material (to a depth of approximately 0.8m bgl) underlain by alternating layers of sand (medium to coarse grained, dark brown) and clays (grey to light grey). Bedrock was not encountered. A groundwater well was installed to a depth of 8.2m bgl. • Two soil samples from one location (TC_BH01) recorded exceedances of urban residential and public open space environmental investigation levels for copper and zinc and one exceedance recorded for benzo(a)pyrene. Two exceedances of TRH C16 – C34 urban residential and public open space ESLs was also recorded. Concentrations of OPPs and PCBs were below laboratory detection limits. • One soil sample was analysed from the other location (TC_BH06) with no exceedances of assessment criteria noted. • One round of groundwater monitoring was undertaken on both wells, with samples analysed for metals, BTEX, total recoverable hydrocarbons (TRH), phenols, OPPs, phthalates and PCBs. No exceedances of groundwater assessment criteria were recorded. |

8.2 WSP Detailed Site Investigation WSP 2021

The objectives of the work carried out by WSP were to assess soil and groundwater conditions at the site by targeting potential sources of contamination identified in the Ramboll SAQP (Ramboll 2019) and subsequent WSP Work Plan (WSP 2020). The following scope of work was carried out:

- Site walkover to observe current site condition, local environmental context and surrounding land uses, potential contamination sources and visible evidence of potential contamination
- Drilling of eight (8) boreholes (BH01 to BH05 and BH101 to BH103) using drill auger methodology to a maximum depth of four (4) m below ground level (bgl)
- Drilling of one (1) soil bore for subsequent groundwater monitoring well installation (GW03) to a maximum depth of 6m bgl
- Shallow soil sampling of three (3) surface grab samples (SS01 to SS03) using a hand auger to a maximum depth of 0.3 m bgl
- Collection of soil samples at regular intervals from each borehole

- Development, purging and sampling from the two (2) existing groundwater wells (GW01 and GW02) as well as the newly installed groundwater well (GW03)
- Laboratory analysis of soil and groundwater samples at a National Association of Testing Authorities (NATA) accredited laboratory for identified contaminants of concern potential concern (COPC)
- Preparation of the DSI report that discusses the findings of the intrusive investigation, including identified risks and data gaps

Works were conducted by WSP over two mobilisations:

- 27 March 2020
- 23 to 24 July 2020

8.3 Sampling, Analytical Strategy and Methodology

The auditor has assessed the sampling and analysis program by reviewing information presented in the DSI, supplemented by field observations. The Auditor's assessment is presented in **Table 5**.

Table 5. Review of sampling and analytical strategy

| Sampling and analysis plan and sampling methodology | Auditor's opinion |
|--|---|
| <p>Sampling pattern, locations, density and depth</p> <p>Soil: A targeted soil sampling was undertaken by WSP to assesses identified areas of concern.</p> <p>Samples submitted for identified contaminants of concern. Targeted soil samples were collected as follows:</p> <ul style="list-style-type: none"> • 3 targeted locations to identify shallow impacts associated with uncontrolled filling (SS01 to SS03). • 2 targeted locations to assess the area beneath the former building (BH03 and BH05). • 2 targeted groundwater wells (GW01 and GW03) to assess the potential for off-site migration of contamination. • 1 targeted groundwater well (GW02) to assess the area beneath the former workshop building. | <p>The locations are considered adequate to address the identified data gaps.</p> <p>The groundwater sampling locations were considered adequate to provide updated information to assess up-gradient and downgradient groundwater quality.</p> |
| <p>Drilling and Well Construction</p> <p>Soil bores and groundwater wells were drilled using a hand auger or solid flight auger. WSP installed 1 new well (GW03) with a screen interval of 2.9 m bgl to 5.9 mBGL using 50 mm uPVC screen and casing with sand packs, bentonite seals and caps. The groundwater well was finished with a metal monument (approximately 1 metre high). GW03well was constructed so that groundwater intersected the screen interval.</p> <p>Section 7.5 of WSP (2021) describes the existing groundwater wells that were used in the DSI, named GW01 and GW02. Both of these wells were in locations considered to be suitable for groundwater assessment, however no information was found by WSP regarding the installation of these wells.</p> <p>Therefore, well construction and condition were inferred for each well using a down-well camera. WSP deemed the wells were usable, with the groundwater level within the screened level of each well and across appropriate lithology. The existing wells were purged by the removal of 10 x well volumes to remove sand /silt buildup, in conjunction with development of the new well.</p> | <p>Drilling and well construction details provided are adequate.</p> <p>All borelogs were provided, however well construction details were available for GW03 only. WSOP have provided information from downhole camera inspection of existing wells GW01 and GW02, indicating screened intervals consistent with the newly installed well GW03 and across appropriate geology and groundwater level. The Auditor has a good understanding of site geology and hydrogeology (from new well GW03 and other site borelogs) and the use of existing found wells GW01 and GW02 is considered appropriate.</p> |
| <p>Sample collection method (soil and groundwater)</p> <p>Soil: Soil samples were nominally collected at surface, 0.5 m, 1.0 m and at metre intervals thereafter. Soil samples were collected directly from the hand auger or drill auger tip using dedicated disposable nitrile gloves. The quantitative assessment of bonded asbestos as per NEPM 2013 could not be undertaken due to limitations of collecting samples from boreholes.</p> | <p>Adequate, given soil samples collected via auger using disposable gloves.</p> <p>Well development, gauging and sampling methodology considered appropriate.</p> |

| Sampling and analysis plan and sampling methodology | Auditor's opinion |
|--|--|
| <p>Groundwater: Wells were developed using a stainless-steel bailer. Wells were initially gauged using an interface probe and no separate phase product was identified in any of the wells. Groundwater samples were collected using a HydraSleeve™ at one-half sleeve-length below the centre of the screen interval. Once the water level recovered to its original elevation following the displacement of a small quantity of groundwater during installation, a representative water sample was taken. Samples were collected by transferring the groundwater from the HydraSleeve™ to sample bottles by piercing the sleeve with a provided disposable plastic instrument or a disposable syringe.</p> | |
| <p>Asbestos Assessment</p> <p>WSP reported that a semi quantitative method for assessment of asbestos materials from borehole cuttings, along with laboratory analysis of Asbestos Fines/ Fibrous Asbestos (AF/ FA) was undertaken. This method involved the driller laying out drill cutting onto a light-coloured tarp for visual inspection, with borehole cuttings being crumbled with light finger pressure and the soil inspected for evidence of ACM. A minimum 500ml sample was collected from each borehole location for AF/ FA determination.</p> | <p>The auditor notes that assessment for ACM in soils was not in accordance with the ASC NEPM as a quantitative assessment of ACM in soils via a 10L sample and weight % analysis of asbestos was not undertaken. However, the method applied is considered adequate, given that sampling was undertaken from boreholes and not test pits, and that AF/ FA laboratory analysis from 500mL sample was also undertaken. WSP noted that the analysis of AF/FA to the detection limits required by the ASC NEPM (0.001%) is not a NATA accredited test and that there are currently no laboratories able to achieve NATA accreditation for these detection levels.</p> |

8.4 Data Usability

The WSP DSI (WSP, 2021) included a QA/ QC program and review of data quality meeting the established Data Quality Objectives (DQOs). Following their review, WSP concluded that the assessment data was 'sufficiently precise and accurate for the purposes of this project'.

The auditor has conducted a detailed assessment of the WSP DSI (2021) QA/QC data as part of the audit. The data usability summary is provided in **Appendix D**. While there are some deficiencies, overall, the data is considered to be suitable to support the conclusions made in this report. The following issues were identified with the data:

- Precision
 - RPD's for intra and inter laboratory duplicates were less than 30% for analytes <10 x the LOR. Laboratory duplicates exceeded laboratory QA/QC criteria. Laboratory duplicate exceedances were not significant or indicative of large errors.
- Accuracy
 - Minor exceedances of Laboratory Control Spikes were noted. The dataset is considered accurate to 95% confidence.
- Representativeness
 - No outliers have been reported for QC samples collected to assist in the qualification of representativeness.
- Comparability
 - The data is considered to be acceptable; NATA accredited laboratories were used, and the LORs were consistent with the exception of QA01A. The dataset is considered comparable.
 - Limited information was provided regarding the experience level of sampling staff.
- Completeness
 - Laboratory and field documentation is considered to be complete with the exception of COC's, which have not been provided.

8.5 Site Audit Discussion

Reference is made to the auditor's review of WSP (2021) documented in Interim Audit Advice #15B, included in **Appendix B**. The following summary is provided:

- WSP (2021) reported soil assessment comprised of a total of 12 borehole locations (9 boreholes conducted by drilling rig and 3 by hand auger). Table 2 of NSW EPA (2022), 'Sampling design part 1 – application' provides a minimum number of systematic sampling locations using a square grid of 10 locations, based on site area 3,500m². This corresponds to a grid size of 17m, allowing for an approximate 20m diameter hot spot that can be detected with 95% confidence. The auditor notes that systematic sampling is appropriate for this site and that WSP has undertaken sampling on a generally systematic basis with the number of sampling locations (12) exceeding the minimum systematic sampling required by NSW EPA (2022) guideline (10).
- Groundwater assessment was conducted using 3 wells (GW01, GW02, GW03) located southwest, south and northeast of the site as shown in **Figure F1**. Wells named GW01 and GW02 had previously been installed (assumed by either AECOM or ERM) and were inspected by WSP to ensure suitability for use for groundwater assessment. GW03 was installed by WSP. The groundwater wells were noted to be installed at locations providing adequate coverage of upgradient and downgradient areas of the site.
- The soil and groundwater dataset are representative of the site conditions for the purpose of identifying significant or widespread contamination issues and the data was largely complete.
- There is a high degree of confidence that data is comparable for each sampling and analytical event.
- The primary laboratory provided sufficient information to conclude that data is of sufficient precision. The results of duplicate samples are considered to indicate significant variability in contaminant concentrations in fill material
- The data is considered to be of sufficient accuracy for the purposes of the assessment.

9 SITE VALIDATION AND SITE ENVIRONMENTAL MANAGEMENT PLAN

9.1 Validation Report WSP 2023b

Following JHCPB completion of capping layers and landscaping across the site, WSP prepared a validation report to demonstrate that the remedial strategy (WSP, 2022b) has been successfully implemented. The validation report is documented as:

- WSP 2023b, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Validation Report', 30 November 2023

For the purposes of the validation report, the site boundary is the construction area (sub-site of the Pigtail audit area), as shown in **Figure F1**.

9.1.1 Objective and Scope of Work

The objective of the remediation works was to remove potential risk to human health and ecological receptors associated with PAH, heavy metals and asbestos contaminated near surface soil and fill.

WSP carried out the following scope of works for preparation of the validation report:

- Periodic inspection and review of photographs provided by JHCPB for installation of the geofabric marker layer in landscape areas of the Crescent Civil sub-area
- Review of site inspection test plan (ITP) checklist documentation provided by JHCPB;
- Assessment of imported backfill material for site suitability, including collection of representative soil samples and submission for laboratory analysis for contaminants of potential concern (COPCs)
- Review of documentation associated with export and off-site disposal of material from the site
- Assessment of the implementation of the remediation strategy at the site and provision of recommendations for additional ongoing management to address deviations from the remedial design (if any)
- Preparation of the validation report, including site details, site environmental setting, summary site history and previous investigations, conceptual site model, capping installation details and details of imported and exported materials and waste classifications.

9.1.2 Remediation Implementation

The validation report provides details two areas where capping / barrier has been installed. Capping systems are presented in **Figure F2**

- Geotextile marker layer was installed across construction area
- Erosion matting installation was undertaken on the northern batter due to the steep gradient
- Hardstand as been constructed for the footpaths
- Soil capping layer (300 mm) installation across the geotextile and erosion matting
- Outside the construction boundary no remedial works were undertaken

9.1.3 Capping Specification

Landscape capping installation was undertaken to the following specification, WSP reported:

- The marker layer was installed by JHCPB and HL Landscapes between November 2021 and November 2023.
- Based on survey and inspections carried out by WSP, geofabric across the construction boundary extends across the defined remediation areas and individual sheets of geofabric were confirmed to overlap by a minimum 200 mm, with no defects observed.
- Survey carried following installation of the geotextile layer and then additional survey after the soil cap was completed indicated that the capping had been installed generally in accordance with the capping design outlined in WSP (2023).

- The capping thickness at two locations in the western portion of the site were recorded at 266 mm and 285 mm
- Capping and marker layer were only installed across the construction footprint of the site not across the entire audit boundary

9.1.4 Validation of Imported Materials

Approximately 799 m³ of imported topsoil used in landscape capping areas, which was comprised of VENM and ENM blended with pasteurised organic compost material. Approximately 132 m³ of mulch was also placed in these areas. Validation of VENM/ ENM sands, blended topsoil, compost, and mulch materials included:

- Review of assessment information carried out by others, relating to VENM and ENM sources
- Inspections of topsoil materials at resource recovery source sites, at:
 - Greenlife Resource Recovery, 761 The Northern Road Bringelly and 25 Harris Avenue, Marsden Park NSW
 - Resources NSW facility at 1 Kangaroo Avenue, Eastern Creek NSW.
- Sampling and analysis of stockpiles topsoils proposed to be imported from the resource recovery sites, in accordance with an auditor approved SAQP (WSP, 2023c) for imported materials, including sampling and analysis for the following:
 - TRH
 - BTEXN
 - PAHs
 - heavy metals (arsenic, boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc)
 - asbestos (absence/presence)
 - OCPs
 - OPPs
 - PCBs
 - PFAS (28 analytes)
 - foreign materials (glass, metal, plastics)
 - pathogens indicators.
- Regular inspections of topsoil as it was delivered to site carried out by JHCPB and WSP, to confirm that imported materials were consistent across loads and to assess for the presence of demolition wastes or suspected ACM. Inspections were carried out and recorded using material Inspection and Test Plan (ITP) checklists.

WSP reported sampling frequencies across all materials for use in the WCX project, as per **Table 6**.

Table 6. Imported material sampling frequency

| Material type | Approx. sampled stockpiled volume (m ³) | Stockpile/ sample IDs | SP sampling frequency (primary samples) | Overall sampling frequency |
|---------------|---|---|---|----------------------------|
| Topsoil | 20 | SP13/ SP13_2 to SP13_4, SP13_FMT1 | 3 samples (1/7m ³) | 1/7m ³ |
| Compost | 1,000 | SP08_1 to SP08_4, SP08_FMT, SP13_PT12 | 4 samples (1/250m ³) | 1/224m ³ |
| | 200 | SP22_1 to SP22_8, SP22_FMT1, SP2_FMT2 | 8 samples (1/25m ³) | |
| | 3000 | SP40_1 to SP40_12, SP40_FMT (12) | 12 samples (1/250m ³) | |
| | 5000 | SP41_1 to SP41_20, SP41_FMT1 to SP41_FMT4 | 20 samples (1/250m ³) | |

¹ Foreign materials sample – not included in sample frequency calculations.

² Pathogen screening sample – not included in sample frequency calculations.

| | | | | |
|-----------------------|---------------|---|-------------------------------------|---------------------|
| | 3,000 | SP45_1 to SP45_12, SP45_FMT1 to SP45_FMT3 | 12 samples (1/250m ³) | |
| | 3000 | SP54_1 to SP54_12, SP54_FMT1 to SP54_FMT3 | 12 samples (1/250m ³) | |
| Mulch | 3,000 | SP14_1 to SP14_4, SP14_FMT | 4 samples 1/750m ³ | 1/278m ³ |
| | 1,000 | SP44_1 to SP44_10, SP44_FMT1 | 10 samples (1/100m ³) | |
| | 1,000 | SP55_1 to SP55_4, SP55_FMT1 | 4 samples (1/250m ³) | |
| VENM/ ENM sands | Not reported | SP09_1 to SP09_4, SP09_FMT | 4 samples | Unknown |
| | Not reported | SP10_1 to SP10_4, SP10_FMT | 4 samples | |
| | 670 | SP18_1 to SP18_3 | 3 samples (1/223m ³) | |
| | Note reported | SP24_1 to SP24_4 | 4 samples | |

The auditor evaluated imported material sampling and analysis frequencies with respect to sampling frequencies provided in WSP (2023c) and notes the following:

- Topsoil: minimum 3 samples collected for <75m³ – compliant
- Compost: minimum 8 samples collected for <200m³ and min 10 or 1/250m³ for >1000m³ – compliant
- Mulch: one sample per 250m³ and minimum of 4 samples per source and material type – non-compliant for SP14, however noted that minimum 4 samples were collected for this stockpile. Remaining stockpiles (SP44 and SP55) are compliant. Considering that mulch should not contain soil fraction and contamination, lower sampling frequency for SP14 is not considered to present contamination risk
- VENM/ ENM sands: four samples per source, along with review of supplier documentation – generally compliant, noting 3 samples only for SP18.

9.1.5 Disposal / Re-use of Excavated Materials

Prior to capping, existing (potentially contaminated) soils and fill were excavated for either offsite beneficial re-use or offsite disposal, as required by project construction works. Based on information provided by JHCPB, WSP reports that an approximate total of 86,464 tonnes of was removed from the site, with details provided in Table 7.

Table 7. Offsite disposal summary

| Material Type | Quantity (t) | Disposal dates |
|--|--------------|---------------------|
| Waste categories | | |
| General solid waste - GSW | 372 | Aug 2020 – May 2023 |
| General solid waste - GSW | 869 | Aug 2020 – May 2023 |
| General solid waste (asbestos) – GSW asb | 797 | Jul 2020 |

The auditor notes the following regarding offsite disposal from Pigtail Bridge:

- Waste classification for disposed materials were conducted *in-situ* and *ex situ* by ADE Consulting Group (ADE). Waste classification assessment included collection and analysis of soil samples for COPCs including heavy metals, TRH, BTEX, PAHs, OCPs, OPPs, PCBs, phenols, VOCs, SVOCs, pH_F/pH_{FOX}, S_{CR} and/or asbestos. Waste classification results for Pigtail Bridge were documented in the following reports:
 - ADE 2020a, Waste Analysis & Classification Report, Westconnex Stage 3B – Pigtail Bridge, Rozelle NSW, A101021.0192.WAC351.v1f

- ADE 2020a, Waste Analysis & Classification Report, Westconnex Stage 3B – Pigtail Bridge, Rozelle NSW, A101021.0192.WAC346.v2f
- ADE 2020a, Waste Analysis & Classification Report, Westconnex Stage 3B – Pigtail Bridge, Rozelle NSW, WCX-08-19202/WAC259 v1f
- ADE 2020a, Waste Analysis & Classification Report, Westconnex Stage 3B – Pigtail Bridge, Rozelle NSW, WCX-08-18878/WAC249 v1f
- ADE 2020a, Waste Analysis & Classification Report, Westconnex Stage 3B – Pigtail Bridge, Rozelle NSW, WCX-08-18184/WAC192 v1f
- ADE 2020a, Waste Analysis & Classification Report, Westconnex Stage 3B – Pigtail Bridge, Rozelle NSW, WCX-08-18184/WAC197 v1f
- ADE 2020a, Waste Analysis & Classification Report, Westconnex Stage 3B – Pigtail Bridge, Rozelle NSW, WCX-08-18184/WAC204 v1f
- ADE 2020a, Waste Analysis & Classification Report, Westconnex Stage 3B – Pigtail Bridge, Rozelle NSW, WCX-08-18050/WAC174 v1f
- ADE 2020a, Waste Analysis & Classification Report, Westconnex Stage 3B – Pigtail Bridge, Rozelle NSW, WCX-08-17896/WAC165 v1f
- JHCPB maintains a material tracking system, which has previously been audited by Epic. The materials tracking register for Pigtail Bridge offsite disposal generated by the system is included in Appendix F of WSP (2023b).

Based on review of the offsite disposal information presented by WSP, the auditor considers that materials were lawfully disposed or beneficially re-used in accordance with NSW EPA waste requirements.

9.2 Long Term Environmental Management Plan

WSP (2023c) states the objectives of the Long-Term Environmental Management Plan (LTEMP) were to:

- Define appropriate management and mitigation measures to be implemented to manage potential environmental and health and safety risks associated with residual subsurface soil impacted by PAHs, heavy metals and asbestos
- Outline the monitoring and maintenance measures required to maintain integrity of the constructed capping systems
- Ensure activities associated with any future site works are managed in a way that minimises the potential impact to the surrounding environment
- Ensure all personnel involved are aware of environmental issues associated with residual PAHs, heavy metals and asbestos in soil.

In summary, the LTEMP requirements include:

- Environmental awareness and training
- 6-monthly visual inspections of capped areas
- Maintenance of capping
- Imported fill and VENM testing and validation requirements
- Controls to be applied during minor sub-surface works (not involving breaching of capping layer)
- Management controls for observed breaches of containment (either hardstand or capped landscaped areas)
- Sets out procedures for subsurface works reinstatement to ensure protection of workers and future site users
- Unexpected finds protocols
- Incident and emergency procedures
- Complaint and environmental incident procedures and register
- Reporting and LTEMP review requirements.

The auditor's review of the LTEMP found that the LTEMP substantially conformed with the NSW EPA (April 2020) 'Consultants Reporting on Contaminated Land- Contaminated Land Guidelines' and that the LTEMP can be made enforceable via:

- The LTEMP may be made enforceable through the planning system (primarily the EP&A Act and State Environmental Planning Policy - Resilience and Hazards 2021) with respect to changes in the allowable land uses or material alterations to the site and surrounds.
- Future redevelopment work at the site significant enough to require consent from the local council (Inner West Council) under the EP&A Act, will provide an avenue for enforcement as Council may require adoption of this LTEMP as a condition of development consent for the site.
- As per condition E183 of the infrastructure approval, the Secretary of the NSW Department of Planning and Environment (or nominee) and Inner West Council (Council) are also to be provided a copy of the site audit statement. Council must provide a notification of the existence of the audit on the planning certificate/s for the site issued under section 10.7 of the EP&A Act.

9.3 Site Audit Discussion

Reference is made to the auditor's review of the validation report (WSP 2023) and the LTEMP (WSP 2023a) documented in Interim Audit Advice #62 and #63 included in **Appendix B**. The following summary is provided:

- The validation report adequately demonstrates that the remediation capping strategy has been implemented over the audit area in accordance with the remediation specification (WSP, 20XX), except for:
 - Western section, where capping thickness was less than 300 mm
 - Outside the construction boundary where no capping was undertaken
- Materials excavated and exported from the site were appropriately classified and disposed to facilities licensed to accept the materials, or to sites for beneficial re-use as either VENM or in accordance with the Excavated public road material order 2014
- Materials imported to the site were validated for use as suitable for use as landscape capping materials
- The LTEMP provides appropriate management and mitigation measures in the context of the proposed and foreseeable landuse to manage potential environmental and health and safety risks associated with residual subsurface soil impacted by PAHs, heavy metals and asbestos and may be made enforceable via the planning system.

10 EVALUATION OF FIELD AND ANALYTICAL RESULTS

Relevant extracts from WSP (2021a) and WSP (2021b), including borelogs and results summary tables are included in **Appendix E**.

10.1 Soil

The following field and analytical results were reported (WSP, 2021):

10.1.1 Subsurface Conditions

The main geological units encountered during borehole investigations conducted by WSP (2021) included:

- Fill material – brown silty sand with gravels and the occasional anthropogenic inclusions (plastic, ceramic, bricks)
- Reworked Natural – Dark brown sandy clay with trace sandstone.

Varying levels of fill ranging from a depth of 1.0m bgl at BH01 in the western portion of the site and up to 3.7m bgl at BH101 in the northeast portion of the site. Concrete was encountered at GW01 from 3.20 to 3.80 m bgl. Bed rock was encountered in one location (GW03) at 6.0m bgl in the eastern portion of the site.

The soil profile encountered during drilling comprised a brown medium coarse sand fill (generally 0 – 1.5m bgl) overlying a sandy / silty dark brown to black clay with occasional sandstone gravels. Bedrock was encountered in one location (GW03) at and comprised a light brown / yellow sandstone to the final depth of the borehole (6m bgl).

10.1.2 Soil Analytical Results

The soil analytical results are summarised in **Table 8**.

Table 8. Soil analytical results

| Analyte | LOR s (mg/kg) | HSL/ HIL ¹ | ESL/ EIL ⁵ | MLs ² | PFAS NEMP | No. of exceedances | Range | Exceedances |
|---------------------------------------|---------------|-----------------------|-----------------------|------------------|-----------|--------------------|--------|---|
| Heavy Metals | | | | | | | | |
| Arsenic | 5 | 300 | 100 | - | - | - | ND-24 | |
| Cadmium | 1 | 90 | - | - | - | - | ND-10 | |
| Chromium | 2 | 300 | 410 | - | - | - | ND-10 | |
| Copper | 2 | 1700 | 140 | - | - | 1 | ND-236 | WSP_PT_SS02_0.3 (236 mg/kg) |
| Lead | 5 | 600 | 1100 | - | - | - | 7-209 | |
| Mercury | 0.1 | 80 | - | - | - | - | ND-1 | |
| Nickel | 2 | 1200 | 65 | - | - | 1 | ND-275 | WSP_PT_SS02_0.3 (375 mg/kg) |
| Zinc | 5 | 30000 | 370 | - | - | 2 | 7-904 | WSP_PT_BH02_0.5 (510 mg/kg), WSP_PT_SS02_0.3 (904 mg/kg) |
| BTEXN | | | | | | | | |
| Benzene | 0.2 | 3 | 50 | - | - | - | ND | |
| Toluene | 0.5 | NL | 85 | - | - | - | ND | |
| Ethyl benzene | 0.5 | NL | 70 | - | - | - | ND | |
| Total Xylene | 0.5 | NL | 105 | - | - | - | ND | |
| Naphthalene | 0.5 | NL | 170 | - | - | - | ND | |
| Total Recoverable Hydrocarbons | | | | | | | | |

| Analyte | LOR s (mg/kg) | HSL/ HIL ¹ | ESL/ EIL ⁵ | MLs ² | PFAS NEMP | No. of exceedances | Range | Exceedances |
|--|---------------|-----------------------|-----------------------|------------------|-----------------|--------------------|-----------|---|
| F1 TRHs C ₆ –C ₁₀ | 10 | 260 | 215 | - | - | - | ND | |
| F2 TRHs >C ₁₀ –C ₁₆ | 50 | NL | - | - | - | - | ND | |
| F3 TRHs >C ₁₆ –C ₃₄ | 100 | - | 300 | 2500 | - | - | ND-300 | |
| F4 TRHs C ₃₄ –C ₄₀ | 100 | - | 2800 | 10000 | - | - | ND-430 | |
| Polynuclear Aromatic Hydrocarbons | | | | | | | | |
| B(a)P | 0.5 | - | - | - | - | 0.7 | ND-4.2 | BH03_1.5, BH05_1.5, WSP_PT_BH01_0.5, WSP_PT_BH01_1.5, WSP_PT_BH01_4.0, WSP_PT_BH02_0.5, WSP_PT_BH02_1.5, WSP_PT_BH04_0.5, WSP_PT_BH04_1.0, WSP_PT_BH04_3.0, WSP_PT_GW03_0.5, WSP_PT_GW03_1.5, WSP_PT_GW03_4.0, WSP_PT_SS02_0.3, WSP_PT_SS03_0.3, WSP_PT_BH101_2.0, WSP_PT_BH101_3.0, WSP_PT_BH101_4.0, WSP_PT_BH103_2.5 |
| B(a)P TEQ ⁶ | 0.5 | 3 | - | - | - | 6 | ND-6.1 | See below |
| Total PAHs | 0.5 | 300 | - | - | - | - | ND-32.8 | |
| Poly Chlorinated Biphenyls | | | | | | | | |
| Total PCBs | 0.1 | 1 | - | - | - | - | ND | |
| Organochlorine Pesticides | | | | | | | | |
| Total OCPs | 0.05 | 10 ³ | - | - | - | - | ND | |
| Per- and poly-fluoroalkyl substances (PFAS) | | | | | | | | |
| Total PFAS | 0.0002 | - | - | - | 14 ⁴ | - | ND-0.0002 | |
| Volatile Organic Compounds | | | | | | | | |
| Total VOCs | 0.5 | - | - | - | - | - | ND | |
| Phenols | | | | | | | | |
| Phenols | 0.5 | 40000 | - | - | - | - | ND | |

1. Health investigation levels for the more conservative of Comm/industrial use (HIL/HSL-D) and open space/recreational land use (HIL/HSL-C), NEPM 2013 with HSL <4m in sand
 2. Management Limits for Residential/Open Space assuming coarse soil
 3. HIL for Aldrin/Dieldrin and heptachlor
 4. NEMP guideline for Sum of PFHxS and PFOS
 5. Ecological investigation and screening levels for both commercial/ industrial use and urban residential & public open space
 6. TEQ: Toxicity Equivalence Quotient
- Bold – samples that exceeded highlighted criteria are highlighted and listed
LORs = laboratory limits of reporting
ND = not detected, concentrations less than the LOR = no criteria, not tested, no exceedances.

All analytes were reported as less than the laboratory Lower Limit of Resolution (LOR) and/or the NEPM (2013) Site Assessment Criteria (SAC) with exception to the following:

- Results for benzo(a)pyrene TEQ reported a concentration exceeding the NEPM (2013) HILs in six samples WSP_PT_BH01_1.5 (3.1 mg/kg), WSP_PT_BH02_0.5 (3.5 mg/kg), WSP_PT_BH02_1.5 (3.2 mg/kg), WSP_PT_BH04_0.5 (6.1 mg/kg), WSP_PT_BH04_3.0 (3.5 mg/kg) and WSP_PT_BH101_3.0 (3.6 mg/kg);
- Results for Nickel reported a concentration exceeding the NEPM (2013) EILs in sample WSP_PT_SS02_0.3 (236 mg/kg);
- Results for Copper reported a concentration exceeding the NEPM (2013) EILs in sample WSP_PT_SS02_0.3 (375 mg/kg);
- Results for Zinc reported a concentration exceeding the NEPM (2013) EILs in samples WSP_PT_BH02_0.5 (510 mg/kg) and WSP_PT_SS02_0.3 (904 mg/kg); and
- Asbestos in the form of asbestos fines/ fibrous asbestos (AF/ FA) along with asbestos cement fragments (chrysotile) was detected above the NEPM (2013) HSLs in sample WSP_PT_BH01_0.5 at a concentration of 0.051 % (AF/ FA: 0.001% w/w).

Australian Standard Leaching Procedure (ASLP) analysis was undertaken on five samples for PAHs and metals. ASLP results were screened against the ANZG (2018) Marine water 95% toxicant DGVs with a dilution and attenuation factor (DAF) of 20. All analytes were reported as less than the laboratory Lower Limit of Reporting (LOR) and/or the ANZG (2018) SAC with exception to the following:

- Results for leachable Copper reported a concentration exceeding the DAF modified guideline value of 26 ug/L in sample WSP_PT_BH01_0.5 (30ug/L).

Chromium reducible sulphur was detected in nine soil samples exceeding the sulphur trail action criteria, indicating both PASS and ASS were identified on site.

10.2 Groundwater

The key findings of the single groundwater monitoring event conducted and reported in WSP DSI 2021 are summarised below.

- GW01 was screened from 1.5 mBTOC to 5.5 mBTOC, while GW02 was screened between 2.5 mBTOC to 5.5 mBTOC and GW03 was screened from 2.9 mbgl to 5.9 mbgl.
- All wells were gauged using an oil/water interface probe (IP), however no phase separated hydrocarbons (PSH) were detected
- Groundwater was intercepted between 2.011 mBTOC (GW02) and 2.899 mBTOC (GW01).

10.2.1 Groundwater Analytical Results

The groundwater results from the single round of sampling conducted during the DSI are summarised below in Table 9.

Table 9. Groundwater analytical results

| Analyte | PFAS NEMP | Marine Waters ¹ | Drinking Water | Health Screening Levels ² | Site Maximum concentration | Exceedances |
|---------------|-----------|----------------------------|----------------|--------------------------------------|----------------------------|------------------|
| Metals | | | | | | |
| Arsenic | - | - | 10 | - | 4 | |
| Cadmium | - | 5.5 | 2 | - | ND | |
| Chromium | - | - | 50 | - | ND | |
| Copper | - | 1.33 | 2000 | - | 11 | GW01, GW02 |
| Lead | - | 4.4 ³ | 10 | - | ND | |
| Nickel | - | 70 | 20 | - | 4 | |
| Zinc | - | 15 | - | - | 38 | GW01, GW02, GW03 |
| Mercury | - | 0.4 | 1 | - | ND | |
| BTEXN | | | | | | |
| Benzene | - | 700 | 1 | 800 | ND | |
| Toluene | - | - | 800 | NL | 444 | |
| Ethylbenzene | - | - | 300 | NL | ND | |

| Analyte | PFAS NEMP | Marine Waters ¹ | Drinking Water | Health Screening Levels ² | Site Maximum concentration | Exceedances |
|--|-----------|----------------------------|----------------|--------------------------------------|----------------------------|-------------|
| Total Xylene | - | - | 600 | NL | ND | |
| Naphthalene | - | 70 | - | NL | ND | |
| TRH | | | | | | |
| F1 TRHs C ₆ -C ₁₀ | - | - | - | NL | 140 | |
| F2 TRHs C ₁₀ -C ₁₆ | - | - | - | NL | ND | |
| F3 TRHs C ₁₆ -C ₃₄ | - | - | - | - | ND | |
| F4 TRHs C ₃₄ -C ₄₀ | - | - | - | - | ND | |
| TRHs C ₆ -C ₄₀ | - | - | - | - | ND | |
| Polycyclic Aromatic Hydrocarbons | | | | | | |
| Acenaphthene | - | - | - | - | ND | |
| Benzo(a)pyrene | - | - | 0.01 | - | ND | |
| Fluoranthene | - | - | - | - | ND | |
| Phenanthrene | - | - | - | - | ND | |
| Per- and poly-fluoroalkyl substances (PFAS) | | | | | | |
| PFOS | 0.000023 | - | - | - | ND | |
| PFOA | 0.56 | - | - | - | ND | |
| Organochlorine Pesticides | | | | | | |
| Aldrin + Dieldrin | - | - | 0.3 | - | ND | |
| Phenols | | | | | | |
| Phenol | - | 400 | - | - | ND | |
| VOC | | | | | | |
| Total VOCs | - | - | 0.03 | - | ND | |

Notes:

1. Criteria from NEPM, 2013.

2. HSLs for Comm/Ind.

3. Criteria are low reliability trigger values, sourced from ANZECC, 2000.

NL – no limit.

All analytes were reported as less than the laboratory Lower Limit of Resolution (LOR) and/or the NEPM (2013) Site Assessment Criteria (SAC) with exception to the following:

- Copper was detected in GW01 (7 ug/L) and GW02 (11 ug/L) above the ANZG (2018) marine water 95% toxicant criteria
- Zinc was detected in all wells above the ANZG (2018) marine water 95% toxicant criteria.

10.3 Imported fill

Approximately 931 m³ of imported blended topsoil materials were validated for use in landscape capping areas by inspection, sampling and analysis carried out and reported by WSP (2023). Imported materials were sampled at the source sites prior and post blending for potential contaminants of concern as described in **Section 9.1.4**. Imported fill laboratory results for VENM/ ENM sands, blended topsoil, mulch, and compost materials are presented in Appendix D of WSP (2023) the results are summarised below:

- TRH results were below LOR or the adopted site criteria (NEPM ESL and management limits for open space / recreational) with the exception of results at SP19 (Compost), SP23 (compost) and SP25 (mulch). Due to the potential for naturally occurring TRH derived from organic matter, silica gel clean-up and reanalysis for TRH was scheduled. Following silica gel clean-up, all results were below detection limits.
- Heavy metal results were below LOR or the adopted site criteria (NEPM EIL, HIL open space / recreational and excavated natural material order 2014))
- PAH results were below LOR or the adopted site criteria (NEPM EIL, HIL open space / recreational and excavated natural material order 2014)
- BTEXN results were below LOR or the adopted site criteria (NEPM ESL open space / recreational)
- OCP/OPP results were below LOR or the adopted site criteria (NEPM EIL and HIL open space / recreational)

- PFAS results were below LOR or the adopted site criteria (PFAS NEMP 2020, public open / space))
- PCB results were below LOR or the adopted site criteria (NEPM HIL open space / recreational)
- Foreign materials results were below the adopted criteria (NSW EPA Pasteurised Organics Order 2016, Compost Order 2016 and excavated natural material order 2014) with the exception of plastics detected within SP49, and SP52.
- Asbestos testing and visual inspection did not identify any asbestos

10.4 Consultant Conclusions

Based on the field and analytical results, WSP (2021) made the following conclusions:

- This DSI report documents the results of site inspections, borehole investigations, groundwater monitoring, and NATA accredited laboratory analysis for WestConnex Stage 3B - Rozelle Interchange - sub site area -Pigtail Bridge
- Soil samples were analysed at a NATA accredited laboratory for Contaminants of Potential Concern (CoPC) including TRH; BTEX; heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); VOCs/SVOCs; OCPs/OPPs; asbestos; PFAS PCBs, PAHs and total phenols based on the history of site use
- QA/QC results indicate that for the samples collected during the scope of works, sampling techniques, transport procedures and laboratory analysis were satisfactory, and the quality of the data is acceptable for use in this assessment
- Soil investigations at the site have identified elevated concentrations of:
 - Elevated copper, nickel and zinc concentrations exceeding the applied EILs were reported at two locations, however, the calculated 95 % UCLs for copper, nickel and zinc were all below the adopted EIL values. Heavy metals also did not exceed the adopted HIL levels. WSP concluded that heavy metal results from ASLP leachate testing indicate that there is a low risk of significant leaching into groundwater.
 - PAHs as BaP TEQ exceeded the HIL-C criteria at four locations but did not exceed HIL-D criteria. Exceedances were from a range of depths and from both inferred fill and reworked natural materials. The calculated 95 % UCL for BaP TEQ results from WSP (2021) was below the HIL-C criteria.
 - Exceedances of the BaP adopted ESLs for open space were widespread across the site, with the calculated 95 % UCL exceeding the ESL criteria. WSP concluded that PAH results from ASLP leachate testing indicated there was a low risk of significant leaching to groundwater and also that there was a low risk of plant uptake of PAH contamination via plant root systems.
- Friable and bonded asbestos materials in soils were found in excess of human health assessment criteria for public open space and commercial/industrial land uses have been identified at one location (BH01) from WSP (2021) and also two locations from the ERM 2002 investigation. All three locations are located within the southwest portion of the site. Asbestos was also present within a stockpile of material sampled by ADE on 16th June 2020 which was sourced from piling excavation works occurring within the southwest portion of the site (ADE 2020).
- Dissolved metals including copper, zinc, arsenic, nickel, and lead were present in groundwater. Exceedances of ANZG (2018) marine water 95% toxicant criteria recorded for copper in wells GW01 and GW02 and zinc at all monitoring well locations. WSP noted that metals above the LORs were recorded at similar concentrations in both inferred upgradient and downgradient groundwater wells, likely indicating regional groundwater issue rather than contamination sourced from site.
- Toluene was recorded above LOR in GW03 but below assessment criteria, and below LOR in GW01 and GW02.
- Concentrations of TRH, BTEX, PAH, PFAS, phenols, OCP, OPP, SVOC and VOCs in groundwater were either below the laboratory LOR or detected below the adopted site criteria.
- ASS and PASS is likely to be present in natural soils on the site
- WSP does not consider the site currently suitable for open space land use without some remediation or management works, given the analytical results and aesthetic impacts in the surface filling.

- At the Pigtail sub-site, soil remediation works have been implemented to render the site suitable for the proposed land use being that for open space, as described in the validation report (WSP, 2023a). The remediation capping strategy has been implemented in accordance with the WSP December 2022 Memorandum "Sub-Area Pigtail Bridge Remediation Approach".
- Ongoing management at the site to be implemented as documented in the LTEMP (WSP, 2023b).

10.5 Site Audit Discussion

In reviewing the field and analytical results, the auditor notes the following:

- Unacceptable concentrations of petroleum hydrocarbons were not detected in groundwater across the site.
- The presence of sheen or separate phase hydrocarbons were not reported during the groundwater monitoring event (GME)
- Investigation levels for soil and groundwater have been appropriately applied
- Concentrations of heavy metals (copper and zinc) were identified in groundwater at the site above the laboratory LOR are generally consistent with previous investigations and likely to be representative of the background levels and are not associated with former land use.
- The concentrations of BaP TEQ exceeding HIL-C criteria were identified in fill across the site, however given that BaP TEQ is below HIL-C and HIL-D criteria on a 95% UCL basis, the health risk from BaP TEQ in fill considering future site use is low
- Asbestos in the form of AF/ FA (asbestos fines/ fibrous asbestos) along with asbestos cement fragments were detected exceeding the NEPM (2013) HSLs at one location in the southwest portion of the site. Based on this result, the presence of asbestos in fill does not appear to be widespread, however asbestos observations were also made by ERM (2002) in other areas of the site
- While copper was found to be slightly leachable in soils, there is no indication of significant offsite migration, or contamination at depth which may impact site suitability or groundwater. Copper and zinc levels were found to be at both upgradient and downgradient locations on the site, indicating the levels are associated with regional groundwater contamination
- Contamination assessment of the site has been carried out generally in accordance with NSW EPA made or approved guidelines and the site is considered to be adequately characterised for the purposes of identifying remediation and/ or management requirements
- Imported fill materials used in capping and general landscaping in the form of blended topsoil and mulch have been validated to meet environmental criteria relevant to public open space use.

11 CONCEPTUAL SITE MODEL

The conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. As part of the assessment Ramboll developed an initial CSM, that was later adopted by WSP (2020) and further developed in WSP (2021). The consultant identified the main potential source of soil and groundwater contamination to be the asbestos and/ or PAH contaminated fill of unknown origin and quality across the site.

The auditor's assessment of the CSM presented by WSP (2021) is summarised in **Table 10**:

Table 10. CSM discussion

| Element | CSM discussion | Auditor's Opinion |
|--|--|--|
| Contaminants of potential concern | <p>Following field sampling and analysis, WSP (2021) identified contaminants of concern for the site as:</p> <p><u>Soils:</u></p> <ul style="list-style-type: none"> PAHs as BaP TEQ, exceeding the EILs in soils Asbestos in friable and bonded forms. <p>Dissolved metals, particularly copper, zinc, arsenic, nickel, and lead were recorded in groundwater. However, only copper and zinc exceeded the ANZG (2018) marine water 95% toxicant criteria, which were attributed to regional/ offsite sources.</p> | The known and potential sources of contamination and contaminants of concern including the mechanism(s) of contamination have been identified and adequately described |
| Affected Media | <p>of the contaminant sources and the corresponding COPC identified in the previous site investigations (refer to section 7 and section 8) have the potential to impact soils, sediments, groundwater, surface water and vapours (indoor and ambient air).</p> <p>The results of these investigations are summarised in the investigation and site validation reports, documenting the current extent of known impacts in the various environmental media.</p> | The potentially affected media have been adequately identified. |
| Human and environmental receptors | <p>Receptors were identified as:</p> <ul style="list-style-type: none"> Future site remediation and construction workers Future site maintenance workers Future site users of the parkland (although JHCPB have indicated that the site will be made inaccessible to the public, this may change in the future) Offsite residents, who may be exposed to dusts or groundwater Ecological soil values Whites Creek stormwater channel and Rozelle Bay | The potential human and ecological receptors have been adequately identified. |
| Potential exposure pathways | <ul style="list-style-type: none"> Ingestion, dermal contact, and inhalation for human receptors Leaching and plant uptake Groundwater and surface water flows for offsite environment. | Potential exposure pathways have been identified and adequately described in the investigation and validation reports. |
| Likelihood of potential pollutant linkages | <p>Potential pollutant linkages were confirmed as follows:</p> <ul style="list-style-type: none"> Ingestion and dermal contact by future site remediation and maintenance workers Soil exposure (including plant uptake) to ecological receptors. | Potential linkages to residual contamination have been identified and adequately described and appropriately managed through remediation activities and the implementation of the LTEMP. |

| Element | CSM discussion | Auditor's Opinion |
|-----------|--|--|
| Data gaps | No significant data gaps were considered to remain following WSP (2021) field assessment works | The Auditor has identified residual data gaps for the Pigtail Bridge site. areas outside of the construction boundary but within the audit area has not been sufficiently remediated to reduce the risk posed to Human and ecological health |

11.1 Site audit discussion

The auditor considers that the source – contaminant – pathway - receptor linkages described in the WSP (2021) CSM provides an adequate basis for consideration of risk and site suitability. The auditor notes that the area outside of the construction boundary which is potentially impacted by contaminated fill is heavily vegetated and not accessible to the human uses. The construction of balustrades and fencing along Branen Street forms a permanent barrier to accessing this area and therefore the auditor considers the risk posed can be appropriately managed under the Long-term management plan prepared for the site.

12 SITE STATUS

12.1 Risk and Migration

12.1.1 Soil Contamination

The health and environmental risk posed by contaminant concentrations in soil are represented by BaP (TEQ) within shallow fill throughout the site and asbestos in the southwest portion of the site, characterised as follows:

- BaP TEQ exceeded the HIL-C criteria in six samples in fill, however, did not exceed HIL-D in any samples
- Exceedances of BaP ESLs were widespread across the site, with 19 exceedances recorded in fill
- Nickel exceeded the site-specific EIL in one sample and zinc exceeded the EIL in two samples collected from near surface fill
- Asbestos as asbestos fines/ fibrous asbestos and asbestos cement sheeting fragments was recorded in one sample from near surface fill exceeding HSLs for AF/ FA relevant to recreational and commercial/ industrial use. While asbestos contamination would not appear to be widespread, asbestos was also recorded by ERM (2002) in samples from two other locations.

The CSM prepared by WSP has indicated that prior to remediation, exposure pathways to contamination may exist to the following receptors:

- Future remediation and construction workers
- Future site maintenance workers
- Ecological receptors.

While JHCPB have indicated that the site will not be publicly accessible, it is possible that unauthorised entry or access to soils may occur. Therefore, exposure to future site users may be possible.

12.1.2 Groundwater

Elevated levels of copper and zinc were identified in groundwater at the site. Given that concentrations were at upgradient and downgradient locations on the site and are known regional contaminants in inner city areas, the contamination is considered representative of background levels and not associated with any existing site source.

12.2 Land Use Suitability

Following completion of all construction works, including capping of the site achieved by:

- Hardstand cap formed by concrete/ asphalt roadways, road verges, pedestrian footpaths, and cycleways
- Landscape capping comprised of marker layer and 80 to 300mm thick, clean validated landscape cap.

The audit site is considered suitable for use as road reserve and public open space, with the implementation of the documented Long Term Environmental Management Plan (WSP, 2023a).

Guidelines for the NSW Site Auditor Scheme (3rd edition) EPA (2017) states that in assessing the suitability of a site for an existing or proposed landuse in an urban context, the decision process for assessing urban redevelopment sites should be followed. For sites that are in the context of the use of the area as a roadway and pavement with limited landscaping and open space as a commercial and industrial should be assessed in determining landuse suitability:

Table 11. Audit objectives assessment

| Aspect | Discussion |
|---|---|
| All site assessment, remediation and validation reports follow applicable guidelines. | The auditor considers that site assessment reports developed for the site are considered to sufficiently comply with EPA made and approved guidelines to allow assessment with regard to land use suitability. |
| Aesthetic issues relating to site soils have been adequately addressed. | The presence of aesthetic issues, including bottles, plastic, timber sheeting, gas cylinders, car parts, empty paint tins, brick and rubble and asbestos fragments were noted by ERM (2002) and WSP (2021) |
| Soils have been assessed against relevant health-based investigation levels and the potential for migration of contamination from soils to groundwater has been considered. | JHCPB have indicated that the site will be used for road infrastructure with landscaped areas, which will not be generally publicly accessible. However, the site may also comprise pedestrian path and footbridge which may be publicly accessible in the future. Following from these likely site use scenarios, the consultants have assessed soils against HIL-C and HIL-D levels from the ASC NEPM. The health investigation levels as well as ecological screening levels for open space land use have been applied. Groundwater assessment utilising three groundwater wells covering the site. Elevated concentrations of copper and zinc were measured in groundwater at both upgradient and downgradient locations. While ASLP testing carried out by WSP indicated that copper was slightly leachable from site soils, the auditor agrees with the consultants' conclusion that these levels are largely related to regional groundwater contamination and are not derived from contamination in site soils. |
| Groundwater (where relevant) has been assessed against relevant health-based investigation levels and, if required, any potential impacts to buildings and structures from the presence of contaminants considered. | Groundwater has been assessed against relevant ASC NEPM GILs including the relevant health-screening levels applicable to hydrocarbons. No potential impacts to buildings and structures (either current or future) have been identified. |
| Hazardous Ground Gases (where relevant) have been assessed against relevant health-based investigation levels and screening values. | No contamination is considered to be present at the site with potential to generate hazardous ground gases. |
| Any issues relating to local area background soil concentrations that exceed relevant investigation levels have been adequately addressed in the site assessment report(s) | Concentrations of contaminants in soils that exceed relevant health investigation levels on the site, namely copper, nickel, zinc (which exceed EILs), BaP (TEQ) and asbestos (exceeding HILs) are not considered to be related to background soil concentrations. The identified soil contamination is likely to be related historical site sources. |
| The impacts of chemical mixtures have been assessed | No chemical mixture impacts are likely to be present on this site. |
| Any potential ecological risks have been assessed | Ecological risks at the site have been assessed by comparing soil contaminant concentrations against relevant ecological criteria from the ASC NEPM: EILs and ESLs. Exceedances of ecological criteria in soils were identified at isolated locations for copper, nickel, zinc and more extensively across the site for BaP. |
| Any evidence of, or potential for, migration of contaminants from the site has been appropriately addressed, including potential risks to off-site receptors, and reported to the site owner or occupier | While elevated concentrations of heavy metals were detected in site groundwater, these are generally related to regional groundwater quality and not arising due to contamination in site soils. Therefore, site contamination is not considered to be impacting offsite ecological receptors. |

| Aspect | Discussion |
|---|--|
| The site management strategy is appropriate | <p>At this stage, the auditor has not been presented with a remediation action plan (RAP) or site environmental management plan (SEMP) meeting NSW EPA guidelines, including NSW EPA (2020) 'Consultants reporting on contaminated land – Contaminated land guidelines'.</p> <p>However, WSP (2021a) presents a remediation approach based on capping of the site with either a clean landscape cap with planting), or hardstand (footpath), which the auditor has reviewed.</p> <p>The auditor considers that the site can be made suitable for the identified future use with this remediation approach, given ongoing management of the site with implementation of a SEMP, meeting NSW EPA guidelines.</p> |

12.3 Regulatory Summary

EPA (2017) states that 'regulatory consent, licenses, notifications and other requirements may apply for some aspects of contaminated site investigation, remediation and validation work'. A summary of the regulatory requirements applicable to the site are described in **Table 12**.

Table 12. Regulatory summary

| Act, regulation, policy, etc. | Relevant requirements | Project specific application |
|--|--|--|
| Environmental Planning & Assessment (EP&A) Act 1979 All development proposals in NSW must be assessed to ensure they comply with relevant planning controls and, according to nature and scale, that they are environmentally and socially sustainable. State, regional and local plans and policies indicate what level of assessment is required, and who is responsible for assessment. Planning and development is carried out under the EP&A Act and the Environmental Planning and Assessment (EP&A) Regulation 2000. Under S. 79C of the EP&A Act, the consent authority needs to consider the suitability of the site for the development, including whether the site is contaminated. | | |
| The proposal has been deemed critical State Significant Infrastructure (SSI) under schedule 5, clause 4 of <i>State Environmental Planning Policy (State and Regional Development) 2011</i> . Approval of SSI 7485 has been granted by the Minister for Planning, subject to notice of determination, including Schedule 2 conditions, dated 17 th April 2018. | Relevant requirements regarding site audit are provided by notice of determination (SSI 7485), Schedule 2: Clauses E181 to E183: <ul style="list-style-type: none"> E181: A Site Contamination Report, documenting the outcomes of Phase 1 and Phase 2 contamination assessments of land upon which the CSSI is to be carried out, that is suspected, or known to be, contaminated must be prepared by a suitably qualified and experienced person in accordance with guidelines made or approved under the Contaminated Land Management Act 1997 (NSW). E182: If a Site Contamination Report prepared under Condition E181 finds such land contains contamination, a site audit is required to determine the suitability of a site for a specified use. If a site audit is required, a Site Audit Statement and Site Audit Report must be prepared by an NSW EPA Accredited Site Auditor. Contaminated land must not be used for the purpose approved under the terms of this approval until a Site Audit Statement is obtained that declares the land is suitable for that purpose and any conditions on the Site Audit Statement have been complied with. E183: A copy of the Site Audit Statement and Site Audit Report must be submitted to the Secretary and relevant council for information no later than one (1) month prior to the commencement of operation. | E181 has been addressed by WSP (2021) and AECOM (2016). E182 is addressed by this SAR and SAS. E183 requires that this SAR and SAS is to be submitted to the Secretary and relevant council for information no later than one (1) month prior to the commencement of operation (i.e., site opening). |

| Act, regulation, policy, etc. | Relevant requirements | Project specific application |
|---|--|--|
| State Environmental Planning Policy (resilience and Hazards) 2021 | Chapter 4 – Remediation of land. Specifies category 1 and or 2 remediation, i.e., where consent is required for the remediation works, and includes prior notice for Category 2, requirements for compliance with guidelines, notices of completion for Category 1 works, and various planning considerations. | Site is not currently suitable for planned or intended use and remediation and/ or management is required. Remediation assumed to be category 2, not requiring consent as project approval is provided under the SSI. Under clause 4.13 (1) 'A person who proposes to carry out a category 2 remediation work on any land must give notice of the proposed work to the council for the local government area in which the land is situated (or, if the land is within the unincorporated area, to the Minister).' |
| Local government contaminated lands policy or development control plans (DCPs) | Varies based on local government area. Policies and/or DCPs provide specific guidance as to what the consent authority requires for remediation, including site management requirements. | Contamination management at the site are assumed to have complied with the City of Sydney Council DCP. |
| Contaminated Land Management (CLM) Act 1997 The CLM Act establishes a legal framework that gives EPA powers to require the assessment and remediation of site where contamination is significant enough to warrant regulation. Under the CLM Act, EPA can agree to voluntary investigation and management of sites or impose orders for investigation or management. | | |
| Section 60: Duty to report, duty for landowners and persons who have responsibility for contamination to notify EPA. | Assessment of duty to report based on the considerations and criteria described in NSW EPA (2015) 'Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997'. | Contamination on the site has not been deemed significant enough to warrant regulation under the CLM Act and the site is not listed under the NSW EPA contaminated land record of notices. |
| Protection of the Environment Operations (POEO) Act 1997 The objectives of the Act include to protect, restore and enhance the quality of the environment in NSW, having regard to the need to maintain ecologically sustainable development. The requirements of the POEO Act and associated schedules and regulations, are relevant to the assessment and management of contaminated land. | | |
| Air, noise, water General provisions in regard to requirements not to pollute waters, to prevent or minimise air pollution, to maintain and operate plant in a proper and efficient condition/manner and to deal with materials in a proper and efficient manner to minimise noise impacts. | Development of appropriate management plans, e.g., environmental management plan (EMP), having regard to specific approvals and relevant guidance. The Act also requires notification when a pollution incident occurs that causes or threatens material harm to the environment. | No specific issues have been identified. |
| Environment protection licences (EPL), required for scheduled development work and scheduled activities, required under Part 3.2 of POEO Act. | Schedule 1 of the POEO Act defines road construction as scheduled activity, triggering the WestConnex Stage 3B – M4-M5 Rozelle interchange project. EPL No. 21278 issued by EPA. | Construction including remediation to meet EPL requirements. |
| The Act defines 'waste' for regulatory purposes and establishes management and licensing requirements. | Includes waste classification, resource recovery exemptions, general immobilisation approvals, requirements for immobilisation, and licensing requirements. | No outstanding issues relating to waste. |
| Underground Petroleum Storage Systems (UPSS) Regulation 2019 Best practice in the design, installation and on- going operation of a UPSS, which applies to all UPSSs in NSW. | Specific requirements include: loss monitoring and detection, incident management (response), groundwater monitoring wells, site validation following decommissioning/ removal/replacement and environmental protection plan (EPP). | No UPSS have been identified to be present on the site. |
| Environmentally Hazardous Chemicals (EHC) Act 1985 The main provisions of the EHC Act relate to a statutory chemical assessment function, and the regulation and control of chemicals via Chemical Control Orders (CCOs), licences and regulations. The EHC Act regulations set general requirements for fees, provision of information, exemptions and penalties while the CCOs set controls for specific chemicals both through generic requirements and by requiring that certain processes be subject to particular licence conditions. | | |

| Act, regulation, policy, etc. | Relevant requirements | Project specific application |
|---|--|--|
| <p>Chemical Control Orders</p> <p>Chemical control orders in force in NSW:</p> <ul style="list-style-type: none"> aluminium smelter wastes; dioxin-contaminated wastes; scheduled chemical wastes (SCW); organotin waste materials; and polychlorinated biphenyls (PCBs) and wastes. | <p>A CCO provides set requirements for a broad range of activities, including the manufacture, processing, distribution, use, sale, transportation, storage and disposal of chemicals and chemical wastes. In regard to the assessment and management of contaminated land, CCOs can be applicable to on-site use or to off-site disposal.</p> | <p>No CCO issues were identified.</p> |
| <p>Water Management Act (WMA) 2000</p> <p>The object of the WMA and the Water Management (General) Regulation 2004 is the sustainable and integrated management of the State's water for the benefit of both present and future generations. It includes the establishment of water sharing plans, and various approvals and licenses to protect and maintain surface and ground waters.</p> | | |
| <p>Controlled activity approval</p> <p>A controlled activity approval (CAA) under Part 3, Chapter 3 of the WMA is required for controlled activities carried out in, on or under waterfront land.</p> | <p>Waterfront land includes the bed and banks of a river, lake or estuary, including land to within 40 metres of the highest bank or the mean high-water mark (also check NSW Fisheries).</p> | <p>Not considered relevant to this site.</p> |
| <p>Licensing of groundwater wells</p> <p>Licenses are required under Part 5 for water bores, including monitoring wells.</p> | <p>A licence is required to establish a groundwater bore for any purpose, including groundwater monitoring.</p> | <p>Monitoring wells were installed as part of the investigation. Copies of bore licenses have not been provided.</p> |
| <p>Heritage Act 1977</p> | | |
| <p>A relic is any deposit, object or material evidence which relates to the settlement of NSW, not being Aboriginal settlement, and which is 50 or more years old.</p> | <p>If any relics or suspected relics are discovered, they should not be removed or disturbed, as an archaeological investigation may be required and a permit under the Act may be required.</p> | <p>No specific heritage issues were identified.</p> |

13 REFERENCES

Referenced reports:

- AECOM (2016), 'WestConnex M4-M5 Link Tranche 1 and Tranche 2 Factual Contamination Assessment'
- Coffey (2003), 'Additional Environmental Investigations at Brenan Street, Lilyfield NSW'
- ERM (2002), 'Stage 1 and Stage 2, Brenan Street Lilyfield, Environmental Site Assessment'
- Ramboll (2019), 'WestConnex Stage 3B – Rozelle Interchange Contaminated Land – Sampling and Analysis Plan', (SAQP), Revision D2, August 2019, (Ramboll SAQP 2019), Appendix H: Site Specific SAQP – RY01
- WSP 2020, 'Work Plan- Sub Site Area- Pigtail (Former RY01)', 20 March 2020 (Ref: PS117368-CLM-LTR-WP-RY01 RevC
- WSP 2021, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Detailed Site Investigation', 17 March 2021 (Ref: PS117368-CLM-REP-PT RevC, Final).
- WSP 2023b, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Validation Report', 30 November 2023 (Ref: PS117368-CLM-REP-Pigtail VAL RevC)
- WSP 2023c, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Long Term Environmental Management Plan', 29 November 2023 (Ref: PS117368-CLM-REP-Pigtail EMP RevC)

Guidelines and technical documents:

- Australian and New Zealand Governments (ANZG) (2018), 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, August 2018)
- Australian Drinking Water Guidelines, NHMRC and Natural Resource Management Ministerial Council of Australia and New Zealand (2011)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3, Primary Industries - Rationale and Background Information (ANZECC & ARMCANZ (October 2000)
- Beck, P & Mann, B (2010). 'A technical guide for demonstrating monitored natural attenuation of petroleum hydrocarbons in groundwater', CRC CARE Technical Report no. 15, CRC CARE, South Australia
- Clements, L, Palaia, T & Davis, J (2009) 'Characterisation of sites impacted by petroleum hydrocarbons: National guideline document', CRC CARE Technical Report no. 11. CRC CARE, South Australia
- CRC CARE (2015) 'Technical Report No. 34. A practitioner's guide for the analysis, management and remediation of LNAPL'. CRC CARE, South Australia
- Department of Environment, Climate Change and Water NSW (NSW DECCW) (2010), 'Vapour Intrusion: Technical Practice Note. (Ref. 2010/774). NSW DECCW, Sydney
- Department of Environment and Conservation NSW (DEC NSW) (March 2007) 'Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination'. DEC NSW, Sydney NSW
- Department of Health and Ageing and EnHealth Council (2012) 'Environmental Health Risk Assessment: Guidelines for Assessing Human Health Risks from Environmental Hazards'. Commonwealth of Australia, Canberra
- EPA (June 2005) Contaminated Sites: Guidelines for Assessing Former Orchards and Market Gardens. NSW EPA, Sydney
- EPA (August 2015), 'Technical Note: Light Non-Aqueous Phase Liquid Assessment and Remediation'. NSW EPA, Sydney.
- Johnston, CD (2010) 'Selecting and assessing strategies for remediating LNAPL in soil and aquifers', CRC CARE Technical Report no. 18, CRC CARE, South Australia.
- Lock, W. H., (1996) "Composite Sampling", National Environmental Health Forum Monographs, Soil Series No. 3. SA Health Commission, Adelaide

- NSW Environment Protection Authority (NSW EPA) (December 2020), 'Underground Petroleum Storage Systems - Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019', NSW EPA Sydney NSW
- NEPC (1999) National Environment Protection (Assessment of Site Contamination) Measure, Schedule A and Schedules B(1)-B(10), amended April 2013. National Environment Protection Council, Adelaide (ASC NEPM (2013))
- NSW EPA (August 2022) 'Sampling design part 1 – application'. Contaminated Land Guidelines. NSW EPA, Sydney NSW
- NSW EPA (August 2022) 'Sampling design part 2 – interpretation'. Contaminated Land Guidelines. NSW EPA, Sydney NSW
- NSW EPA (October 2017), 'Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd edition)', NSW EPA, Sydney NSW
- NSW EPA (December 2019), 'Assessment and Management of Hazardous Ground Gases – Contaminated Land Guidelines', NSW EPA, Sydney NSW
- NSW EPA (November 2014) 'Waste Classification Guidelines – Part 1: Classifying Waste'. NSW EPA, Sydney, NSW
- NSW EPA (April 2020), 'Consultants reporting on contaminated land – Contaminated land guidelines', NSW EPA, Sydney NSW
- NSW EPA (September 2015) 'Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997'. NSW EPA, Sydney
- NSW EPA (October 2016) 'Addendum to the Waste Classification Guidelines (2014) – Part 1: classifying waste'.
- NSW EPA (April 2014a) 'Best Practice Note: Landfarming'. NSW EPA, Sydney
- NSW EPA (January 2010) 'UPSS Technical Note: Decommissioning, Abandonment and Removal of UPSS'. NSW EPA, Sydney
- NSW EPA (January 2010), 'UPSS Technical Note: Site Validation Reporting', NSW EPA Sydney
- The Heads of EPAs Australia and New Zealand (HEPA), 'PFAS National Environmental Management Plan', Version 2.0 (Jan 2020).

14 ACRONYMS

| | |
|----------|--|
| ACM | Asbestos containing material |
| AF | Asbestos fines |
| AHD | Australian height datum |
| ANZECC | Australia and New Zealand Environment and Conservation Council |
| ANZG | Australian and New Zealand Governments |
| ARMCANZ | Agriculture and Resource Management Council of Australia and New Zealand |
| ASC NEPM | <i>National Environmental Protection (Assessment of Site Contamination) Measure 1999</i> |
| ASLP | Australian standard leaching procedure |
| ASS | Acid sulfate soil |
| Bgl | Below ground level |
| BTEXN | Benzene, toluene, ethylbenzene, xylenes, naphthalene |
| BTOC | Below top of casing |
| CBD | Central business district |
| CLM | Contaminated land management (Act) |
| COC | Chain of custody |
| CoPC | Contaminants of potential concern |
| CSM | Conceptual site model |
| DAF | Dilution and attenuation factor |
| DEC | Department of Environment and Conservation |
| DQI | Data quality indicators |
| DQOs | Data quality objectives |
| DSI | Detailed site investigation |
| EIL | Ecological investigation level |
| EPA | Environmental Protection Authority |
| EPL | Environment protection license |
| ESL | Ecological screening level |
| FA | Fibrous asbestos |
| GIL | Groundwater investigation level |
| GME | Groundwater monitoring event |
| GWMW | Groundwater monitoring well |
| HIL | Health investigation level |
| HSL | Health screening level |
| JHCPB JV | John Holland CPB Joint Venture |
| LOR | Limit of reporting |
| LOSP | Level of species protection |
| mbgl | Metres below ground level |
| mBTOC | Metres below top of casing |
| NATA | National Association of Testing Authorities |
| ND | Non detect |
| NEPC | National Environment Protection Council |
| NEPM | National Environmental Protection Measure |
| NHMRC | National Health and Medical Research Council |
| PAHs | Polycyclic aromatic hydrocarbons |
| PASS | Potential acid sulfate soil |
| PFAS | Per- and polyfluoroalkyl substances |
| PFOS | Perfluorooctanesulfonic acid |
| PFHxS | Perfluorohexanesulfonic acid |
| QA/QC | Quality assurance / quality control |
| RPD | Relative percent difference |
| SAC | Site assessment criteria |
| SAR | Site audit report |
| SAQP | Sampling analysis and quality plan |
| SAS | Site audit statement |
| SMC | Sydney Motorway Corporation |
| SSI | State significant infrastructure |
| SVOCs | Semi-volatile organic compounds |
| SWL | Standing water level |
| TEQ | Toxicity equivalence quotient |
| TRH | Total recoverable hydrocarbons |
| UCL | Upper confidence limit |
| UPSS | Underground Petroleum Storage System |
| VOCs | Volatile organic compounds |

15 LIMITATIONS AND DISCLAIMER

Epic Environmental Pty Ltd (Epic) has prepared this report for the exclusive benefit of the John Holland and CPB Joint Venture (Client) and for the singular purpose of supporting the site audit of the property located at Brenan Street Lilyfield, referred to as Pigtail Bridge. All interpretations, findings or recommendations outlined in this report should be read and relied upon only in the context of the report as a whole.

The following report cannot be relied upon for any other purpose, at any other location or for the benefit of any other person, without the prior written consent of Epic. Except with Epic's prior written consent, this report may not be:

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- e. has not undertaken any independent investigations or enquiries outside the scope of works with respect to information provided for this report
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In recognition of the limited use of this report, the Client agrees that, to the maximum extent permitted by law, Epic (including its representatives and related entities) is not liable for any losses, claims, costs, expenses, damages (whether pursuant to statute, in contract or tort, for negligence or otherwise) suffered or incurred by the Client or any third party as a result of the information, findings, opinions, estimates, recommendations and conclusions provided in this report.

Without limiting the above, Epic (including its representatives and related entities) is not liable, in any way whatsoever:

- b. for the use or reliance of this report for any purpose other than that for which it has been prepared
- g. for any use or reliance upon this report by any person other than the Client
- h. where another person has a different interpretation of the same information contained in the report
- i. for any consequential or indirect losses, or for loss of profit or goodwill or any loss or corruption of any data, database or software

If a section of this disclaimer is determined by any court or other competent authority to be unlawful and/or unenforceable, the other sections of this disclaimer continue in effect. Where further information becomes available, or additional assumptions need to be made, Epic reserves its right to amend this report, but is not obliged to do so.

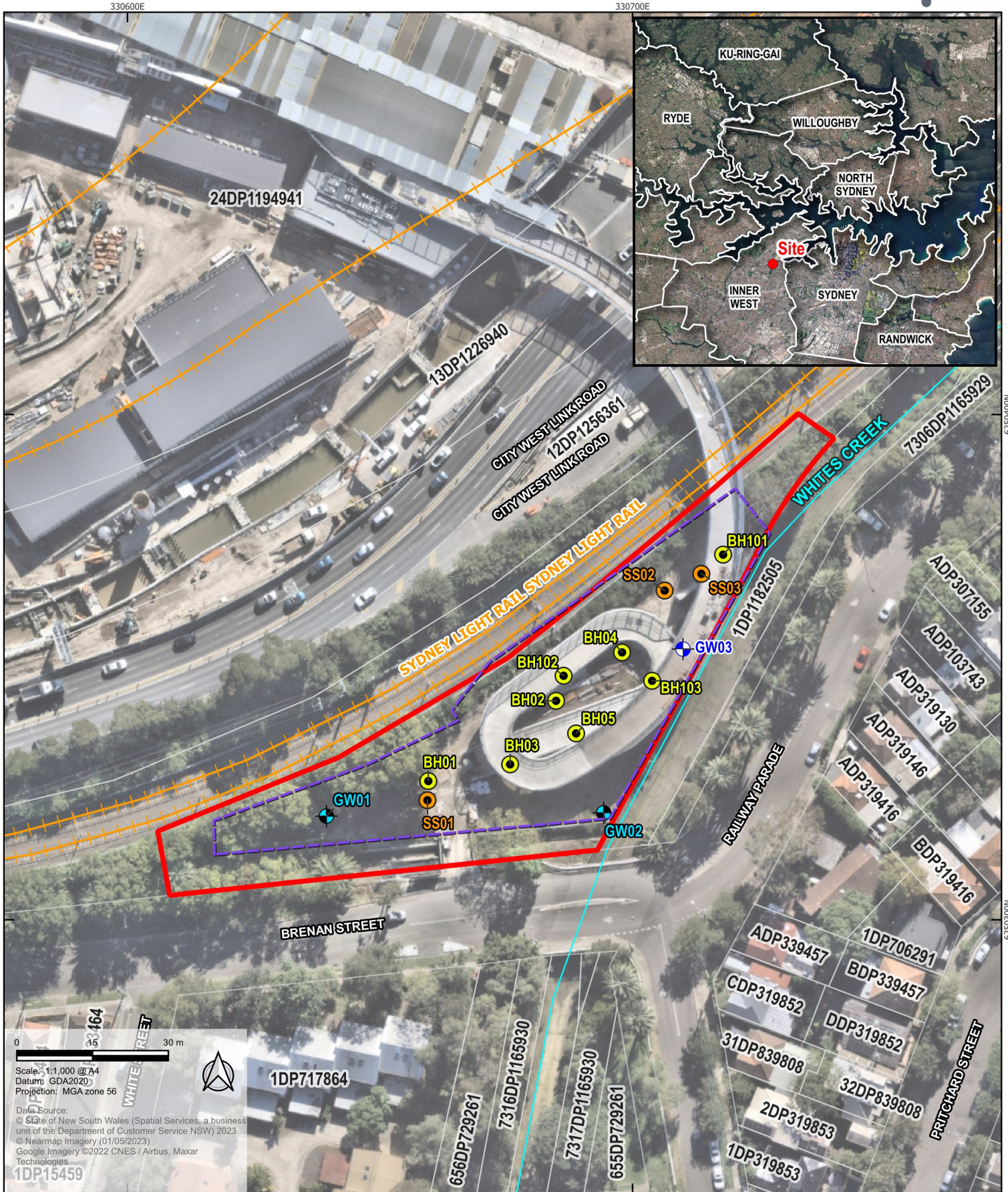
FIGURES

Figure F1. Site locality and previous sampling locations

Figure F2. Site condition summary

Figure F3. Site boundary survey





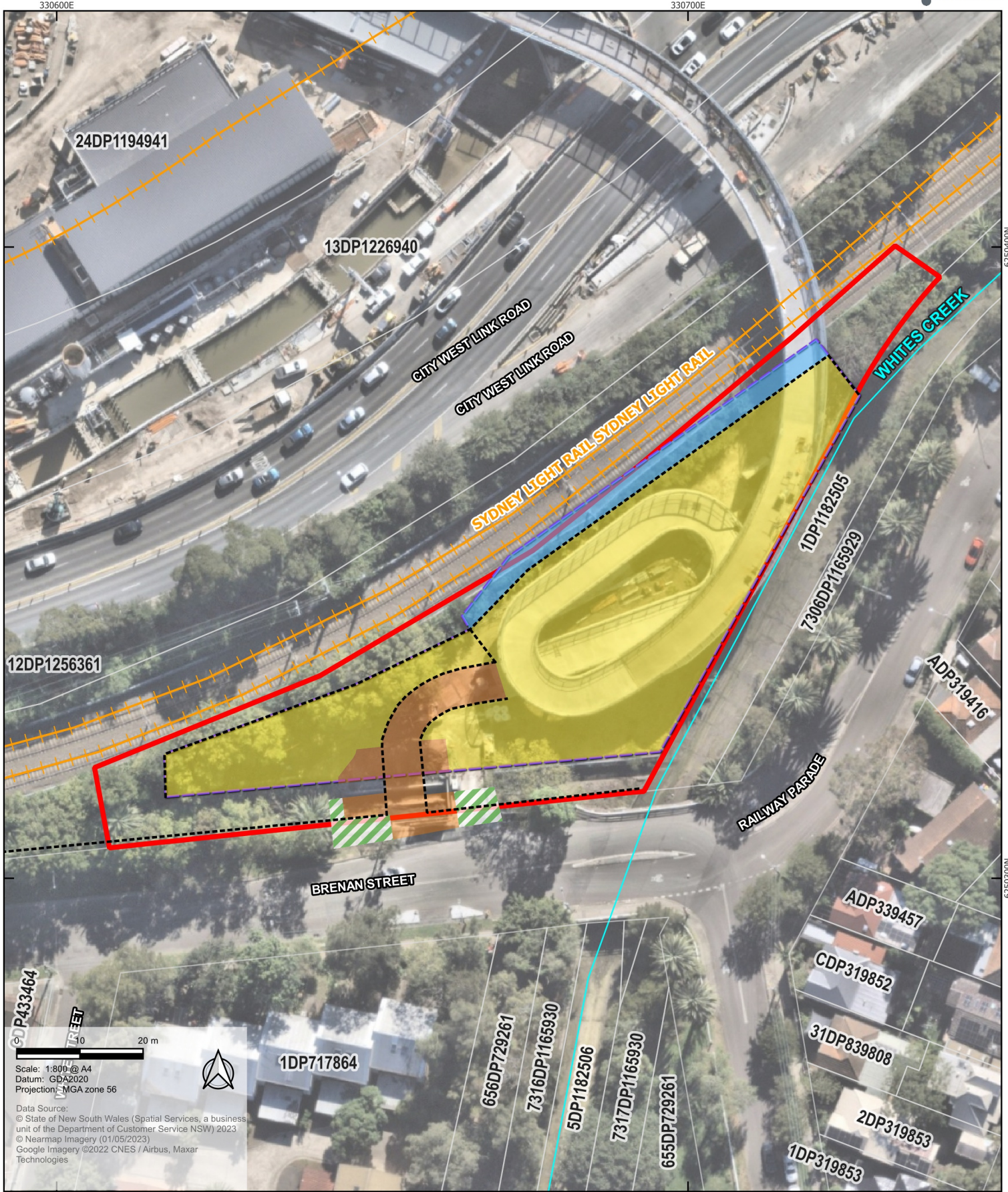
Legend

- Audit boundary
- Construction boundary
- Lot boundary
- Watercourses
- Railways
- Soil borehole
- Surface sample
- ⊕ Groundwater monitoring well
- ⊕ Existing groundwater monitoring well

John Holland CPB Joint Venture West Connex Stage 3B - Rozelle Interchange Pigtail Bridge Pigtail Bridge Site Audit Report (RY01)

Figure F1
Site locality and previous sampling locations

Filepath: ~SY2018\SY180068.01 WestConnex 3b Rozelle Interchange Pigtail Bridge Site Audit\Figure F2 Site landform and remediation areas.qgz



Legend

- Audit boundary
- Lot boundary
- Construction boundary
- Geotextile and soil capping remediation area (massed planting)
- Hardstand sealed area
- Landscaping only disturbed (reinstated to existing condition)
- Soil capping remediation area – northern batter (no geotextile)
- Fencing/balustrade
- Watercourses
- Railways

John Holland CPB Joint Venture West Connex Stage 3B - Rozelle Interchange Pigtail Bridge Pigtail Bridge Site Audit Report (RY01)

Figure F2
Site landform and remediation areas



| | | | | | | | | | | | | |
|-----------|------------------------|------------------------------|--|---|----------------------------------|----------------------------------|------|----------|----------------|-----------|--|---|
| SURVEYOR | SEAN FOLEY | GENERAL NOTES / REFERENCES | | <div><div>Rozelle Interchange</div><div>WestConnex</div><div></div><div><div>JOHN HOLLAND</div><div>CPB CONTRACTORS</div></div></div> | DO NOT SCALE | DISCIPLINE | ZONE | CATEGORY | DESIGN PACKAGE | PLOT DATE | | |
| | PROJECT SURVEY MANAGER | | | | | SURV | CWL | LSC | 00_20 | 29/11/23 | | |
| | | | | | FOR INFORMATION ONLY | AUDIT BOUNDARY PIGTAIL BRIDGE | | | | | | |
| | | | | | AUDIT BOUNDARY : RED | | | | | | | |
| | | PREPARED FOR: CIARA MORIARTY | | DRAWN BY SF | AUDIT BOUNDARY PIGTAIL BRIDGE | | | | | | | |
| | | | | COORDINATE SYSTEM MGA94 Z56 | | | | | | | | |
| | | | | HEIGHT DATUM A.H.D | SHEET 1 of | | | | | | | |
| SIGNATURE | | | | SCALE AT ORIGINAL A3 SIZE 1:600 | | | | | | | | 1 |

Rozelle Interchange
WestConnex

JOHN HOLLAND

CPB CONTRACTORS

PLATES



Plate P1. Towards northern boundary, November 2021



Plate P2. Site view walkway December 2021



Plate P3. Site view southern boundary December 2021



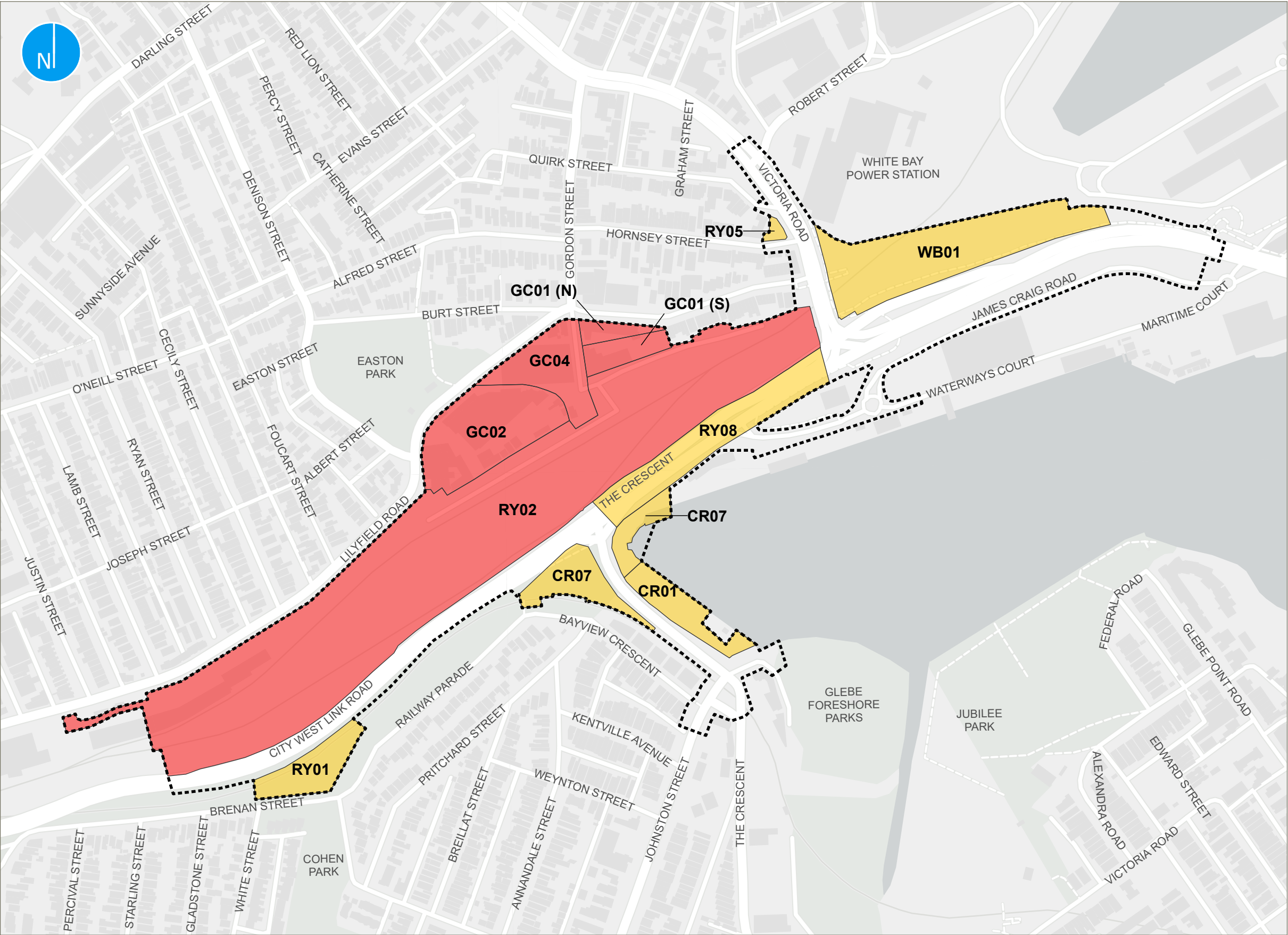
Plate P4. Site looking northeast, July 2023



Plate P5. Site looking northwest, July 2023

APPENDIX A RAMBOLL SAQP 2019: FIGURE 1 AND FIGURE 2





Legend

- Project boundary
- High Risk Site
- Moderate Risk Site

Location



| | | | | | |
|--|--|--|--|-------------------|------------------------|
| TITLE Figure 1 – Rozelle Interchange SAQP Site Locations | | PROJECT WestConnex Stage 3B - Rozelle Interchange | | CLIENT JHCPB | |
| SCALE 1:5,000 | | A3 | | DRAWN BY jchen | PROJECT # 318000500 |
| PAGE 01 of 01 | | COORDINATE SYSTEM GDA 1994 MGA Zone 56 | | REVIEW VW | DATE 30/07/2019 |
| Overarching Sample Analysis and Quality Plan | | MAP # F001 | | VER. 1 | |

RAMBOLL AUSTRALIA - GIS MAP file : JHCPB3BRozelle_GIS_P006_OverarchingSAQP_F001_SAQPSiteLocations_RI_v1 | Z:\Projects\JHCPB 3B Rozelle\Spatial



Legend

- Project boundary
- High Risk Site
- Moderate Risk Site

Location



| | | | | | |
|---|---|--|------------------------|-----------------|----------|
| TITLE Figure 2 – Iron Cove Link SAQP Site Locations Overarching Sample Analysis and Quality Plan | | PROJECT WestConnex Stage 3B - Rozelle Interchange | | CLIENT JHCPB | |
| SCALE 1:1,750 | A3 | DRAWN BY jchen | PROJECT # 318000500 | MAP # | VER. |
| PAGE 01 of 01 | COORDINATE SYSTEM GDA 1994 MGA Zone 56 | REVIEW VW | DATE 30/07/2019 | F002 | 1 |

RAMBOLL AUSTRALIA - GIS MAP file : JHCPB3BRozelle_GIS_P006_OverarchingSAQP_F002_SAQPSiteLocations_IC_v1 | Z:\Projects\JHCPB 3B Rozelle\Spatial

APPENDIX B INTERIM AUDIT ADVICE LETTERS



21 February 2020

Project Number: SC180061.01

Mr Chetan Jayaram
Environmental Advisor
Email: Chetan.Jayaram@rozelleinterchange.com.au
JHCPB Joint Venture
L4, 410 Concord Road
Rhodes, 2138

Re: Interim Audit Advice #4 for Statutory Site Audit SY010. Review of SAQP for WestConnex Stage 3B Rozelle Interchange – RY01, RY02, and RY05 (Rozelle Railway Yard)

Dear Chetan,

The John Holland and CPB Contractors Joint Venture (JHCPB) have engaged Brad May as the NSW EPA Contaminated Site Auditor to satisfy the requirement of the Infrastructure Approval under Section 5.19 of the Environmental Planning and Assessment Act (1979) referred to State Significant Infrastructure (SSI) 7485 conditions of approval E181 and E185.

1 PURPOSE

This IAA provides the JHCPB JV with interim advice as part of Statutory Site Audit No. SY010 being undertaken by Brad May, a NSW EPA Site Auditor accredited under the Contaminated Land Management (CLM) Act. The advice forms part of a statutory site audit for the WestConnex Stage 3B Project.

This interim advice report specifically concerns the Appendix H, Appendix I, and Appendix J of the WestConnex Stage 3B Rozelle Interchange Contaminated Land Sampling, Analysis and Quality Plan (SAQP) (Draft 14 August 2019 rev D2) prepared by Ramboll. The main SAQP document is an overarching plan that contains 17 appendices incorporating 15 sub-SAQPs for the individual sites identified as moderate to high risk. The overarching SAQP is not the subject of this review but has been referred to where required. A separate review will be provided at a later date.

This communication has been provided as interim advice only. Where applicable, the information provided is consistent with NSW EPA guidelines and policies. The advice does not constitute a site audit report or site audit statement and does not pre-empt the conclusions which will be drawn at the end of the audit process. A site audit report and site audit statement will be issued when the audit process has been completed.

2 OVERARCHING SAQP COMMENTS

The Auditor notes that the overall structure allows for the overarching SAQP to provide general information and processes to be employed for the project by the consultant. The approach details project wide requirements including general data quality objectives, standard sampling procedures, referenced guidance and screening criteria that can be applied at the project. The SAQP document also references Appendix A – Data Gap Analysis that looks to summarise the available information and provides a *Contamination Status* ranking: High, Medium or



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Low. At the time the Auditor has not reviewed the Data Gap Analysis¹ or the reference document listed in Appendix 2 of the gap assessment.

3 SPECIFIC SUB- SAQP COMMENTS

The attached review records have been provided to detail the issues raised by the Auditor and areas that require further information to allow the Auditor to endorse the rationale behind the sampling program.

Generally, the information provided in the sub-SAQPs does not allow for the Auditor to review the supporting information and determine if the rationale is appropriately for the objectives of the SAQP. Although some historical information is provided in the sub-SAQP, some material is included as an Appendix there is very little detail relating to the previous site works or investigation. JHCPB has now provided auditor access to the historical assessment reports and these have been referred to where necessary.

For site ID: RY01 (Brenan Street, Lilyfield) and RY02 (112 Lilyfield Rd, Rozelle), offsite potential for sources of contamination such as the former yards for railway or storage have not been addressed or adequately investigated. For site ID: RY05 (165 Victoria Rd, Rozelle), the SAQP does not adequately inform the investigation of associated potential soil and groundwater contamination related to the former USTs.

The Auditor considers that presentation of site-specific Data Quality Objectives based on previous investigation, data, borehole logs etc. would provide robust basis for development of a CSM and assist in the development of an appropriate sampling approach. At a minimum, analytical data, bore logs, fill profile needs to be included and presented on site figures. It is also noted that the Date of issue or revision number is not provided for the Sub-plan or relevance to the issue of the overarching SAQP.

Please do not hesitate to contact me to discuss any aspect of the review or Audit process.

Regards,

Brad May

Director / Principal Environmental Engineer / NSW and Qld Accredited Auditor

Enclosures: Audit Review Comments – SAQP RY01, Audit Review Comments – SAQP RY02, Audit Review Comments – SAQP RY05
CC:

TABLE: Site RY01

| Site Auditor. | Brad May | Site. | RY01 - Brenan St, Lilyfield NSW 2039 | |
|---------------|------------------------------------|---------|--|--|
| Date. | 22/01/2019 | Report. | Appendix H - Site RY01_SAQP | Rev: unknown (Issue Date or version is not presented in Sub-SAQP) |
| No | Document Reference | Page | Issue | Comment |
| 1 | Overall | | The structure of the Sub-SAQPs does not allow for the Auditor to review the supporting information and determine if the rationale is appropriate for the objectives of the SAQP. Although some historical information is provided in the sub-SAQP, some material is included as an Appendix there is very little detail relating to the previous site works/ site conditions or investigation. | It is considered that the previous investigations, data, borehole logs etc. are required to provide robust information to inform CSM and sampling strategy. Essential information from the previous investigation have not been presented to allow for effective review, or for SAQP users to be informed. Either provide the previous AECOM (2017 and 2018) reports or include essential information in (or attached to) the SAQP, i.e. analytical data, bore logs, fill profile etc. Target depths cannot be verified as appropriate as the areas of concern, depth and locations of previous soil and groundwater exceedances have not been provided in the SAQP. |
| 2 | Overall | | Potential current and historical offsite contamination sources. | Potential impacts from offsite sources should be appropriately investigated |
| 3 | Table H-1 (Background Information) | 1 | Information is limited in terms of proposed site activities for construction. | Either Table H-1 should include description of construction activities (or may be included elsewhere in section 1), enabling the sampling program to inform the works. Information should include depth of excavation or disturbance, and any cut and fill proposed. Proposed sampling target depths should consider the depth of excavation and site works to inform disposal requirements where possible. |
| 4 | 1 | 1 | The purpose or objective of the SAQP program is not defined. | The objective/ purpose should be clearly stated, for example: delineation of known soil and groundwater impacts, delineation of fill profile and areas of impact previously identified, indicative waste classification in areas of disturbance or bulk excavations. Potential for dewatering and likely impacts from contamination. |
| 5 | 1.2 | 2 | PFOS/ PFAS use | Potential for PFOS/ PFAS use on site not addressed. |

| | | | | |
|----|-------------|----|--|---|
| 6 | 1.3.4 | 5 | Include previous borelogs and testpit logs, as they exist (ERM 2002, Coffey 2003 and AECOM 2017) | Include borelogs and testpit logs in SAQP (attachment) - to inform site works. |
| 7 | 1.3.5 | 5 | Include groundwater flow direction | Information required to support selection of existing monitoring wells, appropriately characterise groundwater contamination, assess potential offsite contamination migration and receptors, and assess potential impacts. |
| 8 | 1.3.6 | 5 | AECs/ COCs | AECs and COCs described very generally and potential offsite impacts not discussed. More detailed AECs/ COC breakdown required based on site history and previous activities. Include demolition of former site buildings, rail track activities and associated COCs |
| 9 | New Section | | Investigation Levels | Include (new section) investigation levels that will be applied for assessment of generated data. Presentation in 'overarching' SAQP is generic and not specific to the site. Relates back to SAQP objective/ DQOs. |
| 10 | 4.1 | 9 | Sampling Plan rationale | Rationale for sampling plan should be included, i.e. systematic or targeted? What are we targeting? Should be based on adequate DQOs. |
| 11 | 4.1 | 9 | Basis for sampling density | Related to above, include basis/ justification for sampling density. An assessment of the expected sampling density coverage, in regard to AS4482 or EPA Sampling guidelines should be assessed. Clarity on the sampling rationale, targeted, systematic should be clarified. |
| 12 | 4.1 | 9 | Groundwater assessment details | Site specific details for existing wells should be presented in terms of well design, expected groundwater conditions, known contamination, and sampling |
| 13 | 4.1 | 10 | Waste classification (Table H-8) | Consider inclusion of TCLP for a number of analytes and adequate sampling and analysis to inform waste classification. |

TABLE: Site RY02

| Site Auditor. | Brad May | Site. | RY02 - 108 - 112 Lilyfield Rd, Rozelle NSW 2039 | |
|---------------|------------------------------------|---------|--|--|
| Date. | 23/01/2019 | Report. | Appendix I - Site RY02_SAQP | Rev: unknown (Issue Date or version is not presented in Sub- SAQP) |
| No | Document Reference | Page | Issue | Comment |
| 1 | Overall | | The structure of the Sub-SAQPs does not allow for the Auditor to review the supporting information and determine if the rationale is appropriate for the objectives of the SAQP. Although some historical information is provided in the sub-SAQP, some material is included as an Appendix there is very little detail relating to the previous site works/ site conditions or investigation. | It is considered that the previous investigations, data, borehole logs etc. are required to provide robust information to inform CSM and sampling strategy. Essential information from the previous investigation have not been presented to allow for effective review, or for SAQP users to be informed. Either provide the previous reports (JET 1998, PB2003, AECOM 2016 & 2018) or include essential information in (or attached to) the SAQP, i.e. analytical data, bore logs, fill profile etc. Target depths cannot be verified as appropriate as the areas of concern, depth and locations of previous soil and groundwater exceedances have not been provided in the SAQP. |
| 2 | Overall | | Potential current and historical offsite contamination sources. | Potential impacts from offsite sources should be appropriately investigated |
| 3 | Table I-1 (Background Information) | 1 | Information is limited in terms of proposed site activities for construction. | Either Table I-1 should include description of construction activities (or may be included elsewhere in section 1), enabling the sampling program to inform the works. Information should include depth of excavation or disturbance, and any cut and fill proposed. Proposed sampling target depths should consider the depth of excavation and site works to inform disposal requirements where possible. |
| 4 | 1 | 1 | The purpose or objective of the SAQP program is not defined. | The objective/ purpose should be clearly stated, for example: delineation of known soil and groundwater impacts, delineation of fill profile and areas of impact previously identified, indicative waste classification in areas of disturbance or bulk excavations. Potential for dewatering and likely impacts from contamination. |

| | | | | |
|----|-------------|----|--|--|
| 5 | 1.2 | 2 | PFOS/ PFAS use | Potential for PFOS/ PFAS use on site not addressed. |
| 6 | 1.3.4 | 7 | Include previous borelogs and testpit logs, as they exist (ERM 2002, Coffey 2003 and AECOM 2017) | Include borelogs and testpit logs in SAQP (attachment) - to inform site works. |
| 7 | 1.3.5 | 7 | Include groundwater flow direction | Information required to optimise siting the new monitoring well, appropriately characterise groundwater contamination, identify potential receptors (onsite and offsite) and assess potential offsite migration of contamination and impacts. |
| 8 | 1.3.6 | 8 | AECs/ COCs | AECs and COCs described very generally and potential offsite impacts not discussed. More detailed AECs/ COC breakdown required based on site history and previous activities. Include demolition of former site buildings, glass manufacturing, timber storage and electrical substation with associated contaminants of concern |
| 9 | New Section | | Investigation Levels | Include (new section) investigation levels that will be applied for assessment of generated data. Presentation in 'overarching' SAQP is generic and not specific to the site. Relates back to SAQP objective/ DQOs. |
| 10 | 4.1 | 12 | Sampling Plan rationale | Rationale for sampling plan should be included, i.e. systematic or targeted? What are we targeting? Should be based on adequate DQOs. A GPR survey should be considered to delineate footprint of former removed/abandoned USTs, other pertinent underground infrastructures and possibly the assumed paleochannel within the eastern portion of the site (reported as preferential groundwater pathway) |
| 11 | 4.1 | 12 | Basis for sampling density | Related to above, include basis/ justification for sampling density. An assessment of the expected sampling density coverage, in regard to AS4482 or EPA Sampling guidelines should be assessed. Clarity on the sampling rationale, targeted, systematic should be clarified. Historical sampling locations should be considered. As far as practicable, testpitting should be considered as intrusive |

| | | | | |
|----|-----|----|-----------------------------------|---|
| | | | | investigation method if asbestos contamination is suspected. |
| 12 | 4.1 | 12 | Groundwater assessment details | Site specific detail of the groundwater well installation should be presented in terms of expected water table depth, screen interval, and processes for sampling in the vicinity of LNAPL, potential DNAPL and the other known contamination |
| 13 | 4.1 | 12 | Waste classification (Table I-10) | Consider inclusion of TCLP for a number of analytes and adequate sampling and analysis to inform waste classification. |

TABLE: Site RY05

| Site Auditor. | Brad May | Site. | RY05 - 165 Victoria Rd, Rozelle NSW 2039 | |
|---------------|------------------------------------|---------|---|--|
| Date. | 22/01/2019 | Report. | Appendix J - Site RY05_SAQP | Rev: unknown (Issue Date or version is not presented in Sub-SAQP) |
| No | Document Reference | Page | Issue | Comment |
| 1 | Overall | | The structure of the Sub-SAQPs does not allow for the Auditor to review the supporting information and determine if the rationale is appropriate for the objectives of the SAQP. Although some historical information is provided in the sub-SAQP, some material is included as an Appendix there is no information relating to a historical site statement and possibly previous site works/ site conditions or investigation. | It is considered that the previous investigations, data, borehole logs etc. are required to provide robust information to inform CSM and sampling strategy. Essential information from the previous investigation have not been presented to allow for effective review, or for SAQP users to be informed. Either provide the previous SAS and investigation reports or include essential information in (or attached to) the SAQP, i.e. analytical data, bore logs, fill profile etc. Target depths cannot be verified as appropriate as the areas of concern, depth and locations of previous soil and groundwater exceedances have not been provided in the SAQP. |
| 2 | Overall | | Delineation of former UST | It is required to inform the investigation of associated potential soil and groundwater contamination. |
| 3 | Table J-1 (Background Information) | 1 | Information is limited in terms of proposed site activities for construction. | Either Table J-1 should include description of construction activities (or may be included elsewhere in section 1), enabling the sampling program to inform the works. Information should include depth of excavation or disturbance, and any cut and fill proposed. Proposed sampling target depths should consider the depth of excavation and site worked to inform disposal requirements where possible. |
| 4 | 1 | 1 | The purpose or objective of the SAQP program is not defined. | The objective/ purpose should be clearly stated, for example: baseline due diligence, assess risks to future site users, delineation of known soil and groundwater impacts, delineation of fill profile and areas of impact previously identified, indicative waste classification in areas of disturbance or bulk excavations (if any). |
| 5 | 1.2 | 2 | PFOS/ PFAS use | Potential for PFOS/ PFAS use on site not addressed. |

| | | | | |
|----|-------------|----|--|--|
| 6 | 1.3.4 | 4 | Include previous borelogs (adjacent site investigation), as they exist (AECOM 2017 and 2018) | Include borelogs in SAQP (attachment) - to inform site works. |
| 7 | 1.3.5 | 4 | Include groundwater flow direction | Information required to optimise siting the new monitoring well, appropriately characterise groundwater contamination (if any), identify potential receptors (onsite and offsite) and assess potential offsite migration of contamination and impacts. |
| 8 | 1.3.6 | 5 | AECs/ COCs | AECs and COCs described very generally and potential offsite impacts not discussed. More detailed AECs/ COC breakdown required based on site history and previous activities. Include demolition of former site buildings and associated COCs |
| 9 | New Section | | Investigation Levels | Include (new section) investigation levels that will be applied for assessment of generated data. Presentation in 'overarching' SAQP is generic and not specific to the site. Relates back to SAQP objective/ DQOs. |
| 10 | 4.1 | 8 | Sampling Plan rationale | Rationale for sampling plan should be included, i.e. systematic or targeted? What are we targeting? Should be based on adequate DQOs. |
| 11 | 4.1 | 8 | Basis for sampling density | Related to above, include basis/ justification for sampling density. An assessment of the expected sampling density coverage, in regard to AS4482 or EPA Sampling guidelines should be assessed. Clarity on the sampling rational, targeted, systematic should be clarified. |
| 12 | 4.1 | 10 | Groundwater assessment details | Site specific detail of the groundwater well installation should be presented in terms of expected water table depth, screen interval, and sampling |
| 13 | 4.1 | 10 | Waste classification | Consider inclusion of TCLP for a number of analytes and adequate sampling and analysis to inform waste classification |



12 May 2020

Project Number: SY180068.01

Mr Chetan Jayaram
Environmental Advisor
Email: Chetan.jayaram@rozelleinterchange.com.au
JHCPB Joint Venture
L4, 410 Concord Road
RHODES NSW 2148

Re: Interim Audit Advice #9A for Statutory Site Audit SY012/SY180068.01/9. Review of WSP Work Plan - Sub Site Area – Pigtail Bridge/ RY01 for WestConnex Stage 3B Rozelle Interchange

Dear Chetan,

JHCPB Joint Venture has engaged Brad May, an Environment Protection Authority (EPA) accredited Contaminated Site Auditor (1603), employed by Epic Environmental as the Site Auditor for the property located at 1 Hornsey Street, Rozelle NSW.

1 PURPOSE

This IAA provides the JHCPB JV with interim advice as part of Statutory Site Audit No. SY012 being undertaken by Brad May, a NSW EPA Site Auditor accredited under the Contaminated Land Management (CLM) Act. The advice forms part of a statutory site audit for the WestConnex Stage 3B Project.

This interim advice report specifically addresses the contaminated land investigation Work Plan for the Sub Site Area RY01 (Ref:PS117368-CLM-LTR-WP-RY01 Rev C, dated 20 March 2020) prepared by WSP.

This communication has been provided as interim advice only. Where applicable, the information provided is consistent with NSW EPA guidelines and policies. The advice does not constitute a site audit report or site audit statement and does not pre-empt the conclusions which will be drawn at the end of the audit process. A site audit report and site audit statement will be issued when the audit process has been completed.

2 SPECIFIC WORK PLAN COMMENTS

The Auditor issued WSP with an initial review of the Work Plan for RY01 sub-area (IAA #9, incl Ref: Sy180086.01_IAA_RY01_WSPWorkPlan_12Mar2020). WSP has reviewed this document and implemented changes in accordance with the Auditors comments (Ref: PS117368-CLM-LTR-WP-RY01 RevC), which are also documented in WSP letter 'Interim Response to Site Audit Advice #9 – Review of WSP Work Plan – RY01 (Ref: PS117368-CLM-LTR-pigtail-IA1-RevA).

The Auditor has reviewed the revised Work Plan from WSP. The attached Table RY01B Table is provided to detail the remaining issues raised by the Auditor and areas that require further information to allow the Auditor to

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XX

endorse the rationale behind the sampling program. In particular, we consider a well-articulated purpose/objective is important and is required to be kept front of mind to avoid further site works or data acquisition to allow the Audit to be finalised.

Should you have any questions regarding the above, please contact the undersigned.

Regards,

A handwritten signature in blue ink, appearing to be 'G. Bagwell', is written above the printed name.

Gary Bagwell, for

Brad May

Principal Environmental Engineer/ NSW EPA Contaminated Site Auditor (1603)

Enclosures: Table RY01B

CC:

Table RY01B

| Auditor Comment (12/03/2020) | WSP Response (20/03/2020) | Action (20/03/2020) | Auditor Response (12/05/2020) |
|---|---|--|--------------------------------------|
| The previous Ramboll SAQP (August 2019) refers to this site as Lot 3 in DP 1001928. Please include this reference if referring to the same site | The Site Audit area covers part of Lot 3 in DP 1001928. | Update Work Plan:- — Add Lot and DP detail into Table 3-1. | Noted. |
| Section 3 makes reference to the previous environmental reports (ERM 2002, Coffey 2003 and AECOM 2017) and states that location figure, borehole logs and results summary tables from the reports are included in Attachment B. However, no borelogs are included in Attachment B, please include them | WSP only have access to borelogs from the AECOM 2017 investigation. | Update Work Plan:- — Add AECOM 2017 borelogs to Attachment B | Noted. |
| It is noted that proposed SS01 to SS03 inclusive extended to 0.3m will not adequately assess the stated vertical depth of the study boundary (in Table 4.1: Soil Sampling – a minimum of 0.5m into residual soils or rock, or 0.5m below the extent of observable contamination, whichever is greater). While SS01 to SS03 may be undertaken to target historic shallow impacts, consider extending the target depth at these locations to 2.5 mbgl (or greater) as Section 5: Sampling Plan states that: “Fill has been encountered to depths up to 2.0 mbgl, the entire depth profile of the fill needs to be characterised given that cut and fill activities will be occurring on site. | <p>WSP note that the proposed sampling technique adopted in this case was dictated by site safety/access restrictions.</p> <p>There is a steep embankment between the site compound area and rail line. Location SS01 to SS03 have been positioned at the toe of the embankment. WSP will attempt to penetrate as deep as possible into the bank, noting that works will be undertaken using hand tools due to access restrictions.</p> <p>In future Work Plans the rationale table will include footnotes highlighting any access limitations.</p> | <p>Update Work Plan:-</p> <p>— Update Table 4.1 noting SS01-SS03 are proposed at toe of the embankment</p> | Noted. |

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| Auditor Comment (12/03/2020) | WSP Response (20/03/2020) | Action (20/03/2020) | Auditor Response (12/05/2020) |
|---|---|--|-------------------------------|
| <p>Include PFAS chemicals in COPCs and include appropriate sampling and analysis for PFAS in soils and groundwater to screen for the potential presence of PFAS. While the Work Plan provides assessment that PFAS contamination is low risk on this site, Epic disagrees with this assessment on the basis that:-</p> <ul style="list-style-type: none"> — Site history indicates that the site was used from 1950: general storage, manufacture and assembly of prefabricated building products. Epic notes that Appendix B of HEPA (2018) NEMP assembly includes manufacturers of building products as a potential PFAS risk activity — In 1992, the site was used as a car repair workshop and may have held fire fighting chemicals on-site during this time; and <p>There is uncertainty/ gaps in the site history, given that from 1961, a large shed was located at the centre of the site, with a smaller shed located in the western portion and that site activities during this time are unknown.</p> | <p>Given the uncertainty in the available site history with regard to activities associated with the shed constructed in 1961, PFAS will be included in the analytical suite.</p> | <p>Update Work Plan:-</p> <ul style="list-style-type: none"> — Update Table 3.1 — Update Table 5.1 | <p>Noted.</p> |

| Auditor Comment (12/03/2020) | WSP Response (20/03/2020) | Action (20/03/2020) | Auditor Response (12/05/2020) |
|--|--|--|-------------------------------|
| Considering that fill materials are anticipated across the site, include a procedure (or reference to a procedure) to visually screen the fill for asbestos and undertake asbestos sampling during site works to ensure reproducible data are generated. | The driller will lay out all drill cuttings onto a light- coloured tarp for visual inspection. As noted in table 6.1, <i>"A minimum 500ml sample will be collected from each borehole location. Following collection of all required samples the remaining borehole cuttings will be crumbled with light finger pressure and the soil inspected for evidence of ACM"</i> | Update Work Plan:- — Add to Table 6.1, 'The driller will lay out all drill cutting onto a light- coloured tarp for visual inspection' | Noted. |
| Include in Table 5.2 and 5.3 what QA/QC sampling and analysis is proposed to demonstrate the reliability of data. Table 6.1 infers that QA/QC sampling will be carried out, but it is unclear what is proposed. Epic recommends that QA/QC samples be collected in accordance with Section 5.4 of Schedule B92 of the ASC NEPM. AS 4482.1-2005 recommends blind replicate samples be analysed by the primary laboratory at a rate of 1 in 20 samples and that split samples be analysed by a secondary laboratory at a rate of 1 in 20 samples. Other quality control samples including field trip and blank samples should be included as appropriate. Please clarify in the Work Plan prior to implementation. | As per AS 4482.1-2005 WSP will collect one blind replicate sample to be analysed by the primary laboratory at a rate of 1 in 20 samples and one split sample to be analysed by a secondary laboratory at a rate of 1 in 20 samples. One rinsate sample will be collected per day. One trip blank will be submitted to the laboratory per batch of samples dispatched. | Update Work Plan:- — Confirm QA/QC sample requirements in Table 6.1 and 6.2. | Noted. |

| Auditor Comment (12/03/2020) | WSP Response (20/03/2020) | Action (20/03/2020) | Auditor Response (12/05/2020) |
|--|--|---------------------|---|
| <p>The purpose or objective of the Work Plan should be clearly stated.</p> | <p>The objective of the Work Plan is to document recent construction and investigation activity at the site; identify area specific investigation objectives, summarise the proposed soil and groundwater investigation including contaminants of potential concern (COPCs); outline the target sources and rationale for individual sample locations and identify specific data quality objectives.</p> <p>Waste classification is not required by JHCPB.</p> | <p>No Action</p> | <p>Please consider alternative objective statement:</p> <p>The objective of this Work Plan is to document an investigation plan that will:</p> <ul style="list-style-type: none"> Assess the potential, level and extent of contamination to be present across the site as a result of past and current land use activities; Provide a basis for management of contamination during construction activities; Provide advice on whether the site would be suitable (in the context of land contamination) for the proposed motorway associated development; and Assess the need for any further site investigation, to inform a RAP. |

| Auditor Comment (12/03/2020) | WSP Response (20/03/2020) | Action (20/03/2020) | Auditor Response (12/05/2020) |
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| Include the area of the subject site (note the Ramboll SAQP refers to site area as 5,820m ²). | The Site Audit area covers part of Lot 3 in DP 1001928. JHCPB don't have any responsibility to remediate land along the active rail corridor operated by Sydney Light Rail authority. | Update Work Plan:- —Add site area into Table 3-1. | Noted, included as approximately 3,400m ² . |
| Include (new section) investigation levels that will be applied for assessment of generated data. Reference is only made (in Table 4.1) to 'relevant site assessment criteria'. | Data will be screened against NEPM HIL C, HSL C and management limits (public open space). Applicability of the NEPM EIL/ESL criteria will be determined in the Phase 2 report. | Update Work Plan:- — Add a new row to Table 3.1, Investigation Levels. | If land use is public open space then EIL/ ESL criteria (urban residential and public open space) would be applicable |
| Include rationale for sampling plan, i.e. is it systematic or targeted? If targeted, what AECs are being targeted? What is the sampling density to be achieved? Should be based on consideration of the DQOs. | A systematic soil sampling plan has been adopted, with GW02 targeting groundwater quality beneath the former workshop building. The sampling density (considering historic and current investigations) is targeted to achieve the minimum sampling points required in Table A of the NSW Sample Design Guidelines (NSW 1995). Site area is approximately 3,400m ² , requiring minimum 10 samples. | Update Work Plan – Add additional paragraph to Section 5. | Noted. |
| If possible, include more complete description of construction activities, enabling the sampling program to inform the works. Information should include depth of excavation or disturbance, and any cut and fill proposed. Proposed sampling target depths should consider the proposed depth of excavations (cut and fill) to inform management requirements. | Construction activity and available cut-fill profile is presented in Table 3.1. Note that the project detail design is on-going, cut-fill profile drawings are not currently available for all site areas (Pigtail not currently available). WSP note however that the primary construction activity in this area is associated with a new pedestrian bridge. Extensive piling works are required, however it is envisaged that cut profiling will be minimal. | JHCPB to chase design team for updates. | Noted. |

| Auditor Comment (12/03/2020) | WSP Response (20/03/2020) | Action (20/03/2020) | Auditor Response (12/05/2020) |
|---|--|---|---|
| AECs and COPCs are described very generally and potential offsite impacts not discussed. More detailed AECs/ COPC breakdown may be included based on site history and previous activities. | <p>Contamination exceeding adopted guidelines values in the Coffey 2002 investigation were generally associated with fill materials, <i>“As PAHs were identified consistently across the site, the fill material was considered to be source, rather than other sources such as the adjacent rail corridor from previous uses of the site as a car repair workshop”</i>.</p> <p>The target for the additional proposed soil locations is systematic coverage of potential fill material, with GW02 targeted to investigation groundwater condition beneath the former workshop building.</p> | No action | Identifying AECs is an important aspect of contamination assessment process and should be included in a sampling and analysis plan, based on review of all available information. Also, if fill is considered to be the primary AEC on site, then this is actually not mentioned anywhere in the Work Plan. |
| Consider inclusion of TCLP and ASLP for a number of analytes to inform waste classification and suitability for site re-use (cut and fill) | JHCPB has appointed a separate consultant to undertake waste classification. Refer to Table 6.1, ASLP testing will be conducted on up to five samples for PAH and metals (to be scheduled following receipt of the soil data). | No action | Noted (Table 5.2) |
| Site specific detail of the groundwater well installation should be presented in terms of expected water table depth, screen interval, tidal influence and processes for sampling in the vicinity of any LNAPL, DNAPL. The containment/disposal of potentially contaminated wastewater to be generated during well development and purging should also be considered. | <p>Groundwater is anticipated to be approximately 1.5 m bgl, with minimal tidal influence expected. Target depth for screen is 1 – 4 m.</p> <p>Purged groundwater will be stored onsite by WSP in labelled containers. The water will be subsequently discharged by JHCPB into the project water treatment facility.</p> | <p>Update Work Plan:</p> <p>– Add screen detail to Table 6-1.</p> | No details included. The Work plan would be improved with these details added for guidance. |



XX

| Auditor Comment (12/03/2020) | WSP Response (20/03/2020) | Action (20/03/2020) | Auditor Response (12/05/2020) |
|---|---|---------------------|---|
| Should nominate what laboratories are to be used for the investigation. | Refer to table 6.1 ' <i>Our primary laboratory will be ALS for primary testing, with our secondary laboratory for QA/QC testing being Eurofins</i> '. | No action | Noted (although under heading Sample Storage and Transport?). |



17 May 2021

Project Number: SY180068.01

Mr Chetan Jayaram
Environmental Advisor
Email: Chetan.jayaram@rozelleinterchange.com.au
JHCPB Joint Venture
L4, 410 Concord Road
RHODES NSW 2148

Re: Interim Audit Advice #15B for Statutory Site Audit SY012/SY180068.01. Review of WSP Detailed Site Investigation - Sub Site Area – Pigtail Bridge/ RY01 for WestConnex Stage 3B Rozelle Interchange

Chetan,

The John Holland and CPB Joint Venture (JHCPB JV) have engaged Brad May as the NSW EPA Contaminated Site Auditor to satisfy the requirement of the infrastructure Approval under section 5.19 of the Environmental Planning and Assessment Act (1979) referred to as the State Significant Infrastructure (SSI) 7485 conditions of approval E181 and E185.

1 PURPOSE

This IAA provides the JHCPB JV with interim advice as part of Statutory Site Audit No. SY012 being undertaken by Brad May, a NSW EPA Site Auditor accredited under the Contaminated Land Management (CLM) Act. The advice forms part of a statutory site audit for the WestConnex Stage 3B Project.

This interim advice report specifically addresses the Auditor's review of the report titled Westconnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge - Detailed Site Investigation (DSI) (Ref: PS117368-CLM-REP-PT RevC.docx, dated 17 March 2021) prepared by WSP. This DSI has been prepared following Epic's review of WSPs Rev B of the DSI report (Ref:PS117368-CLM-REP-PT- RevB.pdf, dated 17 September 2020), as documented in our letter dated 22 July 2020 (Ref: SY180086.01_IAA15A_WSP_Rep_RY01Pigtail Bridge20Jan2021_F0.pdf).

This communication has been provided as interim advice only. Where applicable, the information provided is consistent with NSW EPA guidelines and policies. The advice does not constitute a site audit report or site audit statement and does not pre-empt the conclusions which will be drawn at the end of the audit process. A site audit report and site audit statement will be issued when the audit process has been completed.

2 SPECIFIC DSI COMMENTS

Specific comments to close out the Auditor's review of the DSI are provided in the attached **Table 1**. Given that the issues raised have generally been addressed satisfactorily, the Auditor is now able to endorse the DSI report. It is noted that the final land use of the site is open space and that the site will be landscaped and maintained. In particular, the Auditor supports the site management recommendations provided in Table 10.1 of the DSI.

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A data usability summary assessment is provided as **Attachment A**. This assessment found that the data used in the assessment was reliable and suitable for the purposes of the assessment.

Should you have any questions regarding the above, please contact the undersigned.

Regards,

A handwritten signature in black ink, appearing to read "Brad May". The signature is fluid and cursive, with the first name "Brad" and last name "May" clearly distinguishable.

Brad May

Principal Environmental Engineer/ NSW EPA Contaminated Site Auditor (1603)

Enclosures: Table 1 – IAA 15B: Attachment A: Data Reliability Assessment

CC:

Table 1 – IAA #15 for Statutory Site Audit SY012/SY180068.01. Review of WSP Detailed Site Investigation - Sub Site Area – Pigtail Bridge/ RY01

| Report Section | Auditor Comment | WSP Response | Auditor Response |
|-------------------|---|--|------------------|
| | ISSUES TO BE ADDRESSED | | |
| Executive summary | Include scope of works. | Noted. Scope summary added to exec summary | Closed. |
| 1.3 Objectives | Last dot point indicate additional investigations to close data gaps, please confirm if these gaps relate to the development of an RAP or final landuse. Objectives should include: 'to inform the suitability of the site for the intended final landuse and to provide sufficient information to allow preparation of a Site Suitability Statement by the appointed Auditor. | Objectives expanded in revised report. Two additional objectives added to Section 1.3. | Closed. |
| Section 2 | Include site inspection details for this assessment including relevant site photographs. Refer to ASC NEPM 2013 field inspection checklist for required inclusions. | Site inspection details added in the revised report. New Site Observation Section added as Section 2.2. Photo log added to Appendix B. | Closed. |
| Section 2 | A section detailing the proposed construction activities, at least in general terms, and highlighting areas of bulk excavation or soil disturbance. Please indicate if dewatering activities are likely to be required in the area. | Development activities comprise construction of a raised pedestrian access walkway and bridge. Proposed activities include: - — Site filling to construct a stable piling platform. — Piling for bridge piers. — Bridge and walkway construction. — Final Landscaping. No bulk earthworks are proposed. Minor dewatering will be required during piling works. Additional row added to Table 2.1. | Closed. |
| | Include a site plan with the final site configuration and proposed activities and landuse consistent with wording detailed in a Site Suitability Statement. | A copy of the final JHCPB Landscape Design General Arrangement Plan is included in Appendix A. | Closed. |

| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|--|---|------------------|
| Section 3.4 | –Historic land uses – include references for site history sources, including NSW EPA Registers. | References included:- <ul style="list-style-type: none"> — Certificates of Title for Lot 3 DP 1001928 identifying site ownership from 1896 to April 2019 presented in the Ramboll SAQP. — Historical Aerial Photographs (https://portal.spatial.nsw.gov.au/portal/apps/webappviewer accessed May 2020). — ERM (2002), Stage 1 and Stage 2, Brennan Street, Lilyfield, Environmental Site Assessment. — LotSearch, Environmental Risk and Planning Report, Rozelle Railyards, February 2016. Reference footnote added below Table 3.1. | Closed. |
| Section 3.1 | Historical exceedances should be depicted on Figure 2 and figure 6 to provide a robust indication of analytical data across the site. Include ACM detections and sample depth. | Noted. Figure 2 updated | Closed. |
| | Depth of fill should be indicated on the sample locations from ERM logs on Figure 2. | Noted. Figure 2 updated | Closed. |
| Section 3.2 | Historical exceedances should be depicted on Figure 2 and Figure 6 to provide a robust indication of analytical data across the site. Include ACM detections and sample depth. Depth of fill should be indicated on the sample locations from Coffey logs on Figure 2. | Noted. Figure 2 and new Figure 7 updated | Closed. |
| Section 3.3 | Historical exceedances should be depicted on Figure 2 and Figure 6 to provide a robust indication of analytical data across the site. Depth of fill should be indicated on the sample locations from AECOM logs on Figure 2. | Noted. Figure 2 and new Figure 7 updated | Closed. |
| Section 3.3 | Include well depth and locations on Figure 3 and Figure 6 | Noted. Figure 6 only updated | Done - closed. |

| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|--|---|--|
| Section 3.5 | Please include a discussion on the waste classification program and if Waste classification sampling has been completed. If so, please include details and summary of results and waste disposal. | A single waste classification report has been commissioned by JHCPB. The classification was conducted by ADE and related to a stockpiled volume of 225 m3 stored onsite. ADE classified the Stockpile as Special Waste – Bonded Asbestos (general solid waste). It is understood that ADE will undertake additional waste classification on behalf of JHCPB on an as required basis. Additional row added to Table 3.1 – Waste Classification. Additional sub-section 3.4 added which summarises the single ADE waste classification. | Closed. |
| Table 5.1 | – as per work plan BH01-BH05 analysis was supposed to include VOC/SVOC. Please discuss why this was not included and potential data gap. | One sample per location was analysed for VOC/SVOC from locations BH01 to BH05 (refer to Page 6-10 of 10 in Appendix E Analytical Soil Tables. No Action | Table updated – closed. |
| Section 7.4.5 | States Actual Acid Sulfate Soils were identified, however pH KCl for all samples analysed was >4. The soils are therefore PASS and not AASS. Also correct conclusion (Section 10) with regard to PASS. | Based on the pH KCl values and titratable actual acidity results WSP agree that the soils analysed are indicative of PASS. Updated Section 7.4.5 to reflect revised conclusion that soil samples are indicative of PASS. | Section 7.4.5 and Discussion/ Conclusions updated to reflect this conclusion – Closed. |
| Section 3.4 | Noted that the final activities. Please indicate final landuse terminology. | Final land use will be public open space. Refer to public open space in Table 3.1. | Closed. |
| Section 3.4 | Include areas of bulk excavation or soil disturbance as an input to the assessment of risks. | No bulk excavation is proposed. Soils will be disturbed during piling for the footbridge foundations. Additional detail added to Table 3.1 – Waste Classification | Noted. Closed. |
| Section 3.4 | The historical data available (where reliable) for the site should be utilised in the development of the CSM and not limited to identification of PCOC. | WSP advises that the historic investigation data has been used in developing the CSM. Additional detail added to Table 3.1 – COPCs. | Noted. Closed |
| Section 4.1 | Step 2, please clarify the future landuse. Include the decision relating to the risk to workers during construction activities. | Public open space land use is proposed. Added to Table 4.1, Step 2 ‘...for the proposed future public open space land use.’ | Closed. |

| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|---|--|------------------|
| | Step 5 Noted that open space landuse is noted and should be presented earlier in the report. | Noted, in revised report this will be referenced first time in Table 3.1. | Closed. |
| Section 5.1 | The sampling density is noted as 10 locations to meet the NSW EPA sampling design guidelines. Table 5.1 indicates that 6 deep locations have been completed, 3 shallow soil locations. Please justify how the WSP sampling density with >2.6m of fill meets the required density. Have the historical location been assessed for reliability in the assessment program? | <p>Seven boreholes and three monitoring wells were initially proposed. While onsite two historic monitoring wells were located, as such only one new well was installed. WSP note that this has left us with only 9 out of the 10 planned soil locations. Shallow soil techniques were employed at locations with poor accessibility. Given that no bulk excavation is proposed during site development, the shallow soil samples are considered suitable to inform the requirement for remediation. Coffey section 2.4 Local Geology note “ERM revealed the site is underlain by fill at depths ranging from 0.45 m to 2.0 m, further confirmed in Section 3.2 ERM Soil Sampling and Analysis. Coffey Section 7.1.1 Soil indicated fill depths varying from 0.7 m to 1.5 m BGL. WSP undertook additional soil sampling at three locations during July 2020. The updated ESA will report on all twelve sample locations.</p> <p>Additional environmental soil samples collected from three boreholes during further geotechnical works in July 2020. Results included in revised ESA report, including updated summary tables.</p> | Noted. Closed. |
| Section 5.1 | Stated that fill is up to 2.0mbgl. Coffey indicted that fill was greater that 2.6mbgl. | <p>Coffey section 2.4 Local Geology note “ERM revealed the site is underlain by fill at depths ranging from 0.45 m to 2.0m, further confirmed in Section 3.2 ERM Soil Sampling and Analysis. Coffey Section 7.1.1 Soil indicated fill depths varying from 0.7 m to 1.5 m BGL.</p> <p>No action</p> | Noted. Closed. |



| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|--|---|-----------------------------|
| Table 5.1 | Please review the table notes as the reference notes do not appear to correlate to the correct locations. | Noted Tables have been updated to include second round of soil samples. Footnotes correct. | Noted Closed. |
| Table 5.2 | Please confirm rig type and soil sampling methods. | A Comacchio 405 geoprobe with solid stem augers was used for drilling. Shallow soil samples < 1.5 mBGL were collected using a hand auger, deeper samples were collected directly from the solid stem auger. No action | Table 5.2 updated – closed. |
| | Installation details of all wells installed at the site with regard to water strike, standing water levels and lithology. Confirm construction details and completion details (monument, gatic, standpipe) | The newly installed well GW03 was constructed with a screen interval between 2.9 mBGL and 6 mBGL targeting the alluvium material directly above the sandstone bedrock. A one metre high monument was installed to protect the monitoring well. Based on a down well camera inspection the screen interval at GW01 is 1.5 mBTOC to 5.5 mBTOC and at GW02 is 2.5 mBTOC to 6.5 m BTOC. The standpipe for both wells were approximately 0.5 m above ground level (no protective monument was present). Depth to standing groundwater was measured between 2.352 m below top of casing (mBTOC) and 2.899 mBTOC. Additional detail added to Table 5.2 – Monitoring well installation. Information for GW01 and GW02 is recorded in Table 7.2. Standing water levels are summarised in Table 7.3. | Closed. |
| | Indicate the purging and development requirement for the installed and historical wells on site. Please reference groundwater field sheets. | Noted. Additional row added to Table 5.2 – Well Development. | Closed. |



| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|---|--|---|
| Section 6.1 | Please include HIL-D in the assessment criteria to assess potential risks to users of the sit during construction activities. | Noted. HIL-D and HSL-D Added to updated summary tables. Sentence added to 6.1 –“Based on the current site use, the soil analytical results were also compared to the HIL-D and HSL-D criteria.” | Closed. |
| Section 6.1 | Please update reference to the NSW EPA Auditor Guidelines 3 rd edition 2017. | Noted. Section 6.1 updated. | Closed. |
| | Please indicate the relevant of the ACT Contaminated Land Policy. | No specific relevance. Reference removed from Section 6.1. | Closed. |
| Section 7.1 | A clear description of the fill encountered at the site is required. Please include a figure that indicates a compilation of the fill profile as observed by WSP and historical reporting. A plan view (with contours) or a series of cross sections is required. | <p>There is insufficient survey data available in the historic reports to determine if the site has been subject to any re-profiling. During the two phases of investigation associated with the DSI changes to the ground surface profile have occurred. WSP has requested additional construction information from JHCPB which would allow WSP to include a cross section within the proposed RAP.</p> <p>An additional table has been added to Section 7 – Table 7.1 Fill Material Description.</p> | <p>Fill description included – noted.</p> <p>The site Auditor strongly suggests that cross section or graphical Conceptual Site Model (CSM) should be included (schematic as a minimum). The RAP should include details for any works or design in more detail.</p> <p>Noted, new Table 7.1: Fill Material and Description. CSM/ cross section to be included in RAP (remediation memo) and updated with validation report.</p> |

| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|---|---|------------------|
| Section 7.3 | Please include discussion relating to the HIL -D screening criteria. | Noted. There were no exceedances of the HIL-D criteria. Added to Section 7.3 – “The concentrations for all analytes (except for asbestos) recorded at all sample locations were below the HIL-D and HSL-D criteria. The asbestos w/w concentration of 0.051 % recorded at WSP_PT_BH01_0.5 exceeds the HSL-D criteria.” | Noted – closed. |
| Section 7.4.4 | Please justify the statement that the proposed works are unlikely to exceed 1000 tonnes being excavated (disturbed). Details on the proposed or completed works have not been detailed in the DSI. | Development activities comprise construction of a raised pedestrian access walkway and bridge. Proposed activities include:- <ul style="list-style-type: none"> Site filling to construct a stable piling platform. Piling for bridge piers. Bridge and walkway construction. Final Landscaping. No bulk earthworks are proposed. Minor dewatering will be required during piling works. Additional row added to Table 2.1. | Closed. |
| Section 7.5 | The auditor agrees previously installed wells can be used for groundwater monitoring purposes. However, there is uncertainty relating to the observed screened interval in the correct lithology, and at an appropriate depth as borehole logs area not available., Please justify well construction details relative to known lithology logs. Omission of soil samples at these locations has reduced density as approved in Site Work Plan. | The fill depth from historic investigations has been included on Figure 2 in the updated report. Table 7.1 has been added to updated report to show current fill profile recorded. Maximum depth of fill is 1.6 mBGL. Inferred reworked natural material was encountered to a depth of approximately 2.2 m BGL. Bedrock has been encountered between 5.9 and 10 mBGL in current and AECOM investigations. Based on the additional information presented WSP can conclude that the monitoring well screen in MW1 and MW2 are installed within the alluvium material. Additional column added to Table 7.3 to confirm screened lithology. | Noted. Closed. |



| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|---|--|-----------------------|
| Table 7.3 | <p>Groundwater flow is referenced to Figure 6 but should be Figure 7. There appears to be inconsistency in the groundwater flow direction as text indicates to the south west, while Figures indicate westerly direction.</p> <p>Noting the lack of survey data, the groundwater flow direction is likely to be affected by the adjacent channel. The stated groundwater flow, as indicated would suggest that the channel is providing a recharge to GW as opposed to receiving GW inflow.</p> <p>A number of factors should be considered, including tidal influence, fill profile and ingress points. Please clarify and update conclusions and recommendations.</p> | <p>Groundwater flow has been plotted using the survey (mAHD) data. Groundwater flow is towards the east. Table 7-4 updated to reflect easterly flow direction. Figure 6 updated.</p> | <p>Noted, closed.</p> |
| Section 8.1 | <p>The source areas should consider all reliable historical data in terms of the source identification in the CSM. It is noted that ACM was observed in historical reports and should be considered in relation to the distribution of fill across the site. Exceedances or elevated PAH compounds have also been identified across the site associated with the fill. The estimated extent and volume of fill should be calculated to information potential management or remediation actions.</p> | <p>All historical information has been considered in WSP's CSM. Additional detail will be added to Section 8.1 to make this clearer. The estimated volume of fill is 3,000 to 4,000 m3. Further detail added to Section 8.1.</p> | <p>Noted. Closed.</p> |

| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|---|--|------------------|
| Table 8.1 | It is noted that the inhalation of contaminants is stated as unlikely during construction/remediation. The presence of asbestos and ACM at the site would suggest that this risk is likely. Similarly, future users may also be likely exposed to ACM or asbestos if not appropriately managed. | <p>Construction workers -Inhalation of vapour in shallow excavation trenches was stated as unlikely. A specific row for PAH and asbestos soil impacts has been added to the updated report. Site users – Table 8.1 indicates that there is a possible risk.</p> <p>New row added to Table 8.1 for inhalation of PAH and asbestos from impacted soils. “Possible: Soils impacted with COPC above the adopted assessment criteria, are currently not exposed at surface. Dust impacted by COPC have the potential to be inhaled if soils are disturbed during construction.”</p> | Closed. |
| Section 10 | The report should include a section relating to management requirements that clearly outlines the findings and actions for the DSI. This should include requirement for a RAP, any further assessment to address data gaps and if the DSI will support a Site Audit Statement, or work required to achieve this outcome. Recommended actions to manage contaminated soil or groundwater is required for both construction and final land-use. | <p>Noted. Management actions will be undertaken in accordance with the existing JHCPB CEMP and applicable sub-plans.</p> <p>Additional Table 10.1 Management Measures added to the updated report.</p> | Closed. |

| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|---|--|------------------|
| Section 10 | includes the statement that ‘Given the analytical results and aesthetic impacts in the surface filling WSP does not consider the site currently suitable for open space land use without some remediation or management works (removal or capping of fill material)’. WSP should give reasoning for this conclusion particularly with reference to statistical analysis as outlined in Section 6.1 and asbestos assessment in accordance with the NEPM. | Given the identification of asbestos (ERM 2002, WSP 2020 and ADE 2020) across the south western portion of the site, the combined current and historic PAH soil analytical results and aesthetic impacts in the surface filling WSP does not consider the site currently suitable for open space landuse without some soil remediation or management works to prevent direct contact or inhalation of dust / fibres emanating from impacted soils. Site remediation and management also needs to consider the site environmental value and ability to support future plant growth and soil micro-organisms. Additional sub-section added 10.3 Land Suitability. | Closed. |
| Section 10 | Management of the fill soils is likely to require requirement and procedure for addressing unexpected finds. | Noted. Management actions will be undertaken in accordance with the existing JHCPB CEMP and applicable sub-plans. Additional Table 10.1 Management Measures added to the updated report. | Noted. Closed. |
| Table 7.3 | With regard to groundwater elevation and flow – if GW01 could not be surveyed why has an AHD of 2.9 been included on Figure 6? Inferred groundwater contours on Figure 6 also indicate a flow to the east (the arrow is pointing the wrong way). | Groundwater flow has been plotted using the survey (mAHD) data. Groundwater flow is towards the east. Table 7-4 updated to reflect easterly flow direction. Figure 6 updated. | Closed. |
| Table 8.1 | Environmental surface waters – need to address downgradient flow to Rozelle Bay. | Noted. Note added to Table 8,1 - “Rozelle Bay is located approximately 400 m downgradient of the site and unlikely to be impacted by contaminants from the site.” | Closed. |
| Table 8.1 | Does not address on site ecological receptors (EILs and ESLs) – need to include. | Noted. Impacts to non-tolerant plant species are likely given widespread B(a)P exceedances. Additional row added to table 8.1 – Ecological soil values. | Closed |



| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|--|---|------------------|
| | Site survey has not been provided so it is unclear how groundwater contours have been calculated. Please include survey information for groundwater wells. | Groundwater survey data has now been provided by JHCPB. Survey RLs added to Appendix D Table D1 – Groundwater Gauging Data. | Noted, closed. |
| | Chain of custody documents have not been included. Please include. | Appendix G updated to include CoC documents. | Closed |
| Figure 1 – | The site boundary appears to extend past the cadastral boundary. Confirm if this is correct? Or rectify. | Survey data was outstanding, now received from JHCPB. Rectified Figures updated to reflect the rectified site boundary. | Closed |
| Figure 2- 7 | Please confirm if site boundary is accurate. Appears to cover Whites Creek and encroach on the rail line. Or rectify Figures. | Survey data was outstanding, now received from JHCPB. Rectified Figures updated to reflect the rectified site boundary. | Closed |
| Figure 2 | Multiple assessment locations are outside of site boundary. Please confirm site boundary and/or sample locations. Or rectify Figure. | Survey data was outstanding, now received from JHCPB. Rectified Figures updated to reflect the rectified site boundary. | Closed |
| Figure 3 | GW03 is located in the middle of Whites Creek. Please confirm location of all samples are accurate. Rectify Figure. | Survey data was outstanding, now received from JHCPB. Rectified Figures updated to reflect the rectified site boundary. | Closed |
| Section 1.4 | Point 4 - <i>All existing historic wells were inaccessible at the time of 'sampling'.</i> Sampling should change to gauging. | Noted. Updated section 1.4 ...at the time of gauging | Closed |



| Report Section | Auditor Comment | WSP Response | Auditor Response |
|-------------------------|---|--|------------------|
| Section 1.5 | Technical framework: <ul style="list-style-type: none">- Include year (2007) for DEC 'Assessment and Management of Groundwater Contamination'- Include National Acid Sulfate Soil Guidance (2018). | Noted. Section 1.5 updated | Closed |
| Table 2.1 | Lot and Plan description: check Lot and DP for this site and include nearest street address (Brennan St), GPS coordinates and current owners of site. | Noted. Information added to table 2.1 | Closed |
| Table 2.2 | 1991 : <i>Large warehouse within Rozelle Railyard (immediately to the north of the site) appeared to have been.</i> There is no finish to this sentence. | Sentence should have been finished with demolished. Table 2.2 corrected. | Closed |
| Section 2 | Locations of any significant underground services should be discussed. | The majority of underground services on the site had previously been decommissioned. An open channel stormwater drain is located adjacent to the western site boundary and flows into Whites Creek. Additional detail added to Section 2.3 "An open channel stormwater drain is located adjacent to the western site boundary and flows into Whites Creek." | Noted. closed |
| Section 4.1 – Table 3.1 | Incorrectly labelled (should be Table 4.1?). | Noted. Table number corrected | Closed |

| Report Section | Auditor Comment | WSP Response | Auditor Response |
|------------------------------------|--|--|------------------|
| Section 4 Table 3.1 – Step 4 | Sentence: <i>soil sampling 0.5 m into residual soils or rock or 0.5 m below extent of observable contamination.</i> Suggest this be reworded as natural soils encountered are alluvial and boreholes likely did not extend 0.5 m past ASS contamination. | Noted. Table 3-1 Step 4 changed to say “soil sampling 0.5 m into natural soils or rock. | Closed |
| Section 4 Table 3.1 | Step 5 should include screening and investigation levels. | Noted. Table 3-1 Step 5 changed to “... environmental screening and investigation levels” | Closed |
| Section 4 Table 3.1 | Step 6 – state the acceptable limits. | The acceptance limits are presented in Table 4-2 and 4-3. Table 3-1 Step 6 reworded to say “The acceptable limits and/or range QA/QC procedures are defined in Table 4.2 and 4.3 which are generally consistent with the Ramboll SAQP.” | Noted. Closed. |
| Table 4.2 | Should state field duplicate RPD ranges (It is assumed that the Table 4.3 RPD’s would refer to laboratory duplicates). | Noted. Additional row added to table 4-2. | Closed. |
| Section 5.1 | Include diameter of hotspot able to be detected, and grid spacing required. | Noted. Text added to Section 5.1 “In total twelve soil locations have been sampled during the DSI. Based on an average distance of 15 metres between sample locations a hotspot diameter of approximately 20 m can be detected with 95% confidence.” | Closed. |
| Table 5.1 | Should specify if the location is targeting the former building footprint. | BH03 and BH-05 targeted the former buildings footprint. Table 5-1 updated. | Closed. |
| Table 5.1 | Include ASS analysis undertaken in this table. | Footnote to Table 5-1 notes that chromium reducible sulfur suite analysis was conducted. No action | Noted. Closed. |
| Table 5.1 | Would be improved if this table specified the media sampled (i.e. SS01-SS03 surface soil , GW01-GW03 soil sample and/or groundwater monitoring well). | Noted. Table 5-1 updated. | Closed. |



| Report Section | Auditor Comment | WSP Response | Auditor Response |
|-----------------------|--|---|--|
| Table 5.1 footnote 2. | Chromium suite update to chromium reducible sulfur suite. | Noted. Table 5-1 footnote corrected. | Closed |
| Table 5.2 – | Include methodology for collecting surface samples, and for collecting samples from the push tube or auger. | Noted. Additional detail added to table 5-1 “Soil samples were collected directly from the hand auger or drill auger using dedicated disposable nitrile gloves. All samples collected were placed in dedicated laboratory supplied containers” | Details were added to table 5.2. Closed |
| Table 5.2 – | Sample storage and transport – elaborate storage used i.e. iced esky, mobile fridge. | Noted. Table 5-1 text updated - “All samples were collected in laboratory prepared containers, stored in an insulated cooler box with ice immediately after sampling and were forwarded to our nominated laboratories. | Details were added to Table 5.2. Closed |
| Table 5.2 | Sampling team details should to be included. | Noted Row added to table 5.1. | Details were added to Table 5.2. Closed |
| Table 5.2 - | Sample splitting/ duplicate procedures need to be included. | Noted. Table 5-1 text added – “Duplicate samples were collected from the same soil horizon as the primary sample, from as close to the primary sample as practical and using the identical sample collection procedure. A record of which primary sample relates to the duplicate was documented in the field notes.” | Details were added to Table 5.2. Closed |
| Section 7.4.5 | Should indicate the shallowest detection of PASS i.e. BH03 and BH02 1.5. | Noted. Additional sentence added to Section 7.4.5 “The shallowest samples exceeding the action indicating PASS criteria were collected at 1.5 mBGL at locations BH2 and BH3.” | Closed |
| Section 7.4.5 | Sentence: <i>The results from the sample taken from GW03 at 4.0 m bgl exceeding the sulfur trail action criteria, but not the acidity trail action criteria indicating the presence of PASS in this location.</i> Please clarify this statement in accordance with current guidelines. | Based on the pH KCl value of 8.8 WSP consider that the soil sample is indicative of PASS. Updated Section 7.4.5 to reword sentence. | Closed |
| Table 7.3 | Depth to groundwater or Standing Water Level? Please clarify. | Standing water level. Table 7-3 (now 7.4) updated. | Closed |



| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|---|--|------------------|
| | Surface water run off direction to be included | The site was generally level with a slight fall <10% to the east. Surface water run-off is likely to flow to east towards Whites Creek. Additional sentence added to Table 7.3 (now 7.4) | Noted. Closed |
| | Summary of site climatic conditions needs to be included. | Noted. Additional Section 2.5 Climate and Rainfall added to provide annual rainfall. Additional row added to table 7.3 (now 7.4) Climatic condition providing rainfall data for March and April 2020. | Closed |
| Section 7.7 | Incorrect result value for TRH C6-C10 shown. | Noted Report corrected | Closed |
| Table 8.1 | Environmental surface waters – update to ground and surface waters. | Noted Table 8-1 updated | Closed |
| Table 9.1 | Include note that sampling strategy did not comply to Site Work Plan/ soil density. | Three additional locations have been sampled during additional geotechnical works. A total of nine deep boreholes and three shallow sample locations have been sampled (total 12). Additional results included in updated report. | Noted. Closed |
| Table 9.1 | Does not detail trip spike results. | Noted Additional row trip spike added to Table 9.1 | Closed |
| Table 9.2 | Needs to include laboratory duplicate results. | Noted Additional sentence added to last row of Table 9.2 | Closed |



| Report Section | Auditor Comment | WSP Response | Auditor Response |
|----------------|--|---|------------------|
| Section 10 | It would be useful if concentrations of exceedances were included and compared to the assessment criteria to indicate the degree of exceedance. Further Section 10 states 'five exceeding samples for PAHs and metals, with concentrations of PAHs below LORs for all samples indicating these impacts have low mobility', however no statement is made regarding mobility of metals from site soil/ fill. | <p>Noted. The results will be screened against the ANZG criteria adopting a dilution attenuation factor (DAF) of 20 described in the USEPA Soil Screening Level (USEPA SSL) document (USEPA 1996).</p> <p>One minor exceedance for copper against the DAF adjusted ANZG 2018 95% marine protection. As such WSP consider that the leachable concentrations of heavy metals have a low potential for significant leaching into groundwater.</p> <p>New sub-section added to Section 7 – 7.8 Soil leachate analysis results.</p> <p>Discussion on mobility of heavy metals added to Section 10.</p> | Noted, closed. |
| Section 10 | An assessment of metals ASLP data would be useful to determine the qualitative leachability of the soils rather than just stating ASLP results above LOR. | <p>Noted. The results will be screened against the ANZG criteria adopting a dilution attenuation factor (DAF) of 20 described in the USEPA Soil Screening Level (USEPA SSL) document (USEPA 1996).</p> <p>One minor exceedance for copper against the DAF adjusted ANZG 2018 95% marine protection. As such WSP consider that the leachable concentrations of heavy metals have a low potential for significant leaching into groundwater. New sub-section added to Section 7 – 7.8 Soil leachate analysis results.</p> <p>Discussion on mobility of heavy metals added to Section 10.</p> | Noted, closed. |

| Report Section | Auditor Comment | WSP Response | Auditor Response |
|-----------------------------------|--|--|---|
| | The consultant needs to include a statement on data gaps and site constraints. | WSP has not identified any data gaps in the current information and consider that there is sufficient information to inform future site remediation and /or management. Sentence added to conclusion Section 10.3... WSP has not identified any data gaps in the current information and consider that there is sufficient information to inform future site remediation and /or management. | Noted, closed. |
| | The consultant should consider comparing results to the 95% UCL estimate of the mean for fill exceedances as outlined in section 6.2. if the consultant chooses not to apply the UCL 95% this should be explained. | Noted. Statistical analysis can be presented for the current data set. Note the primary risk driver for the site is asbestos and B(a)P TEQ. The ERM 202 report does not provide B(a)P TEQ results hence the historic results need to be considered on an individual basis. The 95% UCL results have been compiled into the summary tables, note the statistical analysis does not alter WSP's conclusions. Summary tables updated to include statistical analysis. 95% UCL results discussed in Section 8.1. | Noted, closed |
| Figures/ Tables/ Appendices | No figure showing location of asbestos exceedance | Noted Added to Figure 4 | Closed. |
| | Groundwater development field sheets absent (including purge of previously installed wells) | Noted Added to Appendix C | Groundwater development field sheets still appear to be absent. Please include. Now included – closed. |
| | Duplicate analysis has been undertaken on samples without primary analysis (PCB's). | Total PCBs were reported for all primary samples duplicated. The secondary lab also reported speciated PCBs. No action | Noted Closed. |



| Report Section | Auditor Comment | WSP Response | Auditor Response |
|--------------------|---|--|--|
| | Groundwater RPD table has multiple lines repeated. | Noted. Duplication removed | Groundwater RPD table appears to have been replaced with another Soil RPD table. Please insert correct tTable. Correct table inserted – closed. |
| | No table for Groundwater trip spike/blank and rinsate. | Table added to Appendix E. | Noted, closed. |
| | Soil RPD table highlights RPD's which are less than 5 x LOR and therefore do not fail stated RPD criteria. | Noted. Highlight removed | Closed. |
| Aerial Photography | Historical images are of a scale that is not effective for the assessment and blown up images of the specific site should be presented. | Noted Additional aerial photography is included in Appendix B. | Closed. |
| Borehole logs | Logs do not indicate the coordinates and should be included to allow areas to be identified in the future. | Noted. Logs have been updated. | Closed. |
| GW logs | Standing water level or water strike is not indicted on the log. | Noted. Logs have been updated. | Closed. |

ATTACHMENT A: Data Usability Summary Assessment

As part of the site audit review, a data usability summary assessment was conducted on:

- WSP Australia Pty Ltd (May 2020) Westconnex Stage 3b – Rozelle Interchange – Sub Site Area – Pigtail Bridge: Detailed Site Investigation.

WSP conducted field and laboratory quality assurance and quality control (QA/QC) based on WSP's standard procedures and guidance documentation. Based on the assessments of the soil data collected, WSP concluded that:

The sampling methods (including sample preservation, transport and decontamination procedures) and laboratory methods followed during the investigation works were consistent with standard protocols. It is therefore considered that the data is sufficiently precise and accurate for the purposes of this project.

The WSP data (May, 2020) are summarised in the following tables:

- Table B1.1, field QA samples summary,
- Table B1.2, summary of field QA/QC, and
- Table B1.3, summary of laboratory QA/QC.

Table B1.1 - QA Samples Summary

| | Total Samples | Field Duplicates ¹ | Inter-lab Duplicates ¹ | Trip Spike | Trip Blank | Rinsate |
|------------------|---------------|-------------------------------|-----------------------------------|------------|------------|---------|
| Soil | | | | | | |
| Arsenic | 23 | 3 | 3 | - | - | - |
| Arsenic ASLP | 5 | - | - | - | - | - |
| Barium | 23 | 3 | 3 | - | - | - |
| Beryllium | 23 | 3 | 3 | - | - | - |
| Boron | 23 | 3 | 3 | - | - | - |
| Cadmium | 23 | 3 | 3 | - | - | - |
| Cadmium ASLP | 5 | - | - | - | - | - |
| Chromium (total) | 23 | 3 | 3 | - | - | - |
| Chromium ASLP | 5 | - | - | - | - | - |
| Cobalt | 23 | 3 | 3 | - | - | - |
| Copper | 23 | 3 | 3 | - | - | - |
| Copper ASLP | 5 | - | - | - | - | - |
| Lead | 23 | 3 | 3 | - | - | - |
| Lead ASLP | 5 | - | - | - | - | - |
| Manganese | 23 | 3 | 3 | - | - | - |
| Mercury | 23 | 3 | 3 | - | - | - |
| Mercury ASLP | 5 | - | - | - | - | - |

| | Total Samples | Field Duplicates ¹ | Inter-lab Duplicates ¹ | Trip Spike | Trip Blank | Rinsate |
|--------------------|------------------|----------------------------------|--------------------------------------|------------|------------|---------|
| Nickel | 23 | 3 | 3 | - | - | - |
| Nickel ASLP | 5 | - | - | - | - | - |
| Selenium | 23 | 3 | 3 | - | - | - |
| Vanadium | 23 | 3 | 3 | - | - | - |
| Zinc | 23 | 3 | 3 | - | - | - |
| Zinc ASLP | 5 | - | - | - | - | - |
| Asbestos | 15 | - | - | - | - | - |
| TRH C6-C10 | 22 | - | - | 3 | 4 | - |
| TRH | 22 | 3 | 3 | - | - | - |
| BTEX | 22 | 3 | 3 | 3 | 4 | 2 |
| PAH | 22 | 3 | 3 | - | - | - |
| PAH ASLP | 5 | - | - | - | - | - |
| PCB | 15 | - | * | - | - | - |
| PFAS | 7 | 3 | 2 | - | - | - |
| Phenols | 22 | 3 | 3 | - | - | - |
| OCP | 15 | 3 | 3 | - | - | - |
| OPP | 15 | 3 | 3 | - | - | - |
| SVOC | 9 | - | - | - | - | - |
| VOC | 9 | - | - | - | - | - |
| CRS Suite | 16 | 1 | 1 | - | - | - |
| Groundwater | | | | | | |
| Arsenic | 3 | 1 | 1 | - | - | - |
| Cadmium | 3 | 1 | 1 | - | - | - |
| Chromium | 3 | 1 | 1 | - | - | - |
| Copper | 3 | 1 | 1 | - | - | - |
| Lead | 3 | 1 | 1 | - | - | - |
| Mercury | 3 | 1 | 1 | - | - | - |
| Nickel | 3 | 1 | 1 | - | - | - |
| Zinc | 3 | 1 | 1 | - | - | - |
| TRH | 3 | 1 | 1 | - | - | 1 |
| TRH C6-C10 | 3 | 1 | 1 | - | 1 | - |
| BTEX | 3 | 1 | 1 | 1 | 1 | - |

| | Total Samples | Field Duplicates ¹ | Inter-lab Duplicates ¹ | Trip Spike | Trip Blank | Rinsate |
|---------|---------------|-------------------------------|-----------------------------------|------------|------------|---------|
| PAH | 3 | 1 | 1 | - | - | - |
| Phenols | 3 | 1 | 1 | - | - | - |
| OCP | 3 | 1 | 1 | - | - | - |
| OPP | 3 | 1 | - | - | - | - |
| SVOC | 3 | 1 | 1 | - | - | - |
| VOC | 3 | 1 | 1 | - | - | - |

Notes:

1. Shows number of duplicate samples collected and the percentage of total samples analysed.

2. Arsenic, lead, cadmium, chromium, copper, nickel, and zinc.

3. Metals and OCPs/OPPs testing

– = not applicable, as trip spike/blank analysed for volatile compounds only.

*analysed on duplicate sample but not parent pair

Table B1.2 - Summary of field QA/QC

| Parameter | Complies | Comments ¹ |
|--|----------|---|
| Precision | | |
| Standard operating procedures (SOPs) appropriate and complied with | Yes | The sampling methods generally complied with industry standards and guidelines. |
| Field duplicates | Partial | <p>≥ 5%. RPD2 criteria < 30% - 50% when >10x LOR.</p> <p>All RPD exceedances were <10x LOR with the exception of Net Acidity (46% RPD) for soil duplicate pair WSP_PT_BH01_3.0 and QA03.</p> |
| Inter-laboratory duplicates | Yes | <p>≥ 5%. RPD2 criteria < 30% – 50% when >10x LOR.</p> <p>All RPD exceedances were <10x LOR.</p> |
| Accuracy | | |
| Matrix spikes samples appropriate | Yes | ≥ 1/media type. |
| Representativeness | | |
| Sample collection - preservation | Yes | All samples were collected directly into laboratory supplied jars/bottles and stored at cool temperatures. |
| Sample collection - sample splitting | N/A | Not detailed in report |
| Field equipment calibrated | Yes | Field equipment calibration sheets provided in appendix H |
| Decontamination procedures | Yes | The decontamination methods generally complied with industry standards and guidelines |

| Parameter | Complies | Comments ¹ |
|-------------------------------------|----------|--|
| Rinsate samples | Partial | Rinsate blanks not collected during batch on 27 th or 31 st March. All rinsate blank samples were < LORs. |
| Trip blanks | Partial | Trip blanks not collected 31 st March. All trip blank samples were < LORs |
| Trip spikes | Partial | Trip blanks not collected 31 st March. Trip spikes were not recovered >70% |
| Comparability | | |
| Consistent sampling staff | N/A | No information is included with respect to fieldwork staff. |
| Consistent weather/field conditions | N/A | No information is included with respect to weather/field conditions. |
| Completeness | | |
| Sample logs and field data | Yes | Standard field sampling sheets were used during the investigation. |
| Chain of Custody | Yes | Not included in report |

Notes:

For QC samples, specified frequency and acceptance criteria shown.

RPD = relative percentage difference.

Table B1.3 - Summary of Laboratory QA/QC

| Parameter | Complies | Comments ¹ |
|---|----------------|---|
| <i>Precision</i> | | |
| <i>Laboratory duplicates</i> | <i>Partial</i> | <i>≥ 10% samples (laboratory nominated). RPD exceedances: ES2012229 – Manganese, total PAH x2 ES2011171 – total PAH ES2011031 – total PAH</i> |
| <i>Accuracy</i> | | |
| <i>Surrogate spikes</i> | <i>Partial</i> | <i>Organics by GC, 70% - 130%. ES2011031 - 2-Chlorophenol-D4</i> |
| <i>Matrix spikes analysis appropriate</i> | <i>Partial</i> | <i>≥ 70% - 130%. ES2011031 – PFOS not determined</i> |

| Parameter | Complies | Comments ¹ |
|---|----------|--|
| Laboratory control samples (LCSs) | Partial | <p>≥ 1/lab batch, 70% - 130%.</p> <p>Exceedances:</p> <p>ES2012229 – Pentaclorophenol and 4-Nitroquinoline-N-oxide</p> <p>ES2011171 - 4-Nitroquinoline-N-oxide and 4-Aminobiphenyl</p> <p>ES2011031 - 4-Nitroquinoline-N-oxide, phenol and 4-Aminobiphenyl</p> |
| Certified reference material (CRM) | n/a | - |
| Representativeness | | |
| Sample condition | Yes | - |
| Holding times | Partial | <p>Holding time exceedances:</p> <p>ES2012229 – pH and VOC</p> |
| Laboratory blanks | Yes | ≥ 1/lab batch, < LORs. |
| Comparability | | |
| NATA accredited laboratory | Yes | ALS Environmental NATA accreditation number 825. The secondary laboratory Eurofins Accreditation Number 1261 |
| NEPM methods or similar | Yes | ALS Environmental and Eurofins follows methods in accordance with the requirements of NEPC (1999). |
| Limits of reporting (LORs) consistent and appropriate | Partial | All limits of reporting were consistent with the exception of inter laboratory duplicate for water QA01A. |
| Completeness | | |
| Sample receipt | N/A | No COC provided |
| Laboratory Reports | Yes | - |

1. For QC samples, acceptance criteria shown. Acceptance criteria can vary based on analyte, statistical data and laboratory specific methods. Laboratory specified relates to detected concentrations based on LORs, e.g. result < 10 x LOR = no limit, 10 – 20 x LOR = 0 - 50%, > 20 x LOR = 0 - 20%. See laboratory reports for specific details.

Summary and Discussion

The following issues were identified with the data:

- Precision
 - RPD's for intra and inter laboratory duplicates were less than 30% for analytes <10 x the LOR. Laboratory duplicates exceeded laboratory QA/QC criteria. Laboratory duplicate exceedances were not significant or indicative of large errors.
- Accuracy
 - Minor exceedances of Laboratory Control Spikes were noted. The dataset is considered accurate to 95% confidence.



- Representativeness
 - No outliers have been reported for QC samples collected to assist in the qualification of representativeness.
- Comparability
 - The data is considered to be acceptable, NATA accredited laboratories were used and the LORs were consistent with the exception of QA01A. The dataset is considered comparable.
 - Limited information was provided regarding the experience level of sampling staff.
- Completeness
 - Laboratory and field documentation is considered to be complete with the exception of COC's, which have not been provided.

13 January 2023

Chetan Jayaram
Environmental Advisor
JHCPB Joint Venture
L4, 410 Concord Road
RHODES NSW 2148
By email: Chetan.jayaram@rozelleinterchange.com.au

Project name: WestConnex Stage 3B Rozelle Interchange – Contaminated Land Audit
Project number: SY180068.01

Dear Chetan

Subject: Interim Audit Advice (IAA) #42 for Statutory Site Audit SY12/ SY180068.01. Final endorsement of WSP Memo: 'Sub-Site Area Pigtail Bridge – Remediation Approach', comprising Part Lot 13 in DP 1256361, Brenan Street Lilyfield, NSW for WestConnex Rozelle Interchange

The John Holland and CPB Joint Venture (JHCPB JV) have engaged Brad May as the NSW EPA Contaminated Site Auditor to satisfy the requirement of the infrastructure Approval under section 5.19 of the Environmental Planning and Assessment Act (1979) referred to as the State Significant Infrastructure (SSI) 7485 conditions of approval E181 and E185.

1 PURPOSE

This IAA provides the JHCPB JV with interim advice as part of statutory site audit No. SY012 – Pigtail Bridge being undertaken by Brad May, a NSW EPA Site Auditor accredited under the Contaminated Land (CLM) Management Act. The advice forms part of the statutory site audit for the WestConnex Stage 3B Project¹.

This IAA specifically provides the Auditor's endorsement of the WSP document titled:

- WSP (2022), 'Sub-Site Area Pigtail Bridge – Remediation Approach', Ref: PS117368-CLM-MEM-Pigtail_RevE, dated 2 December 2022.

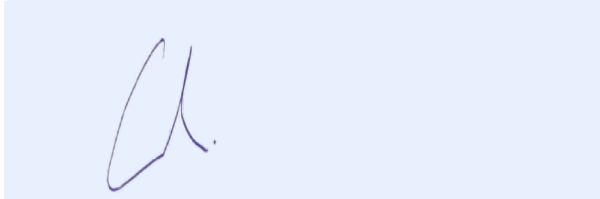
Endorsement of this Remediation Approach Memo (RevE) is provided following the Auditor's review and comments on the previous drafts: RevA (dated 03/09/21), RevB (11/10/21) and RevC (18/10/21) versions of the memo. Epic notes that revision from RevC to RevE has been undertaken to include the sustainability hierarchy to the remediation strategy selection.

The Auditor has noted that the project has made the decision not to develop a standalone Remediation Action Plan. It is expected that a detailed Validation Report prepared in accordance with NSW EPA Reporting guidelines will be prepared by the consultant on completion of the capping works. The Validation Report will support the development of an LTEMP for the site.

¹ This communication has been provided as interim advice only. Where applicable, the information provided is consistent with NSW EPA guidelines and policies. The advice does not constitute a site audit report or site audit statement and does not pre-empt the conclusions which will be drawn at the end of the audit process. A site audit report and site audit statement will be issued when the audit process has been completed.

On Finalisation of the LTEMP and Validation Report it is intended that a Site Audit Statement will be prepared by the Auditor.

Kind regards

A handwritten signature in blue ink, appearing to be 'G. Bagwell', on a light blue rectangular background.

Gary Bagwell, Principal Environmental Engineer, for

Brad May
Director, Principal Environmental Engineer/ NSW and
Queensland Accredited Site Auditor

Mob: +61 400 497 512
bmay@epicenvironmental.com.au

Claude Platell

From: Gary Bagwell
Sent: Friday, 1 December 2023 7:37 AM
To: Ciara Moriarty-W3B; Claude Platell
Cc: Brad May
Subject: RE: GC02/ GC04 Validation Report

Thanks Ciara
Hopefully that will be it for this report.

Regards

Gary Bagwell

Principal Environmental Engineer BE (Chem), MEL
CEnvP – CL Site Contamination Specialist



gbagwell@epicenvironmental.com.au

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Epic Environmental acknowledges the Australian Aboriginal and Torres Strait Islander peoples as the first inhabitants of the nation and the traditional custodians of the lands where we live, learn and work.



From: Ciara Moriarty-W3B <Ciara.Moriarty@rozelleinterchange.com.au>
Sent: Friday, December 1, 2023 7:48 AM
To: Gary Bagwell <gbagwell@epicenvironmental.com.au>; Claude Platell <cplatell@epicenvironmental.com.au>
Cc: Brad May <bmay@epicenvironmental.com.au>
Subject: RE: GC02/ GC04 Validation Report

Hi All,

Please see link to Final GC02/GC04 Validation report.

[PS117368-CLM-REP-GC02GC04 VAL RevD.pdf](#)

Thanks,
Ciara

From: Gary Bagwell <gbagwell@epicenvironmental.com.au>

Sent: Thursday, November 30, 2023 3:30 PM

To: Ciara Moriarty-W3B <Ciara.Moriarty@rozelleinterchange.com.au>; Claude Platell <cplatell@epicenvironmental.com.au>
Cc: Brad May <bmay@epicenvironmental.com.au>
Subject: RE: GC02/ GC04 Validation Report

Yes please.

Regards

Gary Bagwell

Principal Environmental Engineer BE (Chem), MEL
CEnvP – CL Site Contamination Specialist



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Epic Environmental acknowledges the Australian Aboriginal and Torres Strait Islander peoples as the first inhabitants of the nation and the traditional custodians of the lands where we live, learn and work.



From: Ciara Moriarty-W3B <Ciara.Moriarty@rozelleinterchange.com.au>
Sent: Thursday, November 30, 2023 3:18 PM
To: Claude Platell <cplatell@epicenvironmental.com.au>
Cc: Gary Bagwell <gbagwell@epicenvironmental.com.au>; Brad May <bmay@epicenvironmental.com.au>
Subject: RE: GC02/ GC04 Validation Report

Hi Claude,

Are we happy for this to be sent through as Final?

Thanks,
Ciara

From: Ciara Moriarty-W3B
Sent: Wednesday, November 29, 2023 1:30 PM
To: Claude Platell <cplatell@epicenvironmental.com.au>
Cc: Gary Bagwell <gbagwell@epicenvironmental.com.au>; Brad May <bmay@epicenvironmental.com.au>
Subject: FW: GC02/ GC04 Validation Report

Hi Claude,

Please see Rev C GC02/GC04 Validation Report. There were no outstanding comments from your last review.

Changes in text tracked, noting also:

- photographs 51+52 added to App D,
- Figures updated based on survey; and
- survey added to App E2

Export data sent separately is here [GC02 GC04 Export Data.zip](#)

Thanks,
Ciara

From: Claude Platell <cplatell@epicenvironmental.com.au>
Sent: Monday, November 27, 2023 3:18 PM
To: Ciara Moriarty-W3B <Ciara.Moriarty@rozelleinterchange.com.au>
Cc: Brad May <bmay@epicenvironmental.com.au>; Gary Bagwell <gbagwell@epicenvironmental.com.au>
Subject: RE: GC02/ GC04 Validation Report Rev B

Hi Ciara,

Please find attached comment register for GC02/GC04 validation report. Last piece will be the survey data.

Kind regards,

Claude Platell
Project Environmental Scientist
Mobile: 0428 250 824

From: Ciara Moriarty-W3B <Ciara.Moriarty@rozelleinterchange.com.au>
Sent: Friday, November 24, 2023 4:50 PM
To: Gary Bagwell <gbagwell@epicenvironmental.com.au>; Claude Platell <cplatell@epicenvironmental.com.au>; Brad May <bmay@epicenvironmental.com.au>
Subject: GC02/ GC04 Validation Report Rev B

Hi All,

Please link to GC02/GC04 Val report Rev B with Comments addressed. Changes have been made in track changes which should help with review.

Survey still pending.

[GC02GC04 Validation Report Rev B](#)

Ciara Moriarty
Environment Manager

Rozelle Interchange & Western Harbour Tunnel
Enabling Works

Level 4, 410 Concord Rd
Rhodes, 2138

M 0417738136

E Ciara.Moriarty@rozelleinterchange.com.au

Rozelle Interchange
WestConnex

**JOHN
HOLLAND**

CPB
CONTRACTORS

Claude Platell

From: Brad May
Sent: Wednesday, 29 November 2023 3:21 PM
To: Claude Platell
Subject: RE: Pigtail LtEMP

Of course

Brad May

Managing Director | Principal Environmental Engineer
NSW | Qld | NT | Tas Contaminated Site Auditor
BEng, MTM, CPEng, MIEAust, APEC Eng, Int PE.
M: +61 400 497 512

From: Claude Platell <cplatell@epicenvironmental.com.au>
Sent: Wednesday, November 29, 2023 3:20 PM
To: Brad May <bmay@epicenvironmental.com.au>
Subject: RE: Pigtail LtEMP

I don't think it has the audit boundary survey included.

Kind regards,

Claude Platell
Project Environmental Scientist
Mobile: 0428 250 824

From: Brad May <bmay@epicenvironmental.com.au>
Sent: Wednesday, November 29, 2023 4:18 PM
To: Claude Platell <cplatell@epicenvironmental.com.au>
Subject: FW: Pigtail LtEMP

Not yet final?

Brad May

Managing Director | Principal Environmental Engineer
NSW | Qld | NT | Tas Contaminated Site Auditor
BEng, MTM, CPEng, MIEAust, APEC Eng, Int PE.
M: +61 400 497 512

From: Ciara Moriarty-W3B <Ciara.Moriarty@rozelleinterchange.com.au>
Sent: Wednesday, November 29, 2023 12:40 PM
To: Claude Platell <cplatell@epicenvironmental.com.au>
Cc: Brad May <bmay@epicenvironmental.com.au>; Gary Bagwell <gbagwell@epicenvironmental.com.au>
Subject: RE: Pigtail LtEMP

Hi Claude,

Please Rev **C Final of Pigtail LtEMP** with comment on boundary below included.
[PS117368-CLM-REP-Pigtail EMP RevC.pdf](#)

I will have the audit boundary survey shortly but please let me know if there is anything else.

Thanks,

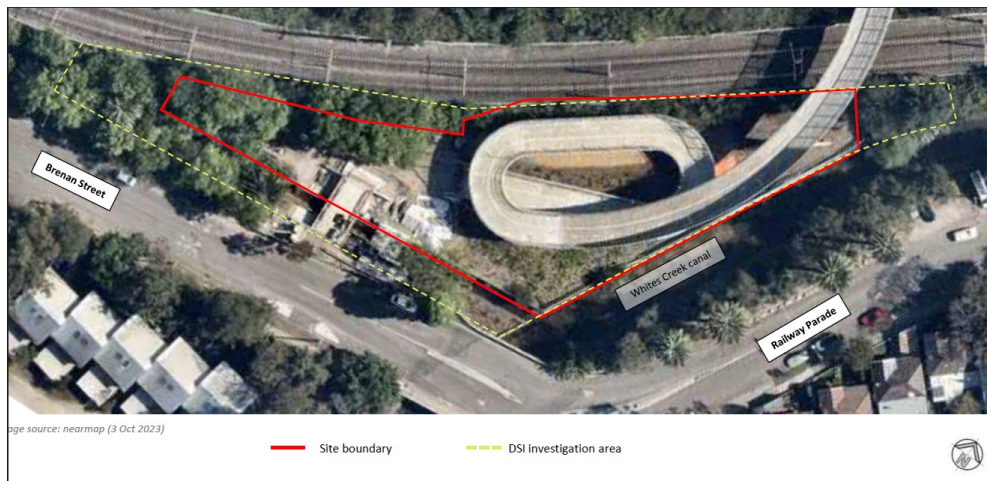
Ciara

From: Claude Platell <cplatell@epicenvironmental.com.au>
Sent: Tuesday, November 28, 2023 10:03 AM
To: Ciara Moriarty-W3B <Ciara.Moriarty@rozelleinterchange.com.au>
Cc: Brad May <bmay@epicenvironmental.com.au>; Gary Bagwell <gbagwell@epicenvironmental.com.au>
Subject: RE: Pigtail LtEMP

Hi Ciara,

Responses look fine.

Regarding the site boundaries we need some further clarity within the report. Can WSP present the site construction boundary and the DSI/audit boundary in the LTEMP (example taken from the validation report).



Kind regards,

Claude Platell
Project Environmental Scientist
Mobile: 0428 250 824

From: Ciara Moriarty-W3B <Ciara.Moriarty@rozelleinterchange.com.au>
Sent: Monday, November 27, 2023 4:51 PM
To: Claude Platell <cplatell@epicenvironmental.com.au>
Cc: Brad May <bmay@epicenvironmental.com.au>; Gary Bagwell <gbagwell@epicenvironmental.com.au>
Subject: FW: Pigtail LtEMP

Hi Claude,

Please see responses in red below. If EPIC are happy with responses these can be incorporated in a Final Rev of the LtEMP.

Thanks,
Ciara

From: Claude Platell <cplatell@epicenvironmental.com.au>
Sent: Monday, November 27, 2023 3:22 PM
To: Ciara Moriarty-W3B <Ciara.Moriarty@rozelleinterchange.com.au>
Cc: Brad May <bmay@epicenvironmental.com.au>; Gary Bagwell <gbagwell@epicenvironmental.com.au>
Subject: RE: Pigtail LtEMP

Hi Ciara,

Comments on the Pigtail LTEMP:

- Section 1.5 current/ future land use, add comment around no public access to the capped areas
Section 1.5 updated – "The areas of the site capped using clean validated topsoil and marker layer will not be accessible to the public."
- Section 3.2 remediation activities, add comment if any material was removed offsite
Section 3.2 updated – "The remediation activities undertaken at the site comprised placement of a marker layer and/or soil capping layer, **in addition to the removal and off-site disposal of contaminated material excavated to facilitate WCX3B construction.**"
- Figure boundaries are not accurate and don't match our SAR boundaries. I have attached a figure of what Epic understands the audit boundary to be.
Site/audit boundary has changed since project commencement based on advice from JHCPB. This has been highlighted in the validation report (not available to Epic at time of LTEMP review) – see below extract from validation report:
"It is noted that the site/audit boundary has been amended since completion of the detailed site investigation (DSI) by WSP. The previous DSI site boundary was based on the anticipated construction disturbance footprint. However, JHCPB has advised that areas within the eastern, southern, south-western and northern portions of the site were not disturbed and as such, do not form part of the project area requiring handback to TfNSW."

Kind regards,

Claude Platell
Project Environmental Scientist
Mobile: 0428 250 824

From: Ciara Moriarty-W3B <Ciara.Moriarty@rozelleinterchange.com.au>

Sent: Friday, November 24, 2023 2:38 PM

To: Claude Platell <cplatell@epicenvironmental.com.au>; Gary Bagwell <gbagwell@epicenvironmental.com.au>

Cc: Brad May <bmay@epicenvironmental.com.au>

Subject: Pigtail LtEMP

Hi Claude and Gary,

Please see link to Pigtail EMP Rev B for review. It was updated to Rev B to reflect the comments from the Crescent EMP.

[PS117368-CLM-REP-Pigtail EMP RevB.pdf](#)

Thanks,

Ciara Moriarty
Environment Manager

Rozelle Interchange & Western Harbour Tunnel
Enabling Works

Level 4, 410 Concord Rd
Rhodes, 2138
M 0417738136

E Ciara.Moriarty@rozelleinterchange.com.au

Rozelle Interchange
WestConnex

JOHN
HOLLAND

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not an authorized or intended recipient, please notify the sender immediately by replying to this message, delete this message and all copies from your e-mail system and destroy any printed copies.

-LAEmHhHzd.JzBITWfa4Hgs7pbKI

APPENDIX C JHCPB SITE CONCEPT DRAWINGS





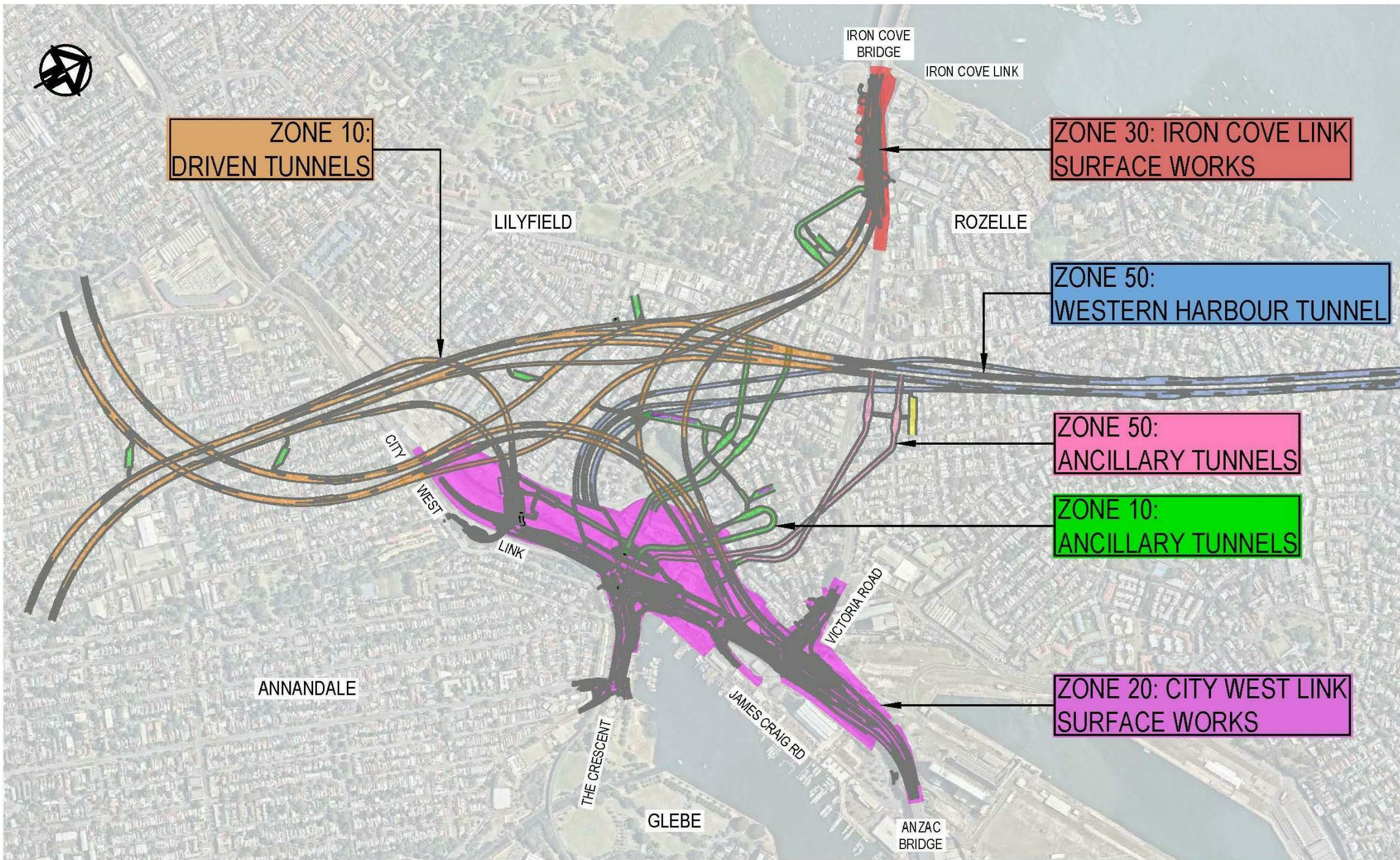
Transport
Roads & Maritime
Services

WESTCONNEX
M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
ROZELLE INTERCHANGE

ZONE: 20 CITY WEST LINK SURFACE WORKS

PACKAGE: 20_82 ROZELLE LOCAL ROADS - LANDSCAPE DESIGN

DESIGN LOT: 20-UD-140



NOT FOR CONSTRUCTION

| DRAWING FILE LOCATION / NAME | | |
|---|------------|--|
| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | |
| REV | DATE | REVISION DESCRIPTION |
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

| DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING | |
|---|--|
| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | |
| SCALES ON A1 SIZE DRAWING | |
| | |



Transport
Roads & Maritime
Services

| PLOT DATE / TIME | | PLOT BY | |
|----------------------|----------------|------------|--|
| 4/08/2020 3:40:57 PM | | YURONG TAN | |
| TITLE | NAME | DATE | |
| DRAWN | YURONG TAN | 05/08/2020 | |
| DRG CHECK | BEN CHARLTON | 05/08/2020 | |
| DESIGN | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

wsp

HASSELL
JACOBS
willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
COVER SHEET

| PACKAGE No. | JCV DOCUMENT NAME |
|-------------|---------------------------|
| 20_82 | RIC-HSL-DRG-20-UD-140-001 |

A1

REV

C

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED


80mm ON A1 SIZE ORIGINAL


0 10 20 30 40 50 60 70 80

DRAWING LIST

20-UD-140 - RIC -ROZELLE LOCAL ROADS - LANDSCAPE DESIGN

| | | | | |
|----------------------------|--------------------------|----------------------------|--|---------|
| RIC-HSL-DRG-20-UD- 140-001 | COVER SHEET | RIC-HSL-DRG-20-UD- 140-301 | DETAIL PLAN | SHEET 1 |
| RIC-HSL-DRG-20-UD- 140-002 | SHEET INDEX | RIC-HSL-DRG-20-UD- 140-302 | DETAIL PLAN | SHEET 2 |
| RIC-HSL-DRG-20-UD- 140-003 | KEY PLAN | RIC-HSL-DRG-20-UD- 140-303 | DETAIL PLAN | SHEET 3 |
| RIC-HSL-DRG-20-UD- 140-004 | LEGEND | RIC-HSL-DRG-20-UD- 140-304 | DETAIL PLAN | SHEET 4 |
| | | RIC-HSL-DRG-20-UD- 140-305 | DETAIL PLAN | SHEET 5 |
| RIC-HSL-DRG-20-UD- 140-011 | LANDSCAPE DESIGN NOTES | SHEET 1 | | |
| RIC-HSL-DRG-20-UD- 140-012 | LANDSCAPE DESIGN NOTES | SHEET 2 | | |
| RIC-HSL-DRG-20-UD- 140-013 | LANDSCAPE DESIGN NOTES | SHEET 3 | | |
| RIC-HSL-DRG-20-UD- 140-014 | LANDSCAPE DESIGN NOTES | SHEET 4 | | |
| RIC-HSL-DRG-20-UD- 140-021 | PLANTING SCHEDULE | SHEET 1 | | |
| RIC-HSL-DRG-20-UD- 140-022 | PLANTING SCHEDULE | SHEET 2 | | |
| RIC-HSL-DRG-20-UD- 140-023 | PLANTING SCHEDULE | SHEET 3 | | |
| RIC-HSL-DRG-20-UD- 140-024 | PLANTING SCHEDULE | SHEET 4 | | |
| RIC-HSL-DRG-20-UD- 140-101 | GENERAL ARRANGEMENT PLAN | SHEET 1 | | |
| RIC-HSL-DRG-20-UD- 140-102 | GENERAL ARRANGEMENT PLAN | SHEET 2 | | |
| RIC-HSL-DRG-20-UD- 140-103 | GENERAL ARRANGEMENT PLAN | SHEET 3 | | |
| RIC-HSL-DRG-20-UD- 140-104 | GENERAL ARRANGEMENT PLAN | SHEET 4 | | |
| RIC-HSL-DRG-20-UD- 140-105 | GENERAL ARRANGEMENT PLAN | SHEET 5 | | |
| RIC-HSL-DRG-20-UD- 140-106 | GENERAL ARRANGEMENT PLAN | SHEET 6 | | |
| RIC-HSL-DRG-20-UD- 140-107 | GENERAL ARRANGEMENT PLAN | SHEET 7 | | |
| RIC-HSL-DRG-20-UD- 140-108 | GENERAL ARRANGEMENT PLAN | SHEET 8 | | |
| RIC-HSL-DRG-20-UD- 140-109 | GENERAL ARRANGEMENT PLAN | SHEET 9 | | |
| RIC-HSL-DRG-20-UD- 140-110 | GENERAL ARRANGEMENT PLAN | SHEET 10 | | |
| RIC-HSL-DRG-20-UD- 140-111 | GENERAL ARRANGEMENT PLAN | SHEET 11 | | |
| RIC-HSL-DRG-20-UD- 140-112 | GENERAL ARRANGEMENT PLAN | SHEET 12 | | |
| RIC-HSL-DRG-20-UD- 140-113 | GENERAL ARRANGEMENT PLAN | SHEET 13 | | |
| RIC-HSL-DRG-20-UD- 140-114 | GENERAL ARRANGEMENT PLAN | SHEET 14 | | |
| RIC-HSL-DRG-20-UD- 140-115 | GENERAL ARRANGEMENT PLAN | SHEET 15 | | |
| RIC-HSL-DRG-20-UD- 140-116 | GENERAL ARRANGEMENT PLAN | SHEET 16 | | |
| RIC-HSL-DRG-20-UD- 140-201 | PLANTING PLAN | SHEET 1 | | |
| RIC-HSL-DRG-20-UD- 140-202 | PLANTING PLAN | SHEET 2 | | |
| RIC-HSL-DRG-20-UD- 140-203 | PLANTING PLAN | SHEET 3 | | |
| RIC-HSL-DRG-20-UD- 140-204 | PLANTING PLAN | SHEET 4 | | |
| RIC-HSL-DRG-20-UD- 140-205 | PLANTING PLAN | SHEET 5 | | |
| RIC-HSL-DRG-20-UD- 140-206 | PLANTING PLAN | SHEET 6 | | |
| RIC-HSL-DRG-20-UD- 140-207 | PLANTING PLAN | SHEET 7 | | |
| RIC-HSL-DRG-20-UD- 140-208 | PLANTING PLAN | SHEET 8 | | |
| RIC-HSL-DRG-20-UD- 140-209 | PLANTING PLAN | SHEET 9 | | |
| RIC-HSL-DRG-20-UD- 140-210 | PLANTING PLAN | SHEET 10 | | |
| RIC-HSL-DRG-20-UD- 140-211 | PLANTING PLAN | SHEET 11 | | |
| RIC-HSL-DRG-20-UD- 140-212 | PLANTING PLAN | SHEET 12 | | |
| RIC-HSL-DRG-20-UD- 140-213 | PLANTING PLAN | SHEET 13 | | |
| RIC-HSL-DRG-20-UD- 140-214 | PLANTING PLAN | SHEET 14 | | |
| RIC-HSL-DRG-20-UD- 140-215 | PLANTING PLAN | SHEET 15 | | |
| RIC-HSL-DRG-20-UD- 140-216 | PLANTING PLAN | SHEET 16 | | |
| | | RIC-HSL-DRG-20-UD- 140-401 | LANDSCAPE SECTIONS | SHEET 1 |
| | | RIC-HSL-DRG-20-UD- 140-402 | LANDSCAPE SECTIONS | SHEET 2 |
| | | RIC-HSL-DRG-20-UD- 140-403 | LANDSCAPE SECTIONS | SHEET 3 |
| | | RIC-HSL-DRG-20-UD- 140-404 | LANDSCAPE SECTIONS | SHEET 4 |
| | | RIC-HSL-DRG-20-UD- 140-405 | LANDSCAPE SECTIONS | SHEET 5 |
| | | RIC-HSL-DRG-20-UD- 140-406 | LANDSCAPE SECTIONS | SHEET 6 |
| | | RIC-HSL-DRG-20-UD- 140-407 | LANDSCAPE SECTIONS | SHEET 7 |
| | | RIC-HSL-DRG-20-UD- 140-408 | LANDSCAPE SECTIONS | SHEET 8 |
| | | RIC-HSL-DRG-20-UD- 140-801 | TYPICAL DETAILS - SOIL PREPARATION | |
| | | RIC-HSL-DRG-20-UD- 140-811 | TYPICAL DETAILS - PLANTING | SHEET 1 |
| | | RIC-HSL-DRG-20-UD- 140-812 | TYPICAL DETAILS - PLANTING | SHEET 2 |
| | | RIC-HSL-DRG-20-UD- 140-821 | TYPICAL DETAILS - TREES | SHEET 1 |
| | | RIC-HSL-DRG-20-UD- 140-822 | TYPICAL DETAILS - TREES | SHEET 2 |
| | | RIC-HSL-DRG-20-UD- 140-831 | TYPICAL DETAILS - PLANTING MIX LAYOUTS | SHEET 1 |
| | | RIC-HSL-DRG-20-UD- 140-832 | TYPICAL DETAILS - PLANTING MIX LAYOUTS | SHEET 2 |
| | | RIC-HSL-DRG-20-UD- 140-833 | TYPICAL DETAILS - PLANTING MIX LAYOUTS | SHEET 3 |
| | | RIC-HSL-DRG-20-UD- 140-834 | TYPICAL DETAILS - PLANTING MIX LAYOUTS | SHEET 4 |
| | | RIC-HSL-DRG-20-UD- 140-835 | TYPICAL DETAILS - PLANTING MIX LAYOUTS | SHEET 5 |
| | | RIC-HSL-DRG-20-UD- 140-836 | TYPICAL DETAILS - PLANTING MIX LAYOUTS | SHEET 6 |

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| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | |

| DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING | CLIENT |
|---|--|
| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | <div><div>Transport Roads & Maritime Services</div></div> |

| PLOT DATE / TIME | | PLOT BY | |
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| 4/08/2020 3:41:08 PM | | YURONG TAN | |
| TITLE | NAME | DATE | |
| DRAWN | YURONG TAN | 05/08/2020 | |
| DRG CHECK | BEN CHARLTON | 05/08/2020 | |
| DESIGN | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | |



JOHN
HOLLAND



ARCADIS



HASSELL



willow

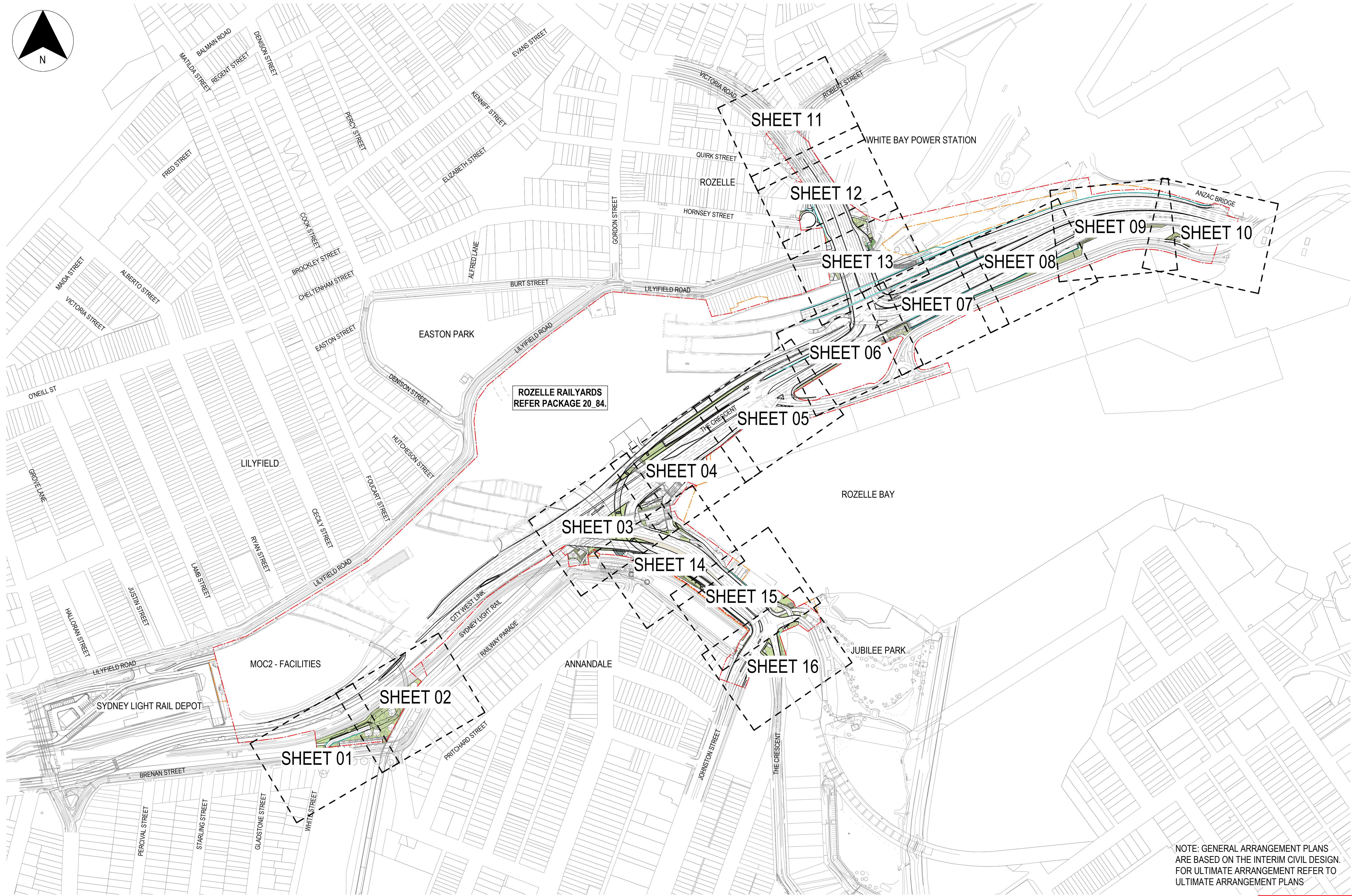
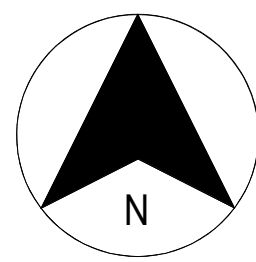


| | | | |
|--|---------------------------|-----|----|
| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN SHEET INDEX | | | A1 |
| PACKAGE No. | JCVJ DOCUMENT NAME | REV | |
| 20_82 | RIC-HSL-DRG-20-UD-140-002 | C | |

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80mm ON A1 SIZE ORIGINAL



NOTE: GENERAL ARRANGEMENT PLANS
ARE BASED ON THE INTERIM CIVIL DESIGN.
FOR ULTIMATE ARRANGEMENT REFER TO
ULTIMATE ARRANGEMENT PLANS

NOT FOR CONSTRUCTION

| | | | | | | | | | | | | | | |
|---|------------|--|----------|--|---|---|--------------|--|------------|-----------------------|---|---|----|----------|
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| A1 | 28/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 |  |   | DRAWN | YURONG TAN | 05/08/2020 | | | | | |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM | | | DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | DESIGN | ANTHONY PAPAS | 05/08/2020 | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FDD | | | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | |
| | | | | | | | | | | PACKAGE No. 20_82 | JCJV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-003 | | | REV C |

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80mm ON A1 SIZE ORIGINAL

GENERAL ELEMENTS

BOUNDARIES

-
- PERMANENT WORKS BOUNDARY

EXISTING FEATURES

-
- EXISTING SURVEY CONTOURS
-
- (200mm INTERVALS)

ROAD GEOMETRY (REFER DESIGN LOT 20-RD-000)

-
- STRUCTURE ABOVE

ROAD FURNITURE (REFER DESIGN LOT 20-RD-010)

-
- KERB AND GUTTER

ROAD LIGHTING (REFER DESIGN LOT 20-LT-400/CB-610)

-
- ROAD LIGHT

DRAINAGE (REFER DESIGN LOT 20-DR-060)

-
- DRAINAGE PIT

UTILITIES (REFER DESIGN LOT 20-UT-800)

ITS (REFER DESIGN LOT 20-IT-290)

-
- VEHICLE DETECTORS

RETAINING WALLS (REFER DESIGN LOT 20-SD-290)

-
- MAJOR STRUCTURAL RETAINING WALL.
-
- REFER TO URBAN DESIGN PACKAGE
-
- FOR FINISH REQUIREMENTS.

GRADING AND LEVELS (REFER DESIGN LOT 20-RD-000)

-
- PROPOSED CONTOURS.
-
- REFER TO CIVIL DESIGN PACKAGES

LANDSCAPE ELEMENTS

LANDSCAPE BOUNDARIES

-
- SOIL PREPARATION AREA BOUNDARY

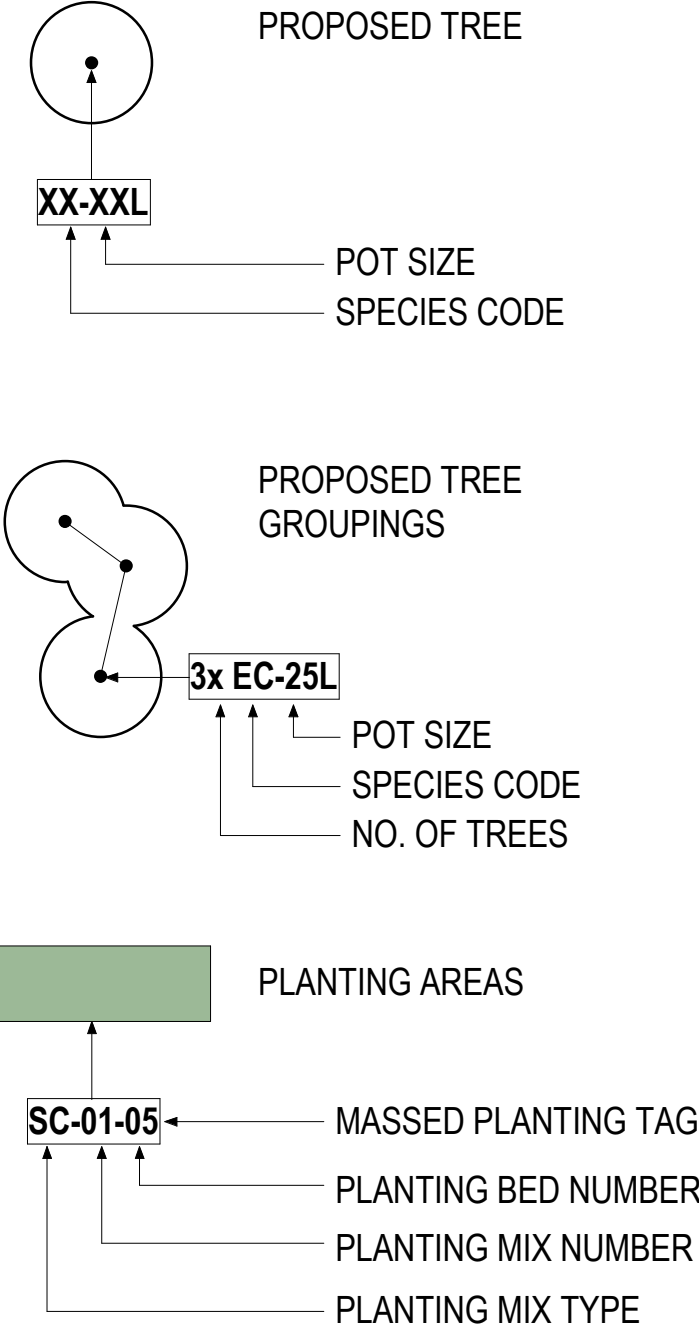
TREES (REFER TO PLANTING PLANS FOR POT SIZE AND SPECIES.)

-
- EXISTING TREE WITHIN PROJECT
-
- BOUNDARY TO BE RETAINED (SHOWN
-
- INDICATIVELY. SUBJECT TO ABORIST
-
- REPORT).

LANDSCAPE SOIL PREPARATION

-
- TU-01**
-
- GENERAL TURF AREAS ON GRADE

PLANTING PLANS



SOFT PLAY AREA PREPARATION

-
- S0-01**
-
- SOFTFALL ORGANIC MULCH AREA

MULCH FINISHES

-
- MU-01**
-
- ORGANIC MULCH:
-
- EQUAL TO ANL 'FOREST FINES'

URBAN DESIGN ELEMENTS (REFER PACKAGE 20_83)

LANDSCAPE WALLS (REFER TO DETAILS)

-
- LW-XX**
-
- LANDSCAPE WALLS

SURFACE FINISHES

-
- PV-09**
-
- ENGINEERED SLOPE TREATMENT
-
- FOR BATTERS STEEPER THAN 2:1

EDGES

-
- ED-01**
-
- CONCRETE EDGE

PUBLIC DOMAIN FURNITURE

-
- SIT-01**
-
- BENCH SEAT

NOT FOR CONSTRUCTION

| DRAWING FILE LOCATION / NAME | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING | |
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| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING |
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 | |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | |

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| <div><div></div><div>Transport Roads & Maritime Services</div></div> |

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

| LOGO | NAME |
|---|------|
| <div><div></div><div>WestConnex Rozelle Interchange</div></div> | |
| <div><div></div><div>JOHN HOLLAND</div></div> | |
| <div><div></div><div>CPB CONTRACTORS</div></div> | |
| <div><div></div><div>ARCADIS</div></div> | |
| <div><div></div><div>HASSELL</div></div> | |
| <div><div></div><div>McMILLEN JACOBS ASSOCIATES</div></div> | |
| <div><div></div><div>willow</div></div> | |
| <div><div></div><div>PRIM</div></div> | |

| PACKAGE No. | JCV DOCUMENT NAME | REV |
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| 20_82 | RIC-HSL-DRG-20-UD-140-004 | C |

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| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN LEGEND | | | <div>A1</div> |
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THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL

LANDSCAPE DESIGN NOTES

20-UD-140 - RIC -ROZELLE LOCAL ROADS - LANDSCAPE DESIGN

1.0 LANDSCAPE GENERAL NOTES

- 1.1 THE FOLLOWING DRAWINGS ARE TO BE READ IN ASSOCIATION WITH ENGINEERING DRAWINGS
- 1.2 LANDSCAPE WORKS TO BE UNDERTAKEN GENERALLY IN ACCORDANCE WITH THE FOLLOWING RMS SPECIFICATIONS, WITH THE EXCEPTION OF THE REQUIREMENTS AS NOTED BELOW:

- D&C R178 VEGETATION

- D&C R179 LANDSCAPE PLANTING

D&C R178 VEGETATION

1. THE TOPSOIL MIX REQUIREMENTS LISTED ON THE DESIGN NOTES TAKE PRECEDENCE OVER THOSE NOMINATED IN CLAUSE 2.1.3.
2. THE TURF SPECIES LISTED ON THE SOIL PREPARATION TREATEMENTS TAKES PRECEDENCE OVER THOSE NOMINATED IN CLAUSE 2.12

D&C R179 LANDSCAPE PLANTING

1. THE TOPSOIL MIX REQUIREMENTS LISTED ON DESIGN NOTES TAKE PRECEDENCE OVER THOSE NOMINATED IN CLAUSE 2.11 & 2.12.
2. SOIL PREPARATION TREATMENTS LISTED ON DESIGN NOTES TAKE PRECEDENCE OVER THOSE NOMINATED IN CLAUSES 3.5.2 & 3.5.3
3. PLANTING HOLE DIMENSIONS NOMINATED IN DRAWINGS TAKE PRECEDENCE OVER THOSE NOMINATED IN CLAUSE 3.6.1
4. THE TURF SPECIES LISTED ON THE SOIL PREPARATION TREATEMENTS TAKES PRECEDENCE OVER THOSE NOMINATED IN CLAUSE 2.10

- 1.3 ALL SUBGRADES TO RECEIVE LANDSCAPE TREATMENTS MUST BE TESTED ALONG WITH ALL TOPSOILS USED IN THE FINISHED WORKS IN ACCORDANCE WITH RMS D&C SPECIFICATION R178

SOIL TESTING AND ANY RECOMMENDATIONS FOR SOIL MANAGEMENT MUST BE MADE BY AN APPROPRIATELY QUALIFIED PROFESSIONAL SOIL SCIENTIST WITH EXPERTISE IN REVEGETATION AND URBAN LANDSCAPE RECONSTRUCTION. A COPY OF THESE RECOMMENDATIONS MUST BE PROVIDED TO THE ENVIRONMENTAL REPRESENTATIVE, THE INDEPENDENT CERTIFIER AND RMS'S REPRESENTATIVE.

ALL GROWING MEDIA INCLUDING SITE TOPSOIL RE-USED WITHIN LANDSCAPE AREAS MUST BE PREPARED IN THE FOLLOWING MANNER:

- (i) FOR IMPORTED TOPSOILS, AT LEAST 7 DAYS PRIOR TO DELIVERY, SUBMIT ANALYSIS AND CERTIFICATES FROM A NATA REGISTERED LABORATORY FOR PHYSICAL AND CHEMICAL ANALYSIS. CERTIFICATES ARE TO BE CERTIFIED COMPLIANT OR FIT FOR PURPOSE BY A SOIL SCIENTIST
- (ii) A REPRESENTATIVE PROGRAM OF SOIL SAMPLING OF ALL SITE SOILS TO BE USED IN LANDSCAPE AREAS TO ADDRESS ANY SOIL DEFICIENCIES, INCLUDING SOIL PH ANALYSIS, MUST BE UNDERTAKEN PRIOR TO INSTALLATION AND THE RESULTS OF THE TESTS, TOGETHER WITH ADVICE FROM A QUALIFIED PROFESSIONAL SOIL SCIENTIST, MUST BE USED TO DETERMINE THE REQUIREMENTS FOR SOIL IMPROVEMENT AND STABILISATION TO ENABLE THE ESTABLISHMENT AND MAINTENANCE OF SUCCESSFUL LONG TERM PLANT GROWTH AND VEGETATION COVER
- (iii) ALL SITE SOILS, INCLUDING SUBGRADES, MUST BE CONDITIONED OR IMPROVED TO COMPLY WITH THE RECOMMENDATIONS OF THE SOIL SCIENTIST
- (iv) PRIOR TO THE PLACEMENT OF TOPSOIL, CONTINUOUSLY ERADICATE WEEDS TO AREAS OF TREATMENT, UNTIL WEED GROWTH FOUR WEEKS AFTER THE LAST SPRAY COMPRISES LESS THAN FIVE PER CENT COVER, AND THEN ERADICATE REMAINING WEEDS
- (v) SUBSOILS MUST BE RIPPED AND SURFACES ROUGHENED PRIOR TO SPREADING OF GROWING MEDIA.

- 1.4 EXISTING WORK WHICH IS DAMAGED SHALL BE REPAIRED OR REPLACED WITH MATCHING WORK AS DIRECTED BY THE JHCPB REPRESENTATIVE.
- 1.5 AREAS NOMINATED FOR PLANTING MAY REQUIRE SITE ADJUSTMENTS TO SUIT PARTICULAR SITE CONDITIONS. VERIFY ON SITE PRIOR TO INSTALLATION.
- 1.6 LANDSCAPE MAINTENANCE WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH RMS SPECIFICATION D&C R179 - LANDSCAPE PLANTING

- 1.7 WHERE IMPORTED SOILS THAT MEET THE PERFORMANCE REQUIREMENTS ARE NOT EXCLUSIVELY USED AS TOPSOIL, CHARACTERISED SITE-WON MATERIALS INCLUDING SANDSTONE TUNNEL SPOIL MAY BE USED. SITE-WON MATERIALS MAY BE BLENDED WITH APPROPRIATE MATERIALS OR USED RAW, PROVIDED THEY DO NOT CONTAIN MATERIAL TOXIC TO PLANT GROWTH AND THE FINAL PRODUCT MEETS THE PHYSICAL AND CHEMICAL SOIL MIX REQUIREMENTS. REFER TO CLAUSE 2 OF THE DESIGN NOTE.
- 1.8 IF SITE-WON MATERIAL IS NOT DEEMED FIT FOR PURPOSE IN MANUFACTURED SOILS BY AN APPROPRIATELY QUALIFIED PROFESSIONAL SOIL SCIENTIST, THEN IMPORTED SOILS MUST BE USED.
- 1.9 THE CONTRACTOR IS RESPONSIBLE FOR ENSURING LONG-TERM STABILITY OF ALL SOIL LAYERS INCLUDING THOSE ON EMBANKMENTS STEEPER THAN 2h:1v.
- 1.10 SOIL STABILISATION MESH FOR SLOPES STEEPER THAN 3h:1v SHALL BE 400GSM COIR MESH WITH 25mm X 25mm MESH APERTURE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

2.0 REQUIREMENTS FOR MANUFACTURING SOILS FROM SITE-WON TUNNEL SPOIL

- 2.1 SITE-WON SANDSTONE TUNNEL SPOIL SHALL BE CRUSHED AND SCREENED PRIOR TO USE IN MANUFACTURED SOIL BLENDS. AFTER CRUSHING AND SCREENING, THE TUNNEL SPOIL SHALL BE CHARACTERISED TO DETERMINE THE CHEMICAL AND PHYSICAL PARAMETERS.
- 2.2 WHERE REQUIRED TO MEET DESIGN LEVELS, PROVIDE NEW SUB-GRADE FILL 'C-HORIZON' (SOIL TYPE '13') MUST COMPRISE OF SITE-WON TUNNEL SPOIL THAT HAS BEEN DEEMED TO COMPLY WITH THE PHYSICAL AND CHEMICAL PARAMETERS IN THIS SPECIFICATION.
- 2.3 PROCESS AND VALIDATION:

2.3.1 ENSURE THE TUNNEL SPOIL IS COMPRISED SOLEY OF SANDSTONE MATERIALS

2.3.2 CRUSH THE EXCAVATED TUNNEL SPOIL TO <50MM

2.3.3 CHARACTERISE THE CRUSHED TUNNEL SPOIL USING NATA-REGISTERED LABORATORY (SESL AUSTRALIA OR EQUIVALENT) FOR LARGE PARTICLES, pH, EC AND CATIONS.

2.3.4 SAMPLING FREQUENCY FOR CHARACTERISATION SHALL BE 1:1000m3

2.3.5 ENGAGE A SOIL SCIENTIST TO DETERMINE THE RATES OF SAND AND GYPSUM REQUIRED.
- 2.4 SUBGRADE TREATMENT - BEFORE LAYING TOPSOILS, THE FOLLOWING SUBGRADE TREATMENT MUST BE APPLIED TO ALL FINISHED AREAS:

2.4.1 FAIR AND TRIM TO RELATIVE LEVEL TO ACCOMODATE OVERALL SOIL DEPTHS (MINIMUM CULTIVATED SUBGRADE DEPTH OF 200mm)

2.4.2 REMOVE ROCKS > 100mm DIA.

2.4.3 REMOVE RUBBISH SUCH AS CONSTRUCTION GENERATED WASTE, PLASTICS, METALS AND GLASS

2.4.4 ENGAGE A SOIL SCIENTIST TO DETERMINE THE GYPSUM APPLICATION RATES BY ANALYSIS USING A NATA-REGISTERED LABORATORY (SESL AUSTRALIA OR EQUIVALENT)

2.4.5 APPLY GYPSUM AT THE RECOMMENDED RATES TO AMELIORATE THE C-HORIZON.

2.4.6 CHISEL, DISC PLOUGH OR USE AN EXCAVATOR WITH A TYNE ATTACHMENT TO LOOSEN THE SUBGRADE AND MIX THE AMELIORANTS TO 200mm DEPTH TO INCORPORATE.

2.4.7 HARROW TO BREAK UP CLODS BUT DO NOT SMOOTH (LEAVE SURFACE 'KEYED' TO ACCEPT THE A-HORIZON OR B-HORIZON).
- 2.5 SOIL TYPE '13' OUTLINES THE MAXIMUM AND MINIMUM ALLOWED PARTICLE SIZE FRACTIONS FOR TUNNEL SPOIL USED IN VARIOUS HORIZONS.

3.0 WORK METHOD STATEMENT FOR INCORPORATING TUNNEL SPOIL INTO MANUFACTURED SOILS SUITABLE FOR LANDSCAPING PURPOSES

- 3.1 TO INCORPORATE SANSDSTONE TUNNEL SPOIL INTO MANUFACTURED A-HORIZON AND B-HORIZON SOIL MIXES, THE CONTRACTOR MUST COMPLY WITH THE FOLLOWING METHODOLOGY TO ENSURE THAT MANUFACTURED SOILS ARE FIT FOR PURPOSE:

3.1.1 CHARACTERISE THE CRUSHED SANDSTONE TUNNEL SPOIL USING A NATA-REGISTERED LABORATORY (SESL AUSTRALIA OR EQUIVALENT) TO DETERMINE:

i) PHYSICAL PROPERTIES: PARTICAL SIZE DISTRIBUTION (INCLUDING SILT AND CLAY PERCENTAGE) AND HYDRAULIC CONDUCTIVITY

ii) CHEMICAL PROPERTIES: pH AND SALINITY, CATION EXCHANGE CAPACITY AND THE ORGANIC MATTER CONTENT

iii) SAMPLING FREQUENCY FOR CHARACTERISTISATION SHALL BE 1:1000m3



QUANTIFY THE VOLUME OF CRUSHED TUNNEL SPOIL AVAILABLE AND DETERMINE WHICH SOIL MIX TYPE SPECIFICATION AND HORIZON IT WILL BE MOST COST-EFFECTIVE TO USE IN.

iv) ENGAGE THE SOIL SCIENTIST TO DETERMINE THE RATES OF SAND AND GYPSUM TO MEET THE DESIRED SPECIFICATION, AS WELL AS ANY OTHER AMELIORANTS NEEDED (ORGANIC MATTER, TOPSOIL, FERTILISERS/ OTHER SOIL AMELIORANTS AND CONDITIONERS).

v) BLEND THE RATIONS AS SPECIFIED BY THE SOIL SCIENTIST BY MIXING SMALL BATCHES. TAKE A REPRESENTATIVE SAMPLE AND SUBMIT FOR ANALYSIS AGAINST THE DESIRED SPECIFICATION

vi) UPON APPROVAL OF MEETING THE SPECIFICATION FROM A SOIL SCIENTIST, MIX LARGE BATCHES AT THE PRESCRIBED RATIONS AND VALIDATE AS PER THE REQUIREMENTS OF THE SPECIFICATION
- 3.1.2 AN ALLOWANCE SHOULD BE MADE FOR THE ADDITION OF SAND (TO IMPROVE THE PARTICAL SIZE DISTRIBUTION), THE GYPSUM (TO IMPROVE THE EXCHANGEABLE CALCIUM) AND THE ADDITION OF UP TO 20% ORGANIC MATTER WHEN USED AS A COMPONENT OF MAUFACTURED TOPSOILS.

NOT FOR CONSTRUCTION

| DRAWING FILE LOCATION / NAME | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING | | PLOT DATE / TIME | | PLOT BY | |
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| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | 4/08/2020 3:41:54 PM | | YURONG TAN | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING | CLIENT | TITLE | NAME | DATE |
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 | <div><div><div>Transport Roads & Maritime Services</div></div></div> | <div></div> | DRAWN | YURONG TAN | 05/08/2020 |
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WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
LANDSCAPE DESIGN NOTES

SHEET 1

PACKAGE No.
20_82

JCVJ DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-011

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A1

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80mm ON A1 SIZE ORIGINAL

0 10 20 30 40 50 60 70

LANDSCAPE DESIGN NOTES

20-UD-140 - RIC -ROZELLE LOCAL ROADS - LANDSCAPE DESIGN

4.0 LANDSCAPE SOIL PREPARATION TREATMENTS

- 4.1

TU-01 TURF AREAS:

- ERADICATE EXISTING WEED GROWTH

- RIP AND CULTIVATE SUBGRADE PROFILE TO 200mm DEEP

- INSTALL A-HORIZON WEED FREE TYPE '1' SOIL MIX 150mm DEEP

- INCORPORATE SELECT TURF STARTER FERTILIZER AND RAKE OFF TO SMOOTH EVEN PROFILES IN READINESS FOR TURF INSTALLATION

- SUPPLY AND INSTALL SELECT GENERAL TURF: 'SIR WALTER BUFFALO DNA CERTIFIED' OR APPROVED EQUIVALENT

- EXTEND TURF TO ADJACENT AREAS SHOWN ON PLANS TO MAKE GOOD AND TIE INTO EXISTING TURFED AREAS AS NECESSARY
- 4.2

PL-01 MASSED PLANTING AREAS:

- ERADICATE WEED GROWTH

- RIP AND CULTIVATE SUBGRADE PROFILE TO 200mm DEEP

- INSTALL A-HORIZON: 300mm DEEP LAYER OF TYPE '2' ORGANIC WEED FREE SOIL MIX PRE-BLENDED WITH FERTILISERS AND PROPRIETARY SOIL ADDITIVE OF GRANULAR WATER STORAGE CRYSTALS

- RAKE OFF TO SMOOTH EVEN PROFILES.

- APPLY 100mm DEEP LAYER OF WEED FREE ORGANIC MULCH 'MU-01'

- INSTALL PLANTING IN ACCORDANCE WITH RMS SPEC R179
- 4.3

PL-02 MASSED PLANTING ON STRUCTURE AREAS:

- INSTALL 30mm THICK ATLANTIS 'FLOCELL' LAYER OVER BASE SLAB AND SCREED LAYER, OVERLAY WITH GEOTEXTILE DRAINAGE FABRIC

- INSTALL 100mm DEEP LAYER COARSE WASHED RIVER SAND

- INSTALL B-HORIZON: 600mm DEEP LAYER TYPE '4' SOIL MIX

- INSTALL A-HORIZON: 300mm DEEP LAYER OF TYPE '3' ORGANIC WEED FREE SOIL PREBLENDED WITH FERTILISERS AND PROPRIETARY SOIL ADDITIVE OF GRANULAR WATER STORAGE CRYSTALS

- RAKE OFF TO SMOOTH EVEN PROFILES

- APPLY 100mm DEEP LAYER OF WEED FREE ORGANIC MULCH 'MU-01'

- INSTALL PLANTING IN ACCORDANCE WITH RMS SPEC R179
- 4.4

PL-03 NATURALISED PLACED ROCK EMBANKMENT:

- INSTALL SUB-BASE TO ENGINEERS DETAIL. REFER PACKAGE 20_18, 20_19 and 20_22.

- INSTALL GEOTEXTILE FABRIC TO ENGINEERS DETAIL

- PLACE SELECT ROCK MATERIAL NOM. 500 DIA. TO ENGINEERS DETAIL

- INSTALL TYPE '9' ORGANIC WEED FREE SOIL MIX IN AVAILABLE POCKETS.

- RAKE OFF TO SMOOTH EVEN PROFILES IN ROCK POCKETS

- INSTALL PLANTING IN ACCORDANCE WITH RMS SPEC R179
- 4.5

PL-07 HYDROSEED

- AS FOR TU-01 EXCEPT DELETE TURF AND INSTALL HYDROSEED MIX.
- 4.6

PL-08 STABILISED EMABANKMENT PLANTING - MAX 2:1 GRADE :

- ERADICATE WEED GROWTH

- RIP AND CULTIVATE SUBGRADE PROFILE TO 200mm DEEP

- INSTALL 300mm DEEP LAYER OF TYPE '2' ORGANIC WEED FREE IMPORTED SOIL MIX PRE-BLENDED WITH FERTILISERS AND PROPRIETARY SOIL ADDITIVE OF GRANULAR WATER STORAGE CRYSTALS

- RAKE OFF TO SMOOTH EVEN PROFILES.

- INSTALL EROSION CONTROL MATTING 400GSM COIR MESH IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS

- APPLY 100mm DEEP LAYER OF WEED FREE ORGANIC MULCH 'MU-01'

- INSTALL PLANTING IN ACCORDANCE WITH RMS SPEC R179
- 4.7

PL-09 MASSED PLANTING ABOVE PARENT ROCK MATERIAL :

- ERADICATE WEED GROWTH

- EXCAVATE AND PROFILE ROCK FACE TO REQUIRED DEPTH AND PROVIDE FREE DRAINING SURFACE

- INSTALL 700mm DEEP LAYER TYPE '4' SOIL MIX

- INSTALL 300mm DEEP LAYER OF TYPE '2' ORGANIC WEED FREE IMPORTED SOIL MIX PRE-BLENDED WITH FERTILISERS AND PROPRIETARY SOIL ADDITIVE OF GRANULAR WATER STORAGE CRYSTALS

- RAKE OFF TO SMOOTH EVEN PROFILES.

- APPLY 100mm DEEP LAYER OF WEED FREE ORGANIC MULCH 'MU-01'

- INSTALL PLANTING IN ACCORDANCE WITH RMS SPEC R179

5.0 LANDSCAPE PLANTING NOTES

- 5.1

ALL TREE PLANTING SHALL BE KEPT CLEAR OF ALL OVERHEAD WIRES AND ALL OTHER PUBLIC UTILITIES. SEEK DIRECTION FROM THE JHCPB REPRESENTATIVE IF ANY SERVICE CLASHES ARE ENCOUNTERED DURING INSTALLATION.
- 5.2

AREAS NOMINATED FOR PLANTING AREAS MAY REQUIRE SITE ADJUSTMENTS TO ENSURE THAT THE CORRECT DISTANCES FOR SIGHT CLEARANCES AND CLEAR ZONES ARE MAINTAINED COMPLY WITH CLEAR ZONE DISTANCES SHOWN ON THE PLANS. THESE CLEARANCES MAY BE INFLUENCED BY EXISTING VEGETATION AND LANDFORM
- 5.3

PLANT SUPPLY AND INSTALLATION SHALL BE IN ACCORDANCE WITH RMS D&C SPECIFICATION R179. PLANTING HOLE DIMENSIONS NOMINATED IN DRAWINGS TAKE PRECEDENCE OVER THOSE NOMINATED IN CLAUSE 3.6.1.
- 5.4

TREE PLANTING IN NEW MASSED PLANTING & TURF AREAS:

- EXCAVATE PLANTING HOLE 1000mm X 1000mm AND 100mm DEEPER THAN ROOTBALL FOR 25L AND 75L

- EXCAVATE PLANTING HOLE 1500mm X 1500mm AND 100mm DEEPER THAN ROOTBALL FOR 200L, 400L AND 1000L.

- CULTIVATE BASE OF TREE PIT 200mm DEEP (EXCLUDING TREE PLANTING ON STRUCTURE AREAS) AND INCORPORATE A PROPRIETARY SOIL ADDITIVE OF GRANULAR WATER STORAGE CRYSTALS

- INSTALL PLANT AS PER RMS SPEC R179. REFER PLANTING SCHEDULE FOR POT SIZES

- APPLY 2m DIAMETER X 100mm LAYER OF WEED FREE ORGANIC MULCH TO EACH PLANTING POINT
- 5.5

PLANTING GROUPS OF MIXED SPECIES:

- PLANT IN SAME SPECIES GROUPS OF 5 - 10 AT NOMINATED SPACING IN RANDOM GROUPS WITHIN NOMINATED PLANTING ZONE, UNLESS OTHERWISE NOMINATED.
- 5.6

SOIL DEPTHS FOR TREE AND MASSED PLANTING WHEN ROCK IS ENCOUNTERED:

IN THE CASE WHERE HIGH ROCK LEVELS ARE ENCOUNTERED, EXCAVATE THE ROCK MATERIAL TO SATISFY THE FOLLOWING REQUIREMENTS:

- ENSURE THE EXCAVATED ROCK SURFACE IS FREE DRAINING TO AVOID PONDING

- PROVIDE 1000mm DEPTH FOR TREE PITS WITH A MINIMUM TOTAL SOIL VOLUME OF 40/m3


- PROVDE A MINIMUM 600mm SOIL DEPTH FOR ALL ADJACENT PL-01 MASSED PLANTING AREAS.

INSTALL AS PER PL-01 EXCEPT:

- INSTALL B-HORIZON - UP TO 600mm DEEP LAYER TYPE '4' SOIL MIX
- NOT FOR CONSTRUCTION
- | DRAWING FILE LOCATION / NAME | | | |
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| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | |
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| SCALES ON A1 SIZE DRAWING | CLIENT |
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NSW GOVERNMENT

Transport

Roads & Maritime Services
- | PLOT DATE / TIME | | PLOT BY |
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| 4/08/2020 3:41:57 PM | | YURONG TAN |
| TITLE | NAME | DATE |
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
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WestConnex Rozelle Interchange




JOHN HOLLAND




CPB CONTRACTORS



ARCADIS




WSP




HASSELL



McMILLEN JACOBS ASSOCIATES



willow



PBM

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| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN LANDSCAPE DESIGN NOTES | | | A1 |
| SHEET 2 | | | |
| PACKAGE No. 20_82 | JCVJ DOCUMENT NAME RIC-HSL-DRG-20-UD-140-012 | REV C | |

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80mm ON A1 SIZE ORIGINAL

LANDSCAPE DESIGN NOTES

20-UD-140 - RIC -ROZELLE LOCAL ROADS - LANDSCAPE DESIGN

6.0 IMPORTED SOIL MIX REQUIREMENTS

6.1 THE FOLLOWING SOIL MIX REQUIREMENTS HAVE BEEN PREPARED FOR THE PROJECT BY A QUALIFIED SOIL SCIENTIST (SESL AUSTRALIA).

SOIL MIX TYPE '1'
APPLIES TO :
- TU-01 TURF AREAS
- PL-07 HYDROSEED

A LOAMY SAND - SANDY LOAM TOPSOIL MIX DESIGNED TO PROVIDE MODERATE RESISTANCE TO COMPACTION IN PUBLIC AND OTHER AMENITY TURF AREAS SUBJECT MODERATE LEVELS OF PEDESTRIAN TRAFFIC.

SOIL MIX 'TYPE 1'
PHYSICAL PROPERTIES

| Property | Units | Target range | |
|-----------------------------|--------------------|--|-------------------|
| 2.0 mm (fine gravel) 1 | % retained by mass | < 10 | |
| 1.0 mm (very coarse sand) 1 | | < 10 | |
| 0.5 mm (coarse sand) 1 | | 10–30 | 30–50 |
| 0.25 mm (medium sand) 1 | | 20–40 | |
| 0.1 mm (fine sand) 1 | | 10–30 | |
| 0.05 (very fine sand) 1 | | 5–15 (max 25% combined v/s, Si +Cl) | |
| 0.002 mm (silt) 1 | | < 12 (Si + Clay combined) 5–10 | |
| < 0.002 mm (clay) 1 | | 3–8 | |
| Large particles 2 | | 2–20 mm = < 10% > 20 mm = 0% | |
| Organic matter content 4 | % w/w | 2 to 8 | |
| Permeability 3 | mm/hour | > 30 (@ 16 drops by McIntyre Jakobsen) | |
| Wettability (AS 4419) 2 | mm/hour | > 5 | |
| Dispersibility in water 2 | | 1 or 2 | (AS4419) Category |

CHEMICAL PROPERTIES

| Property | Units | Target range |
|----------------------------------|-----------|--------------|
| pH in water (1:5) 5 | pH units | 5.4–8.0 |
| pH in CaCl2 (1:5) 5 | pH units | 5.2–7.5 |
| Electrical conductivity (1:5) 5 | dS/m | < 0.5 |
| Exchangeable Na percentage 5 | % of ECEC | < 7 |
| Exchangeable Ca/Mg ratio 5 | Ratio | 3–9 |
| Available phosphorus Mehlich 3 5 | mg/kg | 50–150 |
| Available nitrogen (nitrate N) 5 | mg/kg | 20 - 60 |

Method references

- AS1289 1632 - 2003
- AS4419 (2018)
- McIntyre & Jakobsen-1998
- Rayment and Lyons 6B2
- Rayment & Lyons (2011)

SOIL MIX TYPE '2'
APPLIES TO :
- PL-01 GENERAL MASSED PLANTING
- PL-08 STABALISED EMBANKMENT PLANTING
- PL-09 PLANTING ON PARENT ROCK MATETRIAL

'TYPE 2' TOPSOIL IS SPECIFIED AS A SANDY LOAM TO CLAY LOAM TOPSOIL MIX DESIGNED FOR MASS PLANTING OF GRASSES, WOODY AND HERBACEOUS PERENNIALS THAT DO NOT HAVE VERY HIGH NUTRIENT TARGET RANGES AND IS NOT SUBJECT TO COMPACTION BY PEDESTRIAN OR OTHER TRAFFIC. THE HEAVIER TEXTURED SOILS IN THIS SPECIFICATION MAY REQUIRE THE USE OF ENGINEERED SOLUTIONS (DRAINAGE TECHNIQUES) WHERE EXCESSIVE WETNESS IS ANTICIPATED. PLANTING METHODS MAY VARY AND INCLUDE DIRECT SEEDING, TUBE AND POTTED SPECIMENS.

SOIL MIX 'TYPE 2'
PHYSICAL PROPERTIES

| Property | Units | Target range |
|--|----------|-------------------------|
| Texture, preferred range 1 | n/a | Sandy loam to clay loam |
| Organic matter 2 | % dwb | 2–5 |
| Permeability (@ 16 drops by McIntyre Jakobsen) 3 | mm/h | > 20 |
| Wettability 4 | mm/h | > 5 |
| Dispersibility in water 4 | Category | 1 or 2 (AS4419) |
| Large particles (naturally occurring) 4 | | |
| 2–20 mm | % w/w | < 20 |
| > 20 mm | % w/w | < 10 |
| Visible contaminants > 2 mm (glass, plastic and metal) 5 | %gw/w | < 0.5 |

SOIL CHEMICAL PROPERTIES

| Property | Units | Target range |
|----------|-------|--------------|
|----------|-------|--------------|

| | | |
|---|-----------|---------|
| pH in water (1:5) standard range 6 | pH units | 5.4–6.8 |
| pH in CaCl2 (1:5) standard range 6 | pH units | 5.2–6.5 |
| pH in water (1:5) alkaline range 6 | pH units | 6.8–8.0 |
| pH in CaCl2 (1:5) alkaline range 6 | pH units | 6.5–7.5 |
| Electrical conductivity (1:5) 6 | dS/m | < 0.5 |
| Phosphorus – P-tolerant /standard plants. Acid soils method 6 | mg/kg | 30–100 |
| Phosphorus – P-sensitive plants. Acid soils method 6 | mg/kg | < 30 |
| Sodium (Na) 6 | % of ECEC | < 7% |
| Potassium (K) 6 | % of ECEC | 3–10% |
| Calcium (Ca) 6 | % of ECEC | 60–80 |
| Exchangeable magnesium (Mg) 6 | % of CEC | 15–25 |
| Exchangeable aluminium (Al) 6 | % of CEC | < 5 |
| Exchangeable Ca/Mg ratio 6 | w/w | 3–9 |
| Available iron (Fe) 6 | mg/kg | 100–400 |
| Available manganese (Mn) 6 | mg/kg | 25–100 |
| Available zinc (Zn) 6 | mg/kg | 5–30 |
| Available Copper (Cu) 6 | mg/kg | 1–15 |
| Available boron (B) 6 | mg/kg | 0.5–5 |
| Available N (nitrate-N) 6 | mg/kg | > 20 |

Method references

- Texture (SESL Method)
- Rayment and Lyons 6B2
- McIntyre & Jakobsen-1998
- AS4419
- AS4454-2012 Appendix I
- Rayment & Lyons (2011)

SOIL MIX TYPES '3' & '4'
APPLIES TO :
- PL-02 GENERAL MASSED PLANTING ON STRUCTURE (A & B HORIZON)
- PL-09 PLANTING ON PARENT ROCK MATERIAL (B HORIZON)

A LIGHT-WEIGHT FORMULATED MATERIAL WITH A SATURATED DENSITY OF LESS THAN 2200KG/M3 (2.2KG/L) FOR USE IN ON-STRUCTURE APPLICATIONS INCLUDING TWO LAYERS - THE A HORIZON AND B HORIZON. BOTH LAYERS HAVE SIMILAR PERFORMANCE CHARACTERISTICS, HOWEVER IT IS ESSENTIAL THE B HORIZON HAS <5% ORGANIC MATTER. IN ORDER TO MAINTAIN STRUCTURE AND POROSITY OVER EXTENDED PERIODS, AND TO AVOID SLUMPING AND VOLUME LOSS OVER TIME, THE FORMULATION MUST EMPLOY LOW DENSITY MINERAL COMPONENTS SUCH AS ASH, PERLITE, SCORIA, PUMICE AND DIATOMACEOUS EARTH, OR ARTIFICIAL COMPONENTS SUCH AS UREA FORMALDEHYDE AND STYROFOAM.

SOIL MIX 'TYPE 3' & 'TYPE 4'
PHYSICAL PROPERTIES

| Property | Units | TYPE '3' A-Horizon Target... | TYPE '4' B-Horizon Target... |
|--|-------|---|---|
| Texture, preferred range 1 | n/a | Gravelly loamy sand to organic sandy loam | Gravelly loamy sand to organic sandy loam |
| Air-filled porosity 2 | % | ≥ 10 | ≥ 10 |
| Water-holding capacity 2 | % | ≥ 40 | ≥ 40 |
| Saturated density 2 | kg/m3 | < 2200 | < 2200 |
| Permeability (@ 16 drops by McIntyre Jakobsen) 3 | mm/h | > 100 | > 100 |
| Organic matter 4 | % w/w | < 15 | < 5 |
| Wettability 2 | min | ≤ 5 | ≤ 5 |
| Large particles in the largest dimension 5 | | | |
| < 2 mm | % w/w | 30–70 | 30–70 |
| 2–10 mm | % w/w | 10–20 | 10–20 |
| 10–20 mm | % w/w | 5–10 | 5–10 |
| 20–50 mm | % w/w | < 5 | < 5 |
| > 50 mm | % w/w | 0 | 0 |

SOIL CHEMICAL PROPERTIES


| Property | Units | TYPE '3' A-Horizon Target... | TYPE '4' B-Horizon Target... |
|---|----------|---------------------------------|---------------------------------|
| pH in water (1:5) Standard range 2 | pH units | 5.4–6.8 | 5.4–6.8 |
| Electrical Conductivity (1:1.5) 2 | dS/m | < 2.2 | < 2.2 |
| Chloride 2 | mg/L | ≤ 200 | ≤ 200 |
| Ammonium-N (NH4) 2 | mg/L | ≤ 100 | ≤ 100 |
| Ammonium-N + nitrate-N (NH4 + NO3) 2 | mg/L | ≥ 50 | ≥ 50 |
| Nitrogen draw-down index 2 | - | ≥ 0.7 | ≥ 0.7 |
| Toxicity index 2 | mm | ≥ 70 | ≥ 70 |
| Phosphorus – P standard range 2 | mg/L | 8–40 | 8–40 |
| Low phosphorus – P (P-sensitive plants) 2 | mg/L | < 3 | < 3 |
| Potassium (K) 2 | mg/L | 50–250 | 50–250 |
| Sulphate (SO4) 2 | mg/L | ≥ 40 | ≥ 40 |
| Calcium (Ca) 2 | mg/L | ≥ 80 | ≥ 80 |
| Magnesium (Mg) 2 | mg/L | ≥ 15 | ≥ 15 |
| Ca:Mg ratio 2 | – | 1.5–10 | 1.5–10 |
| K:Mg ratio 2 | – | 1–7 | 1–7 |
| Sodium (Na) 2 | mg/L | < 130 | < 130 |
| Iron (Fe) 2 | mg/L | ≥ 35 | ≥ 35 |
| Copper (Cu) 2 | mg/L | 0.4–15 | 0.4–15 |
| Zinc (Zn) 2 | mg/L | 0.3–10 | 0.3–10 |
| Manganese (Mn) 2 | mg/L | 1–15 | 1–15 |
| Boron (B) 2 | mg/L | 0.02–0.65 | 0.02–0.65 |

Method references

- Texture (SESL Method)
- AS3743
- McIntyre & Jakobsen-1998
- Rayment & Lyons 6G1-2011
- AS4419

NOT FOR CONSTRUCTION

| | | | | | |
|---|------------|--|----------|----------------------------|--|
| DRAWING FILE LOCATION / NAME | | | | | |
| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | |
| A1 | 28/08/2019 | NOT ISSUED | - | MGA ZONE 56 | |
| A | 11/09/2019 | NOT ISSUED | - | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | HEIGHT DATUM | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | AHD | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | DESIGN PHASE | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | | |
| | | | | FDD | |
| | | | | FINAL DESIGN DOCUMENTATION | |

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| DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | |  Transport Roads & Maritime Services |
| SCALES ON A1 SIZE DRAWING | CLIENT | |
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|--|----------------|-----------------------|--|
| PLOT DATE / TIME 4/08/2020 3:42:02 PM | | PLOT BY YURONG TAN | |
| TITLE | NAME | DATE | |
| DRAWN | YURONG TAN | 05/08/2020 | |
| DRG CHECK | BEN CHARLTON | 05/08/2020 | |
| DESIGN | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | |



| | | | |
|---|---|----------|----|
| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN LANDSCAPE DESIGN NOTES | | | A1 |
| SHEET 3 | | | |
| PACKAGE No. 20_82 | JCVJ DOCUMENT NAME RIC-HSL-DRG-20-UD-140-013 | REV C | |

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0 10 20 30 40 50 60 70 80mm ON A1 SIZE ORIGINAL

LANDSCAPE DESIGN NOTES

20-UD-140 - RIC -ROZELLE LOCAL ROADS - LANDSCAPE DESIGN

6.0 IMPORTED SOIL MIX REQUIREMENTS CONTINUED

SOIL MIX TYPE '9'

APPLIES TO :
- PL-08 NATURALISED EMBANKMENT PLANTING

AN EROSION CONTROL BLEND DESIGNED FOR AREAS AND SLOPES EXPOSED TO MASS FLOWS OF WATER. THE EROSION CONTROL BLEND IS BLENDED WITH SHREDDED WOOD TO MAXIMISE THE POTENTIAL FOR KNITTING TOGETHER.

SOIL MIX 'TYPE 9' PHYSICAL PROPERTIES

| Property | Units | Target range |
|--|--------|-------------------------|
| Texture, preferred range 1 | n/a | Sandy loam to clay loam |
| Organic matter 2 | % dwb | 2–5 |
| Permeability (@ 16 drops by McIntyre Jakobsen) 3 | mm/h | > 20 |
| Wettability 4 | mm/h | > 5 |
| Dispersibility in water 4 | 1 or 2 | (AS4419) Category |
| Large particles (naturally occurring) 4 | | |
| 2–20 mm | % w/w | < 20 |
| > 20 mm | % w/w | < 10 |
| Visible contaminants > 2 mm (glass, plastic and metal) 5 | %w/w | < 0.5 |

SOIL CHEMICAL PROPERTIES

| Property | Units | Target range |
|---|-----------|--------------|
| pH in water (1:5) standard range 6 | pH units | 5.4–6.8 |
| pH in CaCl2 (1:5) standard range 6 | pH units | 5.2–6.5 |
| pH in water (1:5) alkaline range 6 | pH units | 6.8–8.0 |
| pH in CaCl2 (1:5) alkaline range 6 | pH units | 6.5–7.5 |
| Electrical conductivity (1:5) 6 | dS/m | < 0.5 |
| Phosphorus – P-tolerant /standard plants, Acid soils method 6 | mg/kg | 30–100 |
| Phosphorus for P-sensitive plants, acid soils method 6 | mg/kg | < 30 |
| Sodium (Na) 6 | % of ECEC | < 7% |
| Potassium (K) 6 | % of ECEC | 3–10% |
| Calcium (Ca) 6 | % of ECEC | 60–80 |
| Exchangeable magnesium (Mg) 6 | % of CEC | 15–25 |
| Exchangeable aluminium (Al) 6 | % of CEC | < 5 |
| Exchangeable Ca/Mg ratio 6 | w/w | 3–9 |
| Available iron (Fe) 6 | mg/kg | 100–400 |
| Available manganese (Mn) 6 | mg/kg | 25–100 |
| Available zinc (Zn) 6 | mg/kg | 5–30 |
| Available Copper (Cu) 6 | mg/kg | 1–15 |
| Available boron (B) 6 | mg/kg | 0.5–5 |
| Available N (ammonium-N + nitrate-N) 6 | mg/kg | > 25 |

Method references

1. Rayment and Lyons 6B2
2. McIntyre & Jakobsen-1998
3. AS4419
4. AS4454-2012 Appendix I
5. Rayment & Lyons (2011)

SOIL MIX TYPE '13'

C-HORIZON (CONTROLLED SUBGRADE FILL AS REQUIRED)

SOIL 'TYPE 13' WILL BE USED IN ALL SUB-GRADE FILL (C-HORIZON) BELOW THE A AND/OR B HORIZONS TO BUILD UP THE GROUND TO FINALISE LANDSCAPE LEVELS.

SOIL MIX 'TYPE 13' PHYSICAL PROPERTIES

| Property | Maximum particle size (mm) | Maximum total fines content (% passing 0.15 mm) |
|----------|----------------------------|---|
| A | < 20 | 20 |
| B | < 20 | 30 |
| C | < 50* | 50 |

*where used as C horizon above soil type A, discrete particles must have a maximum longest dimension of < 20 mm

Method references

1. Particle Size Analysis = AS1289 3.8.1
2. Hydraulic Conductivity = McIntyre & Jakobsen (1998)
3. Rayment & Lyons (2011) = pH, EC, cation exchange
4. ASTM D7573 - 09, R&L 6B3 = Organic matter

NOT FOR CONSTRUCTION

| | | | | | | | | | | | | | | | | | | | | | |
|---|------------|--|----------|----------------------------|--|---|--------------|----------------|------------|--|--|-----------------------|--|---|--|--|--|---|--|---|--|
| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | PLOT DATE / TIME 4/08/2020 3:42:06 PM | | PLOT BY YURONG TAN | | <div><div><div>WestConnex</div><div>Rozelle Interchange</div></div><div><div>JOHN HOLLAND</div><div>ARCADIS</div><div>HASSELL</div></div><div><div>CPB CONTRACTORS</div><div>WSP</div><div>willow</div></div><div><div>McMILLLEN JACOBS ASSOCIATES</div><div>PRIM</div></div></div> | | | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN LANDSCAPE DESIGN NOTES | | SHEET 4 PACKAGE No. 20_82 JCJV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-014 REV C | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING | CLIENT | TITLE | NAME | DATE | | | | | | | | | | | | |
| A1 | 28/08/2019 | NOT ISSUED | - | MGA ZONE 56 |  Transport Roads & Maritime Services |  | DRAWN | YURONG TAN | 05/08/2020 | | | | | | | | | | | | |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM | | | DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | | | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | DESIGN | ANTHONY PAPAS | 05/08/2020 | | | | | | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | | | | | | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | | | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | | | | | | | | |

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80mm ON A1 SIZE ORIGINAL

| 20_82 - LOCAL ROADS - TREE SPECIES AND QUANTITIES SCHEDULE | | | | |
|--|---------------------------|------------------|----------|-----|
| ID_CODE | SCIENTIFIC NAME | COMMON NAME | POT SIZE | QTY |
| Ac | Angophora costata | Sydney Red Gum | 75L | 8 |
| Cu | Cupaniopsis anacardioides | Tuckeroo | 75L | 37 |
| Ep | Eucalyptus pilularis | Blackbutt | 75L | 18 |
| Fh | Ficus hillii | Weeping Fig | 200L | 2 |
| Fr | Ficus rubiginosa | Port Jackson Fig | 200L | 12 |
| Lc | Lophostemon confertus | Brush Box | 100L | 9 |

Grand total: 86

| 20_82 - LOCAL ROADS PLANTING SPECIES AND QUANTITIES SCHEDULE | | | |
|---|-------------------------|-----------|------|
| SCIENTIFIC NAME | COMMON NAME | POT SIZE | QTY |
| Acmena smithii | Lilly Pilly | 25L | 91 |
| Allocasuarina littoralis | Black She-oak | 200mm | 219 |
| Aspidistra eliator | Cast Iron Plant | 200mm | 132 |
| Asplenium australasicum | Bird's Nest Fern | 150mm | 39 |
| Backhousia myrtifolia | Grey Myrtle | 25L | 41 |
| Banksia integrifolia | Coast Banksia | 25L | 331 |
| Banksia integrifolia 'Dwarf' | Prostrate Coast Banksia | 140mm | 617 |
| Banksia spinulosa | Hairpin Banksia | 150mm | 151 |
| Baumea juncea | Bare Twigrush | 75mm Tube | 27 |
| Billardiera scandens | Apple Berry | 150mm | 460 |
| Blechnum cartilagineum | Gristle Fern | 150mm | 763 |
| Callicoma serratifolia | Blackwattle | 25L | 104 |
| Callistemon 'Green John' | Dwarf Bottlebrush | 150mm | 411 |
| Callistemon 'White Anzac' | Bottlebrush | 150mm | 875 |
| Calochlaena dubia | False Bracken | 150mm | 2669 |
| Cissus antarctica | Kangaroo Vine | 150mm | 2174 |
| Crinum pendunculatum | Swamp Lily | 150mm | 348 |
| Correa alba | White Correa | 150mm | 443 |
| Cyathea cooperi | Australian Tree Fern | 25L | 336 |
| Dianella caerulea | Blue Flax-lily | 150mm | 2291 |
| Dianella caerulea 'Little Jess' | Little Jess | 150mm | 903 |
| Dianella revoluta | Blueberry Lily | 150mm | 2362 |
| Dodonaea triquetra | Hop Bush | 200mm | 357 |
| Doodia aspera | False Bracken | 150mm | 1525 |
| Doryanthes excelsa | Gymea Lily | 200mm | 187 |
| Elaeocarpus reticulatus 'Prima Donna' | Bluberry Ash | 25L | 149 |
| Ficinia nodosa | Knobby Club Rush | 75mm Tube | 211 |
| Ficus pumila 'Minima' | Climbing Fig | 150mm | 585 |
| Gazania 'Double Gold' | Double Gold | 150mm | 755 |
| Grevillea linearifolia | White Spider Flower | 200mm | 51 |
| Grevillea sericea | Pink Spider Flower | 150mm | 144 |
| Grevillea sphacelata | Grey Spider Flower | 200mm | 195 |
| Hedera canariensis | Canary Island Ivy | 150mm | 2316 |
| Hibbertia scandens | Guinea Flower | 150mm | 5026 |
| Juncus kraussii | Salt Marsh Rush | 75mm Tube | 40 |
| Leptospermum 'Cardwell' | Tea Tree | 200mm | 442 |
| Liriope muscari 'Evergreen Giant' | Giant Liriope | 150mm | 2948 |
| Lomandra longifolia | Spiny-head Mat-rush | 150mm | 8724 |
| Lomandra 'Verday' | Lomandra | 150mm | 4011 |
| Melaleuca hypericifolia | Hillock Honey Myrtle | 150mm | 144 |
| Melaleuca thymifolia | Thyme-leaf Honey-myrtle | 150mm | 144 |
| Philodendron 'Xanadu' | Xanadu | 150mm | 6668 |
| Pittosporum revolutum | Yellow Pittosporum | 200mm | 254 |
| Rhaphiolepis 'Snow Maiden' | Snow Maiden | 200mm | 258 |
| Trachelospermum asiaticum 'Flat Mat' | Flat Mat | 150mm | 78 |
| Westringia fruticosa 'Zena' | Coastal Rosemary | 150mm | 3595 |
| | | | |

| PROJECTWIDE PLANTING MIX LIST | | |
|---|-------------------|---|
| Note: Not all mixes are used in this design package. Refer to planting mix schedules | | |
| MIX CODE | MIX NAME | DESCRIPTION |
| A01 | ACCENT MIX 01 | Native accent mix |
| A02 | ACCENT MIX 02 | Accent mix |
| A03 | ACCENT MIX 03 | Understorey accent mix |
| A04 | ACCENT MIX 04 | Informal hedge |
| A05 | ACCENT MIX 05 | Native accent mix |
| B01 | BULKY MIX 01 | Dense shrub mix |
| B02 | BULKY MIX 02 | Native bulky mix |
| B03 | BULKY MIX 03 | Native bulky mix |
| B04 | BULKY MIX 04 | Native ornamental bulky mix |
| B05 | BULKY MIX 05 | Native bulky mix |
| B06 | BULKY MIX 06 | Native bulky mix |
| B07 | BULKY MIX 07 | Native bulky mix |
| C01 | CLIMBING MIX 01 | Wall climber |
| C02 | CLIMBING MIX 02 | Shade climber |
| C03 | CLIMBING MIX 03 | Trellis climber |
| DR01 | DRAINAGE MIX 01 | Dry vegeatated swale mix |
| DR02 | DRAINAGE MIX 02 | Naturalised rock batter mix - salt tolerant |
| LB01 | LANDBRIDGE MIX 01 | Landbridge Mix -1 |
| LB02 | LANDBRIDGE MIX 02 | Landbridge Mix -2 |
| LB03 | LANDBRIDGE MIX 03 | Landbridge Mix -3 |
| LB04 | LANDBRIDGE MIX 04 | Landbridge Mix -4 |
| LB05 | LANDBRIDGE MIX 05 | Landbridge Mix -5 |
| LB06 | LANDBRIDGE MIX 06 | Landbridge Mix -6 |
| LB07 | LANDBRIDGE MIX 07 | Landbridge Mix -7 |
| LB08 | LANDBRIDGE MIX 08 | Landbridge Mix -8 |
| LB09 | LANDBRIDGE MIX 09 | Landbridge Mix -9 |
| L01 | LOW MIX 01 | Native ground layer mix |
| L02 | LOW MIX 02 | Native shade mix |
| L03 | LOW MIX 03 | Native informal hedge |
| L04 | LOW MIX 04 | Native ground layer mix |
| L05 | LOW MIX 05 | Ground cover mix |
| L06 | LOW MIX 06 | Native shade ground layer |
| L07 | LOW MIX 07 | Native ground layer mix |
| L08 | LOW MIX 08 | Native ground layer mix |
| LS01 | LOW SHADE MIX 01 | Native shade mix |
| LS02 | LOW SHADE MIX 02 | Native underbridge shade mix |
| S01 | SKIRT MIX 01 | Single species skirt mix |
| S02 | SKIRT MIX 02 | Single species skirt mix |
| S03 | SKIRT MIX 03 | Single species skirt mix |
| S04 | SKIRT MIX 04 | Single species skirt mix |
| S05 | SKIRT MIX 05 | Dense roadside skirt mix |
| SC01 | SCREEN MIX 01 | Ornamental native screen mix |
| SC02 | SCREEN MIX 02 | Narrow screen mix |
| SC03 | SCREEN MIX 03 | Sreen mix |
| WL01 | WETLAND MIX 01 | Ephemeral Mix |
| WL02 | WETLAND MIX 02 | Marsh Mix |
| WL03 | WETLAND MIX 03 | Deep Marsh Mix |

NOT FOR CONSTRUCTION

| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | |
|---|------------|--|----------|----------------------------|
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | | HEIGHT DATUM |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | | AHD |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | | DESIGN PHASE |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING

CLIENT



| PLOT DATE / TIME 4/08/2020 3:42:11 PM | | PLOT BY YURONG TAN | |
|--|----------------|-----------------------|--|
| TITLE | NAME | DATE | |
| DRAWN | YURONG TAN | 05/08/2020 | |
| DRG CHECK | BEN CHARLTON | 05/08/2020 | |
| DESIGN | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | |

| | | | | |
|--|--|----------|----|--|
| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN PLANTING SCHEDULE | | | A1 | |
| SHEET 1 | | | | |
| PACKAGE No. 20_82 | JCV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-021 | REV C | | |

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80mm ON A1 SIZE ORIGINAL

20_82 - LOCAL ROADS LANDSCAPE DESIGN

PLANTING MIX SCHEDULES

| A-01 | Accent Mix 01 | | | | | | Bed ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|--------------|--------------------|---------------|-------|-------|--------|------|-----------|----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | | | | | | Area (m2) | 36 | 54 | 105 | 39 | 10 | 37 | 76 | 32 | 41 | 33 | 40 | 90 | 84 | 48 | 23 |
| | | | | | | | | | | | | | | | | | | | | | | |
| Feature | Doryanthes excelsa | Gynea Lily | Dor e | 200mm | 2m cts | 100% | 9 | 13 | 26 | 10 | 3 | 9 | 19 | 8 | 10 | 8 | 10 | 23 | 21 | 12 | 6 | |
| Ground layer | Hibbertia scandens | Guinea Flower | Hib s | 150mm | 1/ m2 | 100% | 36 | 54 | 105 | 39 | 10 | 37 | 76 | 32 | 41 | 33 | 40 | 90 | 84 | 48 | 23 | |
| | Lomandra 'Verday' | Lomandra | Lom v | 150mm | 6/ m2 | 10% | 22 | 32 | 63 | 24 | 6 | 22 | 45 | 19 | 25 | 20 | 24 | 54 | 50 | 29 | 14 | |

| | | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|------------------------------|---------------|-------|-------|--------|------|-----|-----|-----|-----|-----|-------|--|--|--|--|--|--|--|--|
| A-02 | Accent Mix 02 | | | | | Bed ID | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | |
| | | | Area (m2) | | | | 8 | 118 | 58 | 165 | 65 | 385 | | | | | | | | | |
| Ground layer | | <i>Philodendron 'Xanadu'</i> | Xanadu | Phi x | 150mm | 4/ m2 | 100% | 31 | 473 | 231 | 659 | 262 | 1,540 | | | | | | | | |
| | | <i>Hibbertia scandens</i> | Guinea Flower | Hib s | 150mm | 2/ m2 | 20% | 3 | 47 | 23 | 66 | 26 | 154 | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|---|------------------|-------|-------|--------|------|----|--|--|--|--|--|--|--|--|--|--|--|--|--|
| A-03 | Accent Mix 03 | | | | | Bed ID | 1 | | | | | | | | | | | | | | |
| | | | Area (m2) | | | | 19 | | | | | | | | | | | | | | |
| Ground layer | | <i>Asplenium australasicum</i> | Bird's Nest Fern | Asp a | 150mm | 2/ m2 | 100% | 39 | | | | | | | | | | | | | |
| | | <i>Trachelospermum asiaticum 'Flat Mat'</i> | Flat Mat | Tra f | 150mm | 4/ m2 | 100% | 78 | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|-----------------------------------|-------------|-------|-------|--------|------|-----|----|----|----|----|--|--|--|--|--|--|--|--|
| A-04 | Accent Mix 04 | | | | | Bed ID | 1 | 2 | 3 | 4 | 5 | | | | | | | | | |
| | | | Area (m2) | | | | 17 | 6 | 2 | 9 | 10 | | | | | | | | | |
| Ground layer | | <i>Rhaphiolepis 'Snow Maiden'</i> | Snow Maiden | Rha s | 200mm | 6/ m2 | 100% | 100 | 34 | 12 | 53 | 58 | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|-----------------------------|---------------|-------|-------|--------|------|-----|----|----|-----|-----|--|--|--|--|--|--|--|--|
| A-05 | Accent Mix 05 | | | | | Bed ID | 1 | 2 | 3 | 4 | 5 | | | | | | | | | |
| | | | Area (m2) | | | | 33 | 9 | 13 | 9 | 110 | | | | | | | | | |
| Ground Layer | | <i>Crinum pendunculatum</i> | Swamp Lily | Cri p | 150mm | 2/ m2 | 100% | 66 | 18 | 26 | 18 | 219 | | | | | | | | |
| | | <i>Hibbertia scandens</i> | Guinea Flower | Hib s | 150mm | 4/ m2 | 100% | 132 | 36 | 53 | 36 | 439 | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|--------------|--------------|--|---------------------|-------|-------|----------|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|--|--|
| B-01 | Bulky Mix 01 | | | | | Bed ID | 1 | 2 | | | | | | | | | | | | | |
| | | | Area (m2) | | | | 221 | 250 | | | | | | | | | | | | | |
| Canopy layer | | <i>Acmena smithii</i> | Lilly Pilly | Acm s | 25L | 1.5m cts | 10% | 10 | 11 | | | | | | | | | | | | |
| | | <i>Backhousia myrtifolia</i> | Grey Myrtle | Bac m | 25L | 1.5m cts | 20% | 19 | 22 | | | | | | | | | | | | |
| | | <i>Callicoma serratifolia</i> | Black Wattle | Cal s | 25L | 1.5m cts | 50% | 49 | 55 | | | | | | | | | | | | |
| | | <i>Elaeocarpus reticulatus 'Prima Donna'</i> | Blueberry Ash | Ela r | 25L | 1.5m cts | 20% | 19 | 22 | | | | | | | | | | | | |
| Ground layer | | <i>Dianella caerulea</i> | Blue Flax-lily | Dia c | 150mm | 6 /m2 | 5% | 66 | 75 | | | | | | | | | | | | |
| | | <i>Hibbertia scandens</i> | Snake Vine | Hib s | 150mm | 1 /m2 | 10% | 22 | 25 | | | | | | | | | | | | |
| | | <i>Lomandra longifolia</i> | Spiny-head Mat-rush | Lom l | 150mm | 6 /m2 | 15% | 199 | 225 | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|--------------|--------------|--|---------------------|-------|-------|----------|------|-----|-------|-----|--|--|--|--|--|--|--|--|--|--|--|
| B-02 | Bulky Mix 02 | | | | | Bed ID | 1 | 2 | 3 | | | | | | | | | | | | |
| | | | Area (m2) | | | | 231 | 450 | 148 | | | | | | | | | | | | |
| Canopy layer | | <i>Allocasuarina littoralis</i> | Black She-oak | All l | 200mm | 1.5m cts | 60% | 61 | 119 | 39 | | | | | | | | | | | |
| | | <i>Banksia integrifolia</i> | Coast Banksia | Ban i | 25L | 1.5m cts | 30% | 30 | 59 | 20 | | | | | | | | | | | |
| | | <i>Elaeocarpus reticulatus 'Prima Donna'</i> | Blueberry Ash | Ela r | 25L | 1.5m cts | 10% | 10 | 20 | 7 | | | | | | | | | | | |
| Ground layer | | <i>Hibbertia scandens</i> | Guinea Flower | Hib s | 150mm | 1 /m2 | 100% | 231 | 450 | 148 | | | | | | | | | | | |
| | | <i>Lomandra longifolia</i> | Spiny-head Mat-rush | Lom l | 150mm | 4 /m2 | 100% | 923 | 1,800 | 594 | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|--------------|--------------|--|---------------------|-------|-------|----------|------|-----|-------|----|--|--|--|--|--|--|--|--|--|--|--|
| B-03 | Bulky Mix 03 | | | | | Bed ID | 1 | 2 | 3 | | | | | | | | | | | | |
| | | | Area (m2) | | | | 83 | 379 | 9 | | | | | | | | | | | | |
| Canopy layer | | <i>Banksia integrifolia</i> | Coast Banksia | Ban i | 25L | 1.5m cts | 70% | 26 | 117 | 3 | | | | | | | | | | | |
| | | <i>Elaeocarpus reticulatus 'Prima Donna'</i> | Blueberry Ash | Ela r | 25L | 1.5m cts | 30% | 11 | 50 | 1 | | | | | | | | | | | |
| | | <i>Hibbertia scandens</i> | Guinea Flower | Hib s | 150mm | 1 /m2 | 100% | 83 | 379 | 9 | | | | | | | | | | | |
| Ground layer | | <i>Lomandra longifolia</i> | Spiny-head Mat-rush | Lom l | 150mm | 4 /m2 | 100% | 334 | 1,518 | 37 | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|--------------|--------------|-----------------------------|---------------|-------|-------|----------|------|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|--|
| B-04 | Bulky Mix 04 | | | | | Bed ID | 1 | 2 | 3 | | | | | | | | | | | | |
| | | | Area (m2) | | | | 25 | 53 | 95 | | | | | | | | | | | | |
| Canopy layer | | <i>Banksia integrifolia</i> | Coast Banksia | Ban i | 25L | 1.5m cts | 100% | 11 | 23 | 42 | | | | | | | | | | | |
| Ground layer | | <i>Hibbertia scandens</i> | Guinea Flower | Hib s | 150mm | 4/m2 | 100% | 102 | 213 | 381 | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | |
|------|------------------------------|--------------------|-------|-------|-----------|------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| C-01 | Climbers Mix 01 | Bed ID | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | | | | | |
| | | Linear meters (Lm) | | | | | | | | | | | | | | | | | | | | | |
| | | 11 | 9 | 3 | 3 | 3 | 3 | 6 | 36 | 36 | 17 | 13 | 30 | 21 | 7 | 44 | 17 | 33 | | | | | |
| | <i>Ficus pumila</i> 'Minima' | Climbing Fig | Fic p | 150mm | 2/ lin. m | 100% | 22 | 18 | 6 | 6 | 5 | 6 | 13 | 72 | 72 | 35 | 26 | 60 | 41 | 15 | 88 | 34 | 67 |

| | | | | | | | | | | | | | | | | | | | | | |
|------|-----------------|--------------------------|--------------------|-------|-------|-----------|------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|
| C-02 | Climbers Mix 02 | | | | | Bed ID | 1 | | | | | | | | | | | | | | |
| | | | Linear meters (Lm) | | | | 3 | | | | | | | | | | | | | | |
| | | <i>Cissus antarctica</i> | Kangaroo Vine | Cis a | 150mm | 2/ lin. m | 100% | 7 | | | | | | | | | | | | | |

NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
|-----|------------|--|----------|-----------------------------------|
| A1 | 26/08/2019 | NOT ISSUED | - | MGA ZONE 56 |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | DESIGN PHASE |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FDD FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING

CLIENT
Transport Roads & Maritime Services

PLOT DATE / TIME
4/08/2020 3:42:27 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |



WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
PLANTING SCHEDULE

SHEET 2

| | | |
|-------------|---------------------------|-----|
| PACKAGE No. | JCVJ DOCUMENT NAME | REV |
| 20_82 | RIC-HSL-DRG-20-UD-140-022 | C |

A1

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0 10 20 30 40 50 60 70 80mm ON A1 SIZE ORIGINAL

20_82 - LOCAL ROADS LANDSCAPE DESIGN

PLANTING MIX SCHEDULES

| MIX REF. | SPECIES | COMMON NAME | ABBREV. | SIZE | SPACING | MIX % | PLANTING BED SUMMARY |
|----------|---------|-------------|---------|------|---------|-------|----------------------|
|----------|---------|-------------|---------|------|---------|-------|----------------------|

| DR-01 | Drainage Mix 01 | Bed ID | | | | | 1 |
|--------------|-------------------|------------------|-------|-------|-------|-----|-----|
| | | Area (m2) | | | | | 90 |
| Ground layer | Dianella caerulea | Blue Flax-lily | Dia c | 150mm | 4/ m2 | 30% | 108 |
| | Dianella revoluta | Blueberry Lily | Dia r | 150mm | 4/ m2 | 30% | 108 |
| | Ficinia nodosa | Knobby Club Rush | Fic n | 150mm | 4/ m2 | 40% | 144 |
| | | | | | | | |

| DR-02 | Drainage Mix 02 | Bed ID | | | | 1 |
|--------------|-----------------|------------------|-------|-----------------|-----|----|
| | | Area (m2) | | | | 67 |
| Ground layer | Baumea juncea | Bare Twigrush | Bau j | 75mm Tube 2/ m2 | 20% | 27 |
| | Juncus krausii | Salt Marsh Rush | Jun k | 75mm Tube 2/ m2 | 30% | 40 |
| | Ficinia nodosa | Knobby Club Rush | Fic n | 75mm Tube 2/ m2 | 50% | 67 |
| | | | | | | |

| | | | | | | | | | | | |
|--------------|------------------------------|-------------------------|-----------|-------|-------|-----|-----|-----|-----|----|----|
| L-01 | Low Mix 01 | | Bed ID | | | | 1 | 2 | 3 | 4 | 5 |
| | | | Area (m2) | | | | 382 | 175 | 358 | 66 | 47 |
| Canopy layer | Banksia integrifolia 'Dwarf' | Prostrate Coast Banksia | Ban d | 140mm | 4/ m2 | 15% | 229 | 105 | 215 | 40 | 28 |
| | Banksia spinulosa | Hairpin Banksia | Ban s | 150mm | 1/ m2 | 10% | 38 | 17 | 36 | 7 | 5 |
| | Billardiera scandens | Apple Berry | Bil s | 150mm | 4/ m2 | 5% | 76 | 35 | 72 | 13 | 9 |
| Ground layer | Callistemon 'Green John' | Dwarf Bottlebrush | Cal g | 150mm | 4/ m2 | 10% | 153 | 70 | 143 | 27 | 19 |
| | Dodonaea triquetra | Hop Bush | Dod t | 200mm | 1/ m2 | 10% | 38 | 17 | 36 | 7 | 5 |
| | Grevillea linearifolia | White Spider Flower | Gre l | 200mm | 1/ m2 | 5% | 19 | 9 | 18 | 3 | 2 |
| | Dianella caerulea | Blue Flax-lily | Dia c | 150mm | 6/ m2 | 5% | 115 | 52 | 107 | 20 | 14 |
| | Dianella revoluta | Blueberry Lily | Dia r | 150mm | 6/ m2 | 10% | 229 | 105 | 215 | 40 | 28 |
| | Hibbertia scandens | Guinea Flower | Hib s | 150mm | 1/ m2 | 10% | 38 | 17 | 36 | 7 | 5 |
| | Lomandra longifolia | Spiny-head Mat-rush | Lom l | 150mm | 6/ m2 | 20% | 459 | 210 | 429 | 80 | 56 |
| | | | | | | | | | | | |

| | | | | | | | | |
|--------------|------------------------|----------------------|-----------|-------|----------|-----|----|-------|
| L-02 | Low Mix 02 | | Bed ID | | | | 1 | 2 |
| | | | Area (m2) | | | | 30 | 1241 |
| Canopy layer | Cyathea cooperi | Australian Tree Fern | Cya c | 25L | 1.5m cts | 60% | 8 | 328 |
| | Dodonaea triquetra | Hop Bush | Dod t | 200mm | 1/ m2 | 20% | 6 | 248 |
| | Pittosporum revolutum | Yellow Pittosporum | Pit r | 200mm | 1/ m2 | 20% | 6 | 248 |
| Ground layer | Billardiera scandens | Apple Berry | Bil s | 150mm | 4/ m2 | 5% | 6 | 248 |
| | Blechnum cartilagineum | Gristle Fern | Ble c | 150mm | 6/ m2 | 10% | 18 | 745 |
| | Calochlaena dubia | False Bracken | Cal d | 150mm | 6/ m2 | 35% | 62 | 2,606 |
| | Doodia aspera | Prickly Rasp Fern | Dod a | 150mm | 6/ m2 | 20% | 36 | 1,489 |
| | Dianella caerulea | Blue Flax-lily | Dia c | 150mm | 6/ m2 | 10% | 18 | 745 |
| | Dianella revoluta | Blueberry Lily | Dia r | 150mm | 6/ m2 | 10% | 18 | 745 |
| | Hibbertia scandens | Guinea Flower | Hib s | 150mm | 1/ m2 | 10% | 3 | 124 |


| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-----------------------------|------------------|-----------|-------|-------|------|----|----|----|----|----|----|----|-----|----|-----|-----|----|----|----|----|----|----|----|----|----|----|
| L-03 | Low Mix 03 | | Bed ID | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| | | | Area (m2) | | | | 6 | 19 | 23 | 23 | 23 | 23 | 23 | 27 | 21 | 27 | 35 | 23 | 7 | 9 | 11 | 15 | 13 | 14 | 16 | 20 | 20 |
| | Westringia fruticosa 'Zena' | Coastal Rosemary | Wes z | 150mm | 4/ m2 | 100% | 25 | 76 | 94 | 94 | 94 | 94 | 94 | 109 | 83 | 108 | 139 | 93 | 30 | 38 | 46 | 60 | 51 | 56 | 65 | 81 | 80 |

| | | | | | |
|----|----|----|----|----|----|
| 22 | 23 | 24 | 25 | 26 | 27 |
| 20 | 20 | 20 | 20 | 8 | 18 |
| 80 | 80 | 81 | 80 | 33 | 71 |

| | | | | | | | | | | | | | |
|--------------|-----------------------------|---------------------|-----------|-------|-------|-----|----|-----|-----|----|----|----|----|
| L-04 | Low Mix 04 | | Bed ID | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | Area (m2) | | | | 71 | 149 | 119 | 25 | 81 | 21 | 26 |
| Ground layer | Correa alba | White Correa | Cor a | 150mm | 6/ m2 | 15% | 64 | 134 | 107 | 23 | 73 | 19 | 24 |
| | Grevillea sphacelata | Grey Spider Flower | Gre s | 200mm | 4/ m2 | 5% | 14 | 30 | 24 | 5 | 16 | 4 | 5 |
| | Hibbertia scandens | Guinea Flower | Hib s | 150mm | 1/ m2 | 10% | 7 | 15 | 12 | 3 | 8 | 2 | 3 |
| | Leptospermum 'Cardwell' | Tea Tree | Lep c | 200mm | 4/ m2 | 20% | 57 | 119 | 95 | 20 | 65 | 17 | 21 |
| | Lomandra longifolia | Spiny-head Mat-rush | Lom l | 150mm | 6/ m2 | 20% | 85 | 179 | 142 | 30 | 97 | 25 | 32 |
| | Westringia fruticosa 'Zena' | Coastal Rosemary | Wes z | 200mm | 4/ m2 | 30% | 85 | 179 | 142 | 30 | 97 | 25 | 32 |

| | | | | | | | | | |
|------|-------------------|---------------|-----------|-------|-------|------|-----|-----|-------|
| L-06 | Low Mix 06 | | Bed ID | | | | 1 | 2 | 3 |
| | | | Area (m2) | | | | 65 | 26 | 451 |
| | Cissus antarctica | Kangaroo Vine | Cis a | 150mm | 4/ m2 | 100% | 259 | 104 | 1,805 |

NOT FOR CONSTRUCTION

| DRAWING FILE LOCATION / NAME | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING | | | |
|---|------------|--|----------|---|---------------------------|---|--|
| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING | CLIENT | |
| A1 | 26/08/2019 | NOT ISSUED | - | MGA ZONE 56 | |  Transport Roads & Maritime Services | |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | |

| PLOT DATE / TIME | | PLOT BY | |
|----------------------|----------------|------------|--|
| 4/08/2020 3:42:41 PM | | YURONG TAN | |
| TITLE | NAME | DATE | |
| DRAWN | YURONG TAN | 05/08/2020 | |
| DRG CHECK | BEN CHARLTON | 05/08/2020 | |
| DESIGN | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | |

WestConnex

Rozelle Interchange

JOHN HOLLAND

CONTRACTORS

ARCADIS

HASSELL

willow

McMILLLEN JACOBS ASSOCIATES

CPB

CONTRACTORS

WSP

WILLIAMSON

PS

PROFESSIONAL SIGNATURE

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD

INNER WEST COUNCIL

ROZELLE INTERCHANGE

ROZELLE LOCAL ROADS - LANDSCAPE DESIGN

PLANTING SCHEDULE

SHEET 3

PACKAGE No. 20_82

JCVJ DOCUMENT NAME RIC-HSL-DRG-20-UD-140-023

REV C

A1

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80mm ON A1 SIZE ORIGINAL

| 20 - LOCAL ROADS LANDSCAPE DESIGN PLANTING MIX SCHEDULES | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---------------------------------------|-------------------------|---------|-------|----------|-------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|----|----|----|----|
| MIX REF. | SPECIES | COMMON NAME | ABBREV. | SIZE | SPACING | MIX % | PLANTING BED SUMMARY | | | | | | | | | | | | | | | | | | | | | |
| L-07 | Low Mix 07 | | | | | | Bed ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | | | | | |
| | | Area (m2) | 45 | 34 | 110 | 12 | 12 | 12 | 12 | 269 | 100 | 166 | 88 | 233 | | | | | | | | | | | | | | |
| Ground layer | Dianella caerulea | Blue Flax-lily | Dia c | 150mm | 4/ m2 | 20% | 36 | 27 | 88 | 10 | 10 | 10 | 10 | 215 | 80 | 133 | 71 | 186 | | | | | | | | | | |
| | Dianella revoluta | Blueberry Lily | Dia r | 150mm | 4/ m2 | 20% | 36 | 27 | 88 | 10 | 10 | 10 | 10 | 215 | 80 | 133 | 71 | 186 | | | | | | | | | | |
| | Hibbertia scandens | Guinea Flower | Hib s | 150mm | 4/ m2 | 20% | 36 | 27 | 88 | 10 | 10 | 10 | 10 | 215 | 80 | 133 | 71 | 186 | | | | | | | | | | |
| | Callistemon 'White Anzac' | Bottlebrush | Cal w | 150mm | 4/ m2 | 20% | 36 | 27 | 88 | 10 | 10 | 10 | 10 | 215 | 80 | 133 | 71 | 186 | | | | | | | | | | |
| | Westringia fruticosa 'Zena' | Coastal Rosemary | Wes z | 150mm | 4/ m2 | 20% | 36 | 27 | 88 | 10 | 10 | 10 | 10 | 215 | 80 | 133 | 71 | 186 | | | | | | | | | | |
| L-08 | Low Mix 08 | | | | | | Bed ID | 1 | 2 | | | | | | | | | | | | | | | | | | | |
| | | Area (m2) | 89 | 151 | | | | | | | | | | | | | | | | | | | | | | | | |
| Ground layer | Banksia spinulosa | Hairpin Banksia | Ban s | 150mm | 4/ m2 | 5% | 18 | 30 | | | | | | | | | | | | | | | | | | | | |
| | Dianella caerulea | Blueberry Lily | Dia c | 150mm | 4/ m2 | 10% | 36 | 61 | | | | | | | | | | | | | | | | | | | | |
| | Grevillea sericea | Pink Spider Flower | Gre s | 150mm | 4/ m2 | 15% | 53 | 91 | | | | | | | | | | | | | | | | | | | | |
| | Grevillea sphacelata | Grey Spider Flower | Gre s | 150mm | 4/ m2 | 10% | 36 | 61 | | | | | | | | | | | | | | | | | | | | |
| | Leptospermum 'Cardwell' | Tea Tree | Lep c | 150mm | 4/ m2 | 5% | 18 | 30 | | | | | | | | | | | | | | | | | | | | |
| | Lomandra longifolia | Spiny-head Mat-rush | Lom l | 150mm | 4/ m2 | 10% | 36 | 61 | | | | | | | | | | | | | | | | | | | | |
| | Melaleuca hypericifolia | Hillock Honey Myrtle | Mel h | 150mm | 4/ m2 | 15% | 53 | 91 | | | | | | | | | | | | | | | | | | | | |
| | Melaleuca thymifolia | Thyme-leaf Honey-myrtle | Mel t | 150mm | 4/ m2 | 15% | 53 | 91 | | | | | | | | | | | | | | | | | | | | |
| | Westringia fruticosa 'Zena' | Coastal Rosemary | Wes z | 150mm | 4/ m2 | 10% | 36 | 61 | | | | | | | | | | | | | | | | | | | | |
| LS-01 | Low Shade Mix 01 | | | | | | Bed ID | 1 | 2 | | | | | | | | | | | | | | | | | | | |
| | | Area (m2) | 10 | 23 | | | | | | | | | | | | | | | | | | | | | | | | |
| Ground layer | Aspidistra eliator | Cast Iron Plant | Asp e | 200mm | 4/ m2 | 100% | 42 | 91 | | | | | | | | | | | | | | | | | | | | |
| | Hibbertia scandens | Guinea Flower | Hib s | 150mm | 2/ m2 | 100% | 21 | 45 | | | | | | | | | | | | | | | | | | | | |
| LS-02 | Low Shade Mix 02 | | | | | | Bed ID | 1 | 2 | 3 | 4 | | | | | | | | | | | | | | | | | |
| | | Area (m2) | 185 | 162 | 161 | 71 | | | | | | | | | | | | | | | | | | | | | | |
| Ground layer | Hedera canariensis | Canary Island Ivy | Asp e | 150mm | 4/ m2 | 100% | 740 | 649 | 644 | 282 | | | | | | | | | | | | | | | | | | |
| | Philodendron 'Xanadu' | Xanadu | Phi x | 150mm | 6/ m2 | 100% | 1,110 | 974 | 967 | 423 | | | | | | | | | | | | | | | | | | |
| S-01 | Skirt mix 01 | | | | | | Bed ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| | | Area (m2) | 12 | 18 | 18 | 36 | 46 | 23 | 33 | 24 | 19 | 15 | 27 | 4 | 5 | 7 | 7 | 7 | 8 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | |
| | Lomandra 'Verday' | Lomandra | Lom v | 150mm | 6/ m2 | 100% | 72 | 109 | 110 | 213 | 278 | 140 | 198 | 145 | 115 | 91 | 162 | 25 | 31 | 44 | 40 | 39 | 45 | 61 | 60 | 60 | 60 | |
| | | | | | | | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | | | | |
| | | | | | | | 10 | 10 | 13 | 11 | 21 | 18 | 28 | 33 | 91 | | | | | | | | | | | | | |
| | | | | | | | 60 | 60 | 76 | 69 | 126 | 109 | 165 | 200 | 546 | | | | | | | | | | | | | |
| S-02 | Skirt mix 02 | | | | | | Bed ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | | | |
| | | Area (m2) | 27 | 38 | 25 | 38 | 65 | 3 | 13 | 11 | 9 | 5 | 8 | 17 | 24 | 44 | 41 | 12 | 84 | 28 | | | | | | | | |
| | Liriope muscari 'Evergreen Giant' | Giant Liriope | Lir m | 150mm | 6/ m2 | 100% | 160 | 227 | 149 | 227 | 389 | 20 | 80 | 64 | 53 | 31 | 51 | 99 | 147 | 262 | 247 | 71 | 503 | 167 | | | | |
| S-03 | Skirt mix 03 | | | | | | Bed ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | | | | | | | | |
| | | Area (m2) | 8 | 9 | 9 | 9 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 25 | 21 | | | | | | | | | | | | | |
| | Gazania 'Double Gold' | Double Gold | Gaz d | 150mm | 6/ m2 | 100% | 47 | 54 | 54 | 54 | 38 | 36 | 37 | 34 | 41 | 43 | 42 | 147 | 128 | | | | | | | | | |
| S-04 | Skirt mix 04 | | | | | | Bed ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | | | | | |
| | | Area (m2) | 17 | 21 | 12 | 12 | 12 | 4 | 4 | 8 | 9 | 6 | 115 | 6 | | | | | | | | | | | | | | |
| | Dianella caerulea 'Little Jess' | Little Jess | Dia l | 150mm | 4/ m2 | 100% | 67 | 85 | 48 | 50 | 48 | 14 | 15 | 32 | 34 | 23 | 461 | 25 | | | | | | | | | | |
| S-05 | Skirt mix 05 | | | | | | Bed ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | | | | | | |
| | | Area (m2) | 40 | 18 | 12 | 7 | 11 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 13 | 9 | 24 | 102 | | | | | | | | | | |
| | Lomandra longifolia | Spiny-head Mat-rush | Lom l | 150mm | 4/ m2 | 100% | 160 | 71 | 48 | 29 | 45 | 47 | 47 | 47 | 47 | 47 | 50 | 34 | 97 | 406 | | | | | | | | |
| SC-01 | Screening Mix 01 | | | | | | Bed ID | 1 | | | | | | | | | | | | | | | | | | | | |
| | | Area (m2) | 9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Canopy layer | Elaeocarpus reticulatus 'Prima Donna' | Blueberry Ash | Ela r | 25L | 1/ m2 | 100% | 9 | | | | | | | | | | | | | | | | | | | | | |
| Ground layer | Lomandra 'Verday' | Lomandra | Lom v | 150mm | 6/ m2 | 100% | 53 | | | | | | | | | | | | | | | | | | | | | |
| SC-02 | Screening Mix 02 | | | | | | Bed ID | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | |
| | | Area (m2) | 4 | 25 | 24 | | | | | | | | | | | | | | | | | | | | | | | |
| | Acmena smithii | Lilly Pilly | Acm s | 25L | 750mm... | 100% | 5 | 33 | 32 | | | | | | | | | | | | | | | | | | | |

NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

PLOT DATE / TIME
4/08/2020 3:42:55 PM

PLOT BY
YURONG TAN

| REV | DATE | REVISION DESCRIPTION |
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| A | 11/09/2019 | NOT ISSUED |
| B1 | 08/04/2020 | NOT ISSUED |
| B | 29/04/2020 | NOT ISSUED |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL |
|----------|
| - |
| - |
| - |
| MG |
| MG |

| CO-ORDINATE SYSTEM |
|----------------------------|
| MGA ZONE 56 |
| HEIGHT DATUM |
| AHD |
| DESIGN PHASE |
| FDD |
| FINAL DESIGN DOCUMENTATION |

SCALES ON A1 SIZE DRAWING



Transport
Roads & Maritime
Services

| CLIENT |
|--------|
| |

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

wsp

HASSELL
McMILLLEN
JACOBS
willow
P B M

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
PLANTING SCHEDULE

SHEET 4

PACKAGE No.
20_82

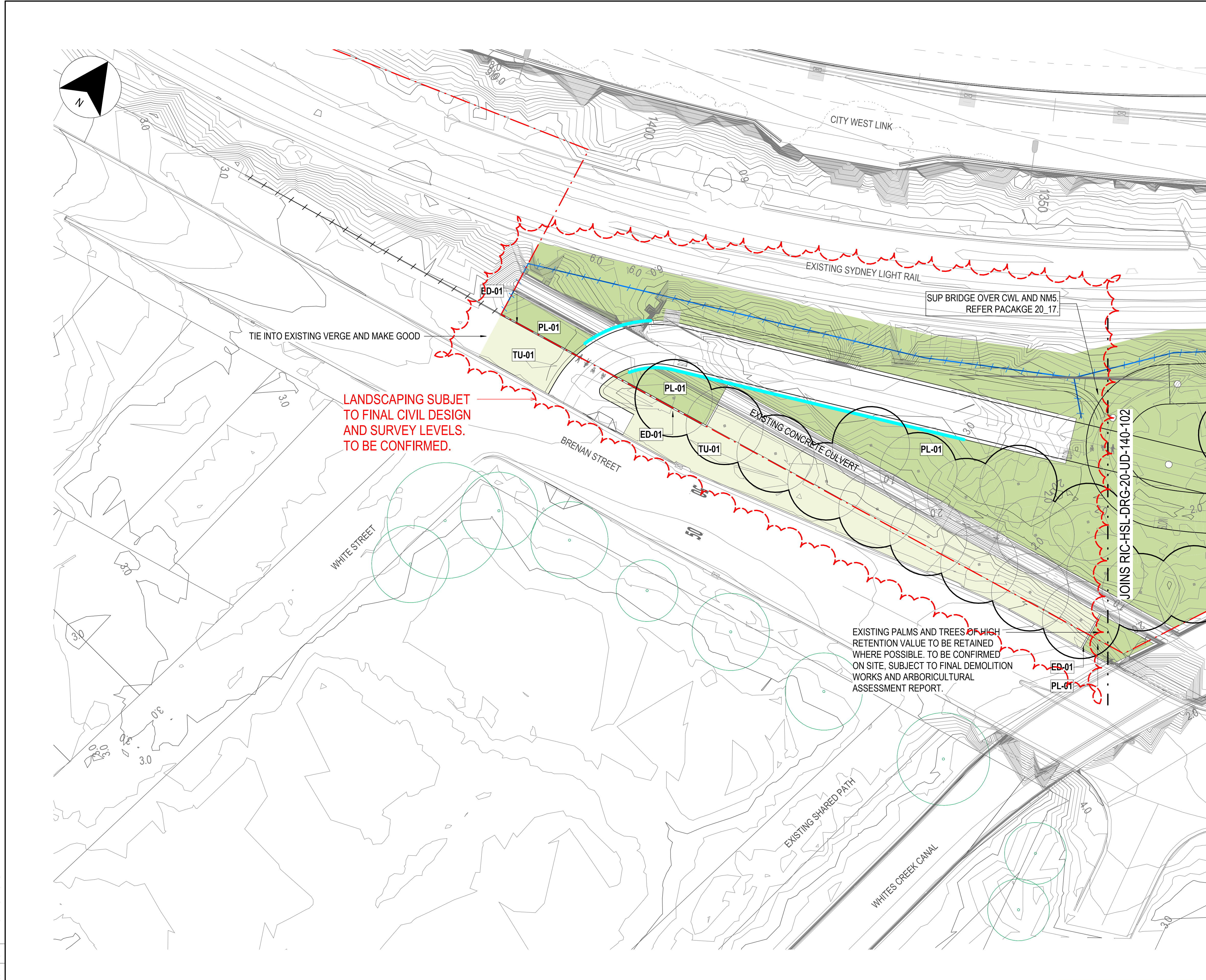
JCVJ DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-024

REV
C

A1

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

SOFT FINISHES

- TU-01 - TURF AREAS
- TU-02 - TURF ON STRUCTURE
- PL-01 - MASSED PLANTING
- PL-02 - MASSED PLANTING ON STRUCTURE
- PL-03 - NATURALISED BATTER PLANTING
- PL-07 - HYDROSEED TURF
- PL-08 - STABILISED BATTER PLANTING
- PL-09 - MASSED PLANTING ON BEDROCK
- MU-01 - ORGANIC MULCH
- EXISTING VEGETATION TO BE RETAINED AND MAKE GOOD ANY AFFECTED AREAS. SUBJECT TO CLEARING AND DEMOLITION WORKS. TO BE CONFIRMED.
- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.

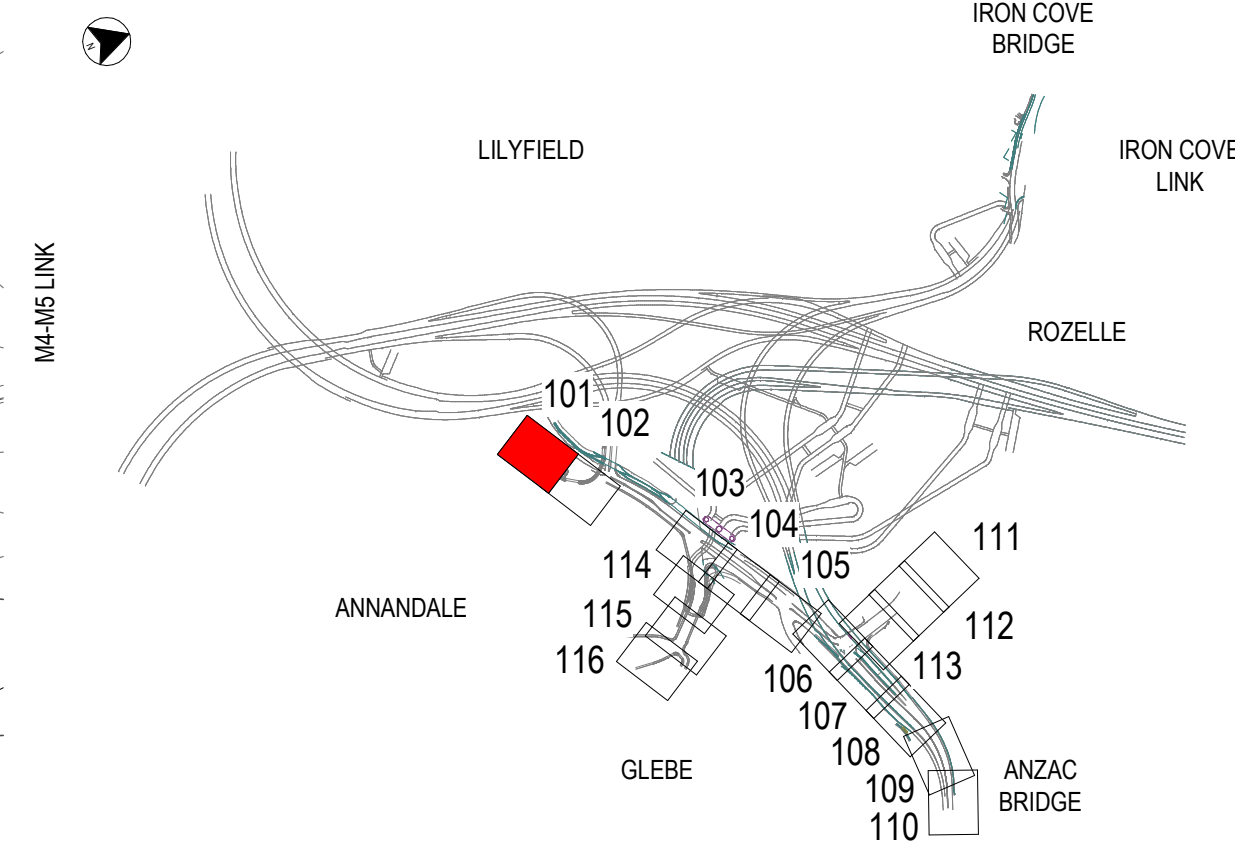
URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_03)

- WA-XX - LANDSCAPE WALLS
- PV-02 - ENGINEERED SLOPE TREATMENT FOR BATTERS STEEPER THAN 2:1
- GR-01 - DECOMPOSED GRANITE PAVING
- ED-02 - STEEL EDGE

TREES

- PROPOSED TREES. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY). SUBJECT TO ARBORICULTURE ASSESSMENT.

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

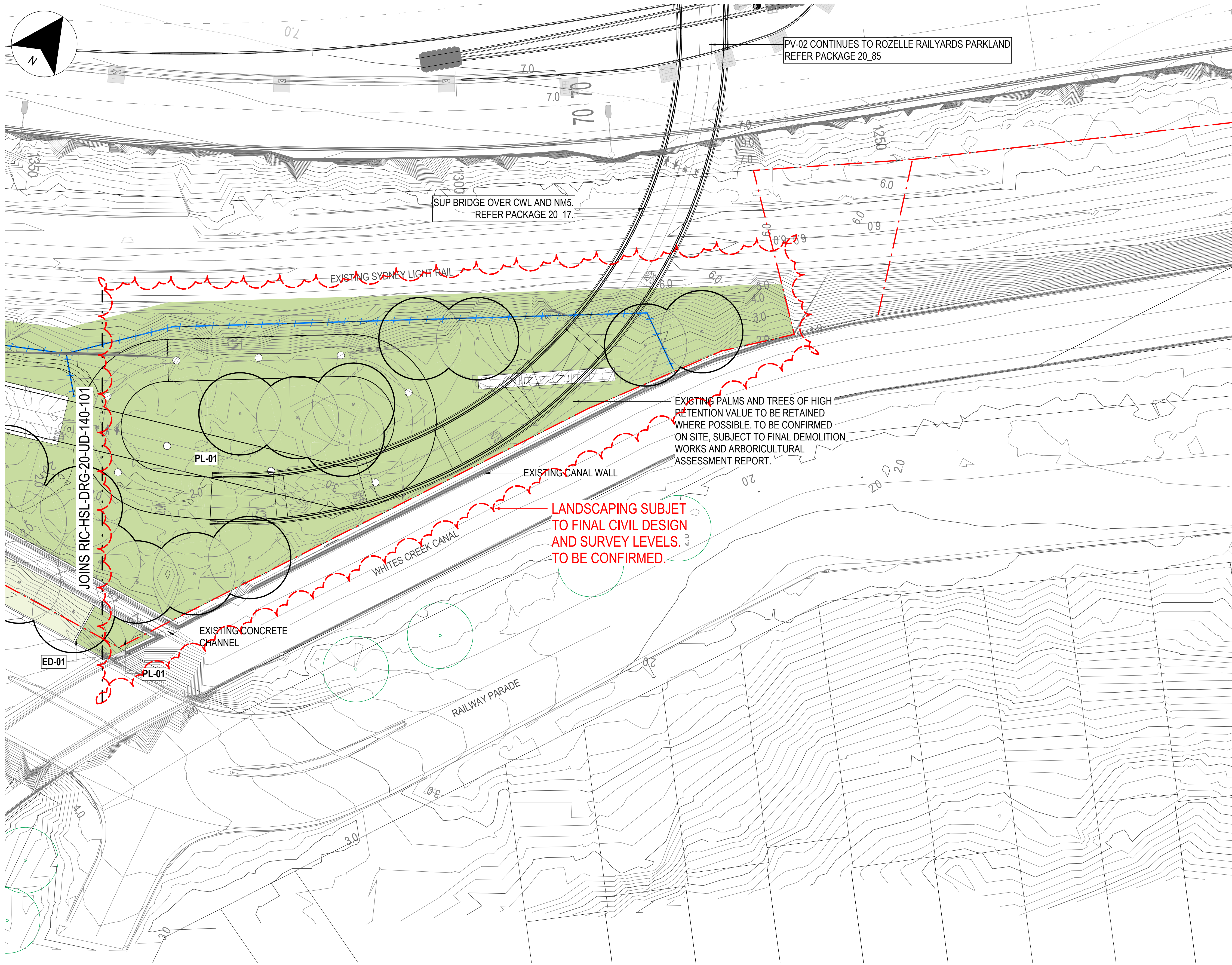


NOT FOR CONSTRUCTION

| DRAWING FILE LOCATION / NAME | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING | | | | PLOT DATE / TIME | | | PLOT BY | | | WestConnex Rozelle Interchange | | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN GENERAL ARRANGEMENT PLAN | | |
|---|------------|--|----------|---|-------------------------------------|--|--|----------------------|--|--|----------------|--|--|--|--|--|--|--|--|
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| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING | | | TITLE | | | NAME | | | DATE | | | PACKAGE No. | | |
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 | 0 2500 5000 7500 10000 12500mm | | | DRAWN | | | YURONG TAN | | | 05/08/2020 | | | 20_82 | | |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM | 2500 1250 (1:250 AT A1) | | | DRG CHECK | | | BEN CHARLTON | | | 05/08/2020 | | | JCJV DOCUMENT NAME | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | NSW GOVERNMENT | | | DESIGN | | | ANTHONY PAPAS | | | 05/08/2020 | | | RIC-HSL-DRG-20-UD-140-101 | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | Transport Roads & Maritime Services | | | DESIGN CHECK | | | ANTHONY PAPAS | | | 05/08/2020 | | | REV | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | Transport Roads & Maritime Services | | | DESIGN MNGR | | | MALCOLM GRAHAM | | | 05/08/2020 | | | C | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | Transport Roads & Maritime Services | | | PROJECT MNGR | | | JOSHUA SMALL | | | 05/08/2020 | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

SOFT FINISHES

- TU-01 - TURF AREAS
- TU-02 - TURF ON STRUCTURE
- PL-01 - MASSED PLANTING
- PL-02 - MASSED PLANTING ON STRUCTURE
- PL-03 - NATURALISED BATTER PLANTING
- PL-07 - HYDROSEED TURF
- PL-08 - STABILISED BATTER PLANTING
- PL-09 - MASSED PLANTING ON BEDROCK
- MU-01 - ORGANIC MULCH
- EXISTING VEGETATION TO BE RETAINED AND MAKE GOOD ANY AFFECTED AREAS. SUBJECT TO CLEARING AND DEMOLITION WORKS. TO BE CONFIRMED.
- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.

URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_83)

- WA-XX - LANDSCAPE WALLS
- PV-02 - ENGINEERED SLOPE TREATMENT FOR BATTERS STEEPER THAN 2:1
- GR-01 - DECOMPOSED GRANITE PAVING
- ED-02 - STEEL EDGE

TREES

- PROPOSED TREES. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY). SUBJECT TO ARBORICULTURE ASSESSMENT.

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

NOT FOR CONSTRUCTION

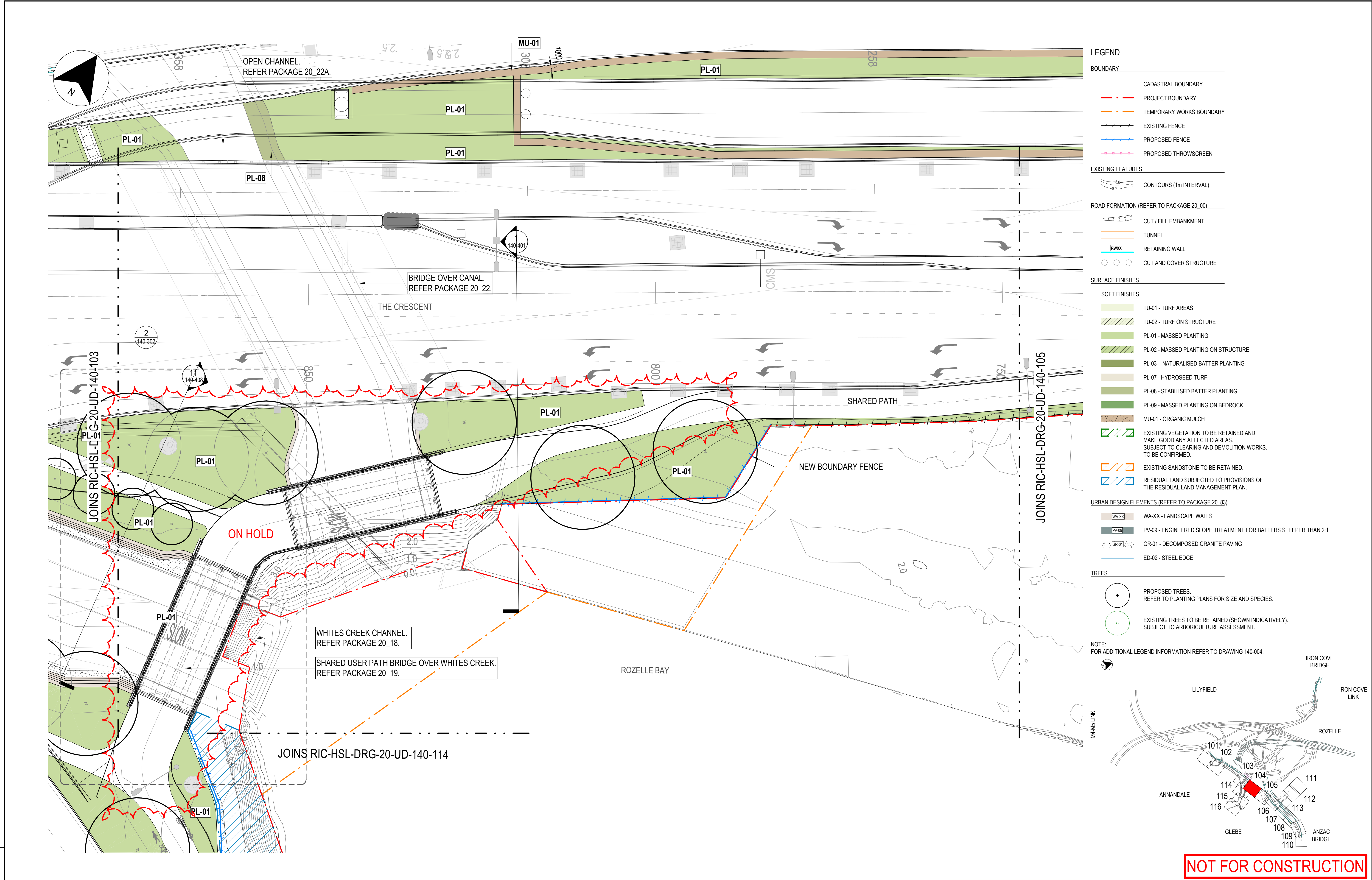
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| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | PLOT DATE / TIME 4/08/2020 3:44:11 PM | | | PLOT BY YURONG TAN | | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING | CLIENT | TITLE | NAME | DATE | <div>WestConnex Rozelle Interchange</div> <div>JOHN HOLLAND</div> <div>ARCADIS</div> <div>HASSELL</div> <div>WILLIAM JACOBS</div> <div>willow</div> <div>CONTRACTORS</div> | |
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 | | | DRAWN | YURONG TAN | 05/08/2020 | | |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM | | | DRG CHECK | BEN CHARLTON | 05/08/2020 | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | DESIGN | ANTHONY PAPAS | 05/08/2020 | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | | | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | |
| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN GENERAL ARRANGEMENT PLAN | | | | | | | | | | A1 | |
| SHEET 2 | | | PACKAGE No. 20_82 | | JCJV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-102 | | | | | REV C | |



A1

| | | | | | | | | | | | | | | | | | | | | | | |
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| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | PLOT DATE / TIME 4/08/2020 3:44:38 PM | | | PLOT BY YURONG TAN | | | <div>WestConnex Rozelle Interchange</div> | | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL | | | A1 |
| REV | DATE | REVISION DESCRIPTION | | | APPROVAL | CO-ORDINATE SYSTEM | | | SCALES ON A1 SIZE DRAWING | | | CLIENT | | | TITLE | | | NAME | DATE | ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN GENERAL ARRANGEMENT PLAN | | |
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| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | | | MG | HEIGHT DATUM | | | | | | | | | DESIGN CHECK | | | BEN CHARLTON | 05/08/2020 | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | | | MG | AHD | | | | | | | | | DESIGN | | | ANTHONY PAPAS | 05/08/2020 | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | | | MG | DESIGN PHASE | | | <div></div> | | | DESIGN CHECK | | | ANTHONY PAPAS | 05/08/2020 | SHEET 3 PACKAGE No. 20_82 JCIV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-103 REV C | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | | | MG | FDD | | | | | | DESIGN MNGR | | | MALCOLM GRAHAM | 05/08/2020 | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | | | MG | FINAL DESIGN DOCUMENTATION | | | | | | PROJECT MNGR | | | JOSHUA SMALL | 05/08/2020 | | | | | | |

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DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION |
|-----|------------|--|
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| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
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SCALES ON A1 SIZE DRAWING
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2500 1250 (1:250 AT A1)

CLIENT
NSW GOVERNMENT
Transport Roads & Maritime Services

PLOT DATE / TIME
4/08/2020 3:45:08 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND
ARCADIS
HASELL

CPB CONTRACTORS
wsp
MILLER JACOBS
willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
GENERAL ARRANGEMENT PLAN

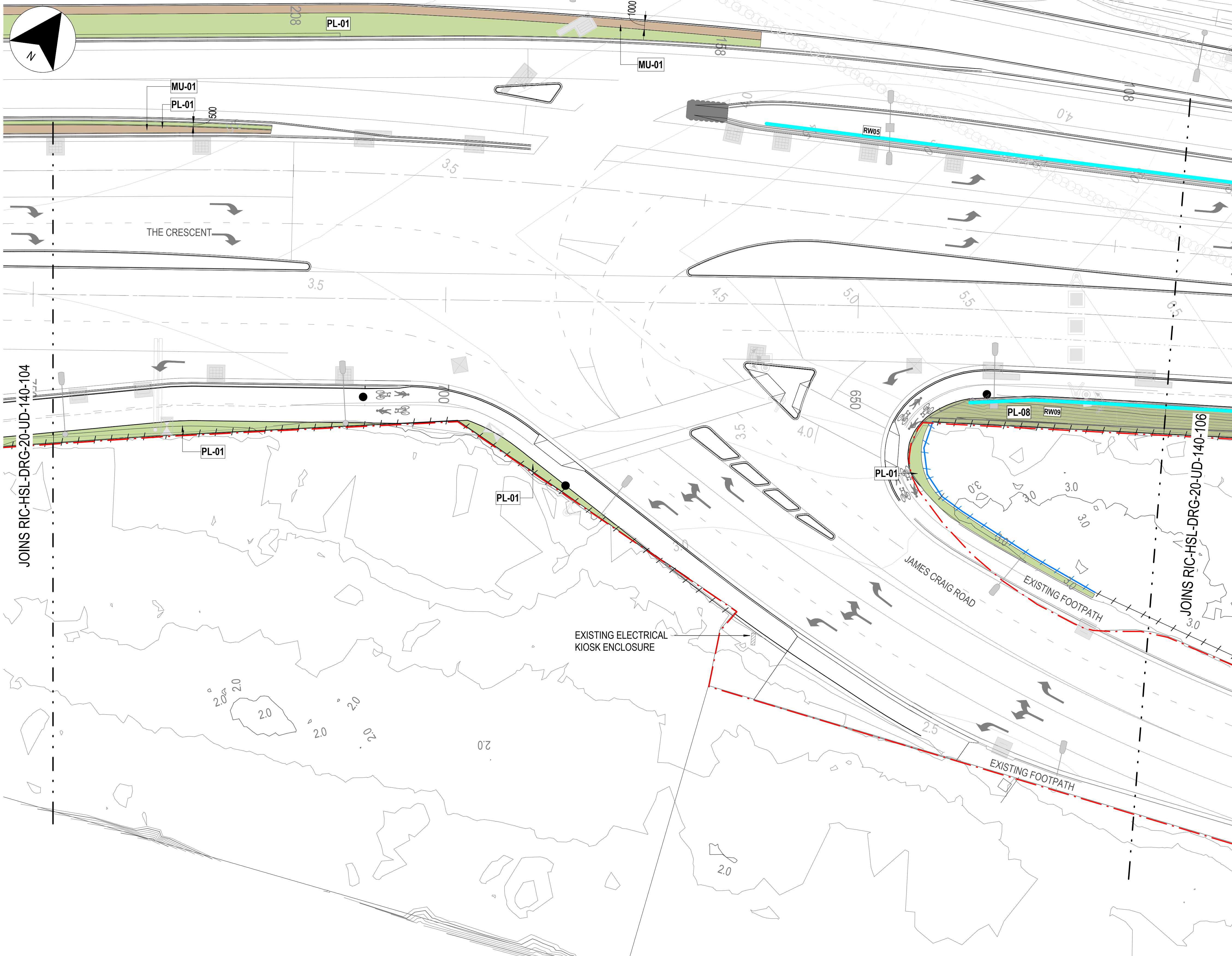
SHEET 4
PACKAGE No. 20_82
JCJV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-104

REV
C

A1





NOT FOR CONSTRUCTION

| | | | | | | | | |
|---|----|----|----|----|----|----|----|--------------------------|
| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80mm ON A1 SIZE ORIGINAL |
|---|----|----|----|----|----|----|----|--------------------------|



LEGEND





BOUNDARY

- | | |
|---|--------------------------|
|  | CADASTRAL BOUNDARY |
| | PROJECT BOUNDARY |
|  | TEMPORARY WORKS BOUNDARY |
|  | EXISTING FENCE |
| | PROPOSED FENCE |
|  | PROPOSED THROWSCREEN |

EXISTING FEATURES













- 
- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)





- | | |
|---|-------------------------|
|  | CUT / FILL EMBANKMENT |
|  | TUNNEL |
|  | RETAINING WALL |
|  | CUT AND COVER STRUCTURE |

SURFACE FINISHES



SOFT FINISHES

- | | |
|---|---|
|  | TU-01 - TURF AREAS |
|  | TU-02 - TURF ON STRUCTURE |
|  | PL-01 - MASSED PLANTING |
|  | PL-02 - MASSED PLANTING ON STRUCTURE |
|  | PL-03 - NATURALISED BATTER PLANTING |
|  | TU-07 - HYDROSEED TURF |
|  | PL-08 - STABILISED BATTER PLANTING |
|  | PL-09 - MASSED PLANTING ON BEDROCK |
|  | MU-01 - ORGANIC MULCH |
|  | EXISTING VEGETATION TO BE RETAINED AND MAKE GOOD ANY AFFECTED AREAS. SUBJECT TO CLEARING AND DEMOLITION WORKS. TO BE CONFIRMED. |
|  | EXISTING SANDSTONE TO BE RETAINED. |
|  | RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN. |

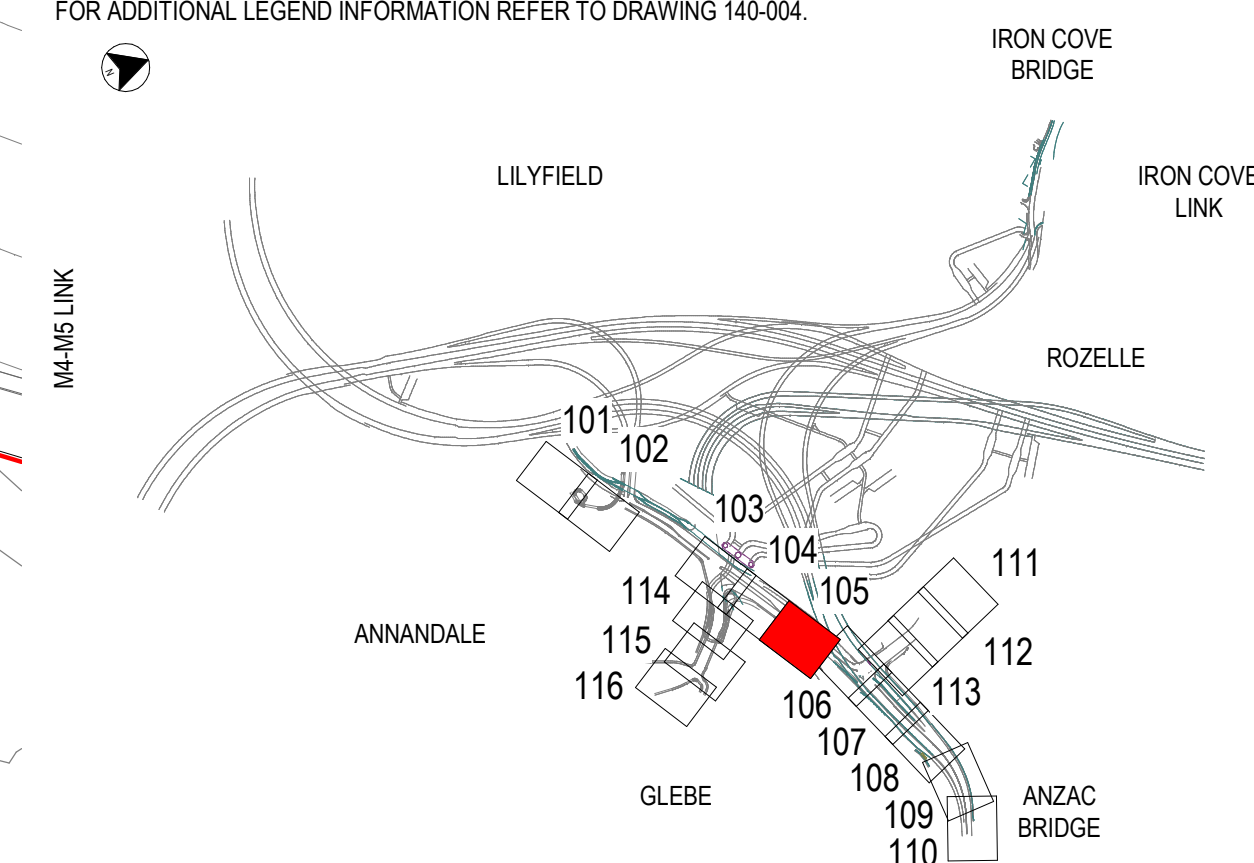
URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_83)

- | | |
|---|---|
|  | WA-XX - LANDSCAPE WALLS |
|  | PV-09 - ENGINEERED SLOPE TREATMENT FOR BATTERS STEEPER THAN 2:1 |
|  | GR-01 - DECOMPOSED GRANITE PAVING |
|  | ED-02 - STEEL EDGE |

TREES

-  PROPOSED TREES.
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
-  EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY).
SUBJECT TO ARBORICULTURE ASSESSMENT.

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



NOT FOR CONSTRUCTION

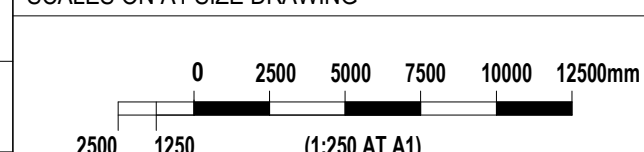
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| REV | DATE | REVISION DESCRIPTION |
|-----|------------|--|
| A1 | 28/08/2019 | ISSUED FOR INTERNAL REVIEW |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| | |
|----------|----------------------------|
| APPROVAL | CO-ORDINATE SYSTEM |
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING



| | |
|--|--------|
| | CLIENT |
|--|--------|



Transport
**Roads & Maritime
Services**

| | |
|------------------|----------------------|
| PLOT DATE / TIME | 4/08/2020 3:45:38 PM |
|------------------|----------------------|

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

**JOHN
HOLLAND**







WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
GENERAL ARRANGEMENT PLAN

SHEET 5

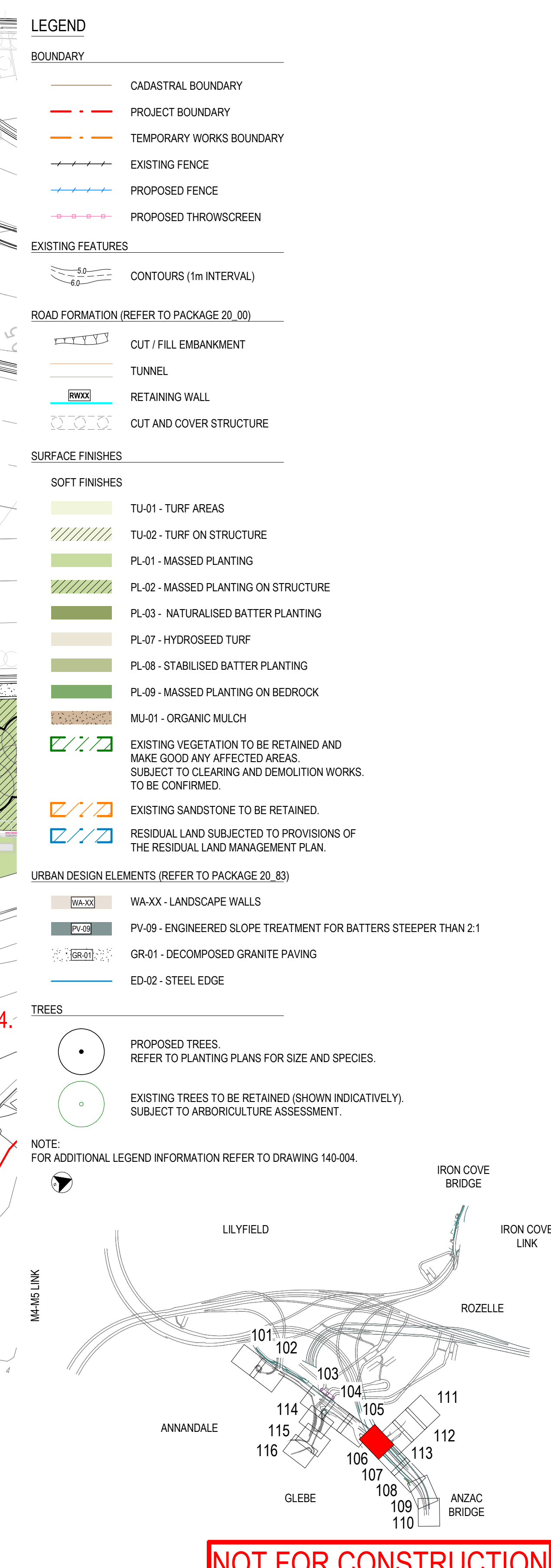
20_82

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| JCV DOCUMENT NAME |
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| 2 | RIC-HSL-DRG-20-UD-140-105 |
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| | A1 |
|--|----|

REV
C

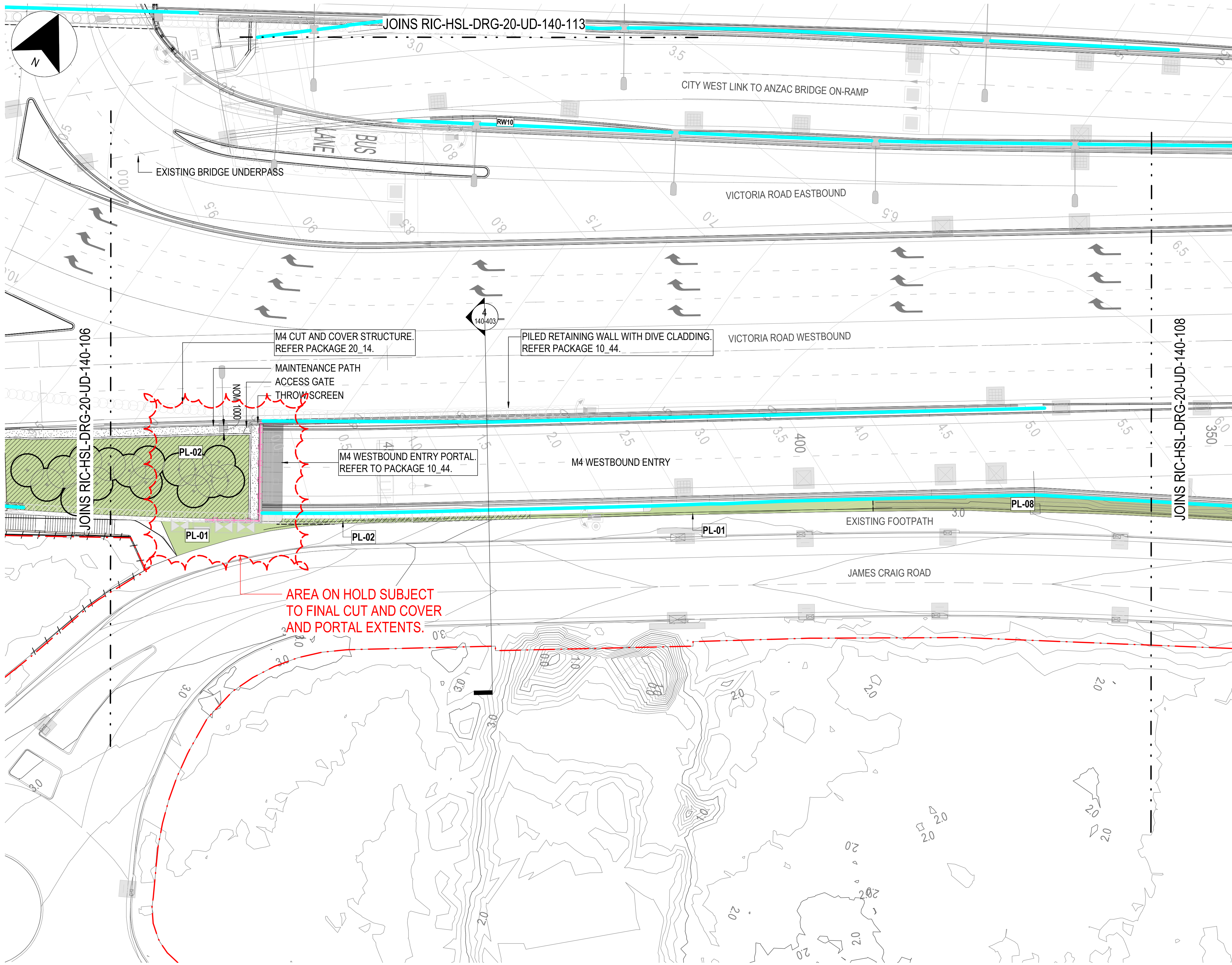


A1

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| REV | | DATE | | REVISION DESCRIPTION | | APPROVAL | | CO-ORDINATE SYSTEM | | CLIENT | | TITLE | | NAME | | | | | | | | | | | | | | DATE | |
| A1 | | 28/08/2019 | | ISSUED FOR INTERNAL REVIEW | | MG | | MGA ZONE 56 | | <div><div>NSW GOVERNMENT</div><div>Transport Roads & Maritime Services</div></div> | | DRAWN | | YURONG TAN | | | | | | | | | | | | | | 05/08/2020 | |
| A | | 11/09/2019 | | ISSUED FOR DEVELOPED CONCEPT DESIGN | | MG | | HEIGHT DATUM | | | | DRG CHECK | | BEN CHARLTON | | | | | | | | | | | | | | 05/08/2020 | |
| B1 | | 08/04/2020 | | ISSUED FOR INTERNAL REVIEW | | MG | | AHD | | | | DESIGN | | ANTHONY PAPAS | | | | | | | | | | | | | | 05/08/2020 | |
| B | | 29/04/2020 | | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | | MG | | DESIGN PHASE FDD FINAL DESIGN DOCUMENTATION | | | | DESIGN CHECK | | ANTHONY PAPAS | | | | | | | | | | | | | | 05/08/2020 | |
| C1 | | 20/07/2020 | | ISSUED FOR INTERNAL REVIEW | | MG | | | | | | DESIGN MNGR | | MALCOLM GRAHAM | | | | | | | | | | | | | | 05/08/2020 | |
| C | | 05/08/2020 | | ISSUED FOR FINAL DESIGN DOCUMENTATION | | MG | | | | | | PROJECT MNGR | | JOSHUA SMALL | | | | | | | | | | | | | | 05/08/2020 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | <div>SCALE ON A1 SIZE DRAWING</div> <div><div><div>02500500075001000012500mm</div><div>25001250(1:250 AT A1)</div></div></div> | | | | | | | | | | | | | | | | | | | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

SOFT FINISHES

- TU-01 - TURF AREAS
- TU-02 - TURF ON STRUCTURE
- PL-01 - MASSED PLANTING
- PL-02 - MASSED PLANTING ON STRUCTURE
- PL-03 - NATURALISED BATTER PLANTING
- PL-07 - HYDROSEED TURF
- PL-08 - STABILISED BATTER PLANTING
- PL-09 - MASSED PLANTING ON BEDROCK
- MU-01 - ORGANIC MULCH
- EXISTING VEGETATION TO BE RETAINED AND MAKE GOOD ANY AFFECTED AREAS. SUBJECT TO CLEARING AND DEMOLITION WORKS. TO BE CONFIRMED.
- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.

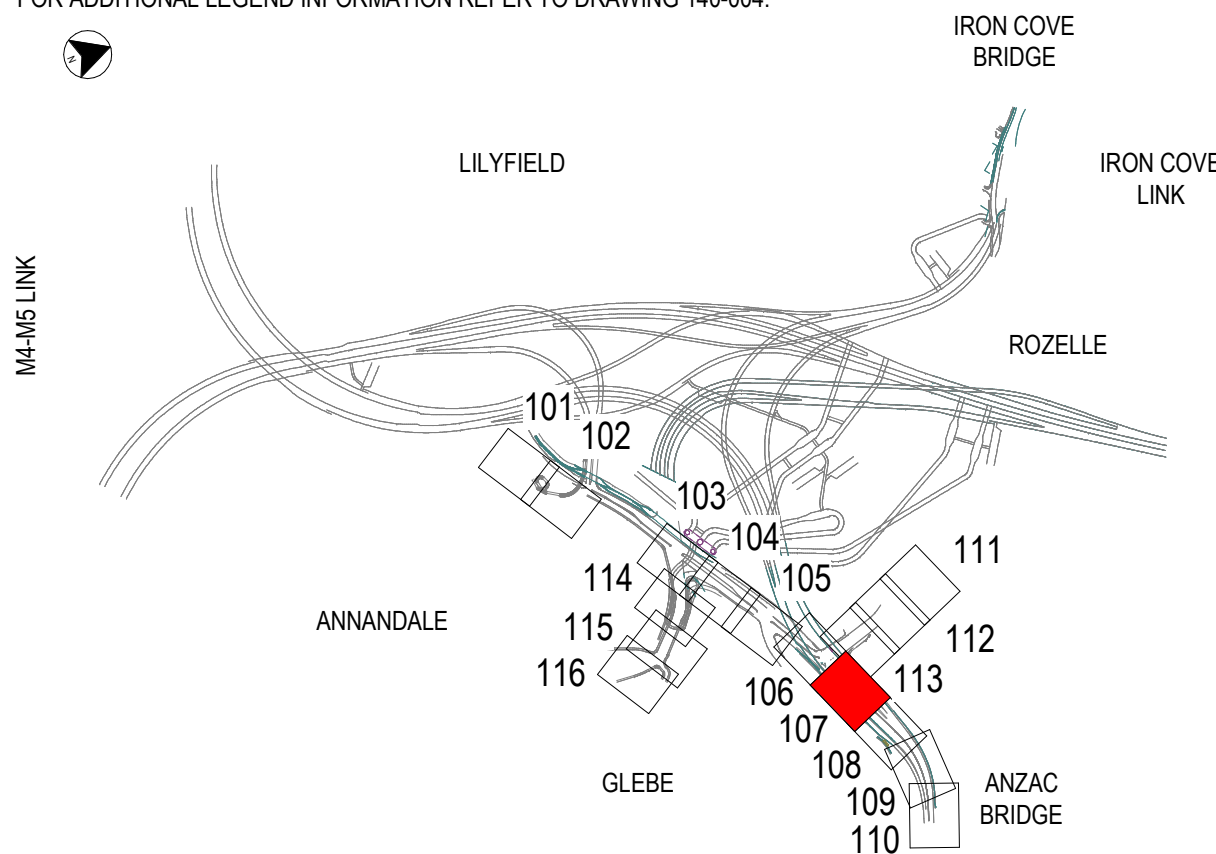
URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_83)

- WA-XX - LANDSCAPE WALLS
- PV-09 - ENGINEERED SLOPE TREATMENT FOR BATTERS STEEPER THAN 2:1
- GR-01 - DECOMPOSED GRANITE PAVING
- ED-02 - STEEL EDGE

TREES

- PROPOSED TREES. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY). SUBJECT TO ARBORICULTURE ASSESSMENT.

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

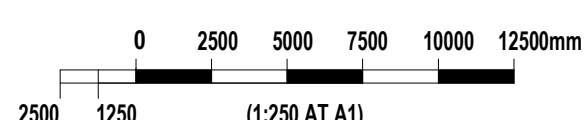
| REV | DATE | REVISION DESCRIPTION |
|-----|------------|--|
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| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL |
|----------|
| MG |
| MG |
| MG |
| MG |
| MG |

| |
|-----------------------------------|
| CO-ORDINATE SYSTEM MGA ZONE 56 |
| HEIGHT DATUM AHD |
| DESIGN PHASE FDD |
| FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING



CLIENT



Transport
Roads & Maritime
Services

PLOT DATE / TIME
4/08/2020 3:46:48 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

wsp

HASSELL

willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
GENERAL ARRANGEMENT PLAN

SHEET 7

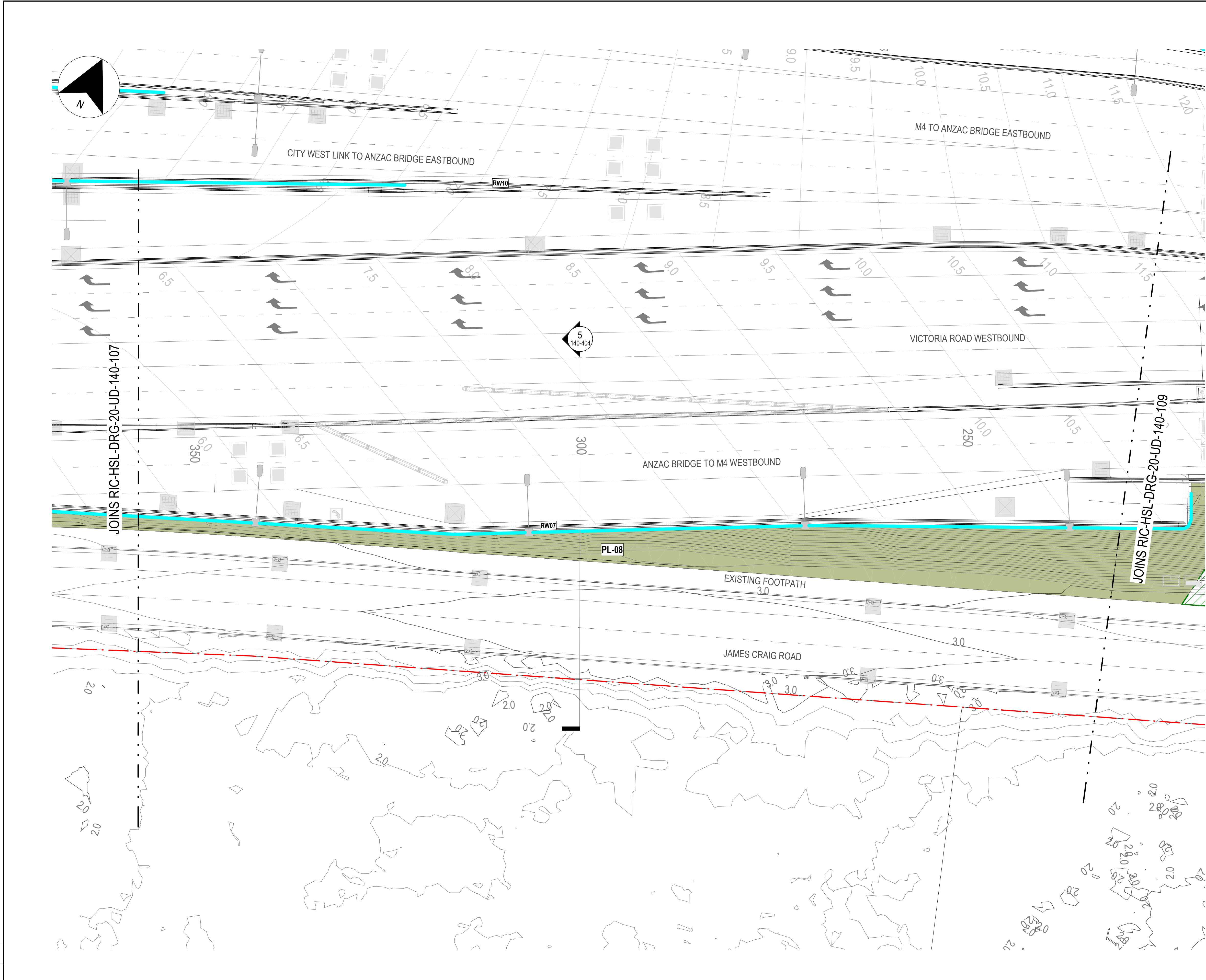
PACKAGE No.
20_82

JCV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-107

REV
C

A1

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED



LEGEND
BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES
SOFT FINISHES

- TU-01 - TURF AREAS
- TU-02 - TURF ON STRUCTURE
- PL-01 - MASSED PLANTING
- PL-02 - MASSED PLANTING ON STRUCTURE
- PL-03 - NATURALISED BATTER PLANTING
- PL-07 - HYDROSEED TURF
- PL-08 - STABILISED BATTER PLANTING
- PL-09 - MASSED PLANTING ON BEDROCK
- MU-01 - ORGANIC MULCH
- EXISTING VEGETATION TO BE RETAINED AND MAKE GOOD ANY AFFECTED AREAS. SUBJECT TO CLEARING AND DEMOLITION WORKS. TO BE CONFIRMED.
- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.

URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_83)

- WA-XX - LANDSCAPE WALLS
- PV-02 - ENGINEERED SLOPE TREATMENT FOR BATTERS STEEPER THAN 2:1
- GR-01 - DECOMPOSED GRANITE PAVING
- ED-02 - STEEL EDGE

TREES

- PROPOSED TREES. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY). SUBJECT TO ARBORICULTURE ASSESSMENT.

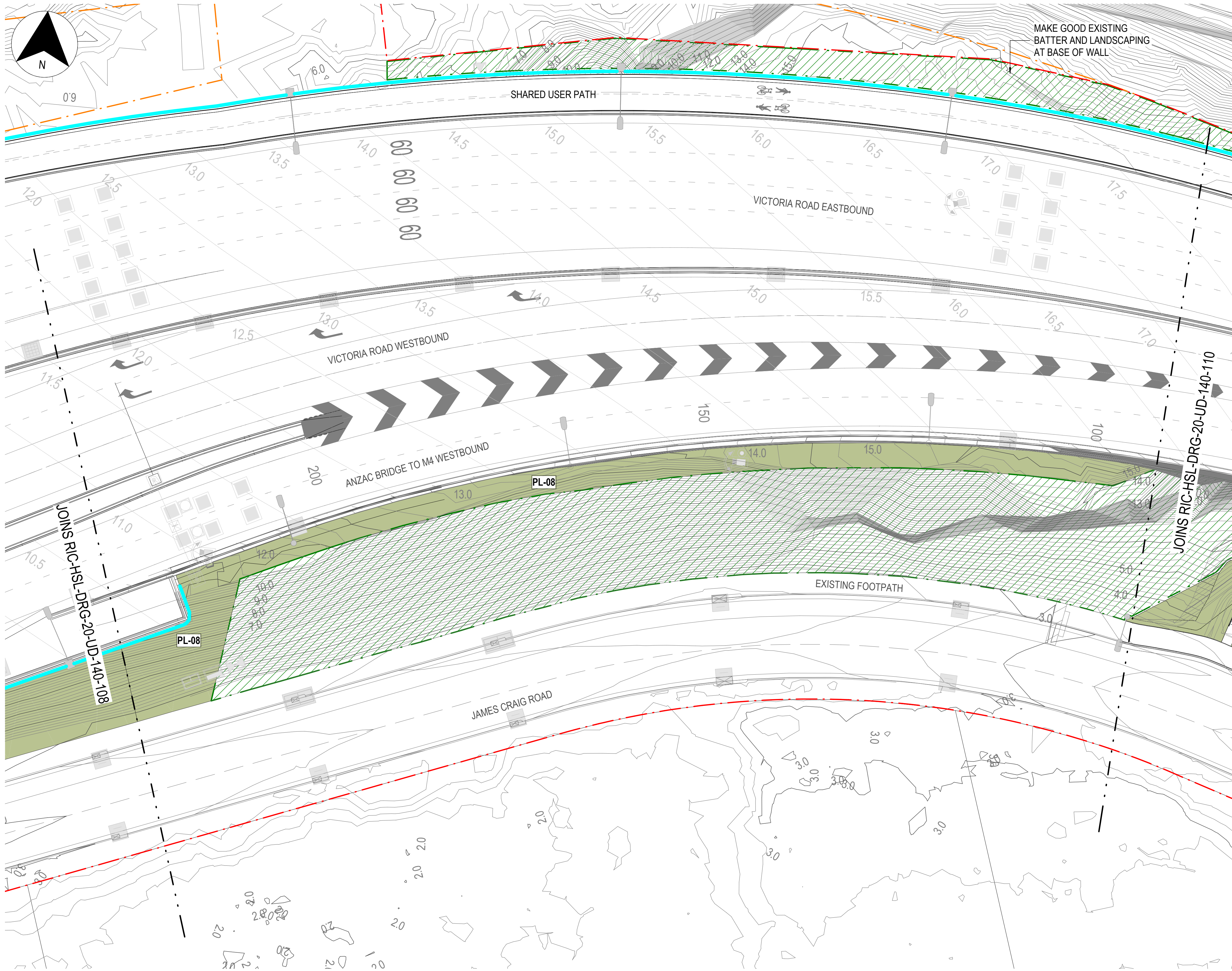
NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

NOT FOR CONSTRUCTION

| | | | | | | | | | | | | | | | | | | | | |
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| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | PLOT DATE / TIME 4/08/2020 3:47:11 PM | | PLOT BY YURONG TAN | | <div><div>WestConnex</div><div>Rozelle Interchange</div><div><div>JOHN HOLLAND</div><div>ARCADIS</div><div>HASELL</div><div>willow</div></div><div><div>CPB CONTRACTORS</div><div>WSP</div><div>MCMILLEN JACOBS ASSOCIATES</div><div>P S M</div></div></div> | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN GENERAL ARRANGEMENT PLAN | | A1 | | |
| REV | | DATE | REVISION DESCRIPTION | | APPROVAL | CO-ORDINATE SYSTEM | | SCALES ON A1 SIZE DRAWING | | CLIENT | | TITLE | | | | | | | NAME | DATE |
| A1 | 28/08/2019 | ISSUED FOR INTERNAL REVIEW | | MG | MGA ZONE 56 | | | | <div>Transport Roads & Maritime Services</div> | | DRAWN | YURONG TAN | 05/08/2020 | | | | | | | |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | | MG | HEIGHT DATUM | | | | | | DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | | MG | AHD | | | | | | DESIGN | ANTHONY PAPAS | 05/08/2020 | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | | MG | DESIGN PHASE | | | | | | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | | MG | | | | | | | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | | MG | | | | | | | FINAL DESIGN DOCUMENTATION | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | | |
| PACKAGE No. | | JCV DOCUMENT NAME | | REV | | | | | | | | | | | | | | | | |
| 20_82 | | RIC-HSL-DRG-20-UD-140-108 | | C | | | | | | | | | | | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

SOFT FINISHES

- TU-01 - TURF AREAS
- TU-02 - TURF ON STRUCTURE
- PL-01 - MASSED PLANTING
- PL-02 - MASSED PLANTING ON STRUCTURE
- PL-03 - NATURALISED BATTER PLANTING
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- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.

URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_83)

- WA-XX - LANDSCAPE WALLS
- PV-02 - ENGINEERED SLOPE TREATMENT FOR BATTERS STEEPER THAN 2:1
- GR-01 - DECOMPOSED GRANITE PAVING
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TREES

- PROPOSED TREES. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY). SUBJECT TO ARBORICULTURE ASSESSMENT.

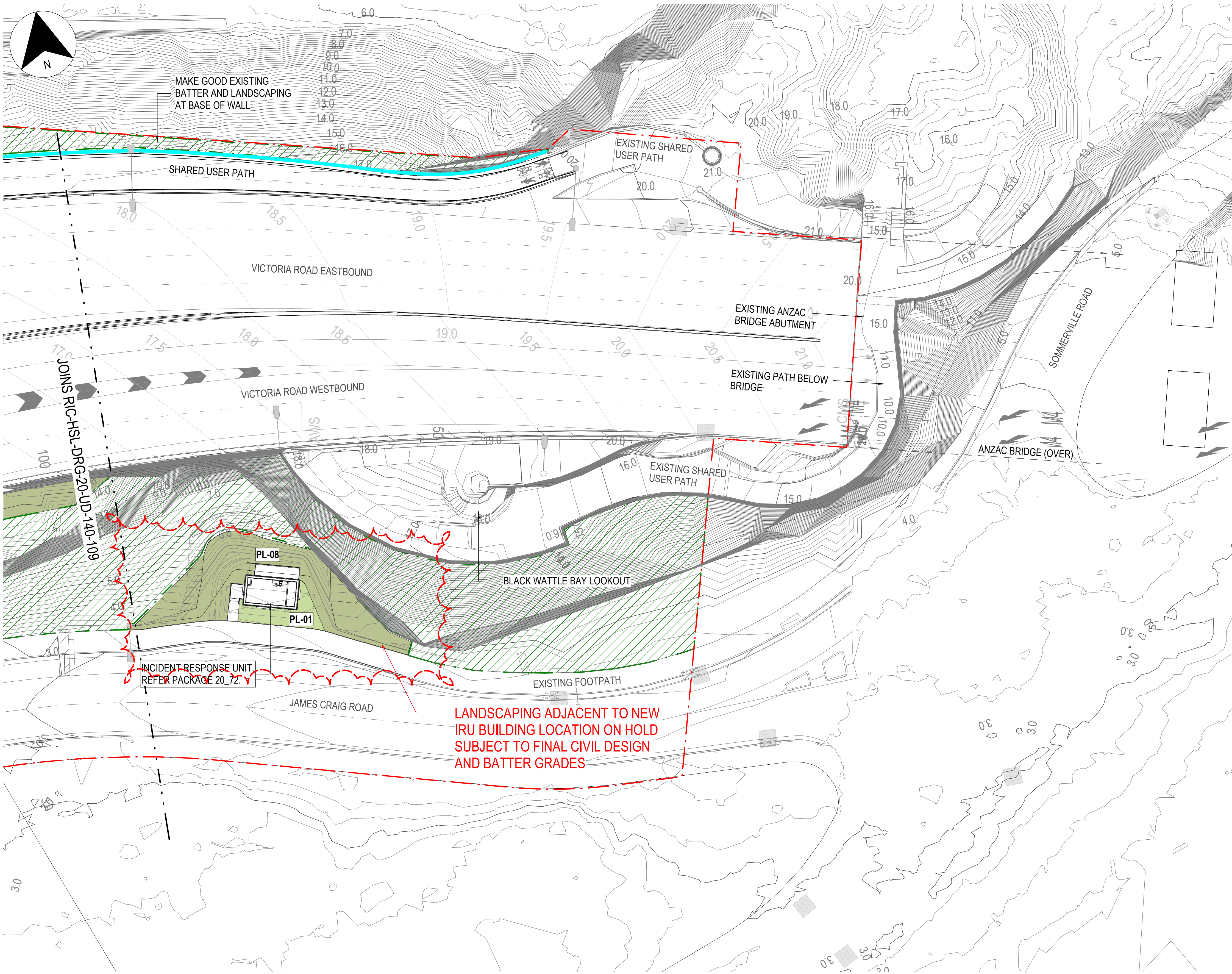
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FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

NOT FOR CONSTRUCTION

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| REV | | DATE | | REVISION DESCRIPTION | | APPROVAL | | CO-ORDINATE SYSTEM | | SCALES ON A1 SIZE DRAWING | | CLIENT | | | | | | | | | TITLE | | NAME | | DATE |
| A1 | | 28/08/2019 | | ISSUED FOR INTERNAL REVIEW | | MG | | MGA ZONE 56 | | | | Transport Roads & Maritime Services | | DRAWN | | YURONG TAN | | 05/08/2020 | | | | | | | |
| A | | 11/09/2019 | | ISSUED FOR DEVELOPED CONCEPT DESIGN | | MG | | HEIGHT DATUM | | | | | | DRG CHECK | | BEN CHARLTON | | 05/08/2020 | | | | | | | |
| B1 | | 08/04/2020 | | ISSUED FOR INTERNAL REVIEW | | MG | | AHD | | | | | | DESIGN | | ANTHONY PAPAS | | 05/08/2020 | | | | | | | |
| B | | 29/04/2020 | | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | | MG | | DESIGN PHASE | | | | | | DESIGN CHECK | | ANTHONY PAPAS | | 05/08/2020 | | | | | | | |
| C1 | | 20/07/2020 | | ISSUED FOR INTERNAL REVIEW | | MG | | FDD | | | | | | DESIGN MNGR | | MALCOLM GRAHAM | | 05/08/2020 | | | | | | | |
| C | | 05/08/2020 | | ISSUED FOR FINAL DESIGN DOCUMENTATION | | MG | | FINAL DESIGN DOCUMENTATION | | | | | | PROJECT MNGR | | JOSHUA SMALL | | 05/08/2020 | | | | | | | |
| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN GENERAL ARRANGEMENT PLAN | | | | | | | | | | | | | | SHEET 9 | | | | PACKAGE No. 20_82 | | JCJV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-109 | | | | REV C | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



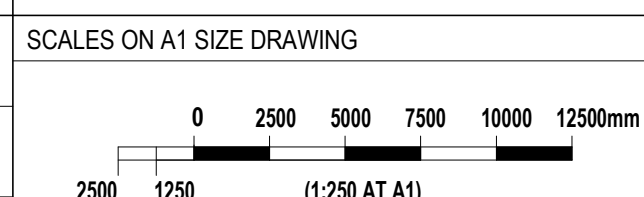
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| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN |
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| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
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PLOT DATE / TIME
4/08/2020 3:47:57 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND
CPB CONTRACTORS

ARCADIS
HASELL
willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
GENERAL ARRANGEMENT PLAN

SHEET 10

PACKAGE No.
20_82

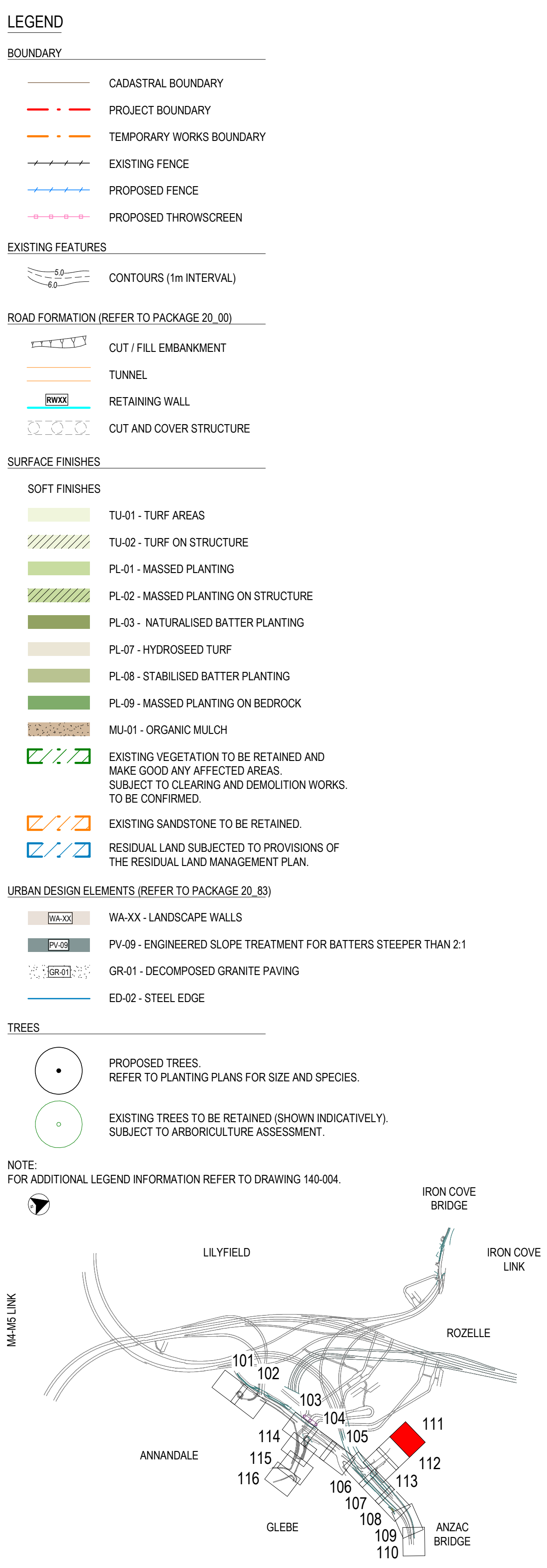
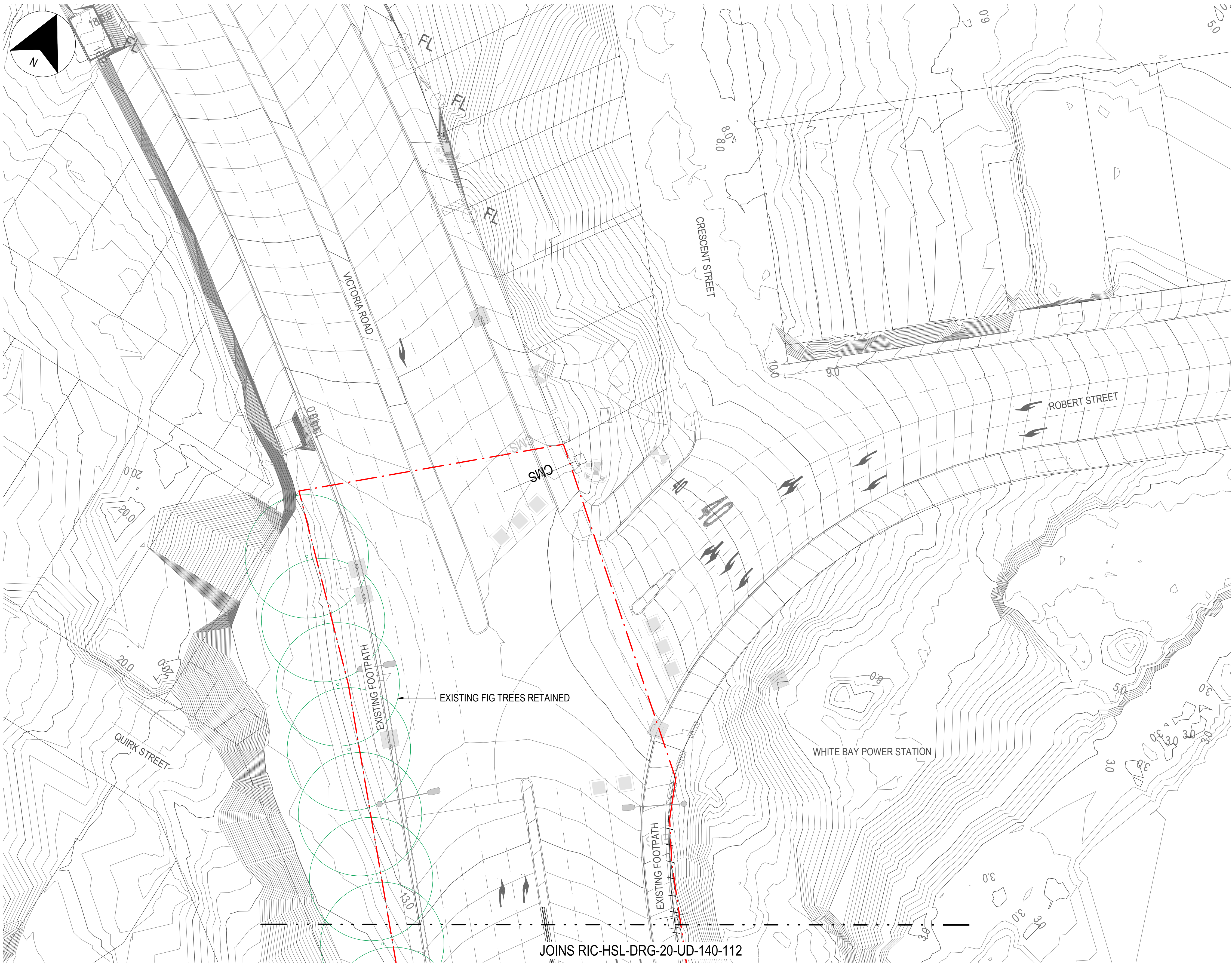
JCV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-110

A1

REV
C

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



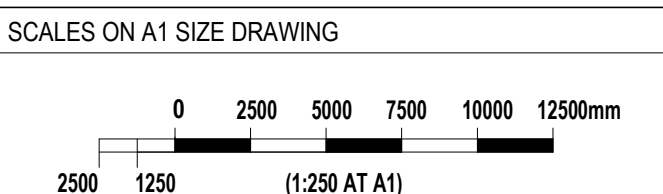
NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION |
|-----|------------|--|
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt



Transport
Roads & Maritime
Services

PLOT DATE / TIME
4/08/2020 3:48:17 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

HASSELL

willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
GENERAL ARRANGEMENT PLAN

SHEET 11

PACKAGE No.

20_82

JCV DOCUMENT NAME

RIC-HSL-DRG-20-UD-140-111

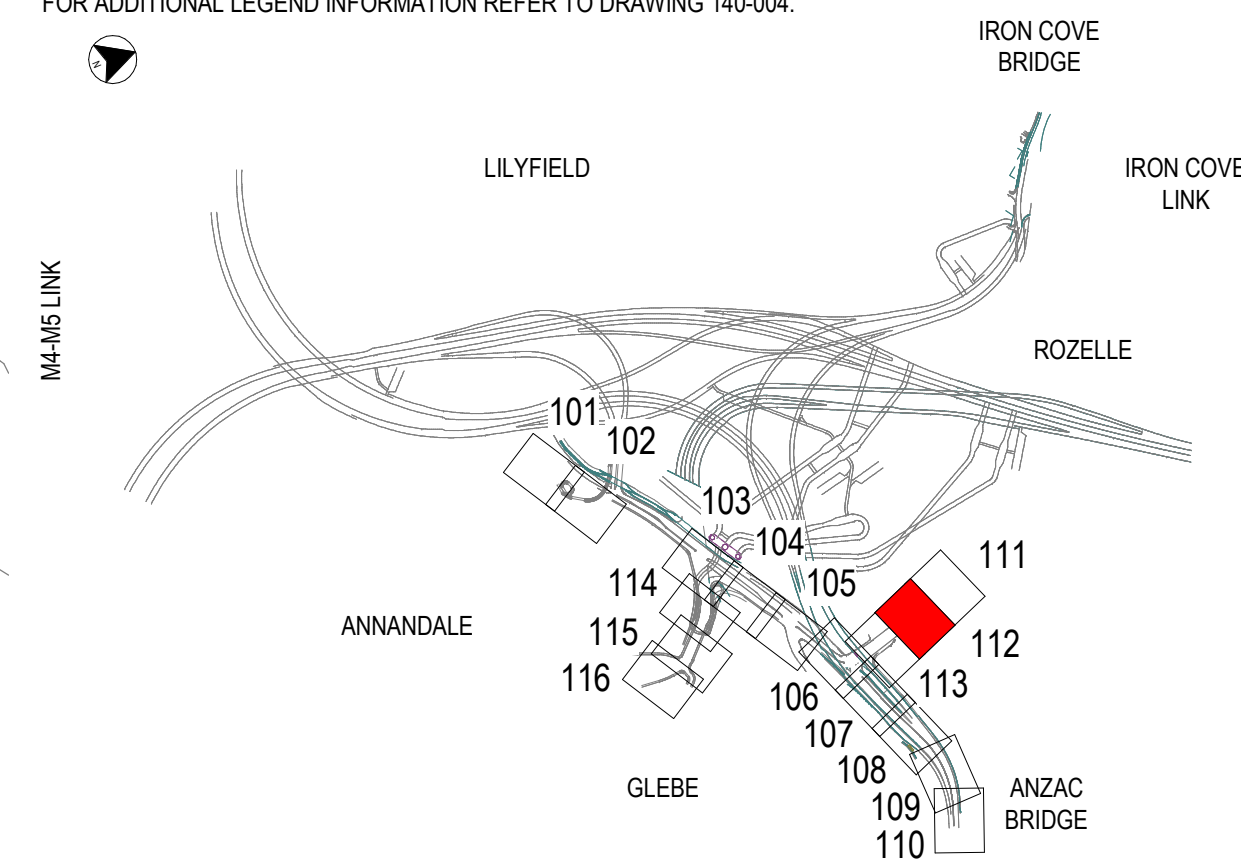
REV

C

A1

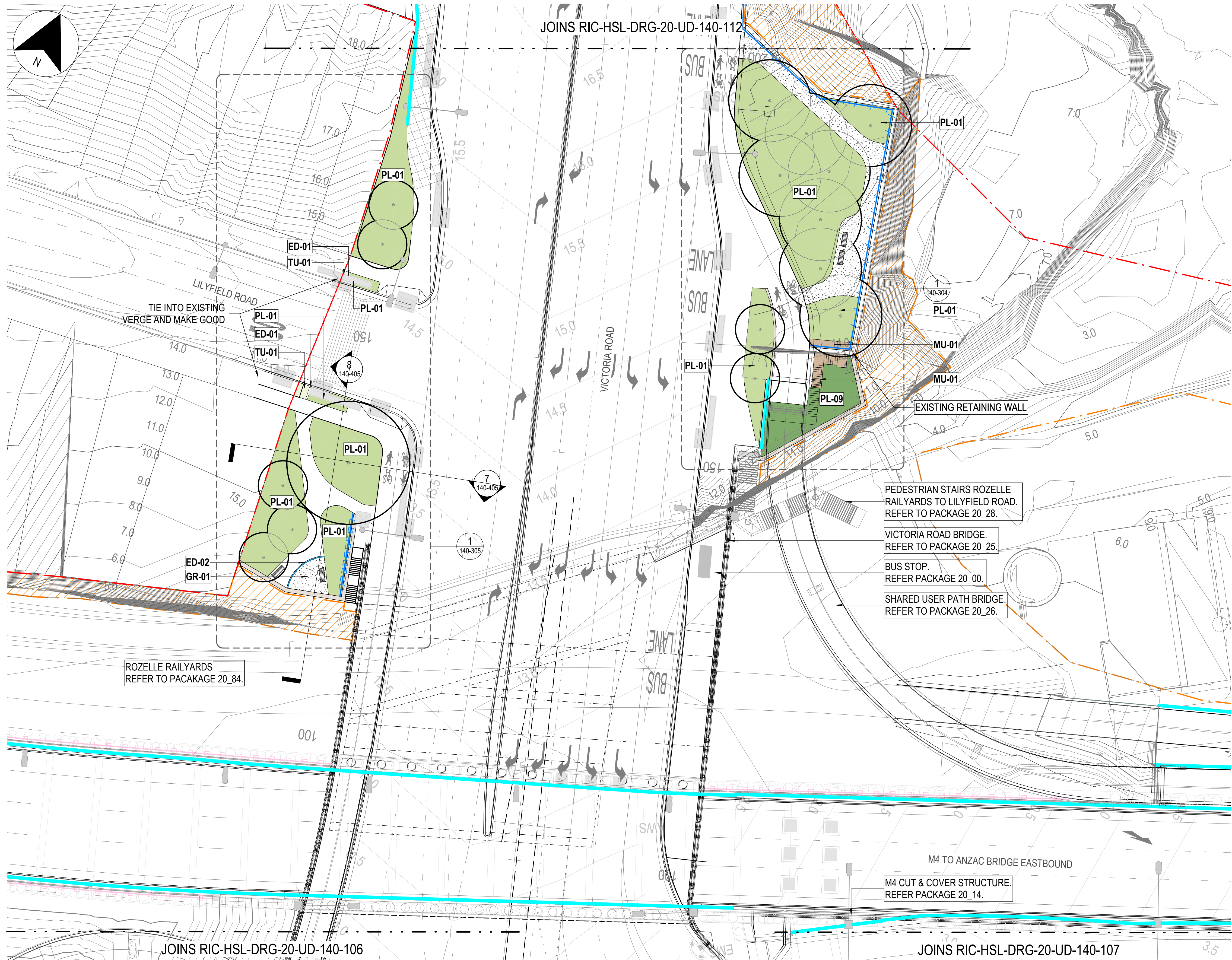
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NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

REV
C

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

0 10 20 30 40 50 60 70 80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

SOFT FINISHES

- TU-01 - TURF AREAS
- TU-02 - TURF ON STRUCTURE
- PL-01 - MASSED PLANTING
- PL-02 - MASSED PLANTING ON STRUCTURE
- PL-03 - NATURALISED BATTER PLANTING
- PL-07 - HYDROSEED TURF
- PL-08 - STABILISED BATTER PLANTING
- PL-09 - MASSED PLANTING ON BEDROCK
- MU-01 - ORGANIC MULCH
- EXISTING VEGETATION TO BE RETAINED AND MAKE GOOD ANY AFFECTED AREAS. SUBJECT TO CLEARING AND DEMOLITION WORKS. TO BE CONFIRMED.
- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.

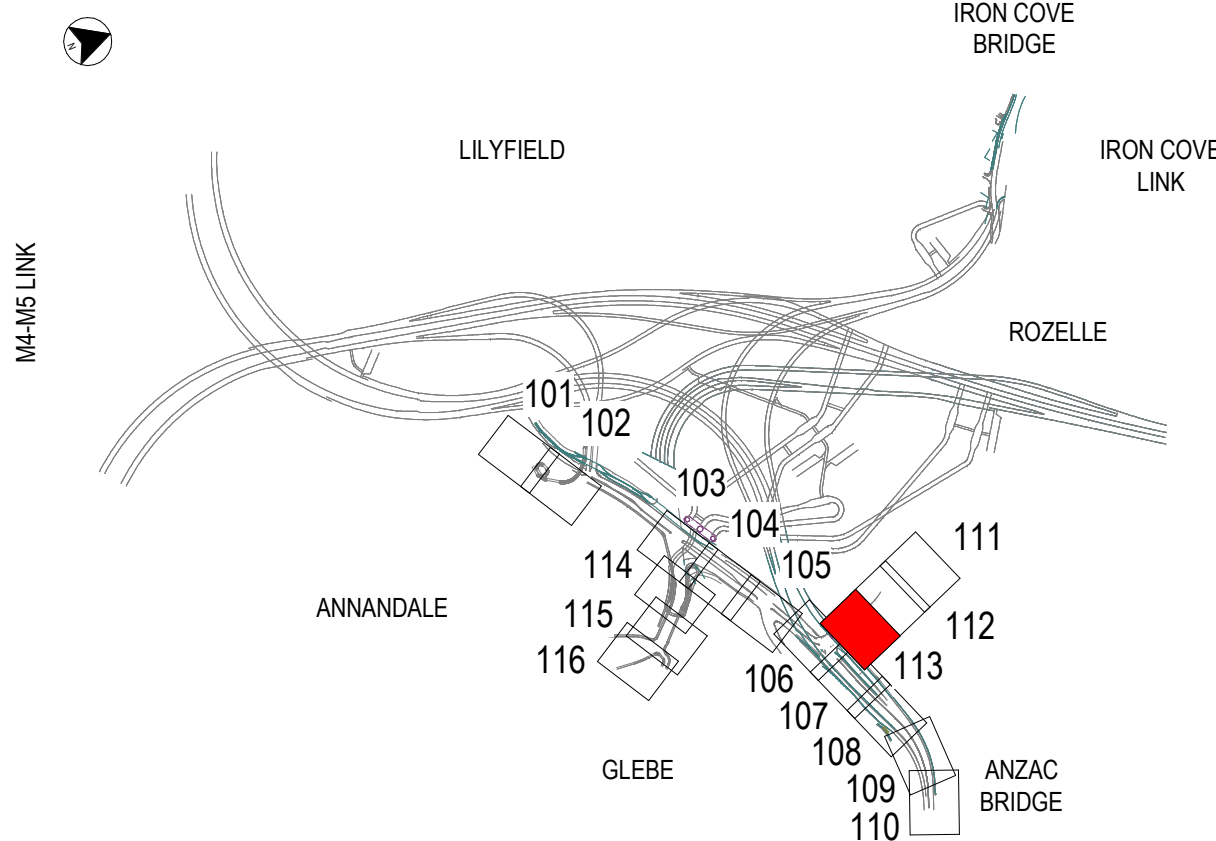
URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_83)

- WA-XX - LANDSCAPE WALLS
- PV-02 - ENGINEERED SLOPE TREATMENT FOR BATTERS STEEPER THAN 2:1
- GR-01 - DECOMPOSED GRANITE PAVING
- ED-02 - STEEL EDGE

TREES

- PROPOSED TREES. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY). SUBJECT TO ARBORICULTURE ASSESSMENT.

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



NOT FOR CONSTRUCTION

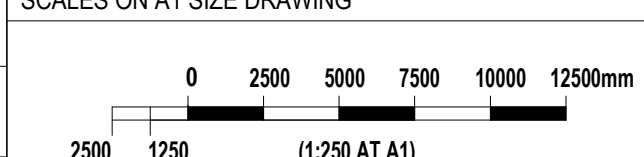
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| REV | DATE | REVISION DESCRIPTION |
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| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING



CLIENT



Transport
Roads & Maritime
Services

PLOT DATE / TIME
4/08/2020 3:49:24 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

wsp

HASSELL

willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
GENERAL ARRANGEMENT PLAN

SHEET 13

PACKAGE No.

20_82

JCV DOCUMENT NAME

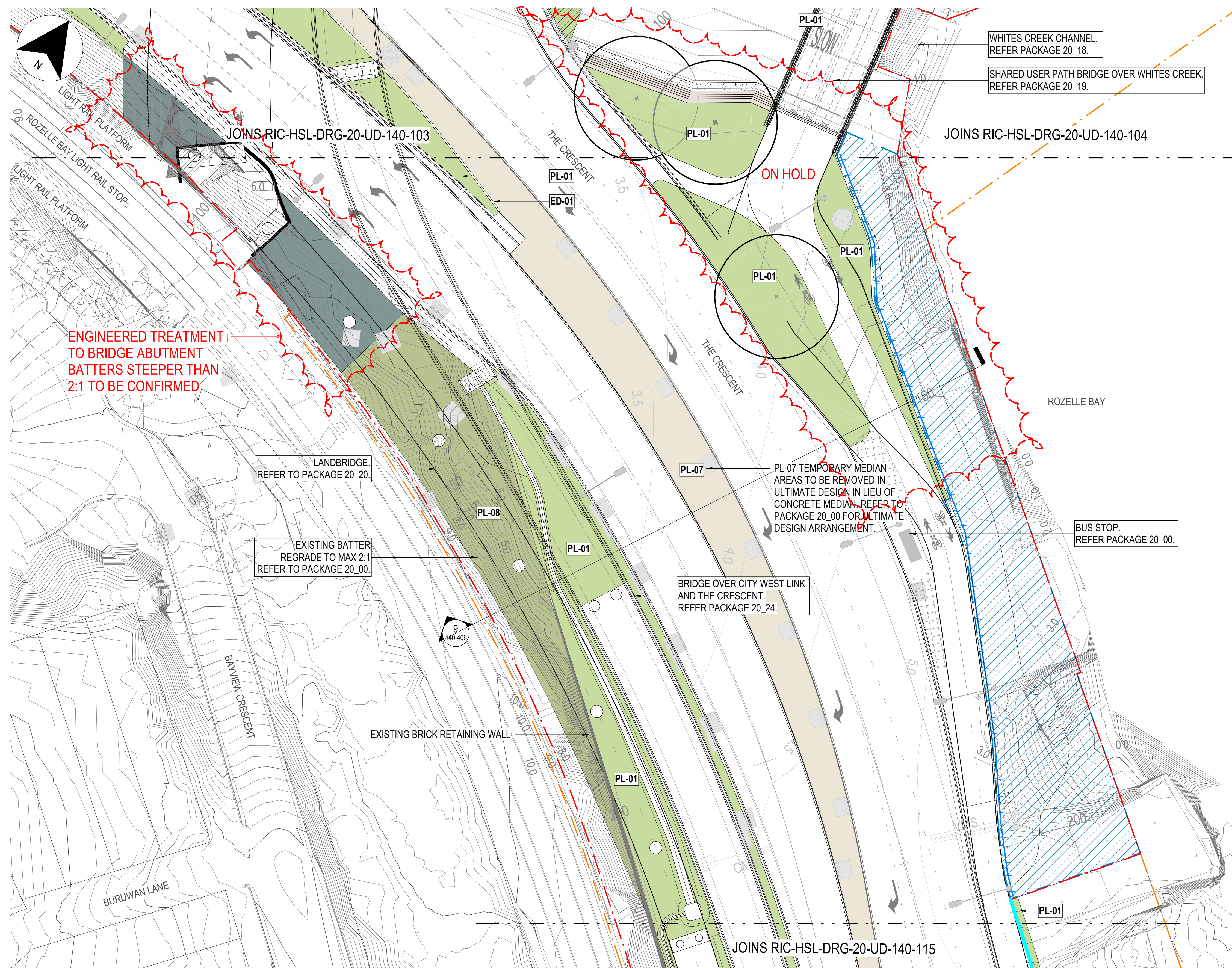
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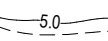





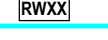




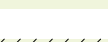
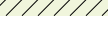









A1

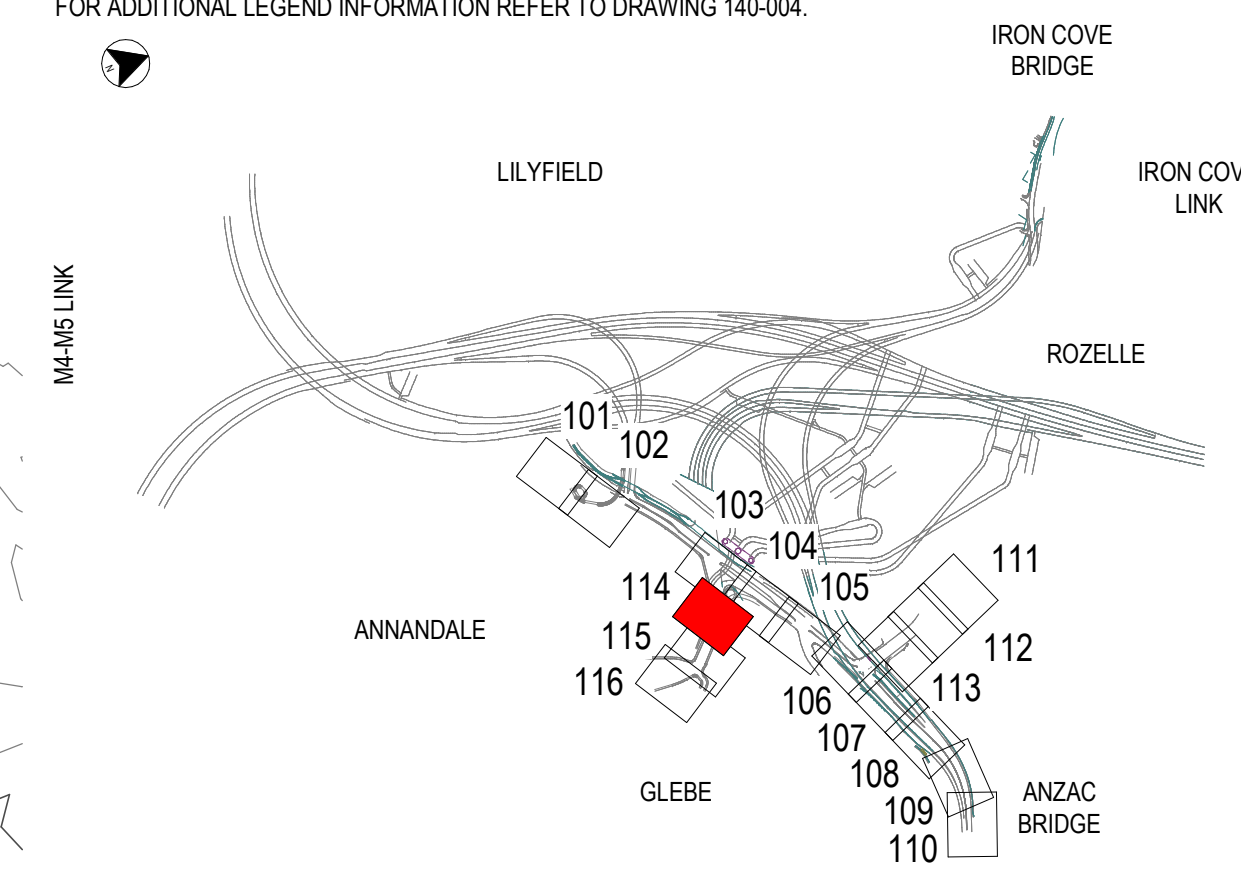
REV

C

0 10 20 30 40 50 60 70 80mm ON A1 SIZE ORIGINAL

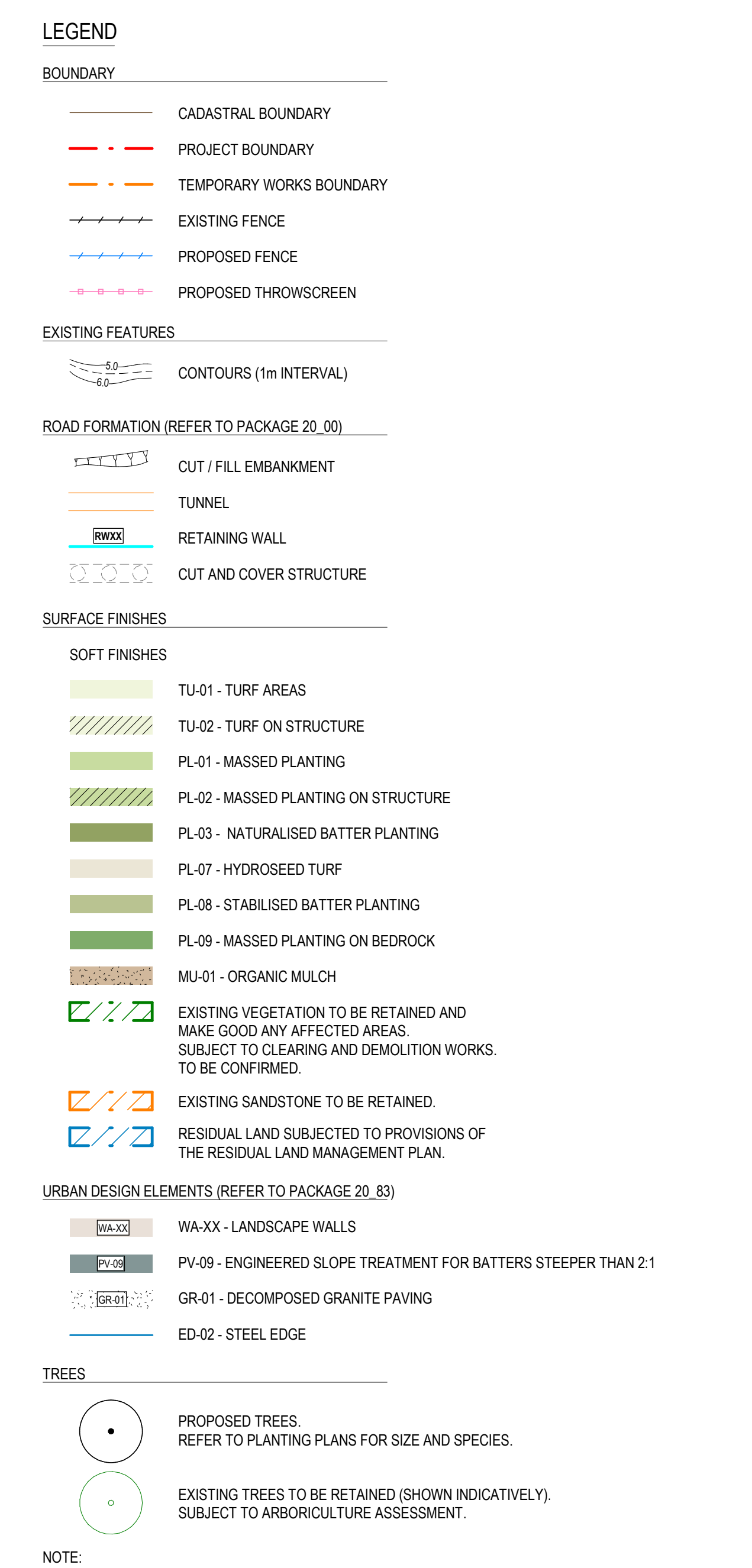


- | | |
|--|---|
| LEGEND | |
| BOUNDARY | |
|  | CADASTRAL BOUNDARY |
|  | PROJECT BOUNDARY |
|  | TEMPORARY WORKS BOUNDARY |
|  | EXISTING FENCE |
|  | PROPOSED FENCE |
|  | PROPOSED THROWSCREEN |
| EXISTING FEATURES | |
|  | CONTOURS (1m INTERVAL) |
| ROAD FORMATION (REFER TO PACKAGE 20_00) | |
|  | CUT / FILL EMBANKMENT |
|  | TUNNEL |
|  | RETAINING WALL |
|  | CUT AND COVER STRUCTURE |
| SURFACE FINISHES | |
| SOFT FINISHES | |
|  | TU-01 - TURF AREAS |
|  | TU-02 - TURF ON STRUCTURE |
|  | PL-01 - MASSED PLANTING |
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|  | PL-03 - NATURALISED BATTER PLANTING |
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|  | EXISTING VEGETATION TO BE RETAINED AND MAKE GOOD ANY AFFECTED AREAS. SUBJECT TO CLEARING AND DEMOLITION WORKS. TO BE CONFIRMED. |
|  | EXISTING SANDSTONE TO BE RETAINED. |
|  | RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN. |
| URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_83) | |
|  | WA-XX - LANDSCAPE WALLS |
|  | PV-09 - ENGINEERED SLOPE TREATMENT FOR BATTERS STEEPER THAN 2:1 |
|  | GR-01 - DECOMPOSED GRANITE PAVING |
|  | ED-02 - STEEL EDGE |
| TREES | |
|  | PROPOSED TREES. REFER TO PLANTING PLANS FOR SIZE AND SPECIES. |
|  | EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY). SUBJECT TO ARBORICULTURE ASSESSMENT. |
| NOTE: FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004. | |



NOT FOR CONSTRUCTION

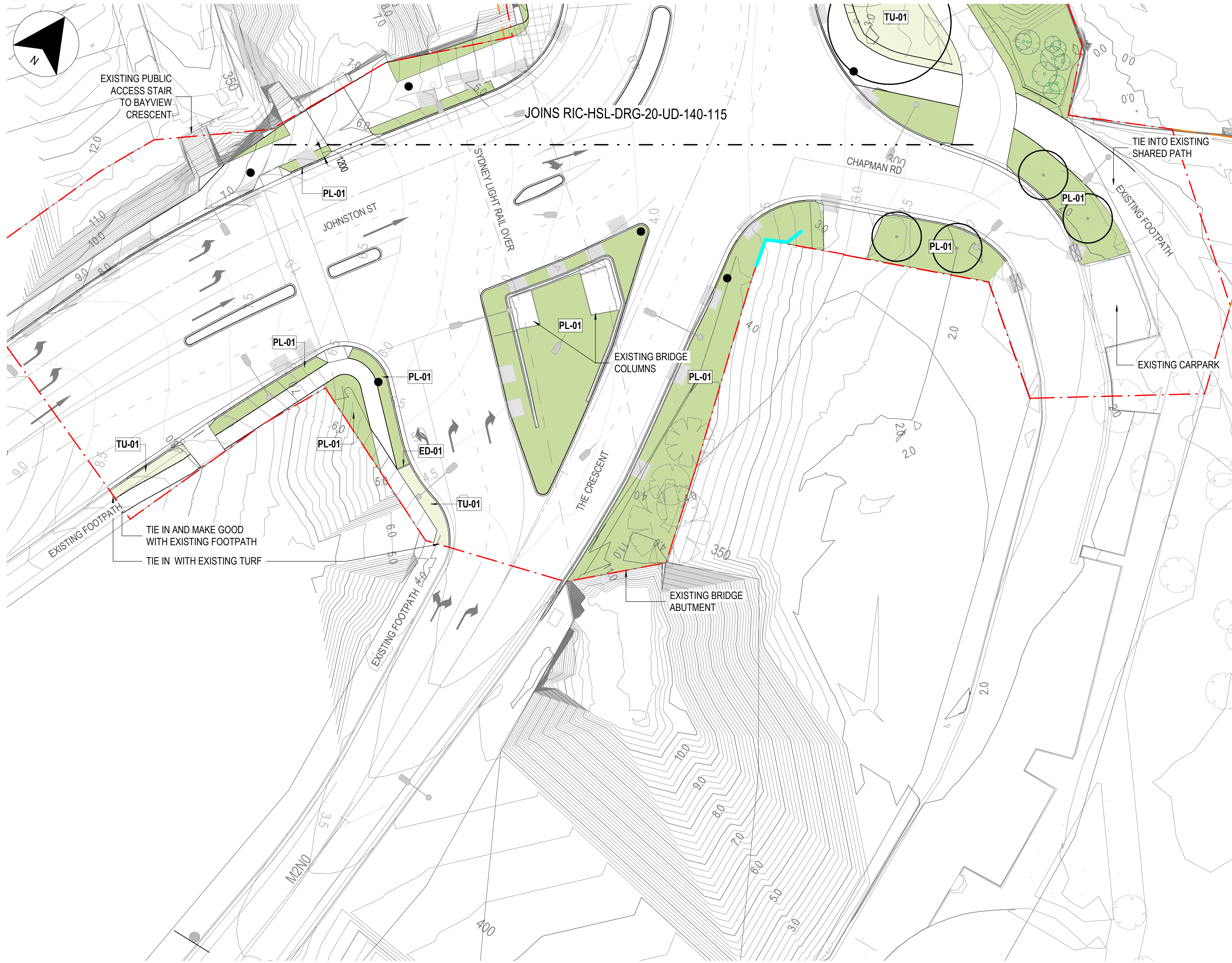
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| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | PLOT DATE / TIME 4/08/2020 3:49:50 PM | | | PLOT BY YURONG TAN | | | <div>WestConnex Rozelle Interchange</div> <div>JOHN HOLLAND</div> <div>ARCADIS</div> <div>HASSELL</div> <div>willow</div> <div>CPB CONTRACTORS</div> <div>WSP</div> <div>BRANDON JACOBS RESOURCES</div> <div>P S M</div> | | | | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN GENERAL ARRANGEMENT PLAN | | | | | A | | |
| REV | | DATE | | APPROVAL | CO-ORDINATE SYSTEM | | SCALES ON A1 SIZE DRAWING | | | | | CLIENT | | | | | TITLE | | NAME | | DATE | | | | | | | |
| A1 | | 28/08/2019 | | MG | MGA ZONE 56 | |  | | | | |  Transport Roads & Maritime Services | | | | | DRAWN | | YURONG TAN | | 05/08/2020 | | | | | | | |
| A | | 11/09/2019 | | MG | HEIGHT DATUM | | | | | | | | | | | | DRG CHECK | | BEN CHARLTON | | 05/08/2020 | | | | | | | |
| B1 | | 08/04/2020 | | MG | AHD | | | | | | | | | | | | DESIGN | | ANTHONY PAPAS | | 05/08/2020 | | | | | | | |
| B | | 29/04/2020 | | MG | DESIGN PHASE | | | | | | | | | | | | DESIGN CHECK | | ANTHONY PAPAS | | 05/08/2020 | | | | | | | |
| C1 | | 20/07/2020 | | MG | FDD | | | | | | | | | | | | DESIGN MNGR | | MALCOLM GRAHAM | | 05/08/2020 | | | | | | | |
| C | | 05/08/2020 | | MG | FINAL DESIGN DOCUMENTATION | | | | | | | | | | | | PROJECT MNGR | | JOSHUA SMALL | | 05/08/2020 | | | | | | | |
| | | | | | | | | | | | | | | | PACKAGE No. | | JCJV DOCUMENT NAME | | | | | | | | | | REV | |
| | | | | | | | | | | | | | | | 20_82 | | RIC-HSL-DRG-20-UD-140-114 | | | | | | | | | | C | |



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| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | PLOT DATE / TIME 4/08/2020 3:50:12 PM | | | PLOT BY YURONG TAN | | | <div>WestConnex Rozelle Interchange</div> <div>JOHN HOLLAND</div> <div>ARCADIS</div> <div>HASSELL</div> <div>CPB CONTRACTORS</div> <div>WSP</div> <div>McMILLEN JACOBS</div> <div>willow</div> <div>PSM</div> | | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN GENERAL ARRANGEMENT PLAN | | | A1 | | |
| REV | | DATE | | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | | SCALES ON A1 SIZE DRAWING | | | | | CLIENT | | | | | | | | | | | |
| A1 | | 28/08/2019 | | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 | | <div>0 2500 5000 7500 10000 12500mm</div> <div>2500 1250 (1:250 AT A1)</div> | | | | | <div>NSW GOVERNMENT</div> <div>Transport Roads & Maritime Services</div> | | | | | | | | | | | |
| A1 | | 11/09/2019 | | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM | | | | | | | | | | | | | | | | | | |
| B1 | | 08/04/2020 | | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | | | | | | | | | | | | | | | | |
| B1 | | 29/04/2020 | | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | | | | | | | | | | | | | | | | | |
| C | | 20/07/2020 | | ISSUED FOR INTERNAL REVIEW | MG | FDD | | | | | | | | | | | | | | | | | | |
| C | | 05/08/2020 | | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | | | | | | | | | | | | | | | | |
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80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

SOFT FINISHES

- TU-01 - TURF AREAS
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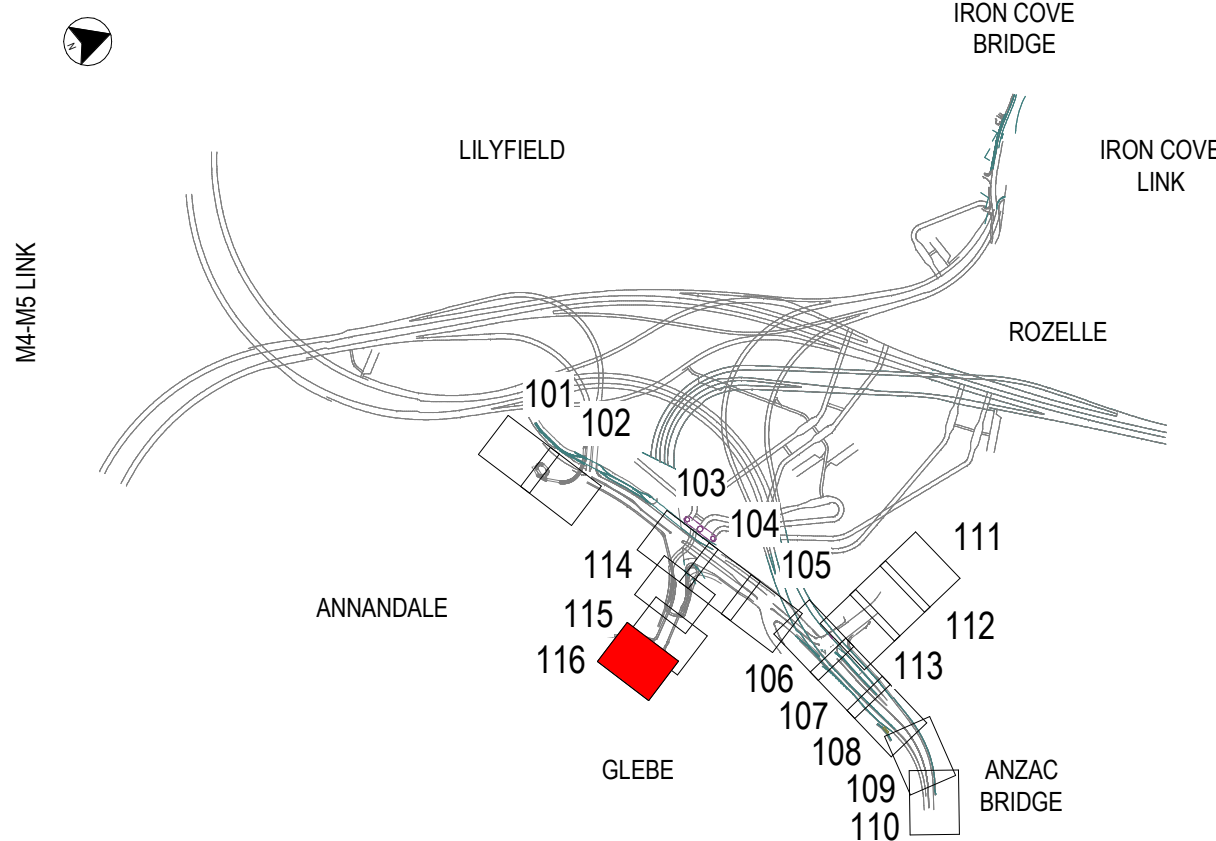
URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_83)

- WA-XX - LANDSCAPE WALLS
- PV-02 - ENGINEERED SLOPE TREATMENT FOR BATTERS STEEPER THAN 2:1
- GR-01 - DECOMPOSED GRANITE PAVING
- ED-02 - STEEL EDGE

TREES

- PROPOSED TREES. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY). SUBJECT TO ARBORICULTURE ASSESSMENT.

NOTE:
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NOT FOR CONSTRUCTION

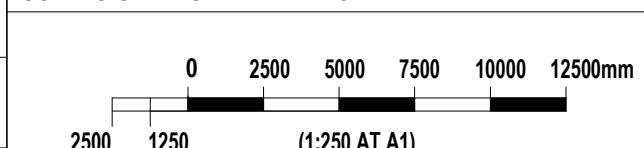
DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION |
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| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
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DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING



CLIENT



PLOT DATE / TIME
4/08/2020 3:50:34 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND
CONTRACTORS

ARCADIS
wsp

HASSELL
McMILLLEN JACOBS

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
GENERAL ARRANGEMENT PLAN

SHEET 16

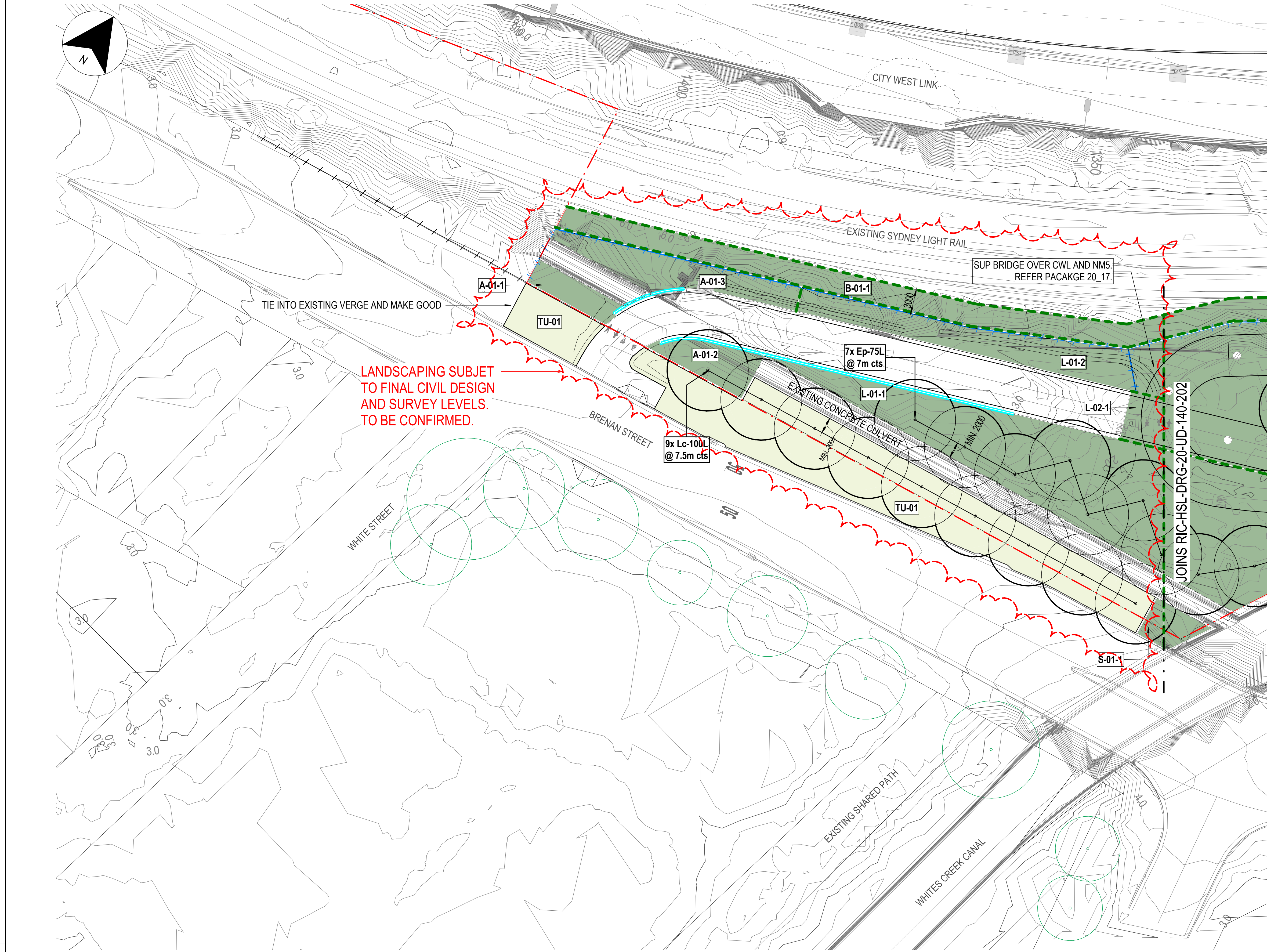
PACKAGE No. 20_82
JCJV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-116

REV
C

A1

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- PLANTING MIX BOUNDARY

TREE PLANTING

- PROPOSED TREE - INDIVIDUAL. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- POT SIZE SPECIES CODE
- PROPOSED TREES - CLUSTERS. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- POT SIZE SPECIES CODE NO. OF TREES
- EXISTING TREES TO BE RETAINED. SUBJECT TO ARBORICULTURE ASSESSMENT. TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

PL-01-5 MASS PLANTING TAG

- PLANTING BED NUMBER
- PLANTING MIX NUMBER
- PLANTING MIX TYPE

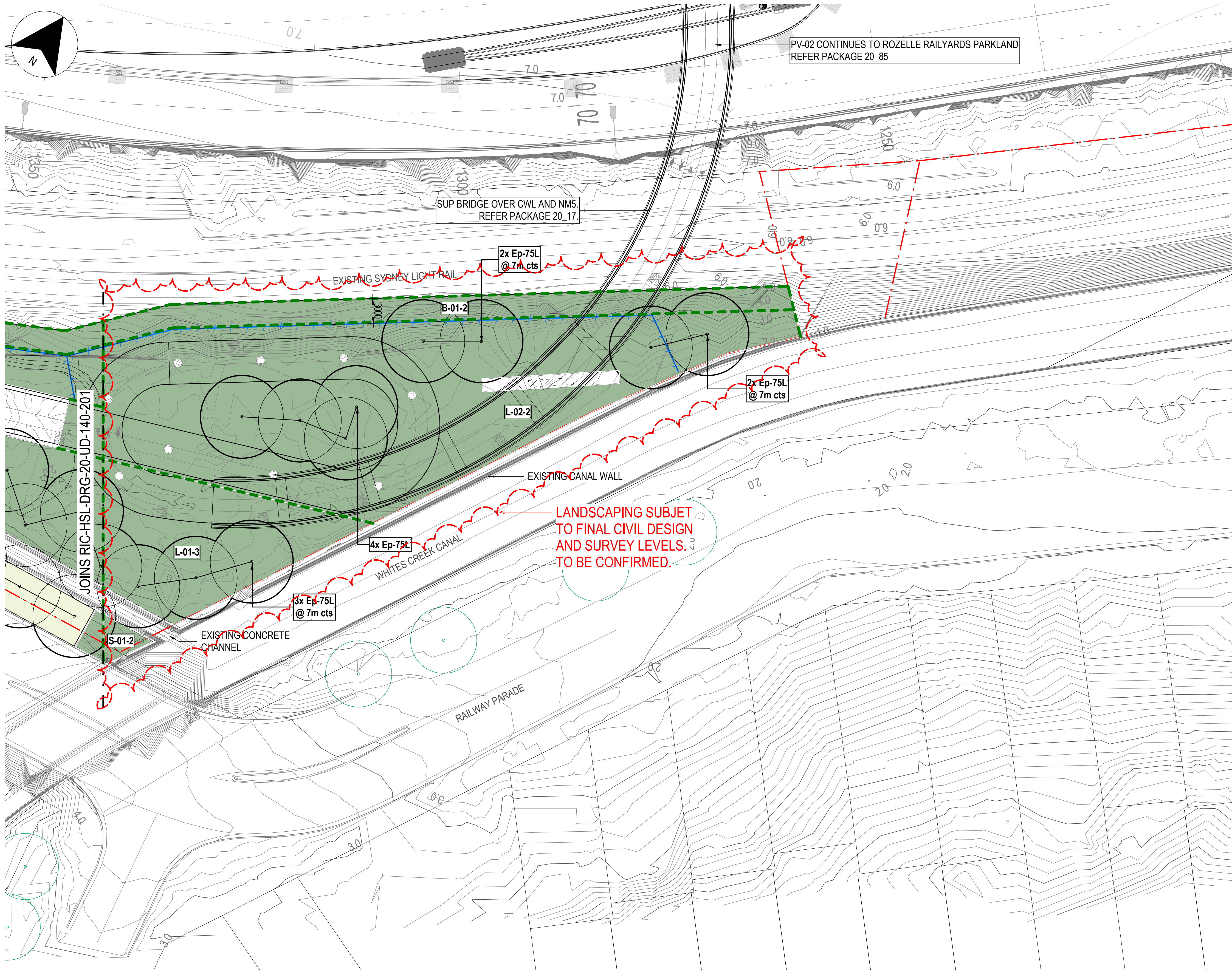
NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

NOT FOR CONSTRUCTION

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------|--|----------|----------------------------|--|--|--|--|--|--|--|--------------|-----------------------|------------|-------------------|---|--|--|--|--|--|--|-------|----|
| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | PLOT DATE / TIME 4/08/2020 3:50:54 PM | | | PLOT BY YURONG TAN | | | <div><div><div>WestConnex</div><div>Rozelle Interchange</div></div><div><div>JOHN HOLLAND</div><div>ARCADIS</div><div>HASSELL</div></div><div><div>CPB CONTRACTORS</div><div>WSP</div><div>willow</div></div><div><div>McMILLLEN JACOBS</div><div>willow</div><div>PS</div></div></div> | | | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN PLANTING PLAN | | | | A1 |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING | | | | | CLIENT | | TITLE | NAME | DATE | | | | | | | | | | |
| A1 | 28/08/2019 | NOT ISSUED | - | MGA ZONE 56 | | | | | |  <div>Transport Roads & Maritime Services</div> | | DRAWN | YURONG TAN | 05/08/2020 | | | | | | | | | | |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM | | | | | | | | DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | | | | | | DESIGN | ANTHONY PAPAS | 05/08/2020 | | | | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | | | | | | | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | | | | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | | | | | | | | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | | | | | | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | | | | | | |
| | | | | | | | | | | | | | | | SHEET 1 | | | | | | | | | |
| | | | | | | | | | | | | | | | PACKAGE No. 20_82 | | | | JCJV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-201 | | | | REV C | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- PLANTING MIX BOUNDARY

TREE PLANTING

PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.

XX-XXL
POT SIZE
SPECIES CODE

PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.

3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES

EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT.
TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

PL-01-5 MASS PLANTING TAG

- PLANTING BED NUMBER
- PLANTING MIX NUMBER
- PLANTING MIX TYPE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

NOT FOR CONSTRUCTION

LOCATION MAP

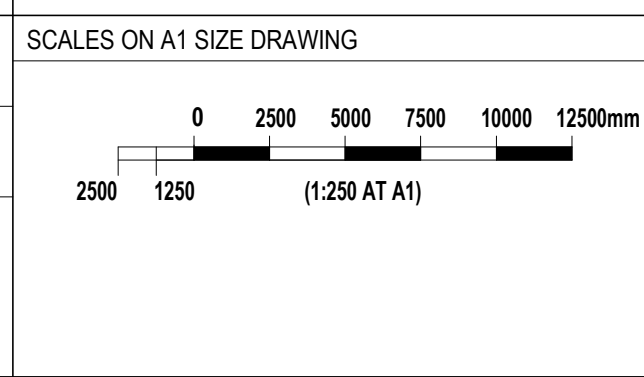
IRON COVE BRIDGE
IRON COVE LINK
ROZELLE
ANNANDALE
GLEBE
M4-M5 LINK
LILYFIELD
ANZAC BRIDGE

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION |
|-----|------------|--|
| A1 | 26/08/2019 | NOT ISSUED |
| A | 11/09/2019 | NOT ISSUED |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|-----------------------------------|
| - | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt



CLIENT

NSW GOVERNMENT

Transport Roads & Maritime Services

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND

ARCADIS

HASSELL

McMILLEN JACOBS

willow

CPB CONTRACTORS

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
PLANTING PLAN

SHEET 2

PACKAGE No. 20_82

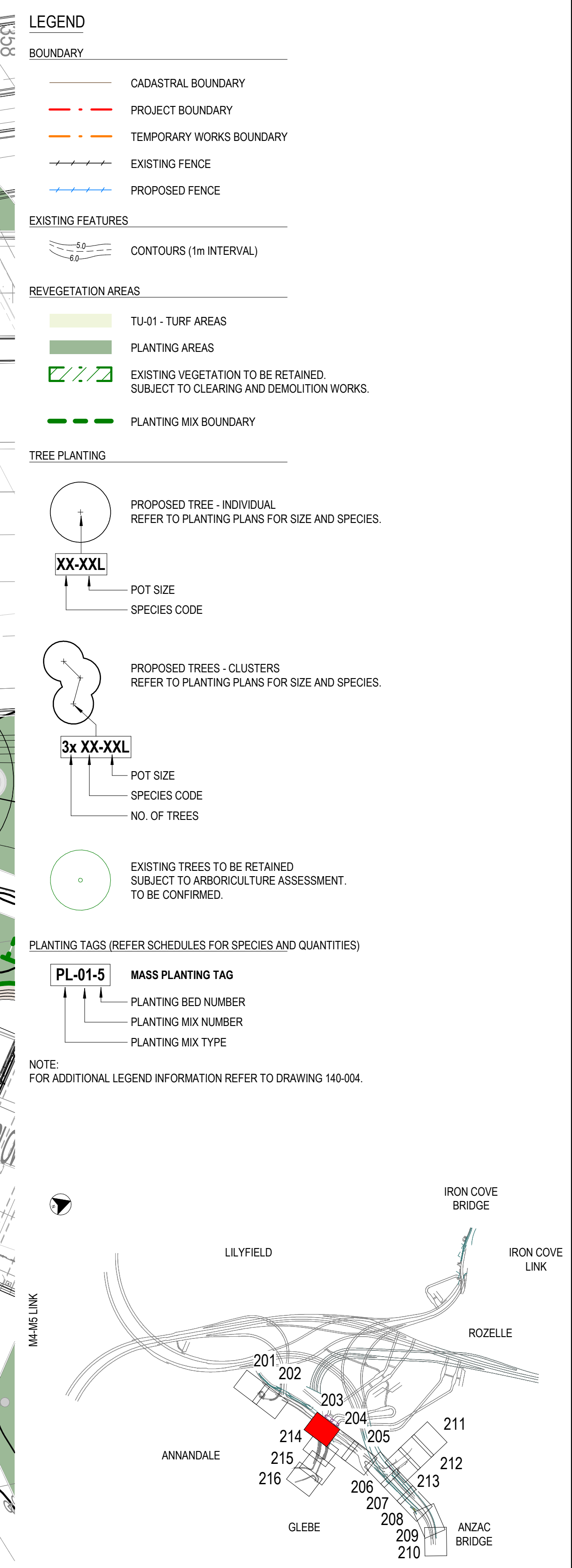
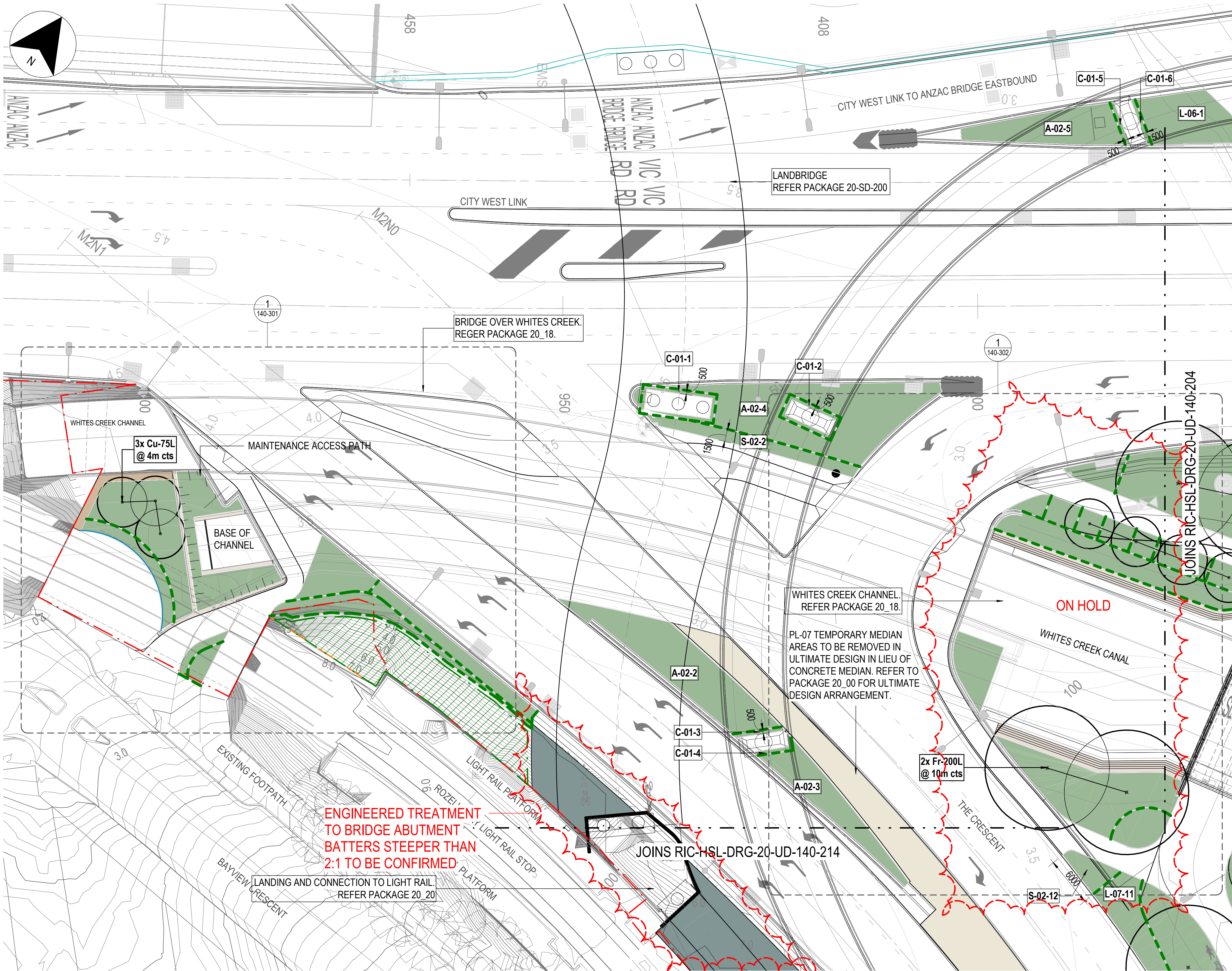
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REV
C

A1

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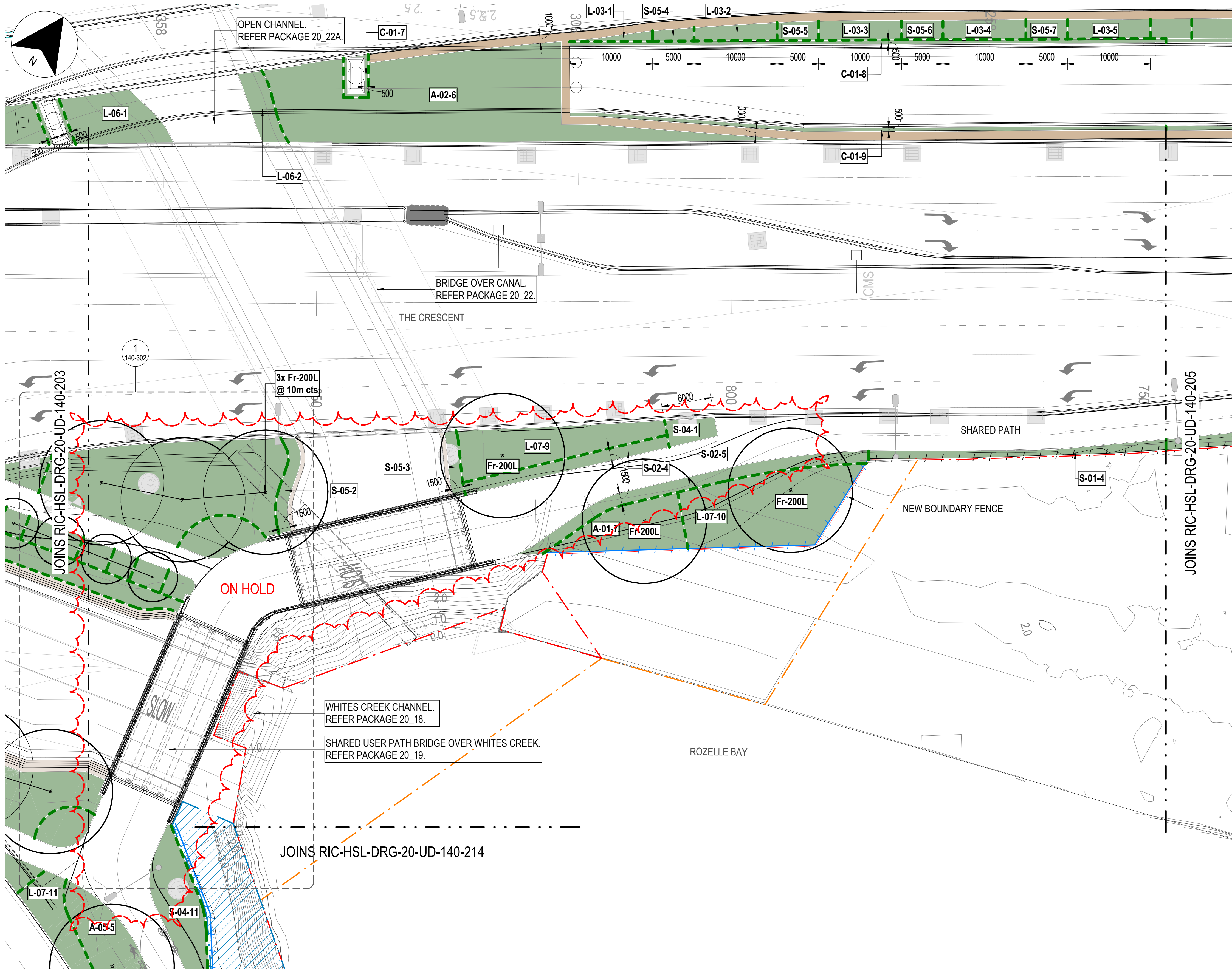
80mm ON A1 SIZE ORIGINAL



| | | | | | | | | | | | | | | | | |
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| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM MGA ZONE 56 | <div>SCALES ON A1 SIZE DRAWING</div> <div><div>02500500075001000012500mm</div><div>25001250(1:250 AT A1)</div></div> | HEIGHT DATUM AHD | <div>CLIENT</div> <div><div>NSW GOVERNMENT</div><div>Transport Roads & Maritime Services</div></div> | TITLE | NAME | DATE | | | | | | |
| A1 | 28/08/2019 | NOT ISSUED | - | | | DRAWN | | YURONG TAN | 05/08/2020 | | | | | | | |
| A | 11/09/2019 | NOT ISSUED | - | | | DRG CHECK | | BEN CHARLTON | 05/08/2020 | | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | | | DESIGN | | ANTHONY PAPAS | 05/08/2020 | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | | | DESIGN CHECK | | ANTHONY PAPAS | 05/08/2020 | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | DESIGN PHASE FDD | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | | | | | |
| | | | | | | | | | | SHEET 3 | | PACKAGE No. 20_82 | JCV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-203 | REV C | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- PLANTING MIX BOUNDARY

TREE PLANTING

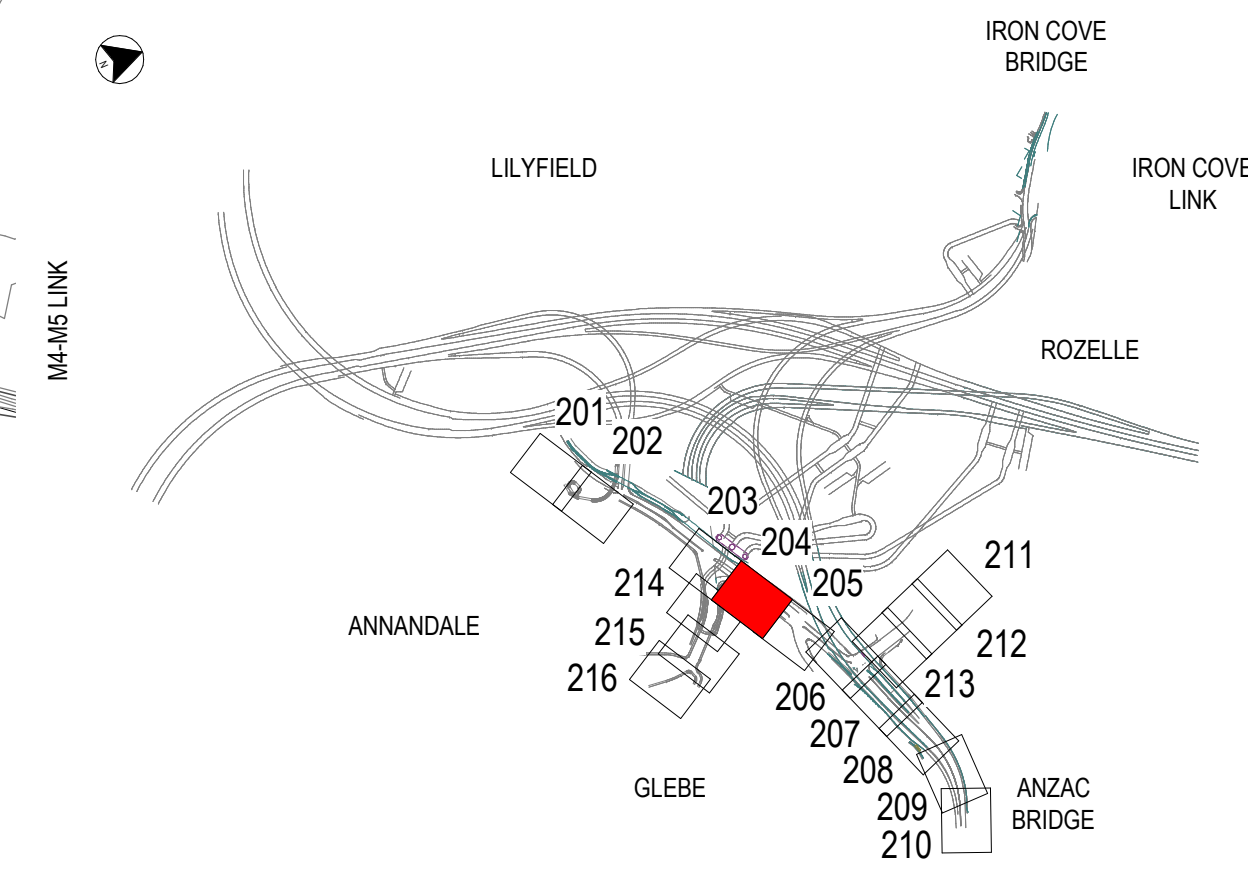
- PROPOSED TREE - INDIVIDUAL. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
XX-XXL
POT SIZE
SPECIES CODE
- PROPOSED TREES - CLUSTERS. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES
- EXISTING TREES TO BE RETAINED. SUBJECT TO ARBORICULTURE ASSESSMENT. TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

PL-01-5 MASS PLANTING TAG

- PLANTING BED NUMBER
- PLANTING MIX NUMBER
- PLANTING MIX TYPE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



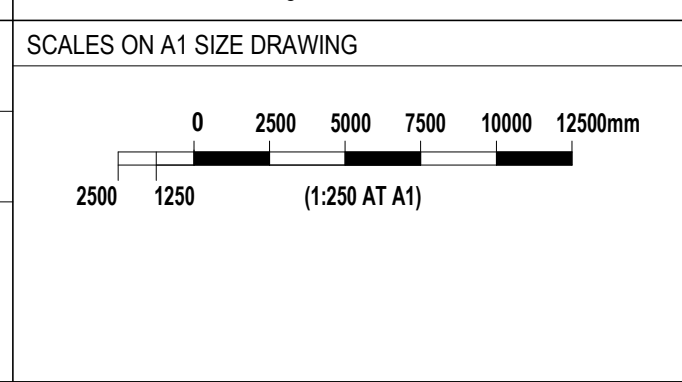
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| REV | DATE | REVISION DESCRIPTION |
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| A1 | 26/08/2019 | NOT ISSUED |
| A | 11/09/2019 | NOT ISSUED |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|-----------------------------------|
| - | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt



CLIENT

Transport Roads & Maritime Services

NSW GOVERNMENT

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex Rozelle Interchange

JOHN HOLLAND

CPB CONTRACTORS

ARCADIS

HASSELL

willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL

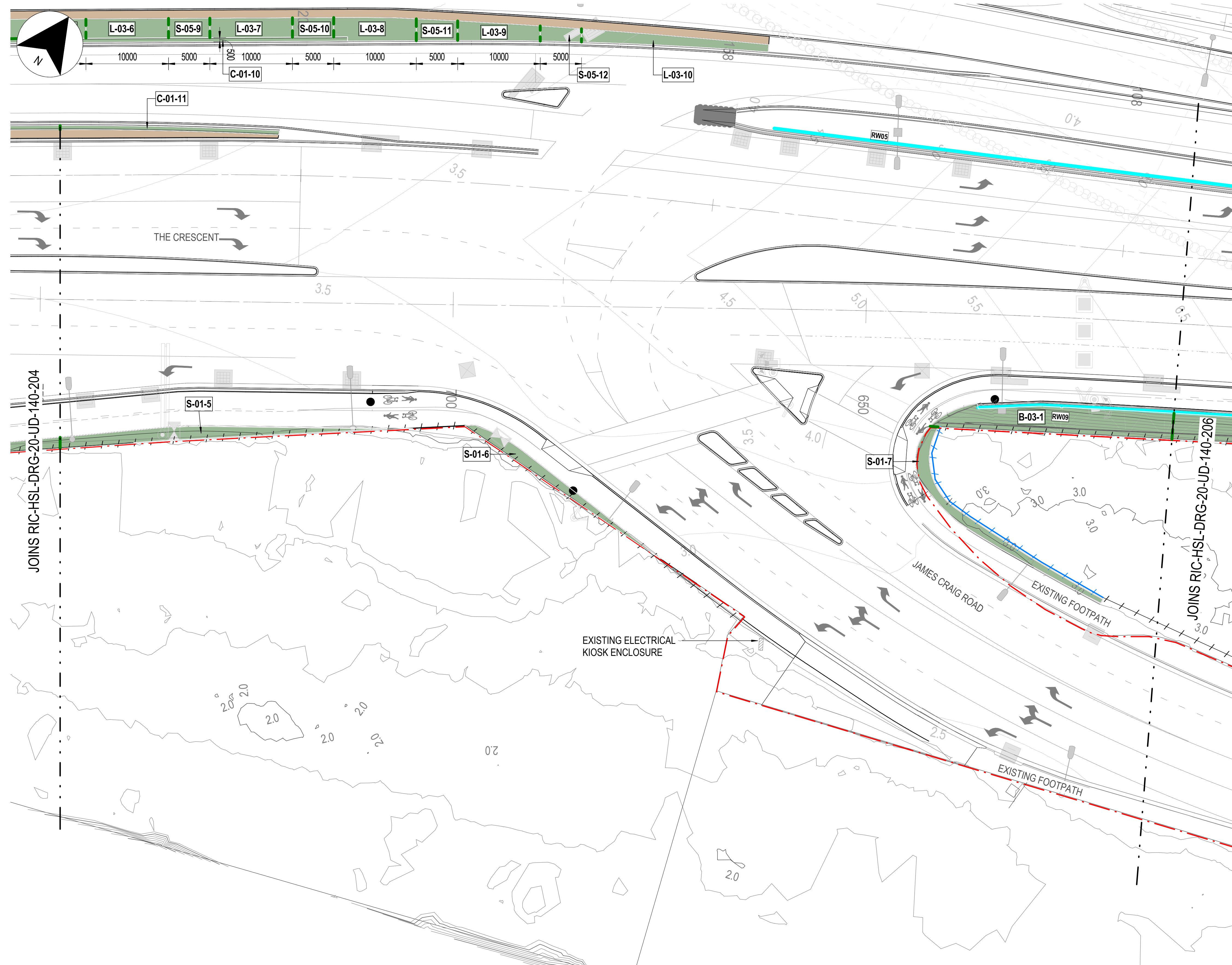
ROZELLE INTERCHANGE

ROZELLE LOCAL ROADS - LANDSCAPE DESIGN PLANTING PLAN

SHEET 4

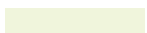




PACKAGE No. **20_82** JCJV DOCUMENT NAME **RIC-HSL-DRG-20-UD-140-204** REV **C**

A1




- ### LEGEND





BOUNDARY

 -  CADASTRAL BOUNDARY
 -  PROJECT BOUNDARY
 -  TEMPORARY WORKS BOUNDARY
 -  EXISTING FENCE
 -  PROPOSED FENCE

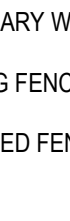


EXISTING FEATURES

 -  CONTOURS (1m INTERVAL)


REVEGETATION AREAS

 -  TU-01 - TURF AREAS
 -  PLANTING AREAS
 -  EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
 -  PLANTING MIX BOUNDARY

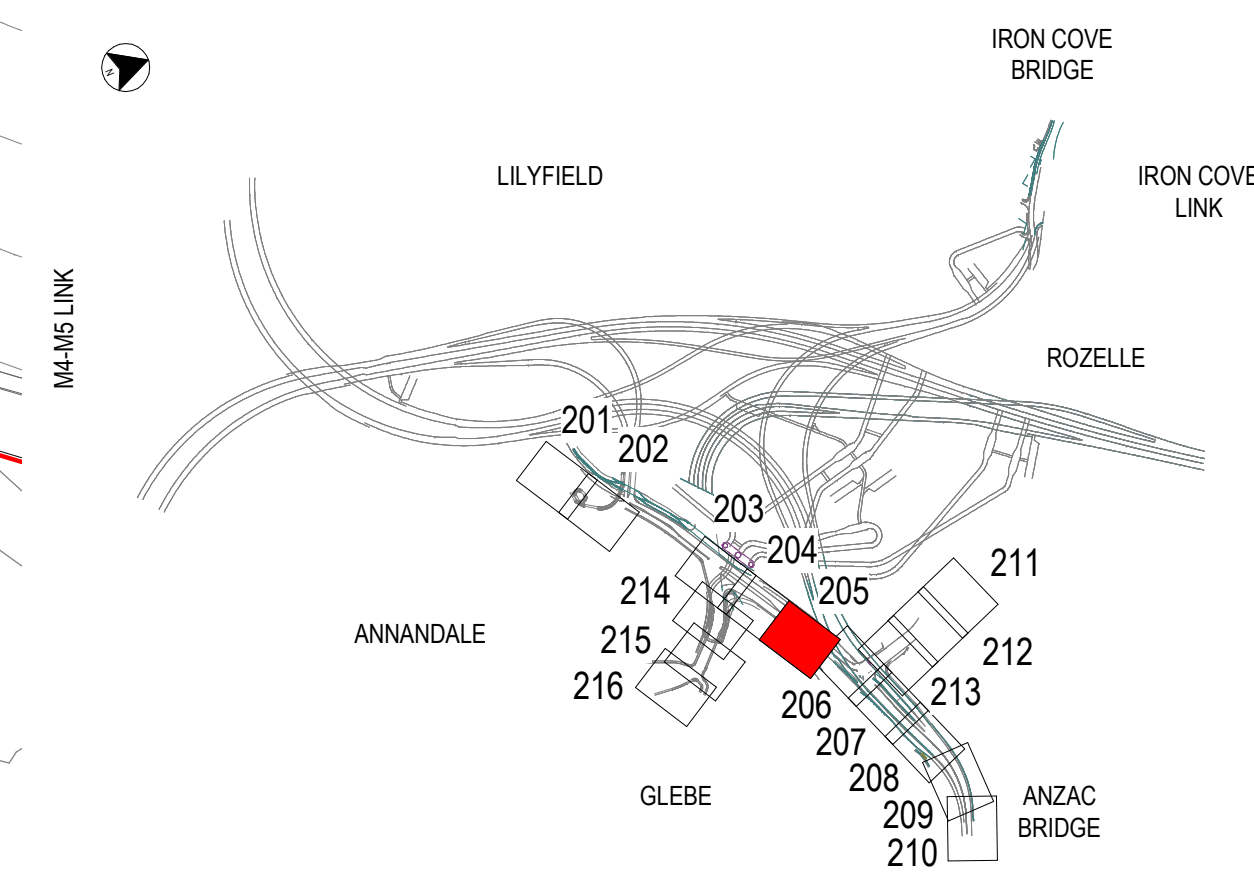
TREE PLANTING

 -  PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
 - POT SIZE
 - SPECIES CODE
 -  PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
 - POT SIZE
 - SPECIES CODE
 - NO. OF TREES
 -  EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT.
TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

 -  MASS PLANTING TAG
 - PLANTING BED NUMBER
 - PLANTING MIX NUMBER
 - PLANTING MIX TYPE

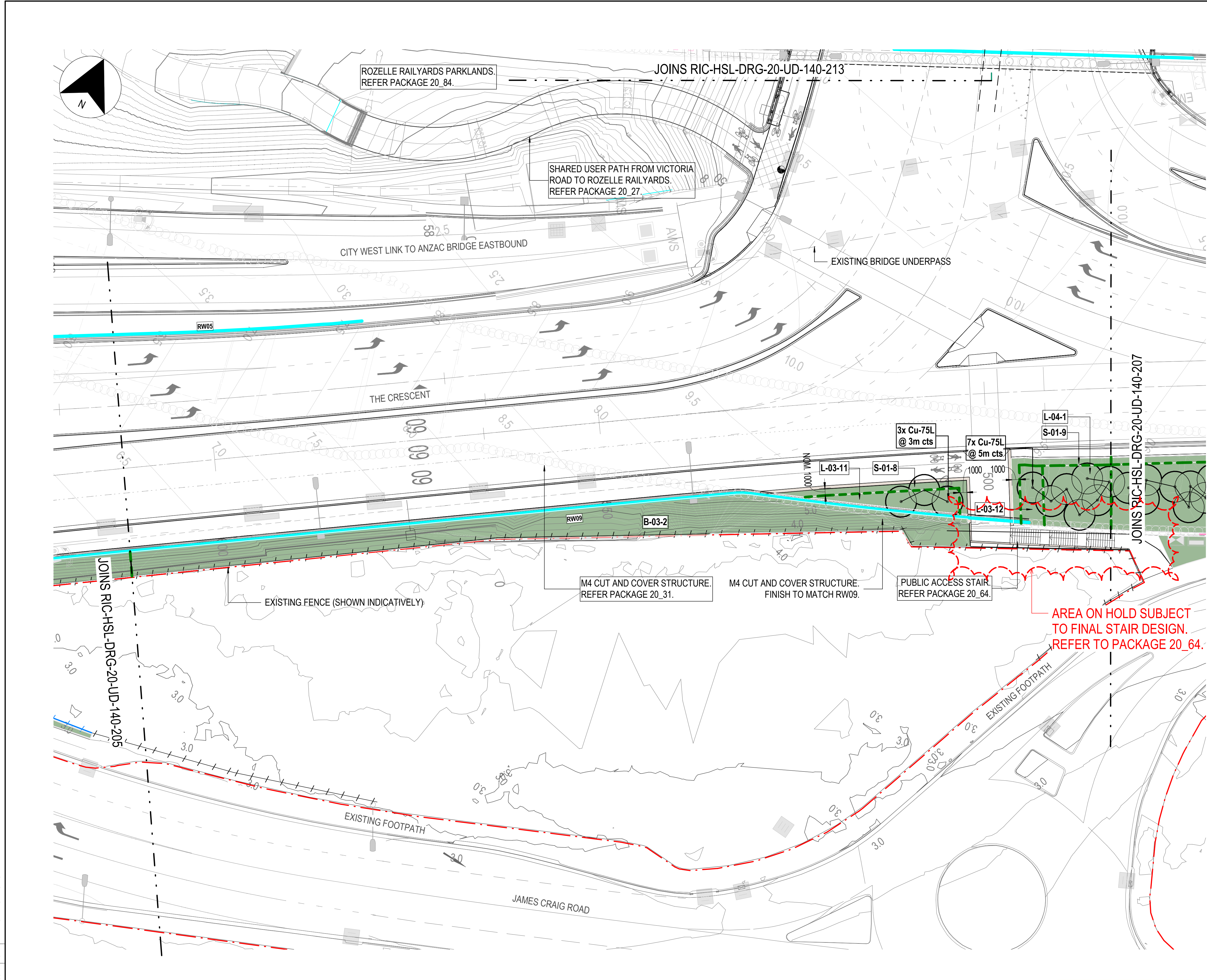
NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



NOT FOR CONSTRUCTION

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| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING | CLIENT | TITLE | NAME | DATE | SHEET 5 | | | | PACKAGE No. | JC/IV DOCUMENT NAME | REV | |
| A1 | 28/08/2019 | NOT ISSUED | - | MGA ZONE 56 | <div><div>025001250</div><div>025001250</div><div>(1:250 AT A1)</div></div> <div><div></div><div><div>Transport</div><div>Roads & Maritime Services</div></div></div> | <div><div></div><div><div>Transport</div><div>Roads & Maritime Services</div></div></div> | DRAWN | YURONG TAN | 05/08/2020 | 20_82 | | | | RIC-HSL-DRG-20-UD-140-205 | | C | |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM | | | DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | DESIGN | ANTHONY PAPAS | 05/08/2020 | | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | | | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- PLANTING MIX BOUNDARY

TREE PLANTING

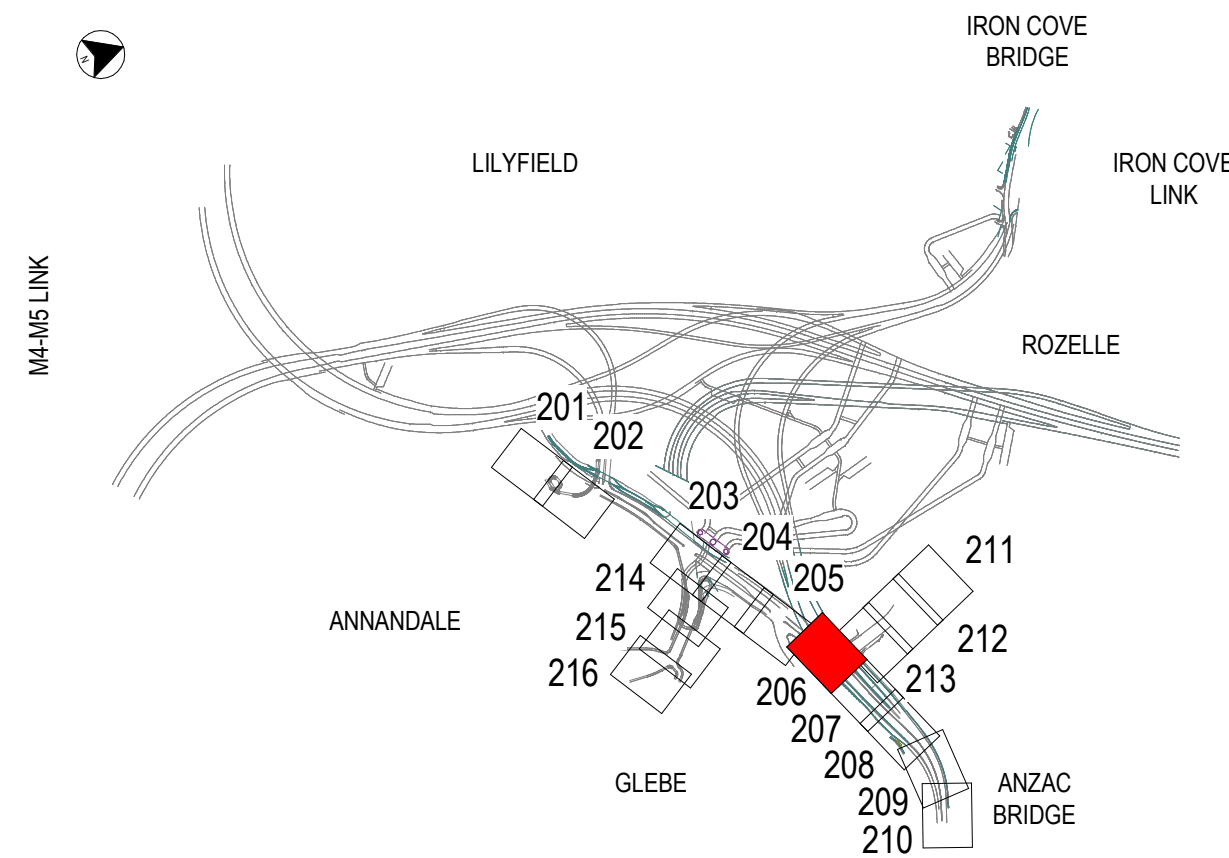
- PROPOSED TREE - INDIVIDUAL. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
XX-XXL
POT SIZE
SPECIES CODE
- PROPOSED TREES - CLUSTERS. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES
- EXISTING TREES TO BE RETAINED. SUBJECT TO ARBORICULTURE ASSESSMENT. TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

PL-01-5 MASS PLANTING TAG

- PLANTING BED NUMBER
- PLANTING MIX NUMBER
- PLANTING MIX TYPE

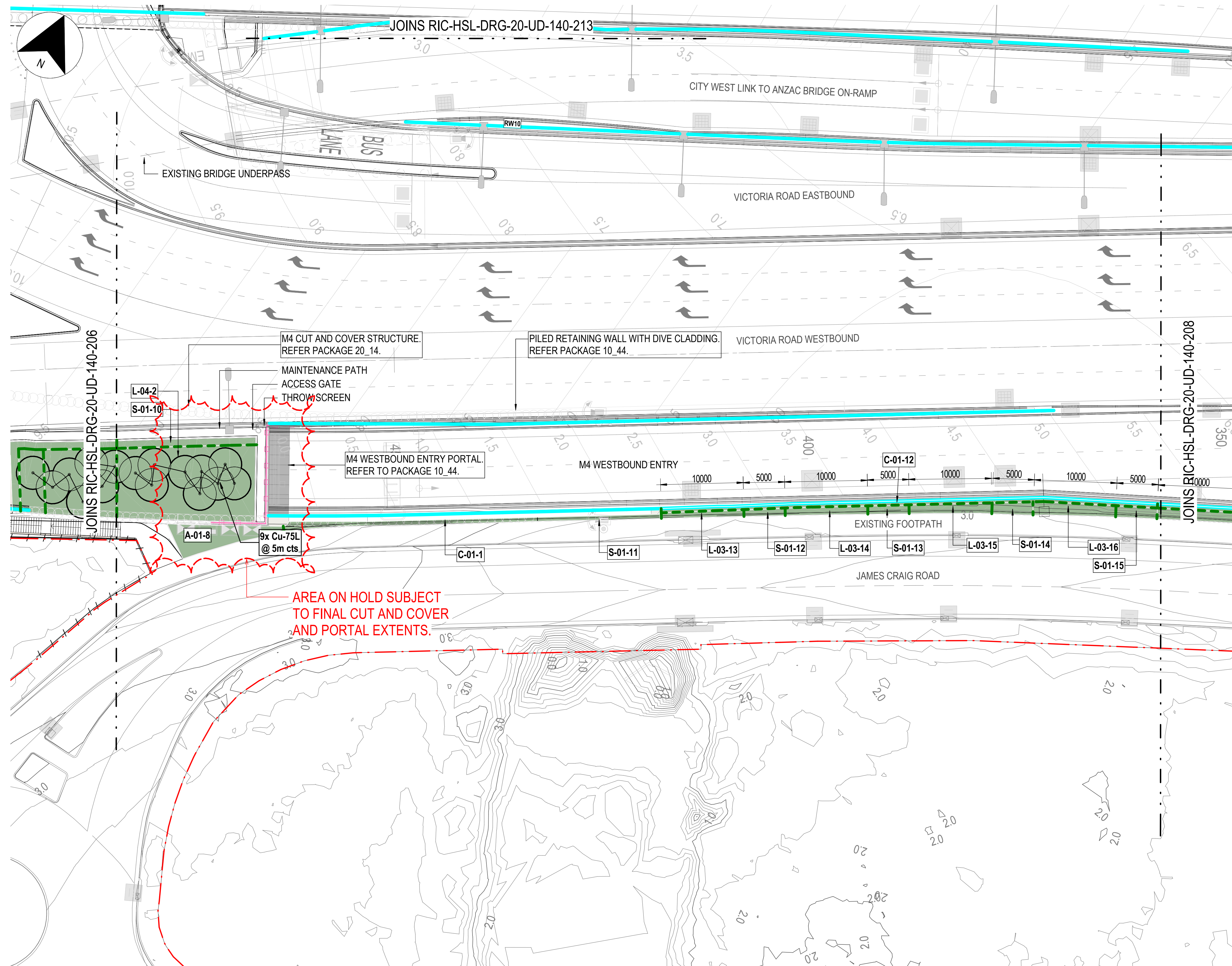
NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



NOT FOR CONSTRUCTION

| | | | | | | | | | | | | | | | | | | | |
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| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING | | | | | CLIENT | | TITLE | NAME | DATE | | | | | |
| A1 | 28/08/2019 | NOT ISSUED | - | MGA ZONE 56 | | | | | | <div>Transport Roads & Maritime Services</div> | | DRAWN | YURONG TAN | 05/08/2020 | | | | | |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM | | | | | | | | DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | | | | | | DESIGN | ANTHONY PAPAS | 05/08/2020 | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | <div>WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN PLANTING PLAN</div> | | | | | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| SHEET 6 | | | | | | | | | | PACKAGE No. | JCJV DOCUMENT NAME | REV | | | | | | | |
| | | | | | | | | | | 20_82 | RIC-HSL-DRG-20-UD-140-206 | C | | | | | | | |

A1



- LEGEND**

BOUNDARY

 - CADASTRAL BOUNDARY
 - PROJECT BOUNDARY
 - TEMPORARY WORKS BOUNDARY
 - EXISTING FENCE
 - PROPOSED FENCE

EXISTING FEATURES

 - CONTOURS (1m INTERVAL)

REVEGETATION AREAS

 - TU-01 - TURF AREAS
 - PLANTING AREAS
 - EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
 - PLANTING MIX BOUNDARY

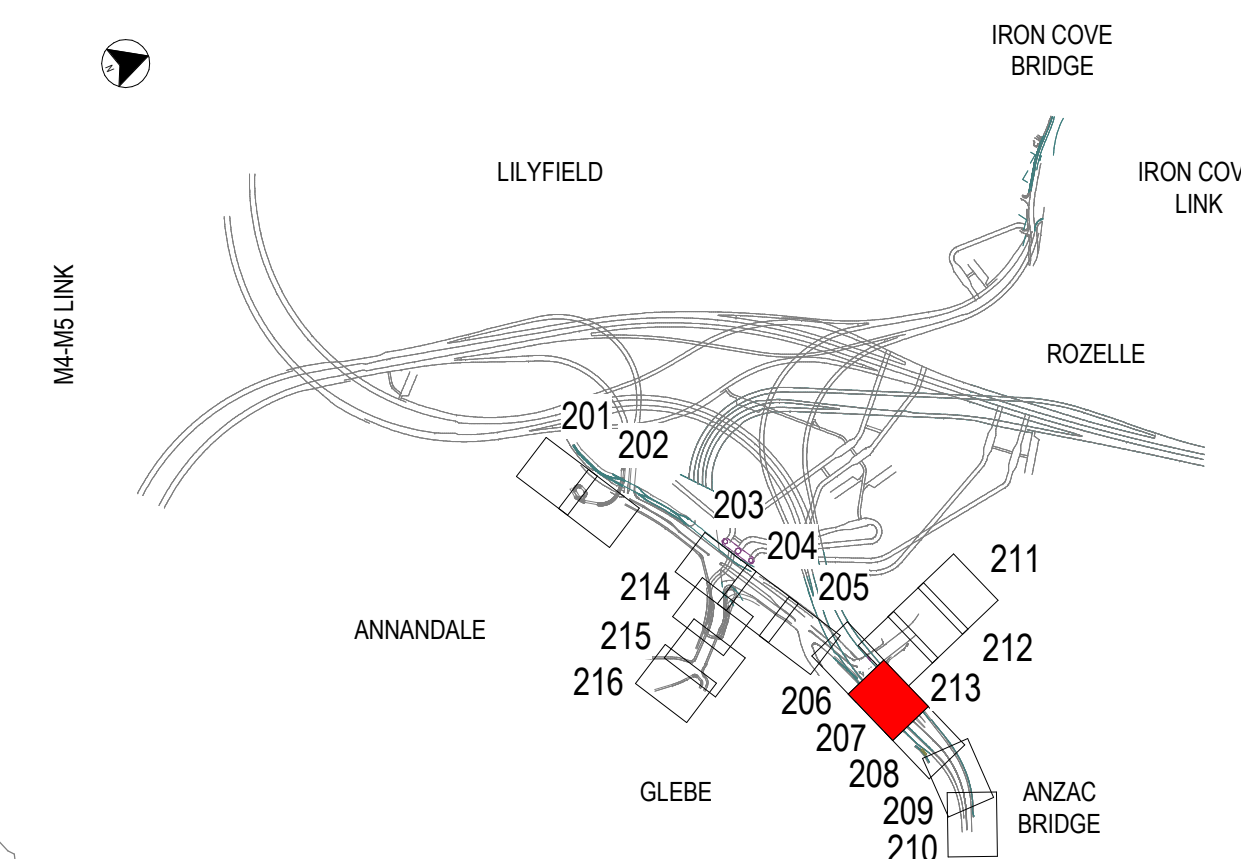
TREE PLANTING

 - PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
 - XX-XXL
POT SIZE
SPECIES CODE
 - PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
 - 3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES
 - EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT.
TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

 - PL-01-5
PLANTING BED NUMBER
PLANTING MIX NUMBER
PLANTING MIX TYPE
 - MASS PLANTING TAG

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

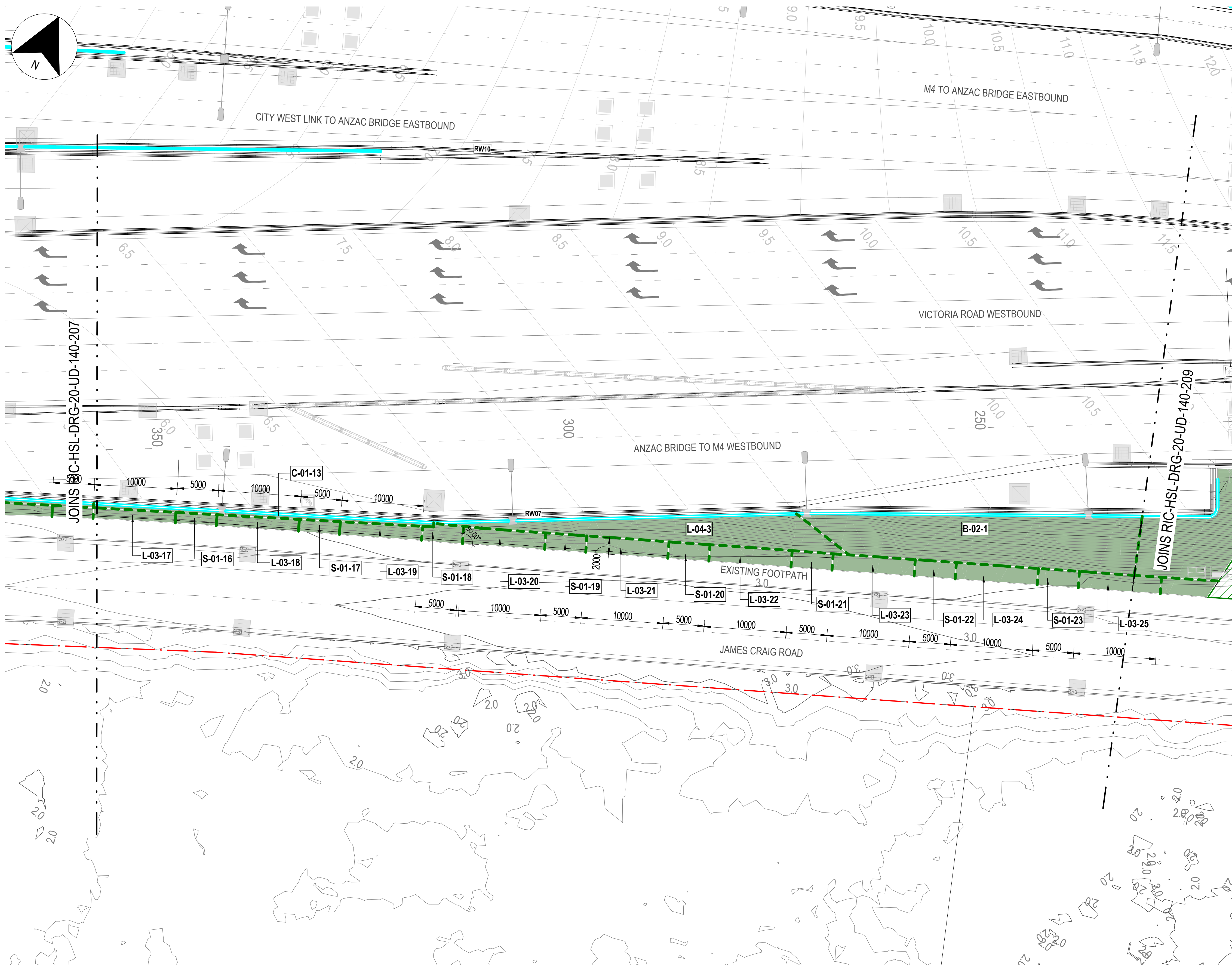


NOT FOR CONSTRUCTION

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|------------|--|--|--|--|--|--|--|--|--|---|--|--|--|---------|--|----------------------|--|---|--|----------|--|
| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | PLOT DATE / TIME 4/08/2020 3:54:35 PM | | PLOT BY YURONG TAN | | <div><div>WestConnex</div><div>Rozelle Interchange</div></div> <div><div>JOHN HOLLAND</div><div>ARCADIS</div><div>HASSELL</div></div> <div><div>CPB CONTRACTORS</div><div>WSP</div><div>JACOBSON</div><div>willow</div><div>PJM</div></div> <div>WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN PLANTING PLAN</div> | | | | SHEET 7 | | PACKAGE No. 20_82 | | JCJV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-207 | | REV C | |
| REV | | DATE | | APPROVAL | | REVISION DESCRIPTION | | CO-ORDINATE SYSTEM | | CLIENT | | | | SCALES ON A1 SIZE DRAWING | | | | | | | | | |
| A1 | | 28/08/2019 | | - | | NOT ISSUED | | MGA ZONE 56 | | <div><div>NSW GOVERNMENT</div><div>Transport Roads & Maritime Services</div></div> <div><div>02500</div><div>1250</div><div>2500</div><div>5000</div><div>7500</div><div>10000</div><div>12500mm</div></div> <div><div>(1:250 AT A1)</div></div> | | | | <div><div>0</div><div>2500</div><div>5000</div><div>7500</div><div>10000</div><div>12500mm</div></div> <div><div>(1:250 AT A1)</div></div> | | | | | | | | | |
| A | | 11/09/2019 | | - | | NOT ISSUED | | HEIGHT DATUM | | | | | | | | | | | | | | | |
| B1 | | 08/04/2020 | | MG | | ISSUED FOR INTERNAL REVIEW | | AHD | | | | | | | | | | | | | | | |
| B | | 29/04/2020 | | MG | | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | | | | | | | | | | | | | | | | | |
| C1 | | 20/07/2020 | | MG | | ISSUED FOR INTERNAL REVIEW | | DESIGN PHASE | | | | | | | | | | | | | | | |
| C | | 05/08/2020 | | MG | | ISSUED FOR FINAL DESIGN DOCUMENTATION | | FDD | | | | | | FINAL DESIGN DOCUMENTATION | | | | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- PLANTING MIX BOUNDARY

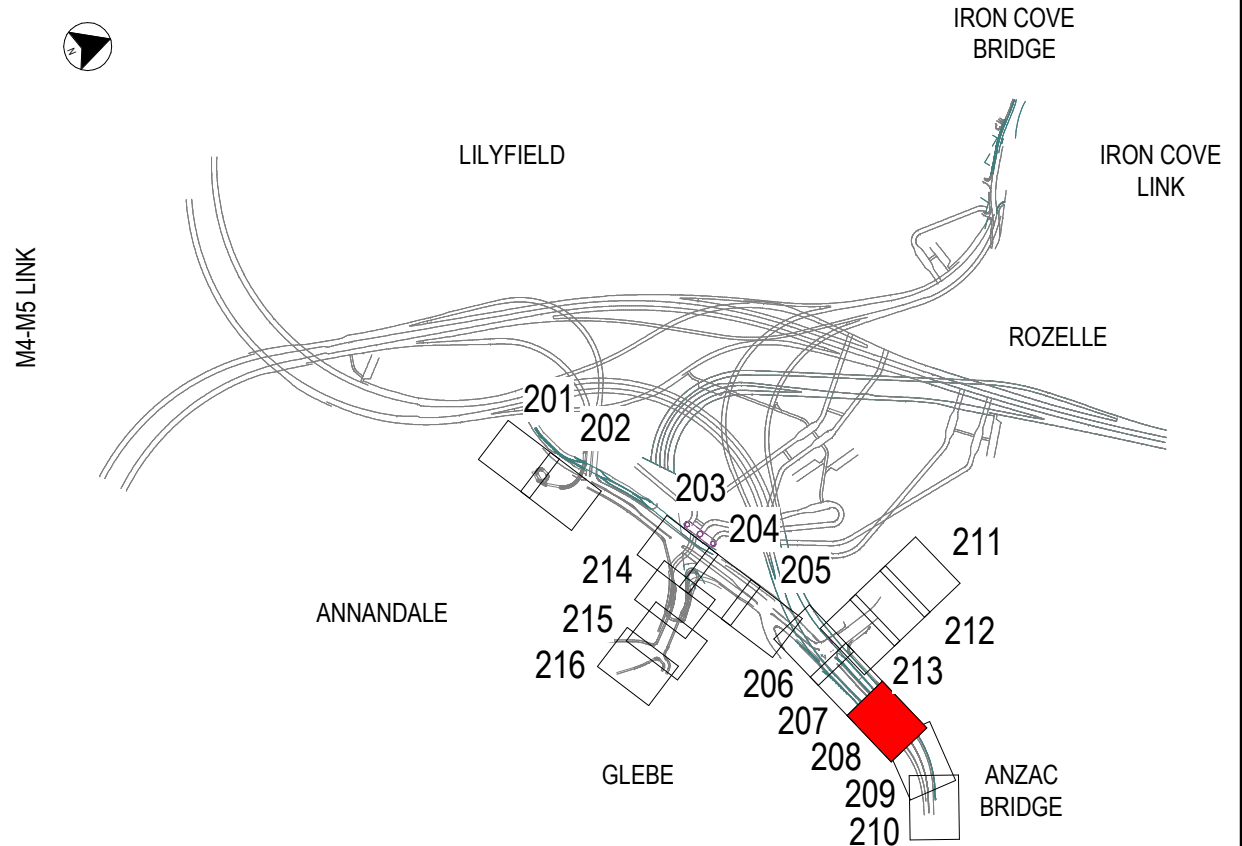
TREE PLANTING

- PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
XX-XXL
POT SIZE
SPECIES CODE
- PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES
- EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT.
TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

- MASS PLANTING TAG
PL-01-5
PLANTING BED NUMBER
PLANTING MIX NUMBER
PLANTING MIX TYPE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



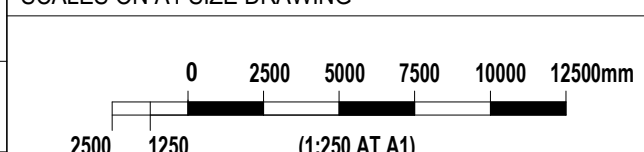
NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
|-----|------------|--|----------|----------------------------|
| A1 | 26/08/2019 | NOT ISSUED | | MGA ZONE 56 |
| A | 11/09/2019 | NOT ISSUED | | HEIGHT DATUM |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING



CLIENT



PLOT DATE / TIME
4/08/2020 3:54:59 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND
CONTRACTORS

ARCADIS
HASSSELL
willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
PLANTING PLAN

SHEET 8

PACKAGE No.

20_82

JCV DOCUMENT NAME

RIC-HSL-DRG-20-UD-140-208

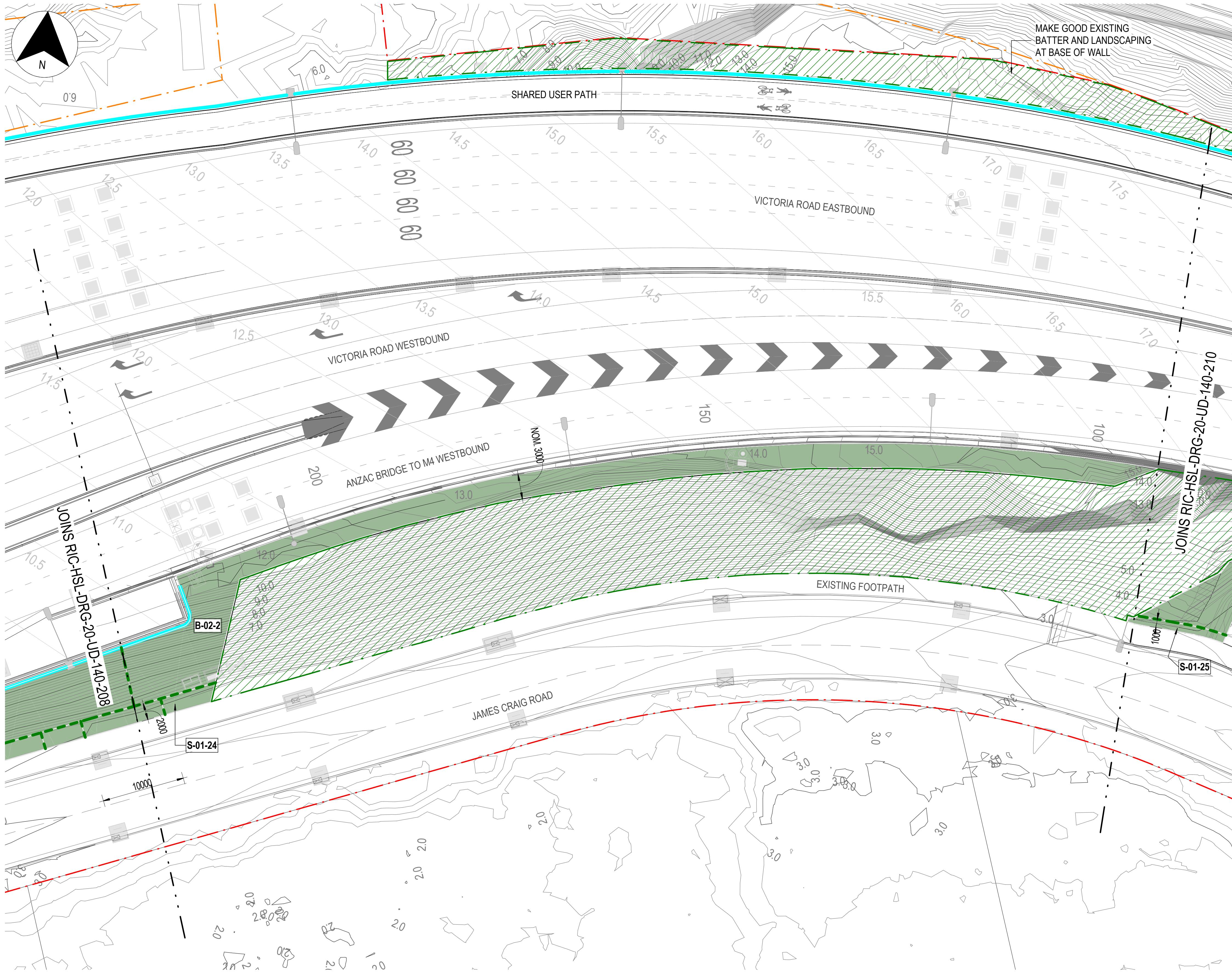
REV

C

A1

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- PLANTING MIX BOUNDARY

TREE PLANTING

- PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
XX-XXL
POT SIZE
SPECIES CODE
- PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES
- EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT.
TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

PL-01-5
MASS PLANTING TAG
PLANTING BED NUMBER
PLANTING MIX NUMBER
PLANTING MIX TYPE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

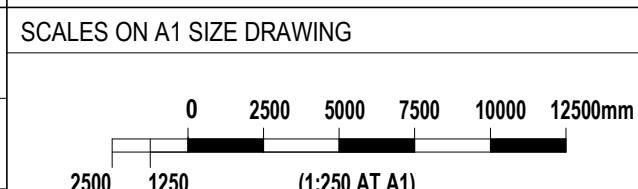
NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION |
|-----|------------|--|
| A1 | 26/08/2019 | NOT ISSUED |
| A | 11/09/2019 | NOT ISSUED |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| - | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt



PLOT DATE / TIME
4/08/2020 3:55:26 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND
CPB CONTRACTORS

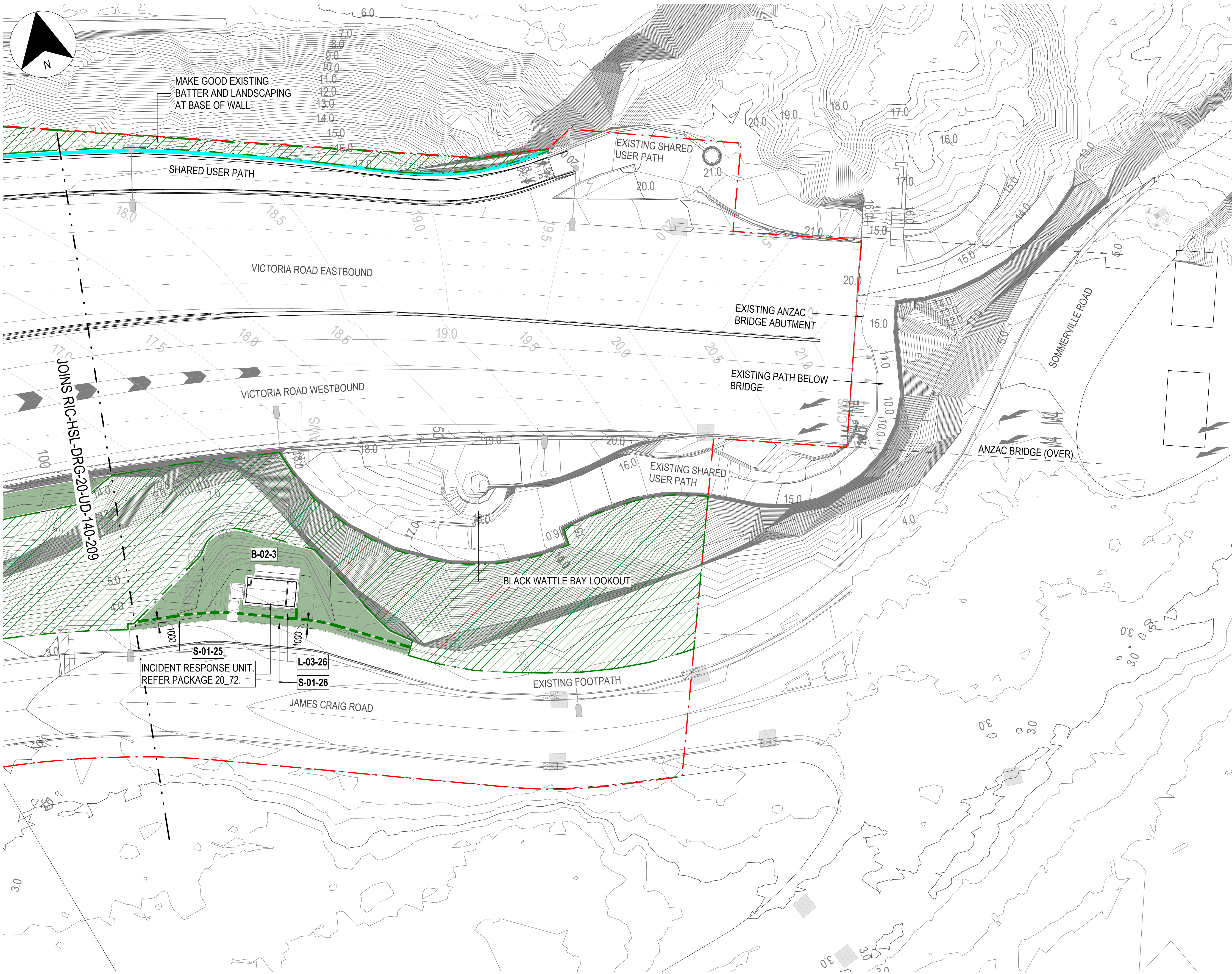
ARCADIS
HASSELL
willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
PLANTING PLAN

| | | |
|---------|---------------------------|-----|
| SHEET 9 | JCVJ DOCUMENT NAME | REV |
| 20_82 | RIC-HSL-DRG-20-UD-140-209 | C |

A1

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED
80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- PLANTING MIX BOUNDARY

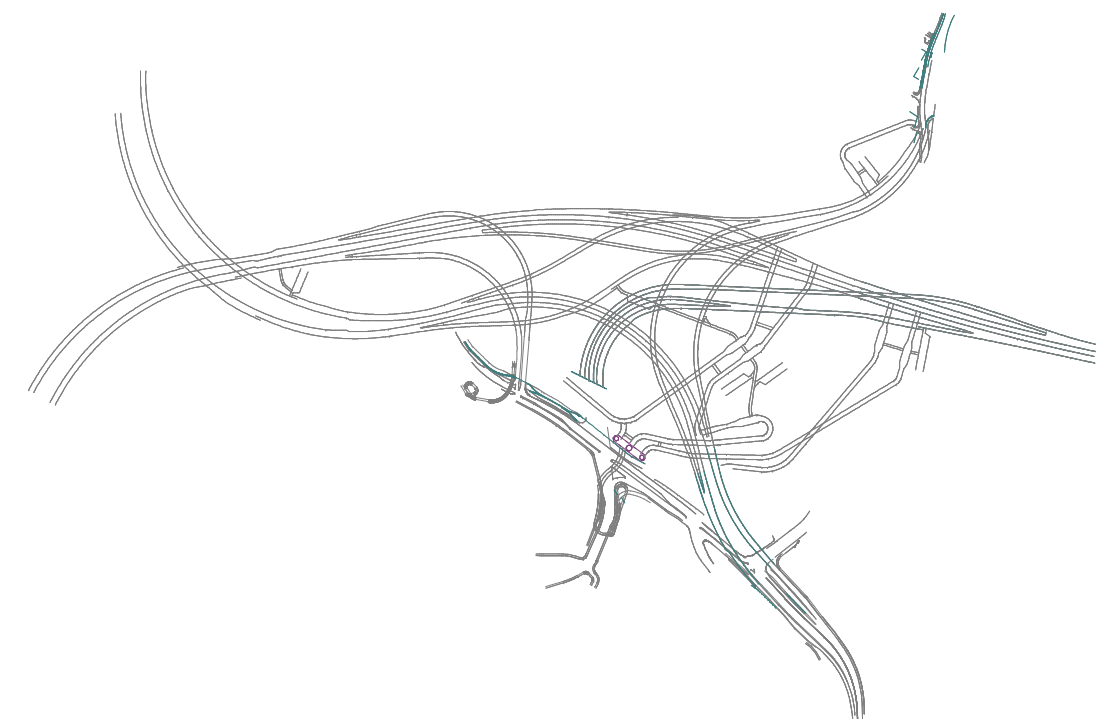
TREE PLANTING

- PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
XX-XXL
POT SIZE
SPECIES CODE
- PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES
- EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT.
TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

- PL-01-5
MASS PLANTING TAG
PLANTING BED NUMBER
PLANTING MIX NUMBER
PLANTING MIX TYPE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



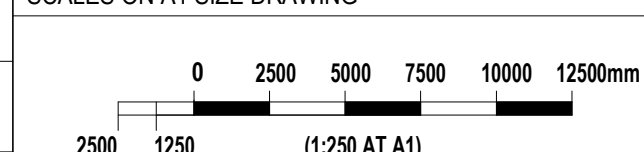
NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
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| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM MGA ZONE 56 |
|-----|------|----------------------|----------|---|
| | | | | HEIGHT DATUM AHD |
| | | | | DESIGN PHASE FDD FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING



CLIENT
**Transport
Roads & Maritime
Services**

PLOT DATE / TIME
4/08/2020 3:55:47 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND

ARCADIS

CPB CONTRACTORS

WSP

HASSELL

willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
PLANTING PLAN

SHEET 10

PACKAGE No.
20_82

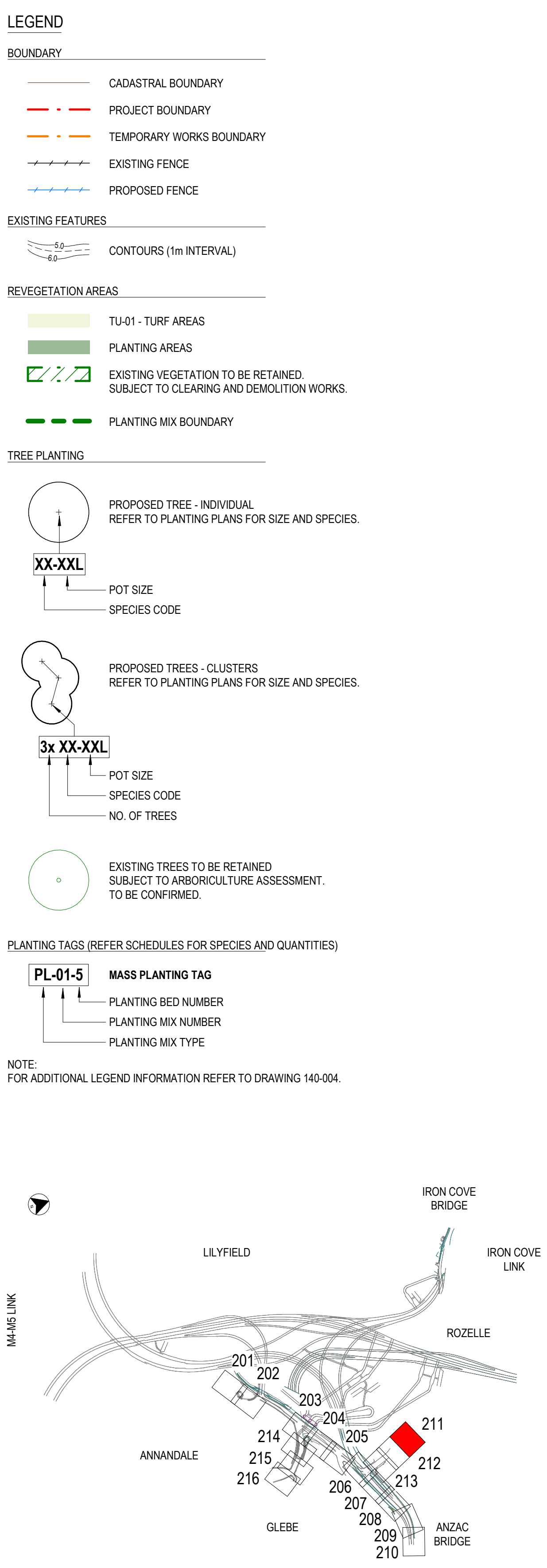
JCV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-210

A1

REV
C

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

0 10 20 30 40 50 60 70 80mm ON A1 SIZE ORIGINAL



NOT FOR CONSTRUCTION

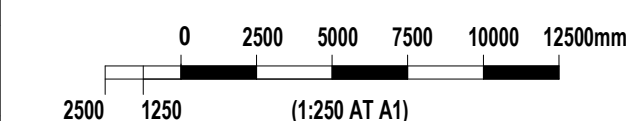
DRAWING FILE LOCATION / NAME
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| REV | DATE | REVISION DESCRIPTION | APPROVAL |
|-----|------------|--|----------|
| A1 | 26/08/2019 | NOT ISSUED | - |
| A | 11/09/2019 | NOT ISSUED | - |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG |

| CO-ORDINATE SYSTEM |
|----------------------------|
| MGA ZONE 56 |
| HEIGHT DATUM |
| AHD |
| DESIGN PHASE |
| FDD |
| FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING



CLIENT



Transport
Roads & Maritime
Services

PLOT DATE / TIME
4/08/2020 3:56:07 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

wsp

HASSELL

willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
PLANTING PLAN

SHEET 11

PACKAGE No.

20_82

JCV DOCUMENT NAME

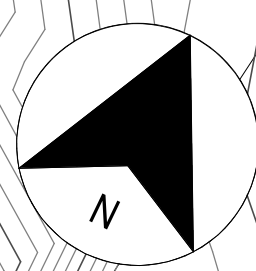
RIC-HSL-DRG-20-UD-140-211

REV

C

A1

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80mm ON A1 SIZE ORIGINAL |
|---|----|----|----|----|----|----|----|--------------------------|
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





BOUNDARY

- ### EXISTING FEATURES

-
- 5.0
6.0
- CONTOURS (1m INTERVAL)

REVEGETATION AREAS

-  TU-01 - TURF AREAS
 PLANTING AREAS
 EXISTING VEGETATION TO BE RETAINED.
 SUBJECT TO CLEARING AND DEMOLITION WORKS.
 PLANTING MIX BOUNDARY

TREE PLANTING

-
- PROPOSED TREE - INDIVIDUAL.
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- POT SIZE
- SPECIES CODE

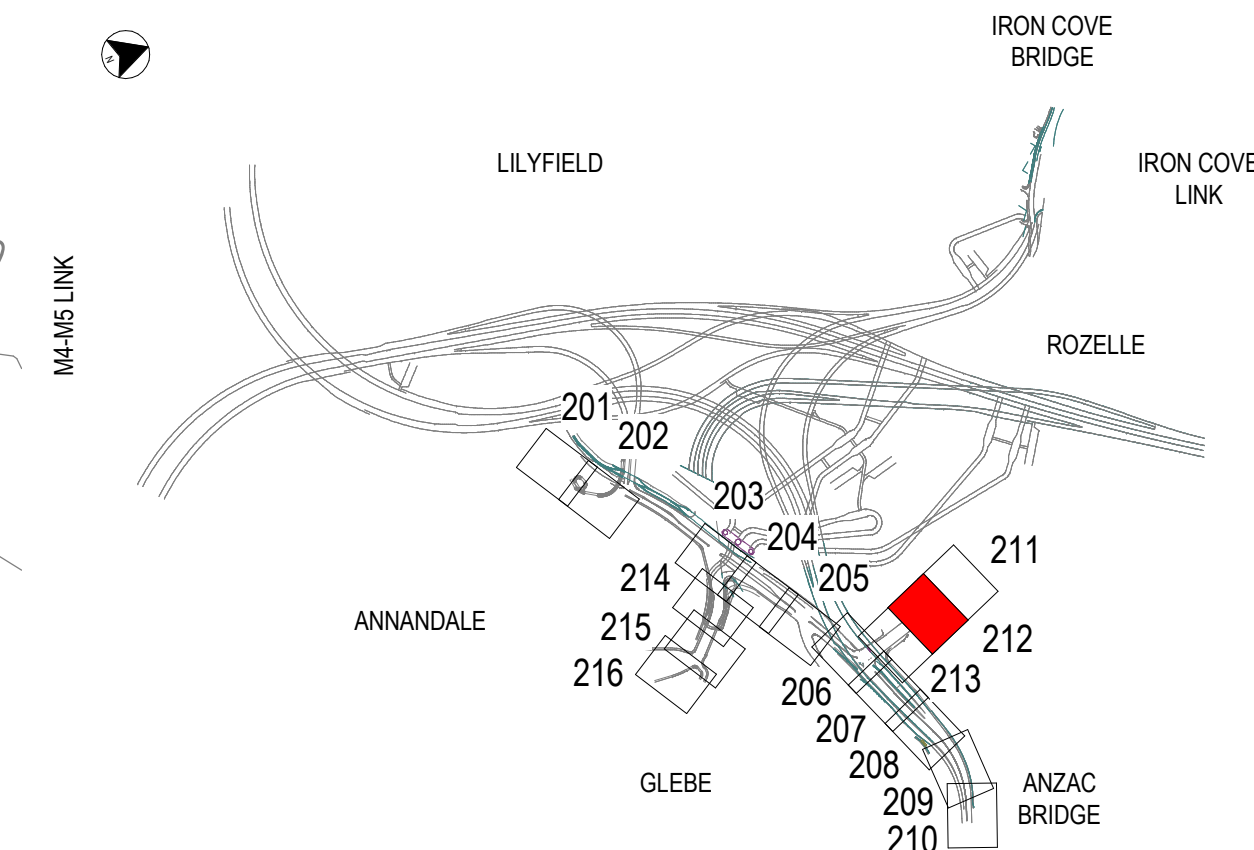
-
- PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- 3x XX-XXL
- POT SIZE
SPECIES CODE
NO. OF TREES

- EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT.
TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)


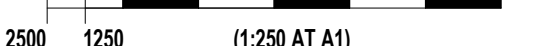
- PL-01-5** **MASS PLANTING TAG**
- PLANTING BED NUMBER
- PLANTING MIX NUMBER
- PLANTING MIX TYPE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



A1

| DRAWING FILE LOCATION / NAME | | | | |
|---|------------|--|----------|----------------------------|
| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
| A1 | 28/08/2019 | NOT ISSUED | - | MGA ZONE 56 |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION |

| | | |
|--|--|---|
| DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-U0-000 LOCAL ROADS.rvt | | CLIENT  NSW GOVERNMENT |
| SCALES ON A1 SIZE DRAWING  | | |

| | |
|--------|---|
| CLIENT |  <div> Transport Roads & Maritime Services </div> |
|--------|---|

| PLOT DATE / TIME | | PLOT BY |
|----------------------|----------------|------------|
| 4/08/2020 3:56:36 PM | | YURONG TAN |
| TITLE | NAME | DATE |
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMAI | 05/08/2020 |

WestConnex
Rozelle Interchange

**JOHN
HOLLAND**

CPB
CONTRACTORS

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
PLANTING PLAN

| | | |
|-------------|---------------------------|-----|
| SHEET 12 | | |
| PACKAGE No. | JCV DOCUMENT NAME | REV |
| 20 82 | RIC-HSL-DRG-20-UD-140-212 | C |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

0 10 20 30 40 50 60 70 80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- PLANTING MIX BOUNDARY

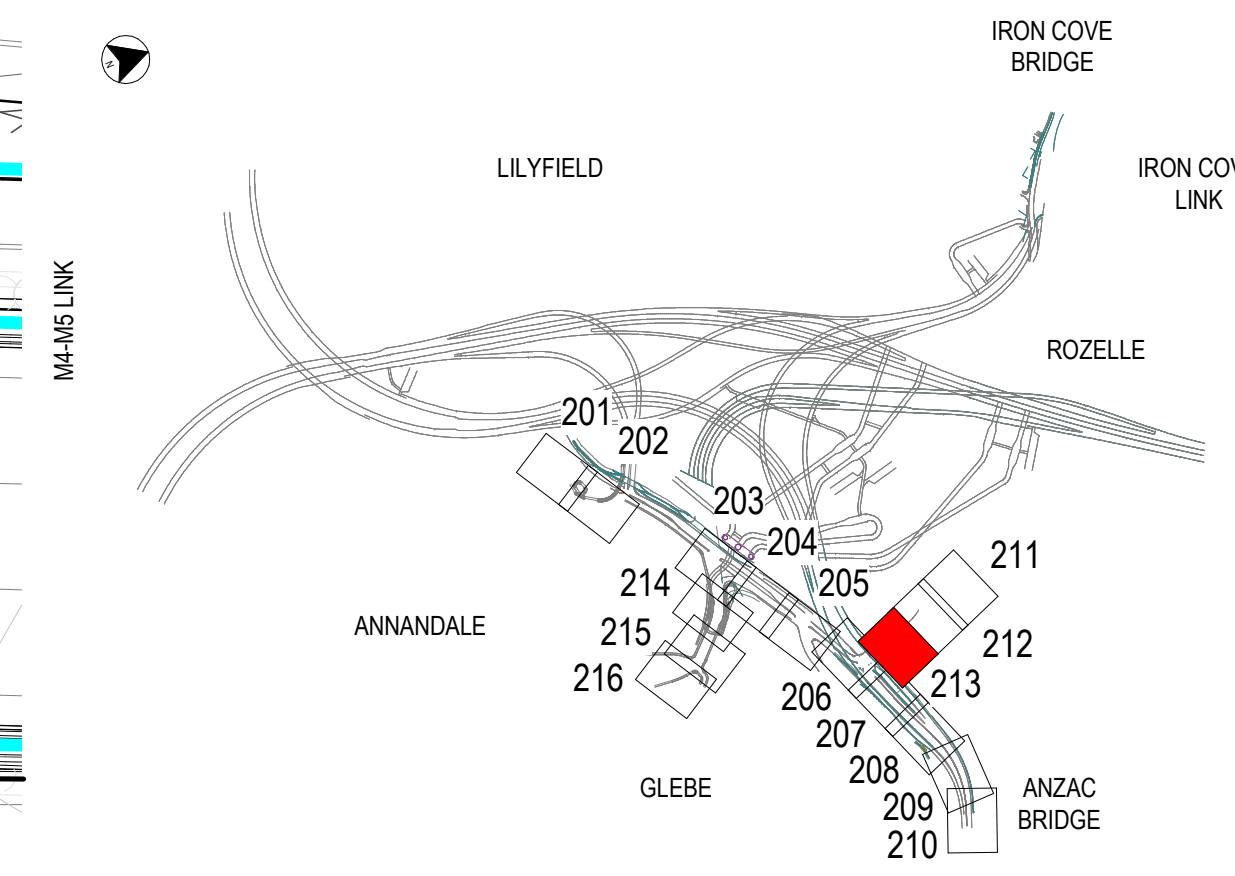
TREE PLANTING

- PROPOSED TREE - INDIVIDUAL. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
XX-XXL
POT SIZE
SPECIES CODE
- PROPOSED TREES - CLUSTERS. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES
- EXISTING TREES TO BE RETAINED. SUBJECT TO ARBORICULTURE ASSESSMENT. TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

- PL-01-5** **MASS PLANTING TAG**
PLANTING BED NUMBER
PLANTING MIX NUMBER
PLANTING MIX TYPE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



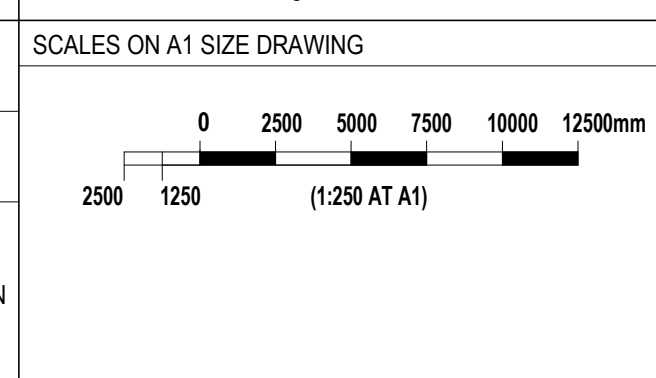
NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION |
|-----|------------|--|
| A1 | 26/08/2019 | NOT ISSUED |
| A | 11/09/2019 | NOT ISSUED |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| - | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt



CLIENT

NSW GOVERNMENT

Transport Roads & Maritime Services

PLOT DATE / TIME
4/08/2020 3:57:14 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND

ARCADIS

HASSELL

WILLIAM JACOBS

willow

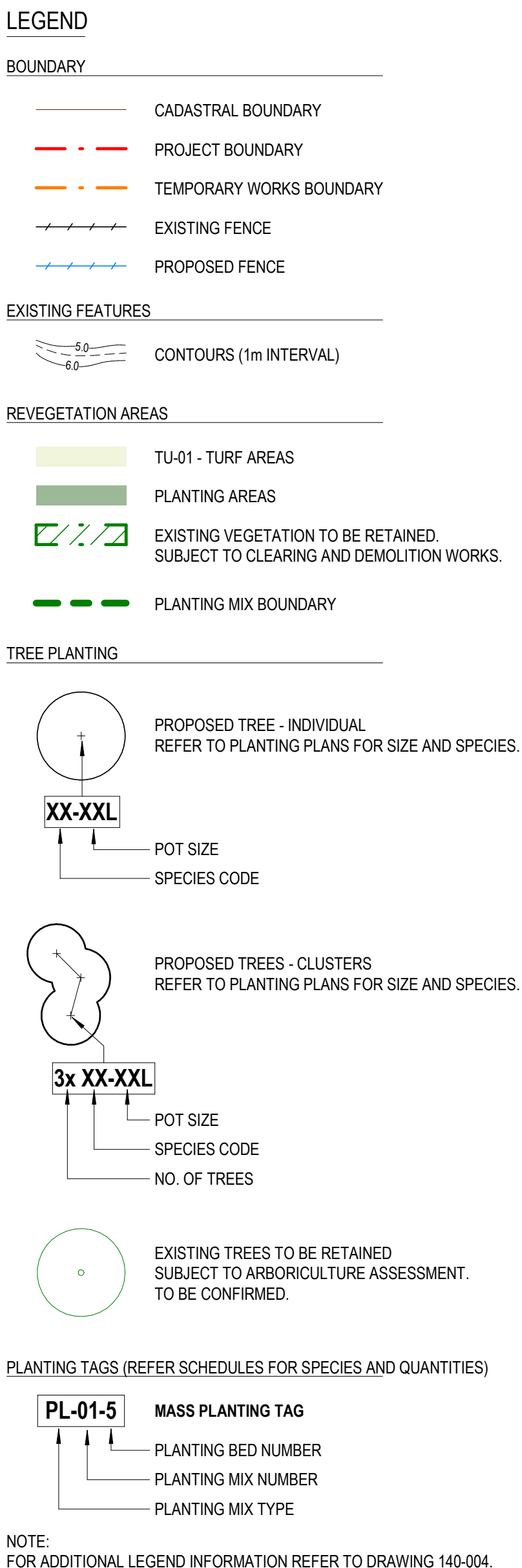
CONTRACTORS

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
PLANTING PLAN

| | | |
|-----------------------------|----------------------------------|----------|
| SHEET 13 | JCV DOCUMENT NAME | REV |
| PACKAGE No. 20_82 | RIC-HSL-DRG-20-UD-140-213 | C |

A1

0 10 20 30 40 50 60 70 80mm ON A1 SIZE ORIGINAL



| | | | | | | | | | | | | | | | | | | |
|---|------------|--|----------|----------------------------|--|--------------|----------------|------------|--|--|--|-----------------------|--|---|--|--|--|----|
| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | PLOT DATE / TIME 4/08/2020 3:57:45 PM | | PLOT BY YURONG TAN | | <div>WestConnex Rozelle Interchange</div> <div>JOHN HOLLAND</div> <div>ARCADIS</div> <div>HASSELL</div> <div>MARBLE HILL JACOBS ASSOCIATES</div> <div>willow</div> <div>PSM</div> | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN PLANTING PLAN | | A1 |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | CLIENT | TITLE | NAME | DATE | | | | | | | | | | |
| A1 | 28/08/2019 | NOT ISSUED | - | MGA ZONE 56 | <div>NSW GOVERNMENT</div> <div>Transport Roads & Maritime Services</div> | DRAWN | YURONG TAN | 05/08/2020 | | | | | | | | | | |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM | | DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | DESIGN | ANTHONY PAPAS | 05/08/2020 | | | | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | | | | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- PLANTING MIX BOUNDARY

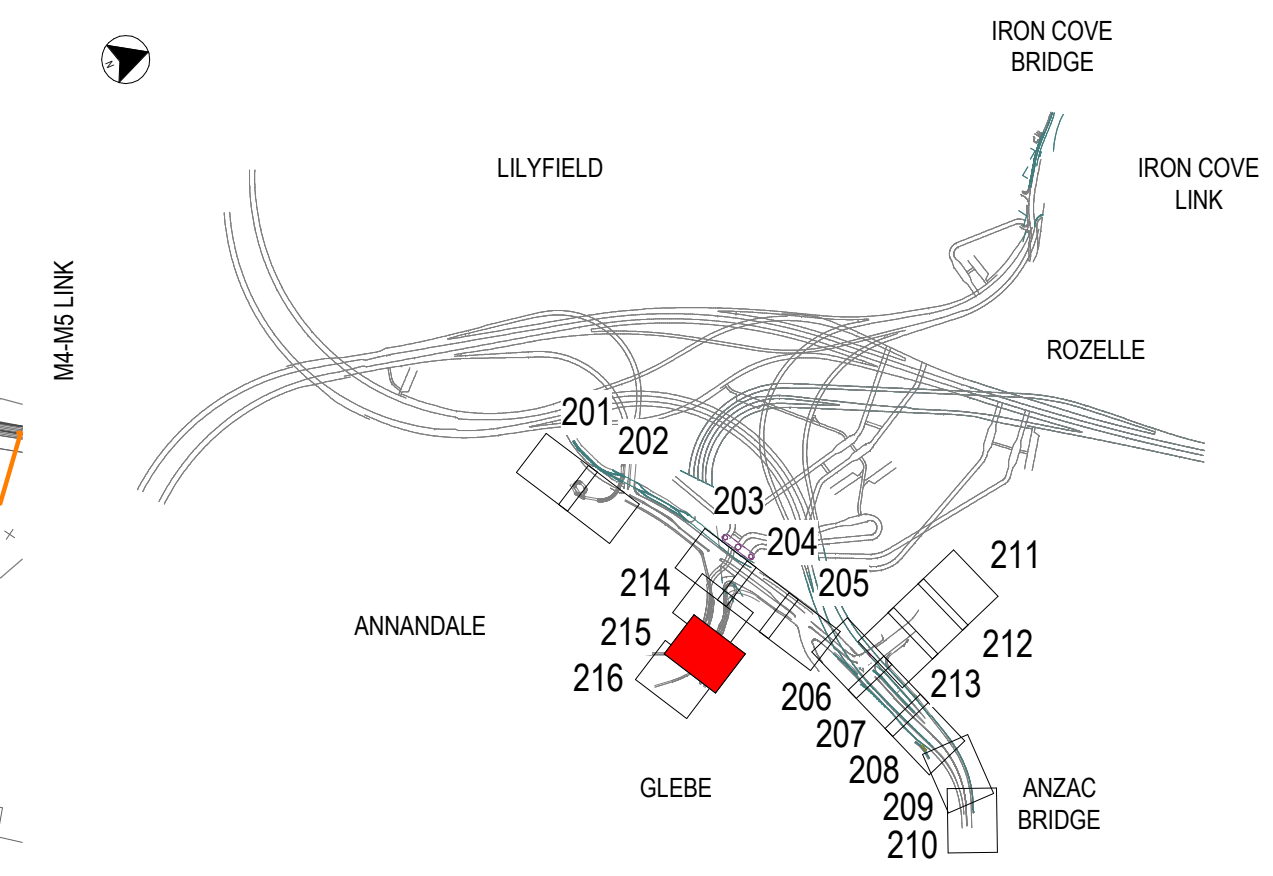
TREE PLANTING

- PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
XX-XXL
POT SIZE
SPECIES CODE
- PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES
- EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT.
TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

- PL-01-5
MASS PLANTING TAG
PLANTING BED NUMBER
PLANTING MIX NUMBER
PLANTING MIX TYPE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

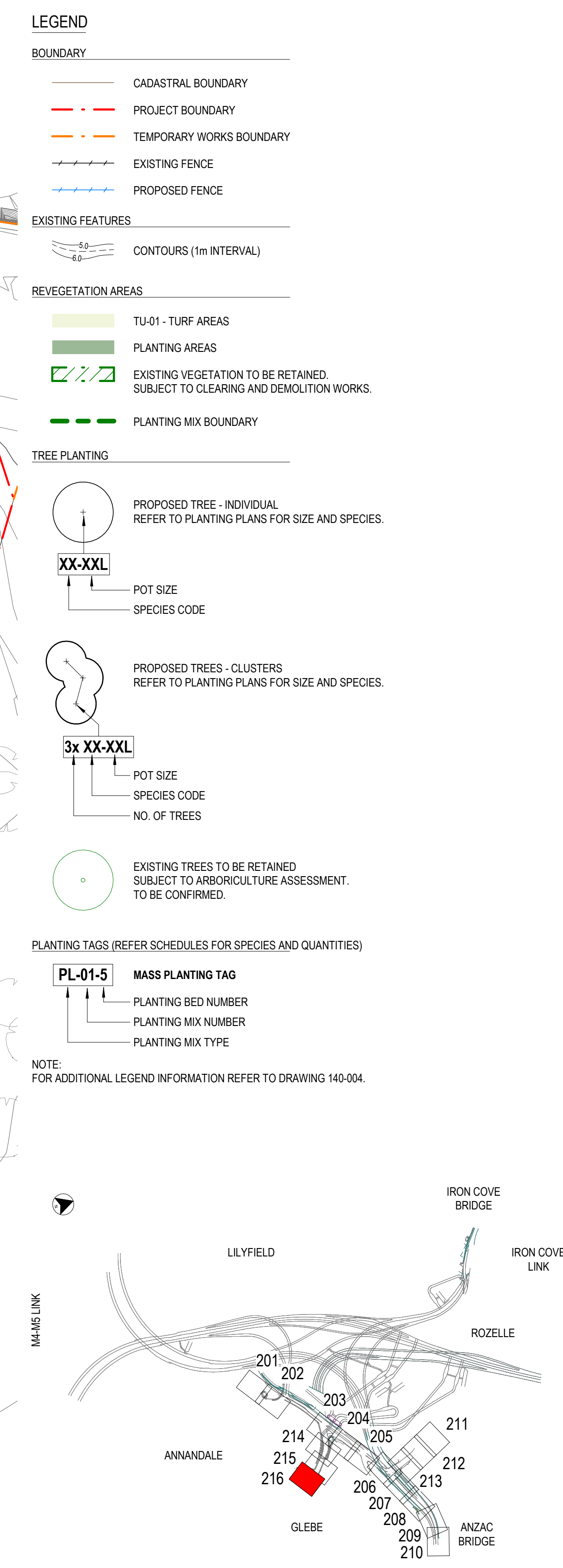
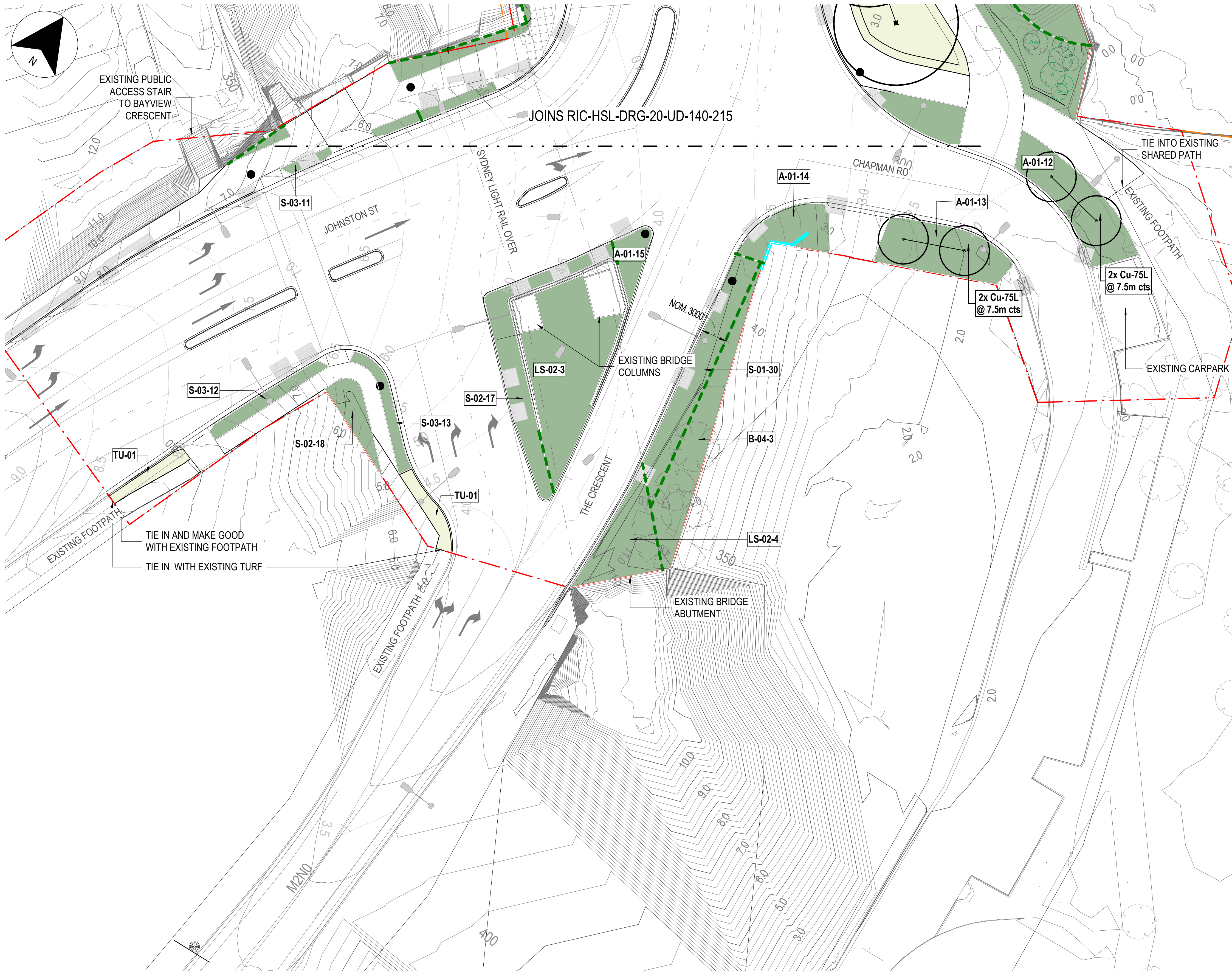


NOT FOR CONSTRUCTION

| | | | | | | | | | | | | | | | | | |
|---|--|------------|--|--|--|----------|--|--|--|--|--|---|--|---|--|--|--|
| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | PLOT DATE / TIME 4/08/2020 3:58:08 PM | | PLOT BY YURONG TAN | | <div>WestConnex Rozelle Interchange</div> <div><div>JOHN HOLLAND</div><div>CPB CONTRACTORS</div><div>ARCADIS</div><div>HASSELL</div><div>WILLIAM JACOBS ASSOCIATES</div><div>willow</div><div>PGM</div></div> | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN PLANTING PLAN | | A1 | |
| REV | | DATE | | REVISION DESCRIPTION | | APPROVAL | | CO-ORDINATE SYSTEM | | | | | | | | | |
| A1 | | 28/08/2019 | | NOT ISSUED | | - | | MGA ZONE 56 | | <div>SCALES ON A1 SIZE DRAWING</div> <div><div>02500500075001000012500mm</div><div>25001250(1:250 AT A1)</div></div> | | <div>CLIENT</div> <div><div>NSW GOVERNMENT</div><div>Transport Roads & Maritime Services</div></div> | | <div>TITLE</div> <div>NAME</div> <div>DATE</div> <div>DRAWN</div> <div>YURONG TAN</div> <div>05/08/2020</div> <div>DRG CHECK</div> <div>BEN CHARLTON</div> <div>05/08/2020</div> <div>DESIGN</div> <div>ANTHONY PAPAS</div> <div>05/08/2020</div> <div>DESIGN CHECK</div> <div>ANTHONY PAPAS</div> <div>05/08/2020</div> <div>DESIGN MNGR</div> <div>MALCOLM GRAHAM</div> <div>05/08/2020</div> <div>PROJECT MNGR</div> <div>JOSHUA SMALL</div> <div>05/08/2020</div> | | <div>SHEET 15</div> <div>PACKAGE No.</div> <div>20_82</div> <div>JCJV DOCUMENT NAME</div> <div>RIC-HSL-DRG-20-UD-140-215</div> <div>REV</div> <div>C</div> | |
| A | | 11/09/2019 | | NOT ISSUED | | - | | HEIGHT DATUM | | | | | | | | | |
| B1 | | 08/04/2020 | | ISSUED FOR INTERNAL REVIEW | | MG | | AHD | | | | | | | | | |
| B | | 29/04/2020 | | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | | MG | | DESIGN PHASE | | | | | | | | | |
| C1 | | 20/07/2020 | | ISSUED FOR INTERNAL REVIEW | | MG | | FDD | | | | | | | | | |
| C | | 05/08/2020 | | ISSUED FOR FINAL DESIGN DOCUMENTATION | | MG | | FINAL DESIGN DOCUMENTATION | | | | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

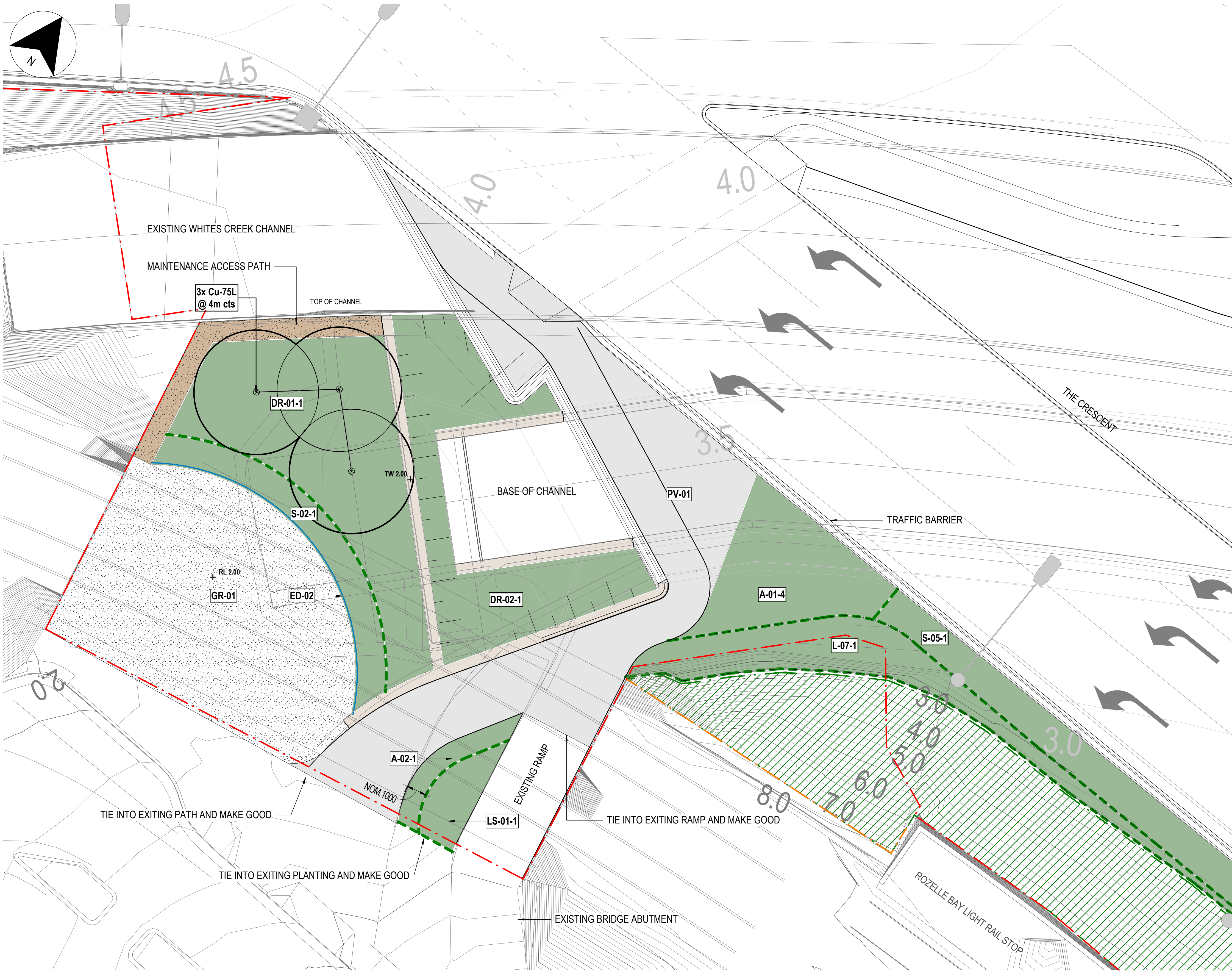
80mm ON A1 SIZE ORIGINAL



| | | | | | | | | | | | | | | | | |
|---|------------|--|----------|--|---|--|----------------|--|--------------|-----------------------|---------------------------|--|--|--|--|----|
| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | PLOT DATE / TIME 4/08/2020 3:58:30 PM | | PLOT BY YURONG TAN | | <div><div>WestConnex</div><div>Rozelle Interchange</div></div> <div><div>JOHN HOLLAND</div><div>ARCADIS</div><div>HASSELL</div></div> <div><div>CPB CONTRACTORS</div><div>wsp</div><div>willow</div></div> <div><div>MACMILLAN JACOBS ASSOCIATES</div><div>PEN</div></div> | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN PLANTING PLAN | | A1 |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING | CLIENT | TITLE | NAME | DATE | PACKAGE No. | JC/IV DOCUMENT NAME | | | REV | | |
| A1 | 28/08/2019 | NOT ISSUED | - | MGA ZONE 56 |  |  Transport Roads & Maritime Services | DRAWN | YURONG TAN | 05/08/2020 | 20_82 | RIC-HSL-DRG-20-UD-140-216 | C | | | | |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM | | | | DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | DESIGN | ANTHONY PAPAS | 05/08/2020 | | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- FUTURE WHT OVERPASS
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

HARD FINISHES (REFER TO PACKAGE 20_83)

- PV-01 - STANDARD CONCRETE PATH
- GR-01 - GRAVEL
- WA-XX - LANDSCAPE WALLS
- ED-02 - STEEL EDGE

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.
- PLANTING MIX BOUNDARY
- CLIMBING MIX

TREE PLANTING

PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.

XX-XXL
POT SIZE
SPECIES CODE

PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.

3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES

EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT. TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

PL-01-5
MASS PLANTING TAG
PLANTING BED NUMBER
PLANTING MIX REFERENCE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

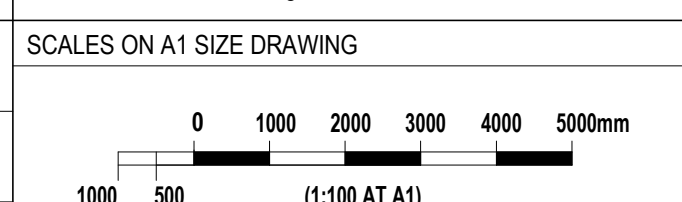
NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION |
|-----|------------|--|
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt



CLIENT

NSW GOVERNMENT

Transport Roads & Maritime Services

PLOT DATE / TIME
4/08/2020 3:58:49 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 24/04/2020 |
| DRG CHECK | BEN CHARLTON | 24/04/2020 |
| DESIGN | ANTHONY PAPAS | 24/04/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 24/04/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 24/04/2020 |
| PROJECT MNGR | JOSHUA SMALL | 24/04/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND

ARCADIS

HASSELL

CPB CONTRACTORS

WSP

willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
DETAIL PLAN

SHEET 1

PACKAGE No.
20_82

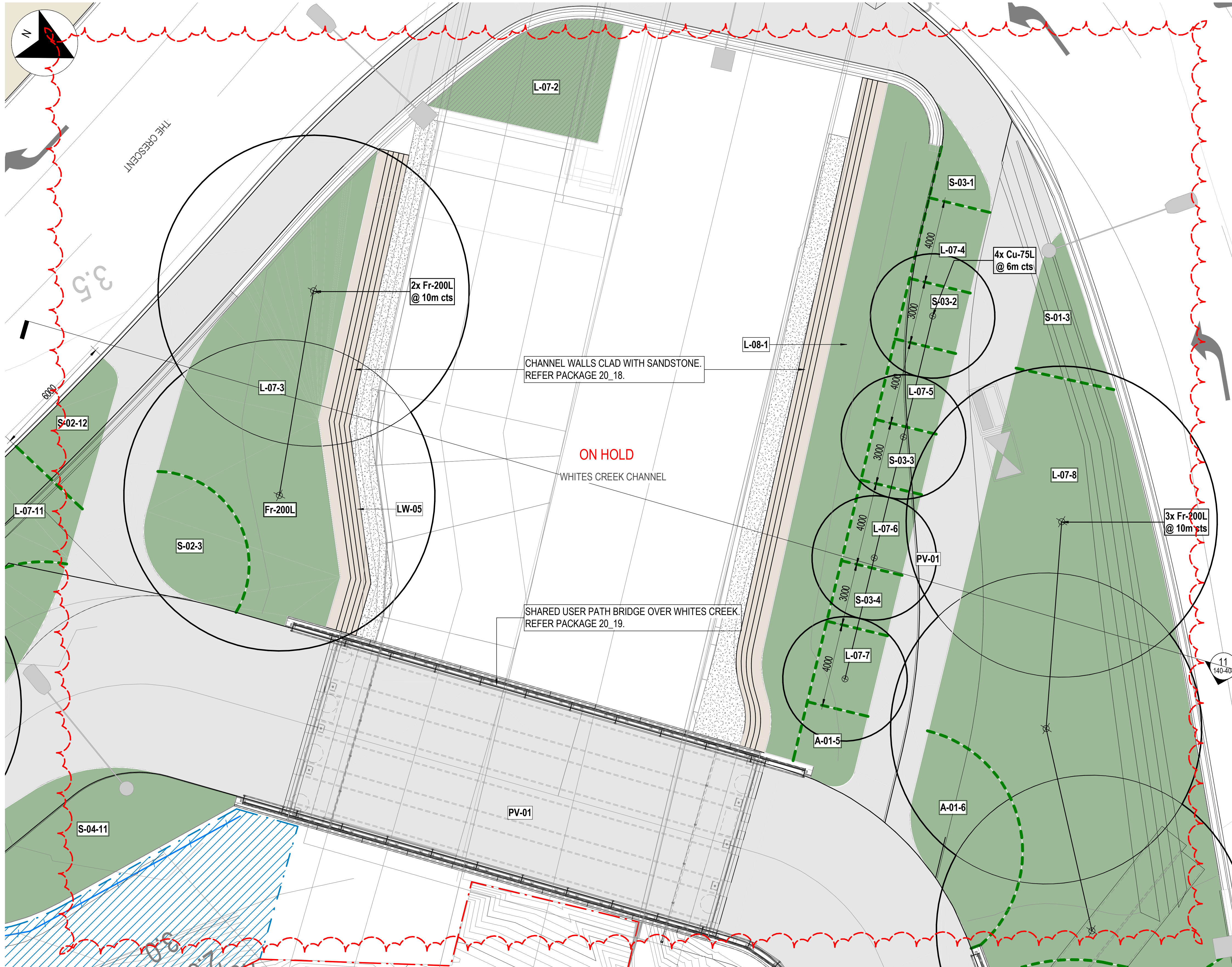
JCV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-301

A1

REV
C

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- FUTURE WHT OVERPASS
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

HARD FINISHES (REFER TO PACKAGE 20_83)

- PV-01 - STANDARD CONCRETE PATH
- GR-01 - GRAVEL
- WA-XX - LANDSCAPE WALLS
- ED-02 - STEEL EDGE

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.
- PLANTING MIX BOUNDARY
- CLIMBING MIX

TREE PLANTING

- PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- POT SIZE
SPECIES CODE
- PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- POT SIZE
SPECIES CODE
NO. OF TREES
- EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT.
TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

- MASS PLANTING TAG
- PLANTING BED NUMBER
- PLANTING MIX REFERENCE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

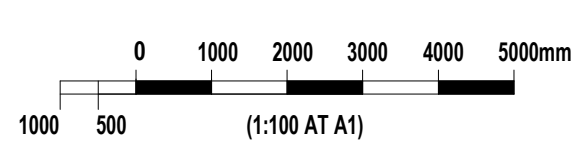
| REV | DATE | REVISION DESCRIPTION |
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| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL |
|----------|
| MG |
| MG |
| MG |
| MG |
| MG |

| CO-ORDINATE SYSTEM |
|----------------------------|
| MGA ZONE 56 |
| HEIGHT DATUM |
| AHD |
| DESIGN PHASE |
| FDD |
| FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING



CLIENT



Transport
Roads & Maritime
Services

PLOT DATE / TIME
4/08/2020 3:59:13 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 24/04/2020 |
| DRG CHECK | BEN CHARLTON | 24/04/2020 |
| DESIGN | ANTHONY PAPAS | 24/04/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 24/04/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 24/04/2020 |
| PROJECT MNGR | JOSHUA SMALL | 24/04/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

wsp

HASSELL

willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
DETAIL PLAN

SHEET 2

PACKAGE No.
20_82

JCV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-302

REV
C





A1

0 10 20 30 40 50 60 70 80mm ON A1 SIZE ORIGINAL



LEGEND






BOUNDARY

-  CADASTRAL BOUNDARY
 PROJECT BOUNDARY
 TEMPORARY WORKS BOUNDARY
 EXISTING FENCE
 PROPOSED FENCE
 PROPOSED THROWSCREEN

EXISTING FEATURES





-
- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)











- | | |
|---|-------------------------|
|  | CUT / FILL EMBANKMENT |
|  | TUNNEL |
|  | FUTURE WHT OVERPASS |
|  | RETAINING WALL |
|  | CUT AND COVER STRUCTURE |

SURFACE FINISHES

HARD FINISHES (REFER TO PACKAGE 20_83)

- | | |
|---|--------------------------------|
|  | PV-01 - STANDARD CONCRETE PATH |
|  | GR-01 - GRAVEL |
|  | WA-XX - LANDSCAPE WALLS |
|  | ED-02 - STEEL EDGE |

REVEGETATION AREAS

- | | | |
|---|--|---|
|  | <p>  </p> | <p> TU-01 - TURF AREAS PLANTING AREAS EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS. </p> |
|  |  | <p> EXISTING SANDSTONE TO BE RETAINED. </p> |
|  |  | <p> RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN. </p> |
|  |  | <p> PLANTING MIX BOUNDARY </p> |
|  |  | <p> CLIMBING MIX </p> |

TREE PLANTING

-
- Diagram illustrating a proposed tree (individual) with a label 'XX-XXL' indicating pot size and species code.
- PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- XX-XXL
- POT SIZE
- SPECIES CODE

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

- PL-01-5** **MASS PLANTING TAG**
- ↑ ↑
- PLANTING BED NUMBER
- PLANTING MIX REFERENCE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

NOT FOR CONSTRUCTION

| DRAWING FILE LOCATION / NAME | | | | |
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| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
| A1 | 28/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THE
BIM 360//WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL

SCALES ON A1 SIZE DRAWING

0 1000 2000 3000 4000 5000mm

1000 500

(1:100 AT A1)



Transport
**Roads & Maritime
Services**

| PLOT DATE / TIME | | PLOT BY |
|----------------------|----------------|------------|
| 4/08/2020 3:59:36 PM | | YURONG TAN |
| TITLE | NAME | DATE |
| DRAWN | YURONG TAN | 24/04/2020 |
| DRG CHECK | BEN CHARLTON | 24/04/2020 |
| DESIGN | ANTHONY PAPAS | 24/04/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 24/04/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 24/04/2020 |
| PROJECT MNGR | JOSHUA SMALL | 24/04/2020 |



WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
DETAIL PLAN

| | |
|----------------------|---|
| SHEET 3 | |
| PACKAGE No. 20_82 | JCVJ DOCUMENT NAME RIC-HSL-DRG-20-UD-140-303 |

A1

REV

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

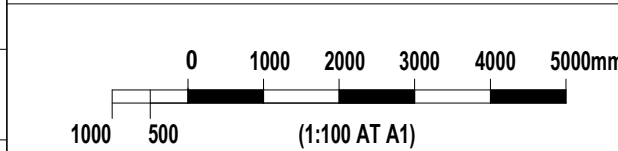
DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION |
|-----|------------|--|
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING



CLIENT



Transport
Roads & Maritime
Services

PLOT DATE / TIME
4/08/2020 4:00:03 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 24/04/2020 |
| DRG CHECK | BEN CHARLTON | 24/04/2020 |
| DESIGN | ANTHONY PAPAS | 24/04/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 24/04/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 24/04/2020 |
| PROJECT MNGR | JOSHUA SMALL | 24/04/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

wsp

HASSELL

MILLER JACOBS

willow

PRM

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
DETAIL PLAN

SHEET 4

PACKAGE No.
20_82

JCV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-304

REV

C

LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- FUTURE WHT OVERPASS
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

HARD FINISHES (REFER TO PACKAGE 20_83)

- PV-01 - STANDARD CONCRETE PATH
- GR-01 - GRAVEL
- WA-XX - LANDSCAPE WALLS
- ED-02 - STEEL EDGE

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.
- PLANTING MIX BOUNDARY
- CLIMBING MIX

TREE PLANTING

- PROPOSED TREE - INDIVIDUAL
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- XX-XXL
POT SIZE
SPECIES CODE
- PROPOSED TREES - CLUSTERS
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- 3x XX-XXL
POT SIZE
SPECIES CODE
NO. OF TREES
- EXISTING TREES TO BE RETAINED
SUBJECT TO ARBORICULTURE ASSESSMENT.
TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

- PL-01-5
MASS PLANTING TAG
PLANTING BED NUMBER
PLANTING MIX REFERENCE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

NOT FOR CONSTRUCTION

A1

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)
- CUT / FILL EMBANKMENT
- TUNNEL
- FUTURE WHT OVERPASS
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

- HARD FINISHES (REFER TO PACKAGE 20_83)
- PV-01 - STANDARD CONCRETE PATH
- GR-01 - GRAVEL
- WA-XX - LANDSCAPE WALLS
- ED-02 - STEEL EDGE

REVEGETATION AREAS

- TU-01 - TURF AREAS
- PLANTING AREAS
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS.
- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.
- PLANTING MIX BOUNDARY
- CLIMBING MIX

TREE PLANTING

- PROPOSED TREE - INDIVIDUAL REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- POT SIZE
- SPECIES CODE
- PROPOSED TREES - CLUSTERS REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- POT SIZE
- SPECIES CODE
- NO. OF TREES
- EXISTING TREES TO BE RETAINED SUBJECT TO ARBORICULTURE ASSESSMENT. TO BE CONFIRMED.

PLANTING TAGS (REFER SCHEDULES FOR SPECIES AND QUANTITIES)

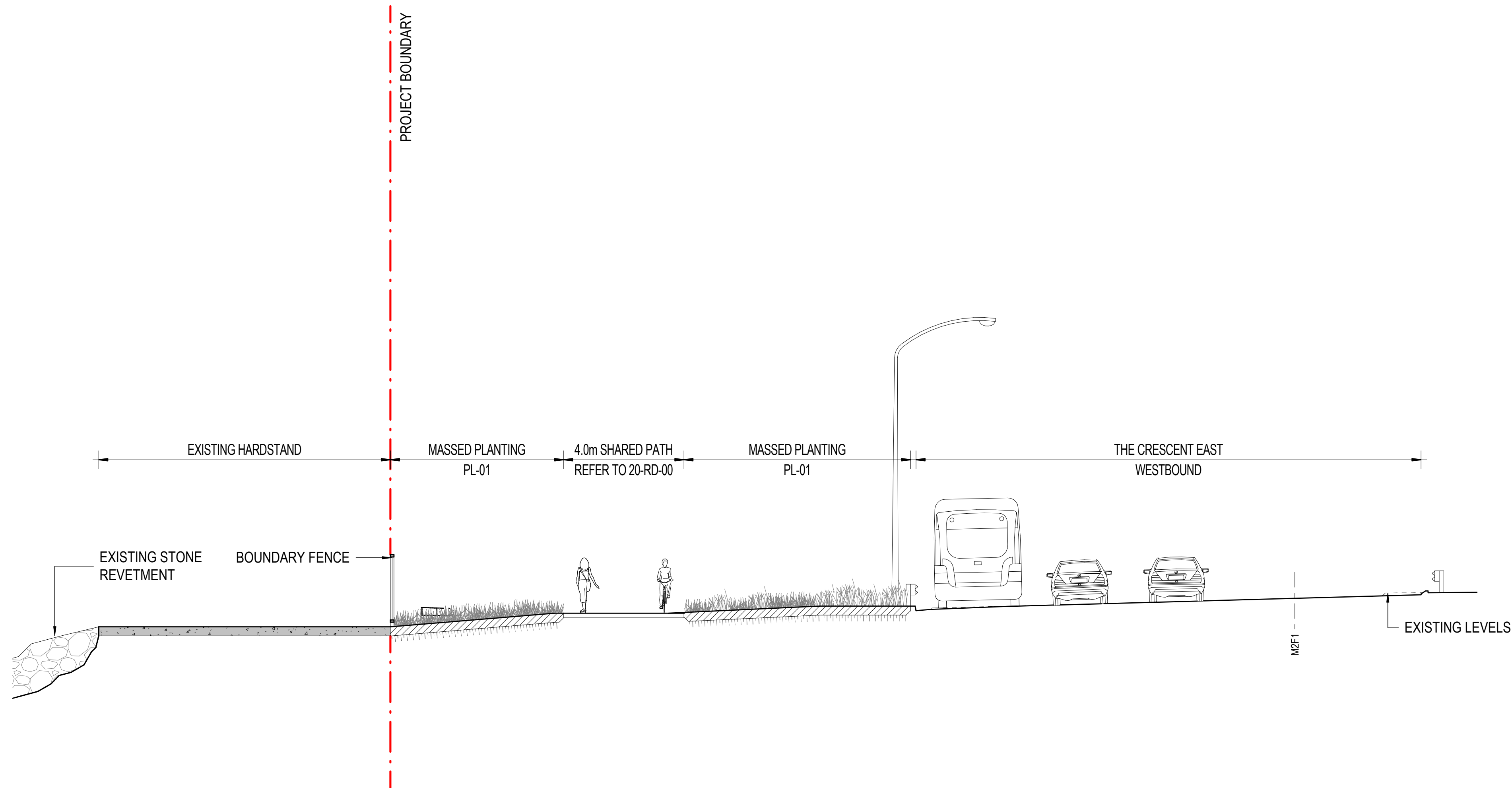
- PL-01-5 MASS PLANTING TAG
- PLANTING BED NUMBER
- PLANTING MIX REFERENCE

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

NOT FOR CONSTRUCTION

| | | | | | | | | | | | | | | | | | | | | |
|---|------------|--|----------|----------------------------|--|----------------|--|--|-------|--|------------|-----------------------|--|---|--|--|--|--|---|----|
| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | PLOT DATE / TIME 4/08/2020 4:00:35 PM | | PLOT BY YURONG TAN | | <div>WestConnex Rozelle Interchange</div> <div>JOHN HOLLAND</div> <div>ARCADIS</div> <div>HASSELL</div> <div>CPB CONTRACTORS</div> <div>WILLIAM JACOBS ASSOCIATES</div> <div>willow</div> <div>PS</div> | | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN DETAIL PLAN | | | A1 |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING <div><div>010002000300040005000mm</div><div>(1:100 AT A1)</div></div> | | CLIENT <div>NSW GOVERNMENT</div> <div>Transport Roads & Maritime Services</div> | | TITLE | NAME | DATE | | | | | | | | | |
| A1 | 28/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 | | | | | DRAWN | YURONG TAN | 24/04/2020 | | | | | | | | | |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM | DRG CHECK | BEN CHARLTON | 24/04/2020 | | | | | | | | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | DESIGN | ANTHONY PAPAS | 24/04/2020 | | | | | | | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | DESIGN CHECK | ANTHONY PAPAS | 24/04/2020 | | | | | | | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | DESIGN MNGR | MALCOLM GRAHAM | 24/04/2020 | | | | | | | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | PROJECT MNGR | JOSHUA SMALL | 24/04/2020 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | SHEET 5 | | | REV | | | |
| | | | | | | | | | | | | | | PACKAGE No. 20_82 | | | JCJV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-305 | | C | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED
80mm ON A1 SIZE ORIGINAL



1 M2F1-CH820
140-104 1:100

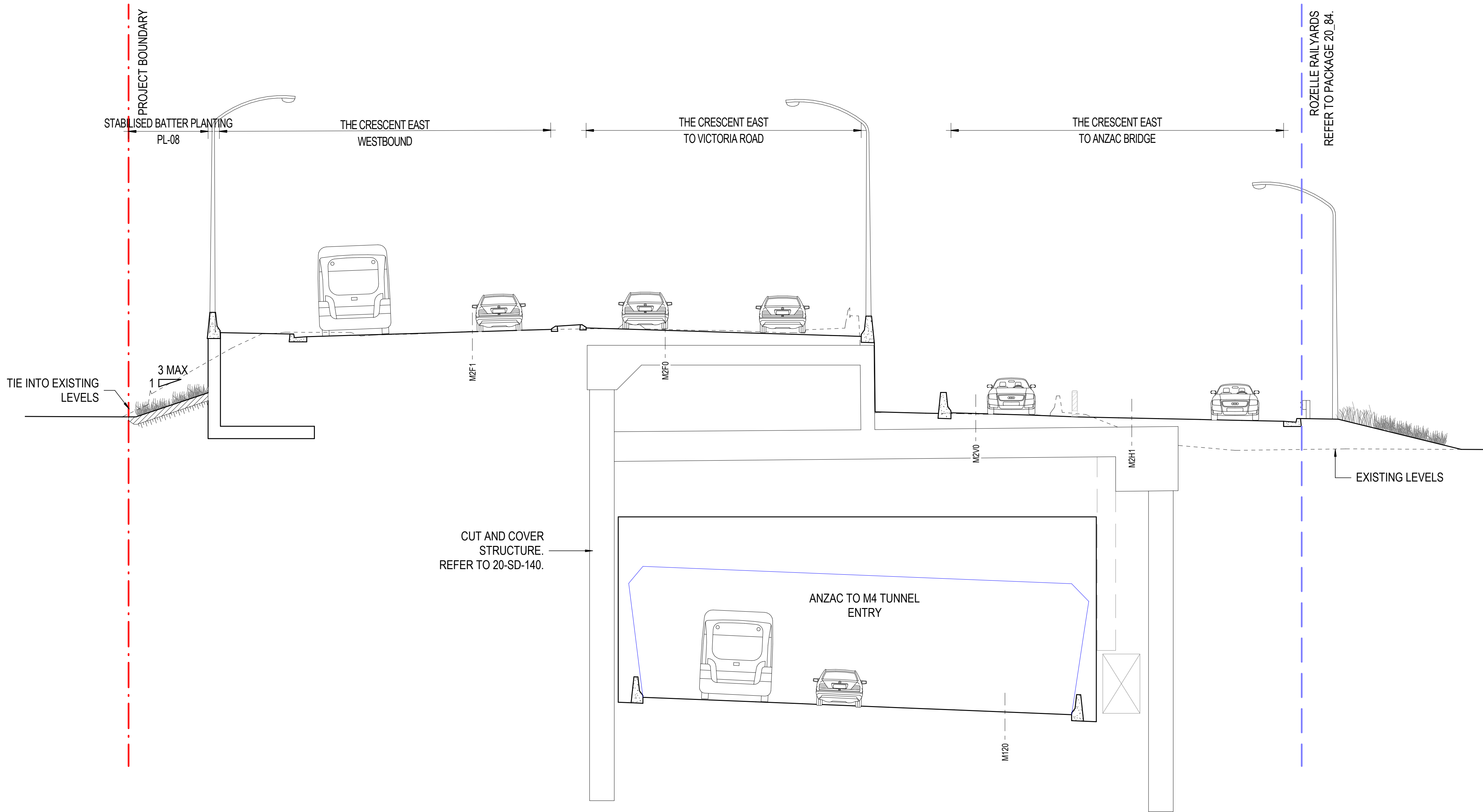
NOT FOR CONSTRUCTION

| | | | | | | | | | | | | | | | | |
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| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | PLOT DATE / TIME 4/08/2020 4:00:43 PM | | PLOT BY YURONG TAN | | <div><div>WestConnex</div><div>Rozelle Interchange</div><div>JOHN HOLLAND</div><div>ARCADIS</div><div>HASSELL</div><div>McMILLLEN JACOBS ASSOCIATES</div><div>CPB CONTRACTORS</div><div>wsp</div><div>PRISM</div></div> | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN LANDSCAPE SECTIONS SHEET 1 PACKAGE No. 20_82 JCJV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-401 REV C | A1 |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING <div><div>010002000300040005000mm</div><div>1000500(1:100 AT A1)</div></div> | | CLIENT <div><div>NSW GOVERNMENT</div><div>Transport Roads & Maritime Services</div></div> | | TITLE | NAME | DATE | | | | | |
| A1 | 28/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 | | | | | DRAWN | YURONG TAN | 05/08/2020 | | | | | |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM | | | | | DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | | | DESIGN | ANTHONY PAPAS | 05/08/2020 | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | | | | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | | | | | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | | | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL

2 M2F1-CH600
140-106 1:100

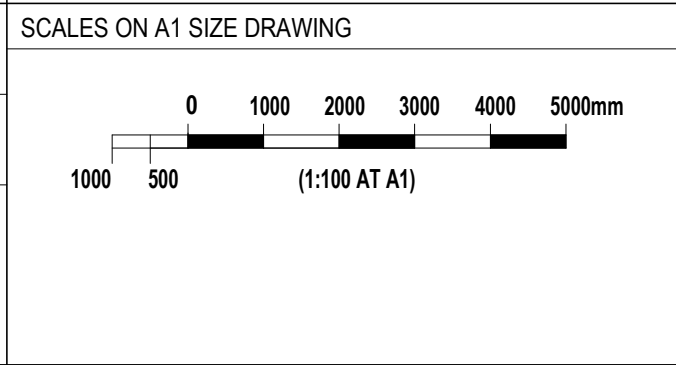


NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
|-----|------------|--|----------|----------------------------|
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt



PLOT DATE / TIME
4/08/2020 4:00:48 PM

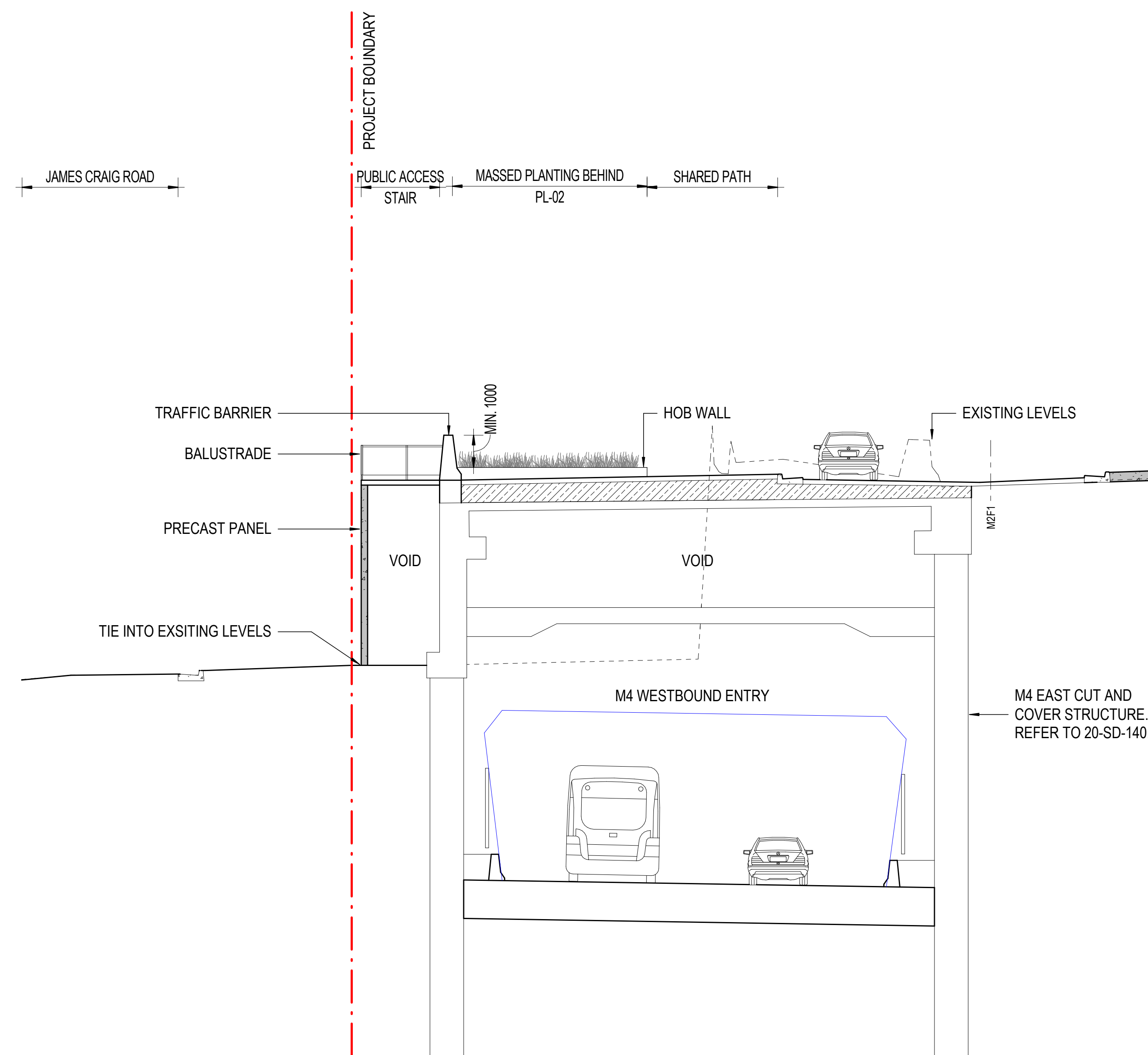
| TITLE | NAME | DATE |
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| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |



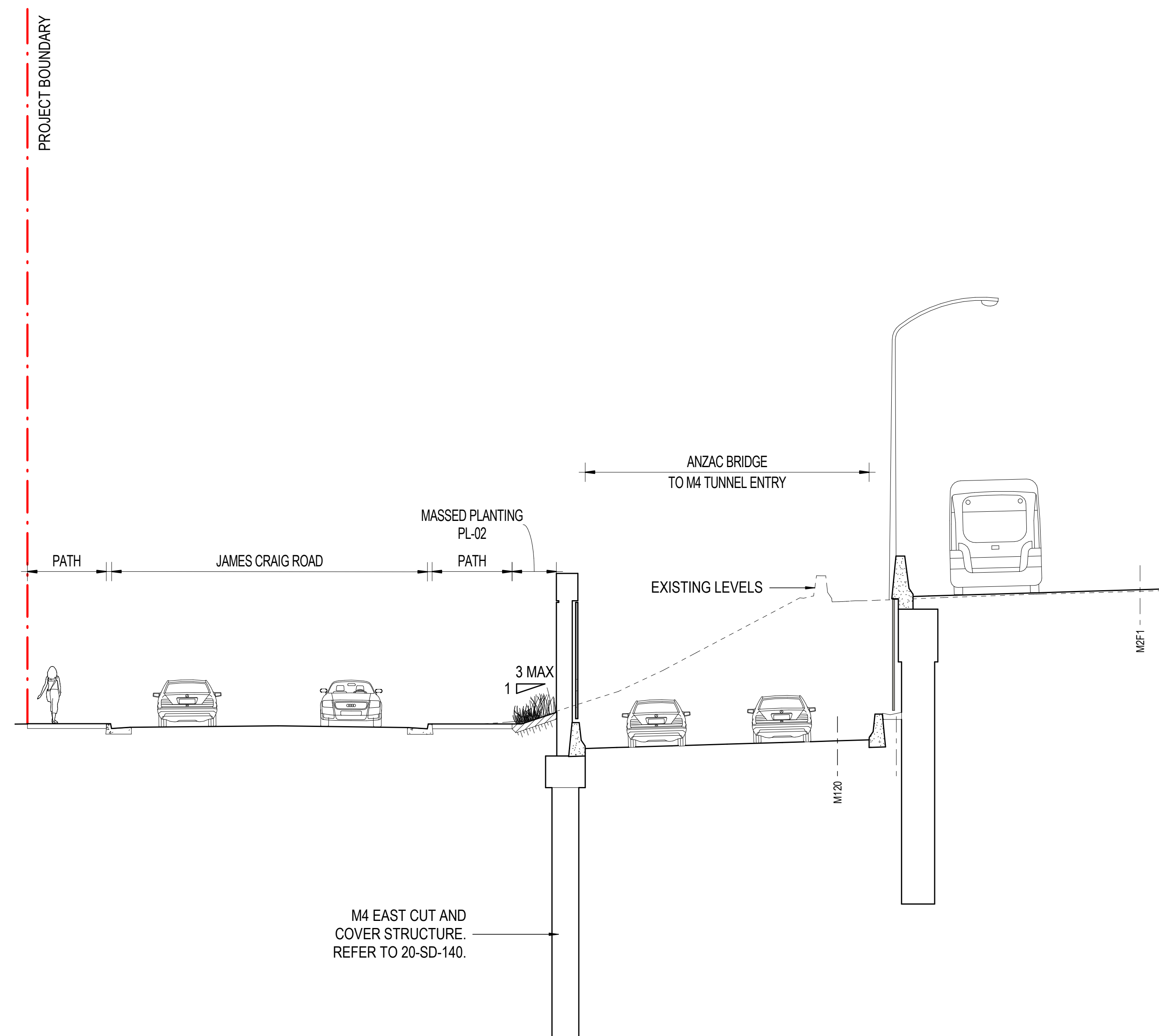
WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
LANDSCAPE SECTIONS
SHEET 2
PACKAGE No. 20_82
JCJV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-402
REV
C

A1

0 10 20 30 40 50 60 70 80mm ON A1 SIZE ORIGINAL



3 M2F1-CH500
140-106 1: 100



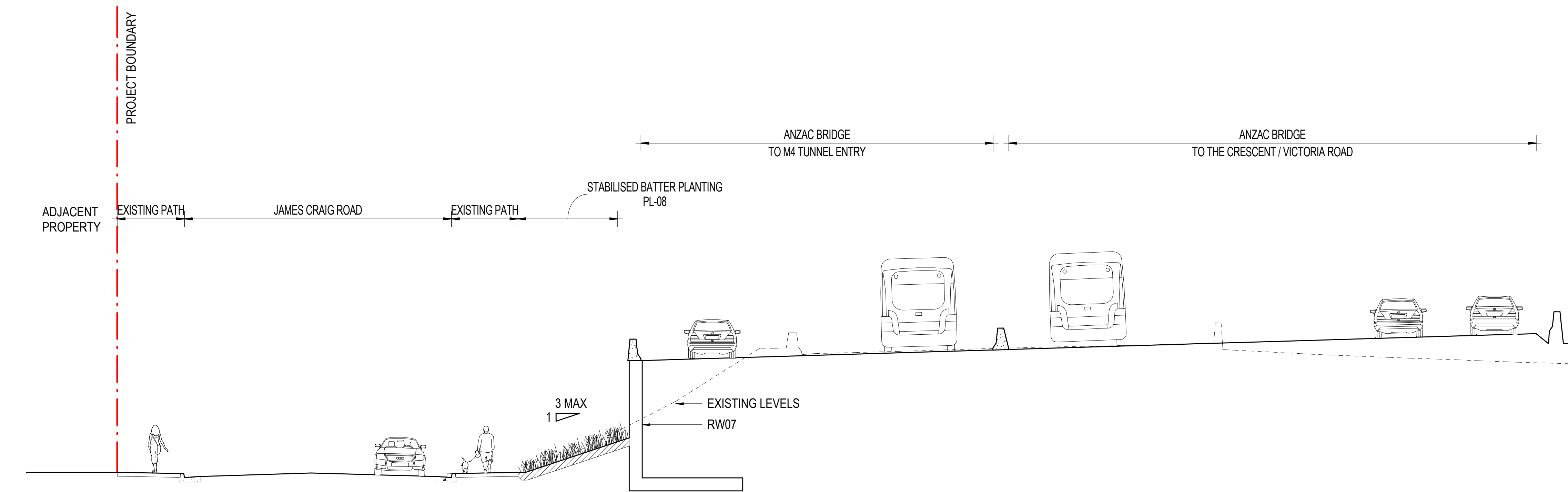
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140-107 1: 100

NOT FOR CONSTRUCTION

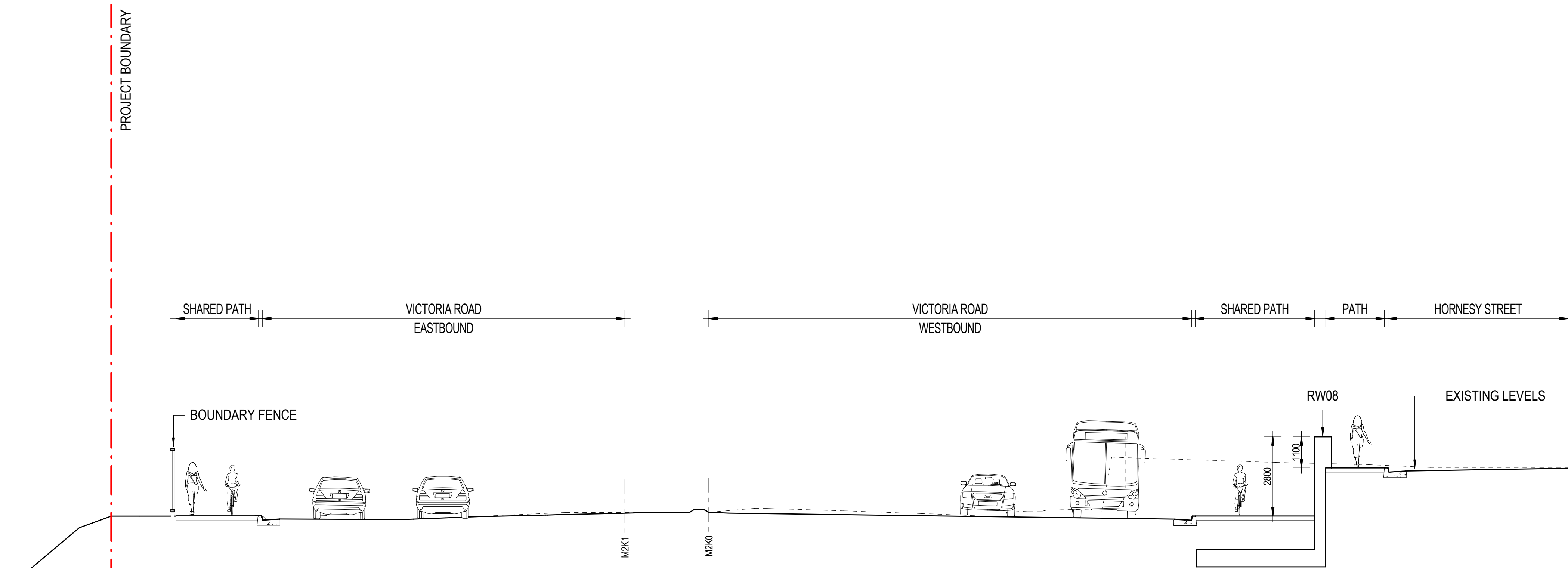
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|---|------------|--|----|----------------------------|--|--|--|--|--|--|--|--|-----------------------|--|-----------------------------------|---|--|--|---|---------------------------------|--|---|--|--|---------------------------------------|--|--|--|--|---------------------------------------|--|--|--|--|--------------------------------------|--|--|--|--|
| DRAWING FILE LOCATION / NAME BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | | PLOT DATE / TIME 4/08/2020 4:00:58 PM | | | PLOT BY YURONG TAN | | | <div><div><div>WestConnex</div><div>Rozelle Interchange</div></div><div><div>JOHN HOLLAND</div><div>ARCADIS</div><div>HASSELL</div></div><div><div>CPB CONTRACTORS</div><div>WSP</div><div>HAROLD JACOBS ASSOCIATES</div></div><div><div>willow</div><div>PSM</div></div></div> | | | WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN LANDSCAPE SECTIONS | | | SHEET 3 PACKAGE No. JC/JV DOCUMENT NAME 20_82 RIC-HSL-DRG-20-UD-140-403 | | | REV C | | | | | | | | | | | | | | |
| REV DATE APPROVAL CO-ORDINATE SYSTEM | | | | | SCALES ON A1 SIZE DRAWING CLIENT | | | | | TITLE NAME DATE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1 | 28/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 | <div><div><div>0 1000 2000 3000 4000 5000mm</div><div>1000 500 (1:100 AT A1)</div></div><div><div>NSW GOVERNMENT</div><div>Transport Roads & Maritime Services</div></div></div> | | | | | DRAWN YURONG TAN 05/08/2020 | | | | | DRG CHECK BEN CHARLTON 05/08/2020 | | | | | DESIGN ANTHONY PAPAS 05/08/2020 | | | | | DESIGN CHECK ANTHONY PAPAS 05/08/2020 | | | | | DESIGN MNGR MALCOLM GRAHAM 05/08/2020 | | | | | PROJECT MNGR JOSHUA SMALL 05/08/2020 | | | | |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM | | | | | | DESIGN | | | | | DESIGN CHECK | | | | | DESIGN MNGR | | | | | PROJECT MNGR | | | | | | | | | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | | | | DESIGN | | | | | DESIGN CHECK | | | | | DESIGN MNGR | | | | | PROJECT MNGR | | | | | | | | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | | | | | DESIGN | | | | | DESIGN CHECK | | | | | DESIGN MNGR | | | | | PROJECT MNGR | | | | | | | | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | | | | | | DESIGN | | | | | DESIGN CHECK | | | | | DESIGN MNGR | | | | | PROJECT MNGR | | | | | | | | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



5 M2F1-CH300
140-108 1:100



6 M2K0-CH210
140-112 1:100

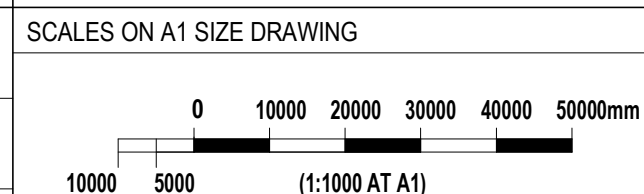
NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
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| REV | DATE | REVISION DESCRIPTION | APPROVAL |
|-----|------------|--|----------|
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW | MG |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG |

| CO-ORDINATE SYSTEM |
|----------------------------|
| MGA ZONE 56 |
| HEIGHT DATUM |
| AHD |
| DESIGN PHASE |
| FDD |
| FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt



PLOT DATE / TIME
4/08/2020 4:01:06 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND
CPB CONTRACTORS

ARCADIS
HASELL
WILLIAM JACOBS
willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
LANDSCAPE SECTIONS

SHEET 4

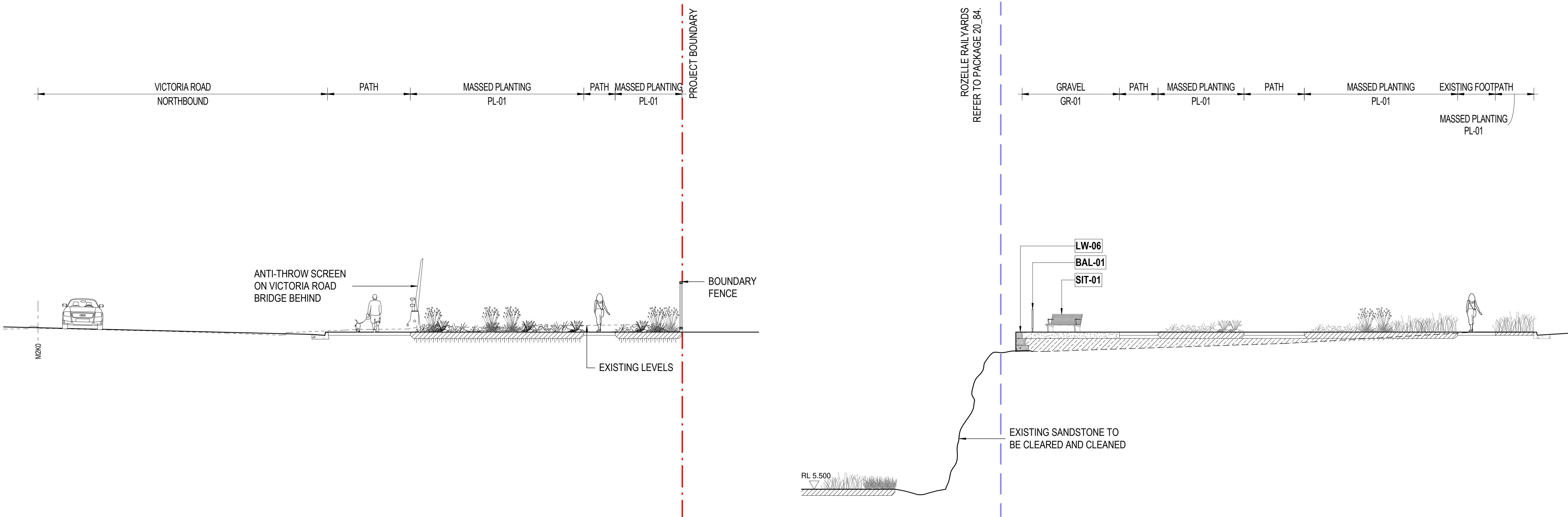
PACKAGE No. 20_82
JCJV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-404

A1

REV
C

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



7 M2K0-CH135
140-113 1:100

8 LILYFIELD ROAD TO RAILYARD PARK
140-113 1:100

NOT FOR CONSTRUCTION

| DRAWING FILE LOCATION / NAME | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING | | PLOT DATE / TIME | | PLOT BY | |
|---|------------|--|----------|---|---|--|--------------|----------------|------------|
| BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | | | BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt | | 4/08/2020 4:01:15 PM | | YURONG TAN | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A1 SIZE DRAWING | CLIENT | TITLE | NAME | DATE |
| A1 | 28/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 |  |  Transport Roads & Maritime Services | DRAWN | YURONG TAN | 05/08/2020 |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM | | | DRG CHECK | BEN CHARLTON | 05/08/2020 |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD | | | DESIGN | ANTHONY PAPAS | 05/08/2020 |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE | | | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD | | | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION | | | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |



WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL

ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
LANDSCAPE SECTIONS

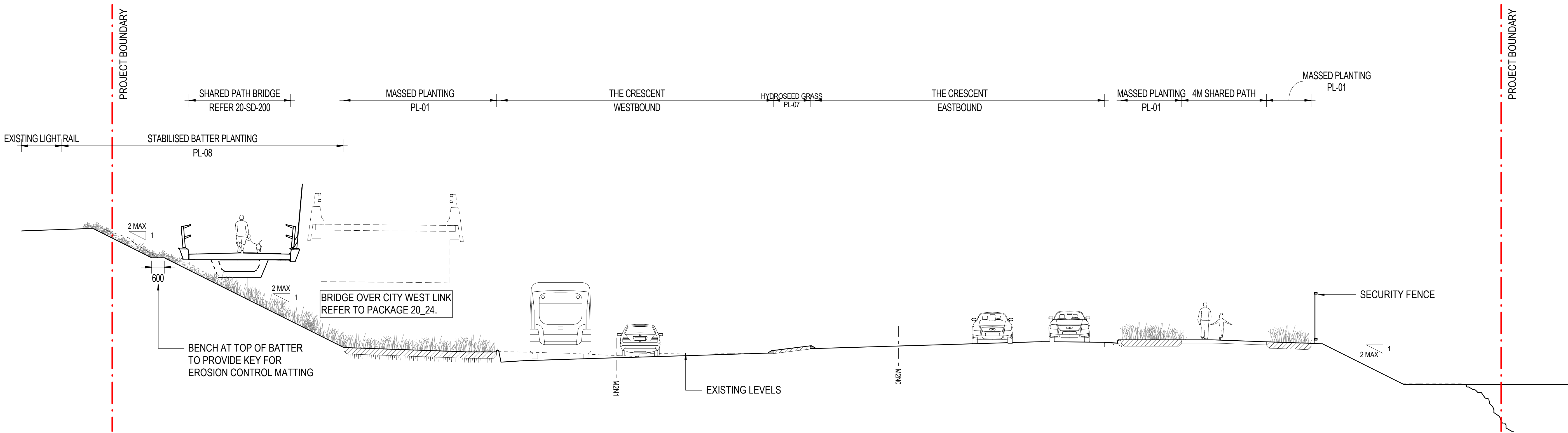
SHEET 5

PACKAGE No.
20_82

JCIV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-405

REV
C

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED
80mm ON A1 SIZE ORIGINAL



9 M2N0-CH150
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NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION |
|-----|------------|--|
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|----------------------------|
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | FDD |
| MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

SCALES ON A1 SIZE DRAWING



Transport
Roads & Maritime
Services

PLOT DATE / TIME
4/08/2020 4:01:26 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

WSP

HASSELL

willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
LANDSCAPE SECTIONS

SHEET 6

PACKAGE No.

20_82

JCVJ DOCUMENT NAME

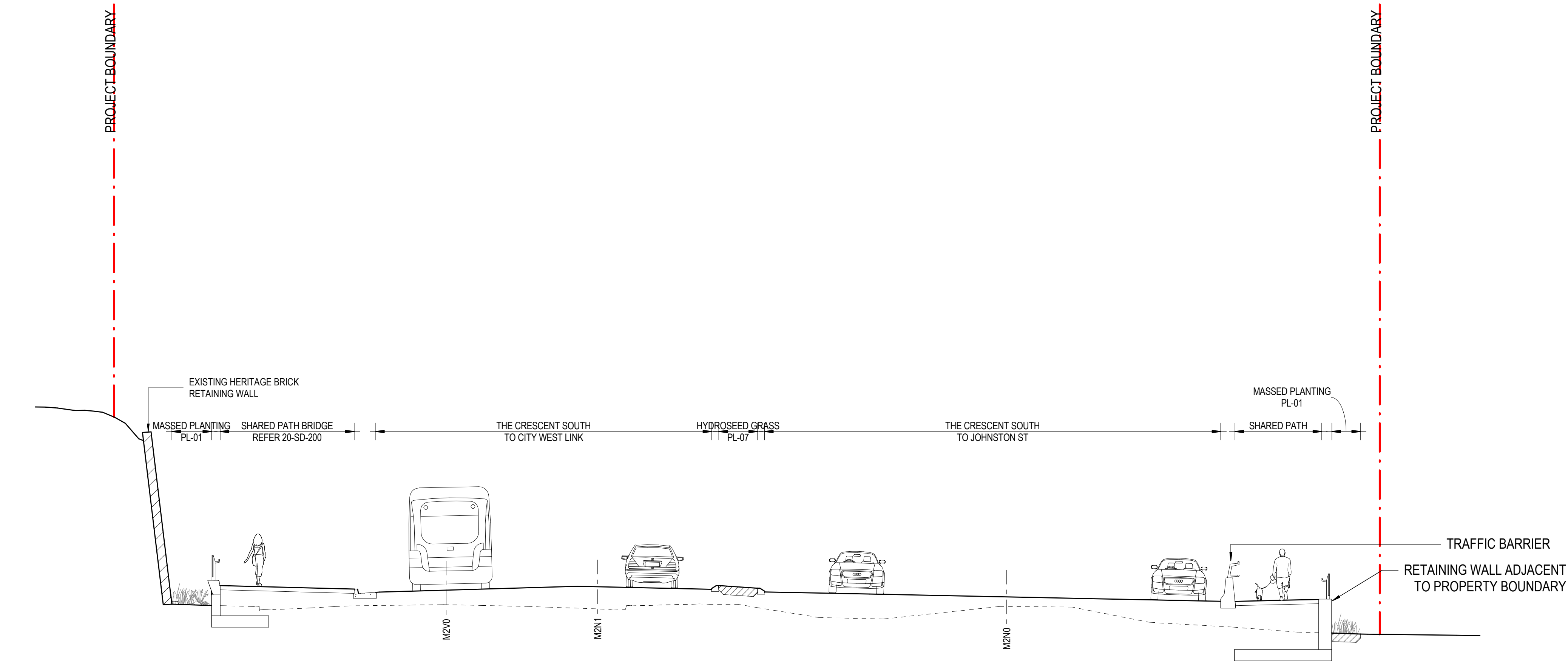
RIC-HSL-DRG-20-UD-140-406

REV

C

A1

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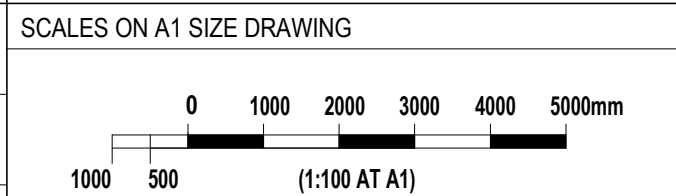
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NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
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| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
|-----|------------|--|----------|----------------------------|
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| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
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PLOT DATE / TIME
4/08/2020 4:01:33 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
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| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND
CPB CONTRACTORS

ARCADIS
HASELL
McMILLLEN JACOBS ASSOCIATES
willow
P B M

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
LANDSCAPE SECTIONS

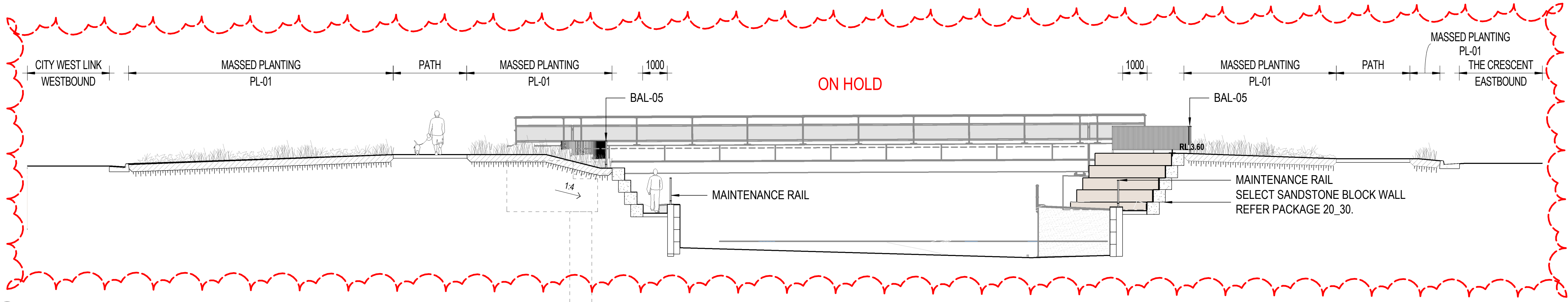
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PACKAGE No. 20_82
JCJV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-407

A1

REV
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THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED
80mm ON A1 SIZE ORIGINAL



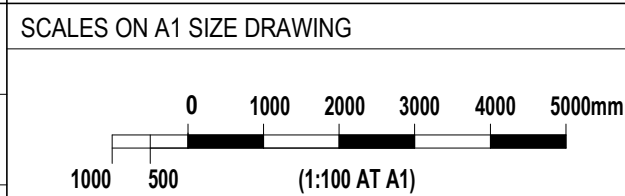
11 WHITES CREEK NATURALISATION
140-104 1:100

NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt

| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
|-----|------------|--|----------|----------------------------|
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM |
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| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-20-UD-000 LOCAL ROADS.rvt



Transport
Roads & Maritime
Services

CLIENT

PLOT DATE / TIME
4/08/2020 4:01:47 PM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

wsp

HASSELL

McMILLLEN
JACOBS
ASSOCIATES

willow

P B M

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
LANDSCAPE SECTIONS

SHEET 8

PACKAGE No.
20_82

JCVJ DOCUMENT NAME

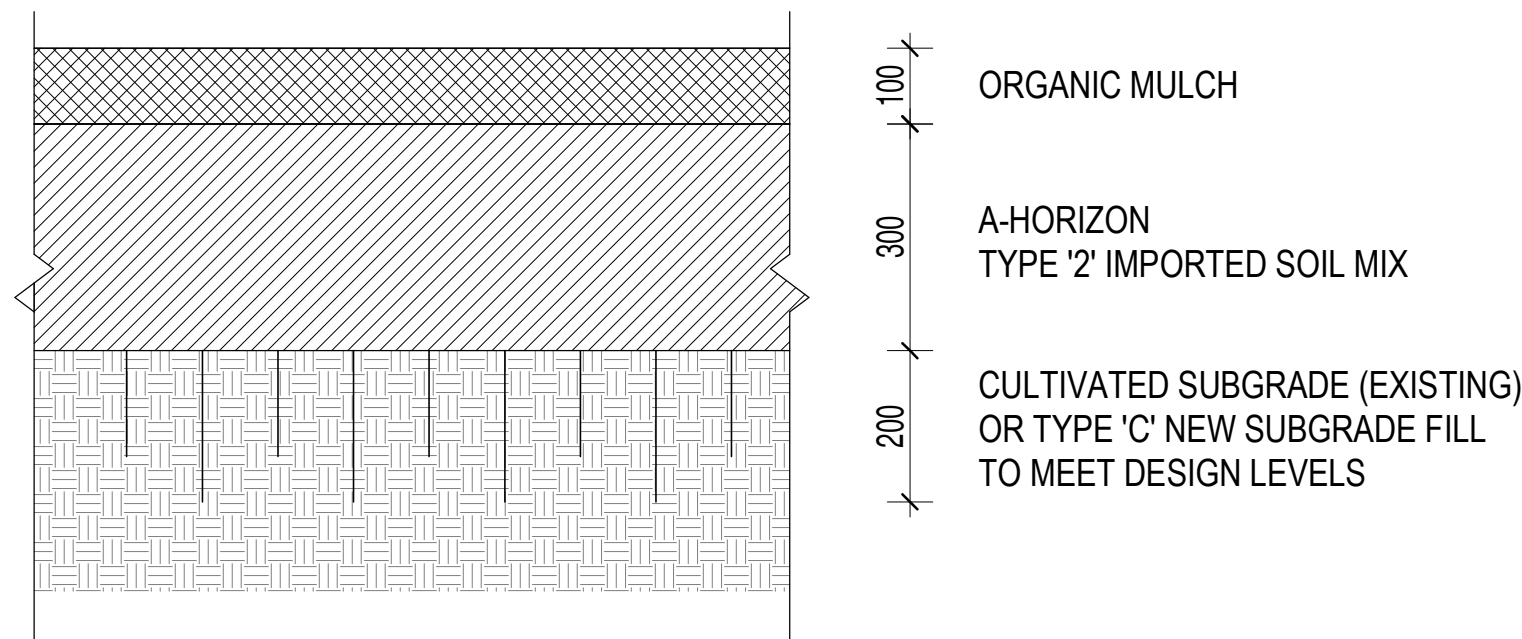
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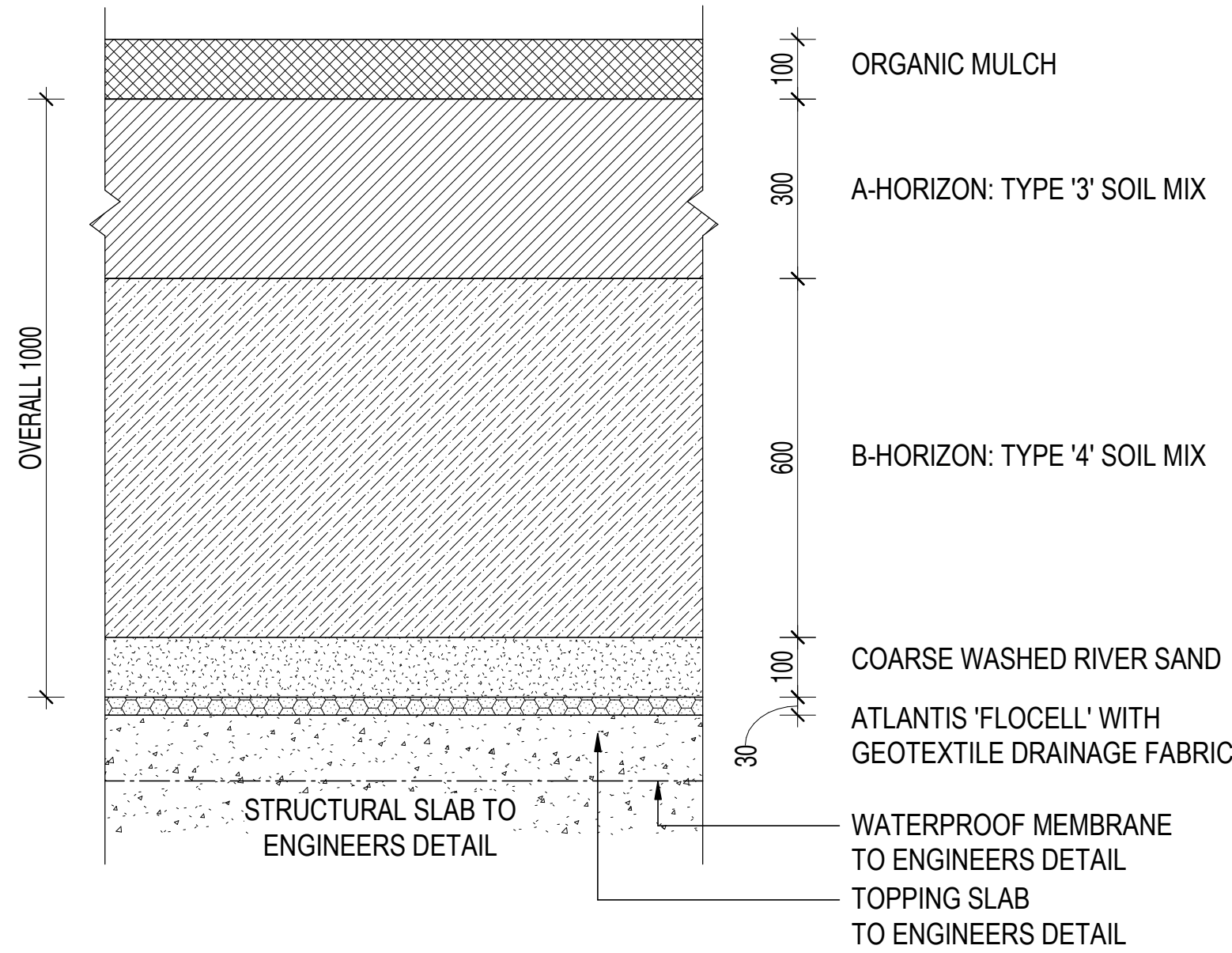
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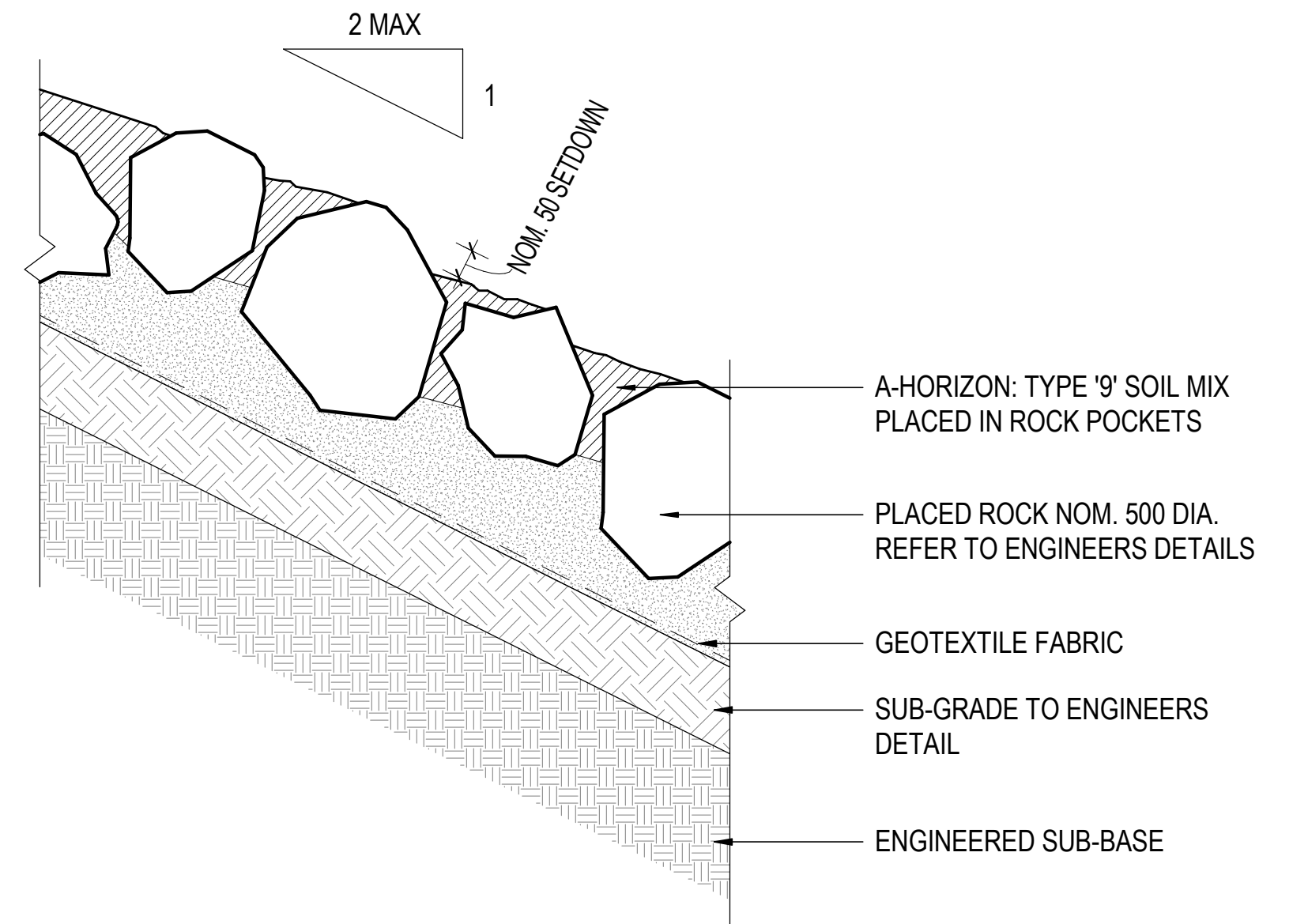
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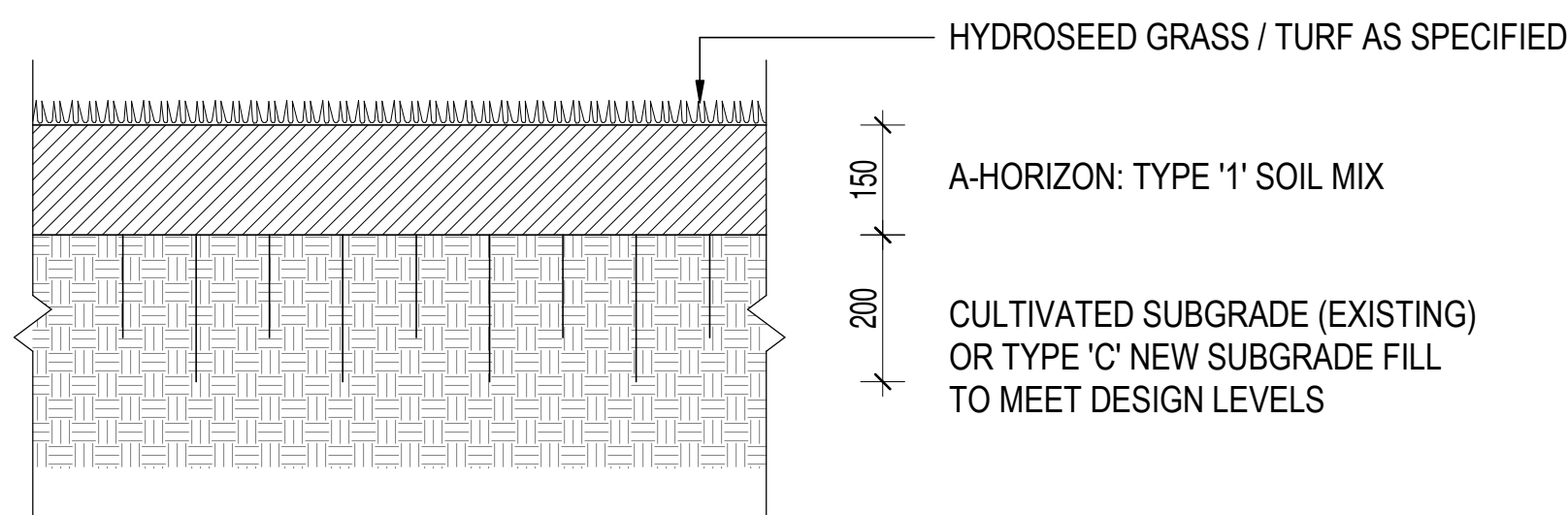
01 PL-01 - MASSED PLANTING
1:10



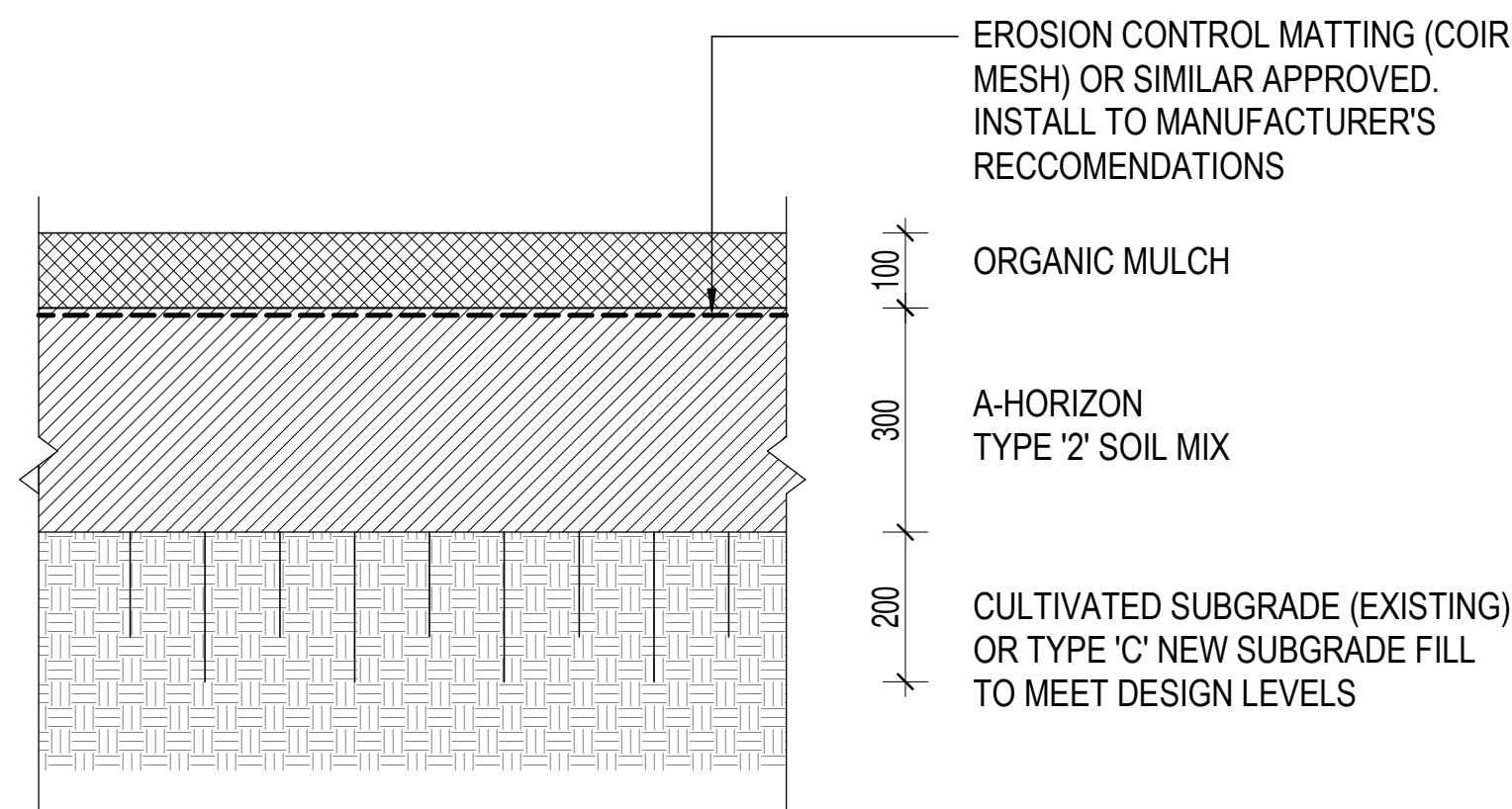
02 PL-02 - MASSED PLANTING ON STRUCTURE
1:10



03 PL-03 - NATURALISED ROCK BATTERS
1:10

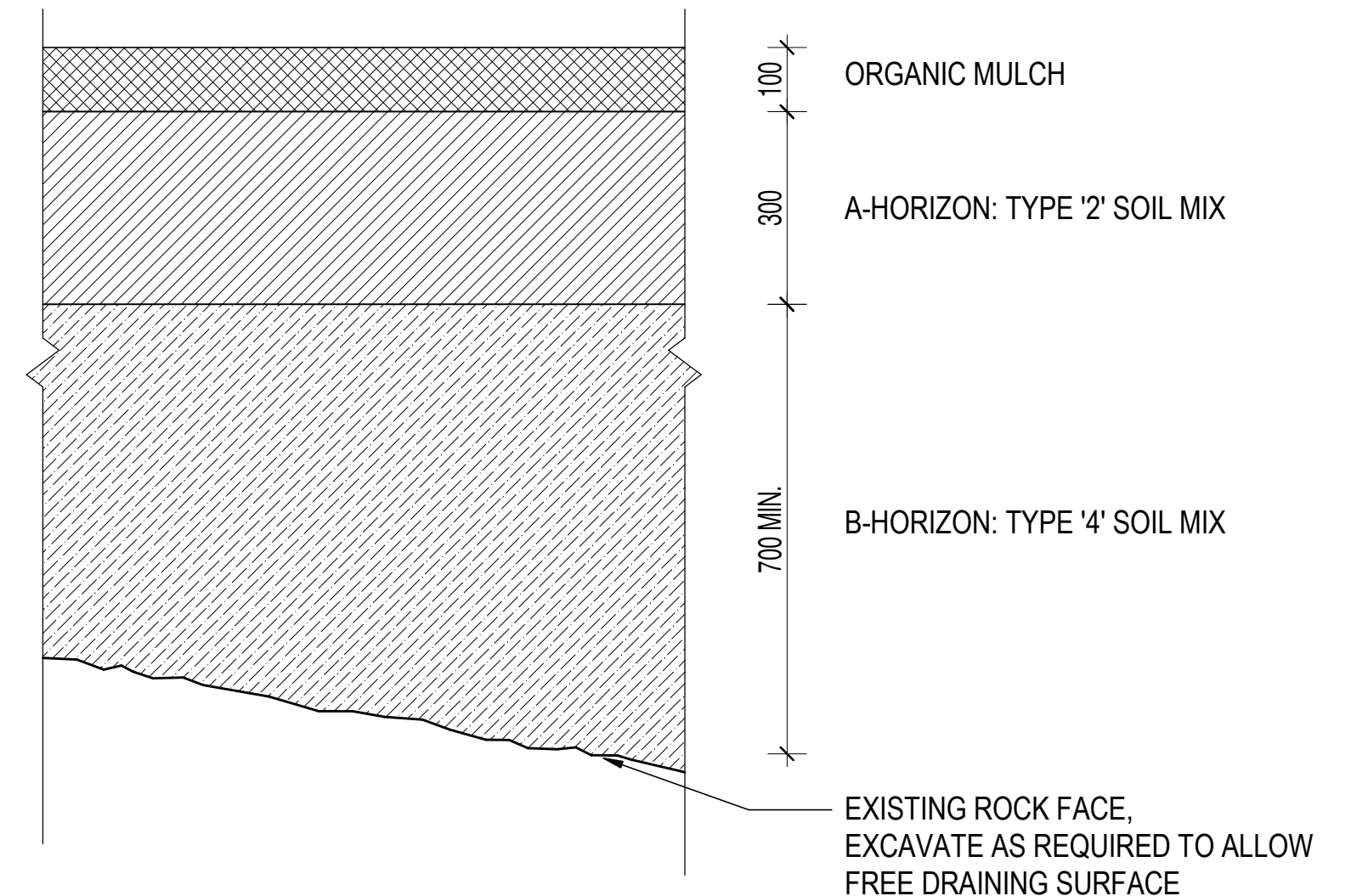


04 PL-07 - HYDROSEED GRASS / TU-01 TURF
1:10



NOTE: APPLIES TO BATTER GRADES BETWEEN 3:1 AND 2:1

05 PL-08 - STABILISED BATTER PLANTING
1:10



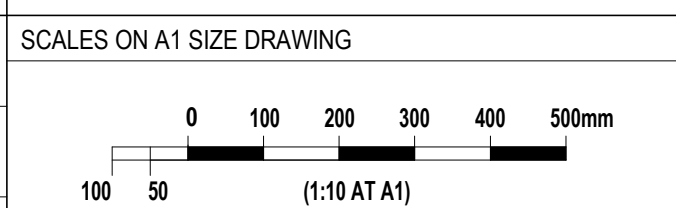
06 PL-09 - MASSED PLANTING ON ROCK SHELF
1:10

NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-00-SWD-001-001.rvt

| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
|-----|------------|--|----------|----------------------------|
| A1 | 26/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | DESIGN PHASE |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
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PLOT DATE / TIME
4/08/2020 2:13:52 PM

| TITLE | NAME | DATE |
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| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |



WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
TYPICAL DETAILS - SOIL PREPARATION

| PACKAGE No. | JCV DOCUMENT NAME | REV |
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| 20_82 | RIC-HSL-DRG-20-UD-140-801 | C |

A1

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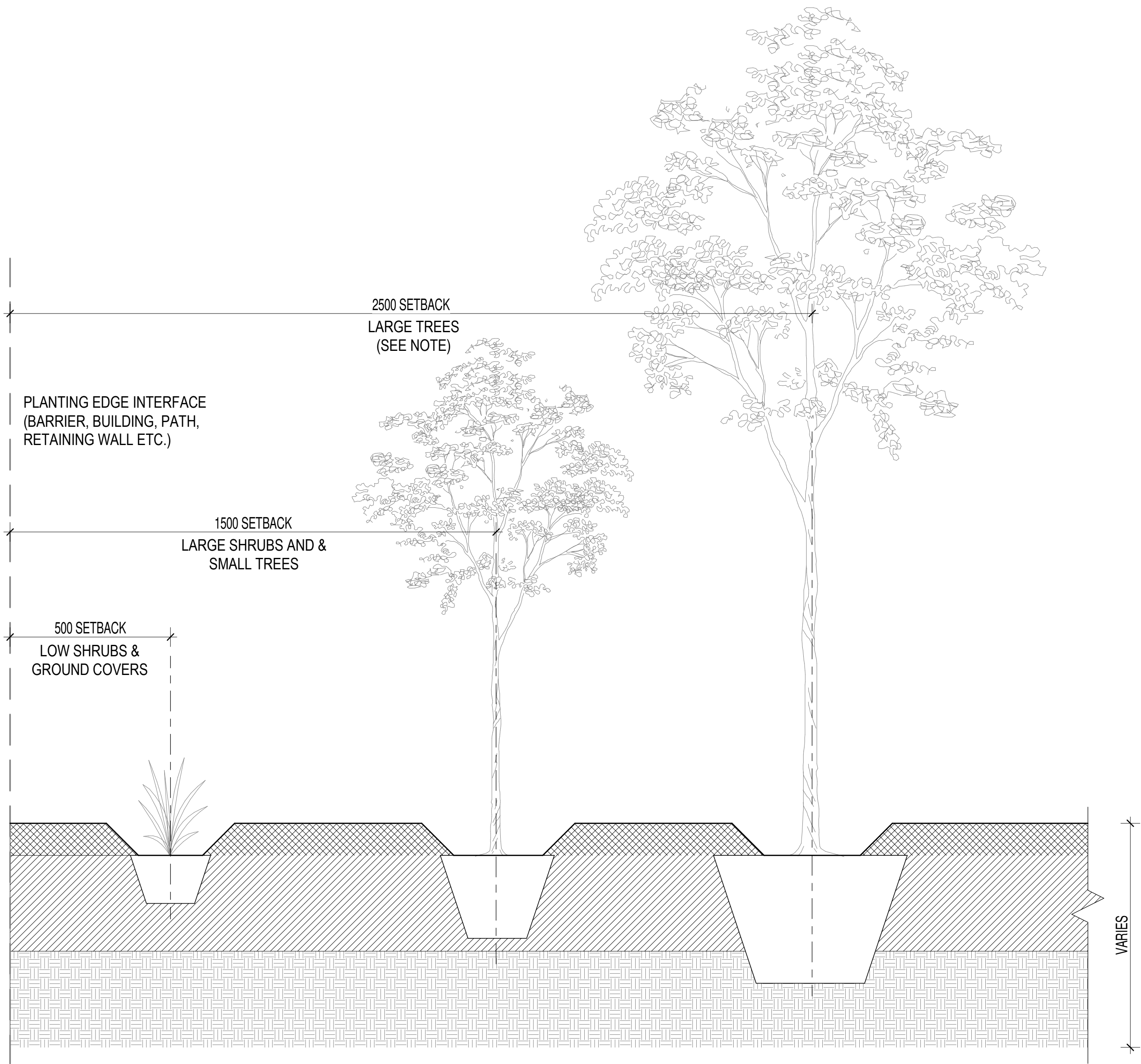


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|--|---------------------------|--|----------|----------------------------|---|------|----------------------|----------|--------------------|--|------------|----------------------------|-----------------------|-------------|---|---|-------------------------------------|----|---|----|------------|---------------|----------------------------|----|--------------|---|------------|--|----|-----|----|------------|----------------------------|----|--------------|---|------------|---------------------------------------|----|-----|--|--|--|--|----------------------------|---|--|--|--|--|---|--|--|--|--|---|--|--|-------|------|------|-------|------------|------------|-----------|--------------|------------|--------|---------------|------------|--------------|---------------|------------|-------------|----------------|------------|--------------|--------------|------------|--|--|--|--|--|--|-------------|---------------------|-----|-------|---------------------------|
| <table><tr><th>REV</th><th>DATE</th><th>REVISION DESCRIPTION</th><th>APPROVAL</th><th>CO-ORDINATE SYSTEM</th></tr><tr><td>A1</td><td>28/08/2019</td><td>ISSUED FOR INTERNAL REVIEW</td><td>MG</td><td>MGA ZONE 56</td></tr><tr><td>A</td><td>11/09/2019</td><td>ISSUED FOR DEVELOPED CONCEPT DESIGN</td><td>MG</td><td></td></tr><tr><td>B1</td><td>08/04/2020</td><td>ISSUED FOR INTERNAL REVIEW</td><td>MG</td><td>HEIGHT DATUM</td></tr><tr><td>B</td><td>29/04/2020</td><td>ISSUED FOR SUBSTANTIAL DETAILED DESIGN</td><td>MG</td><td>AHD</td></tr><tr><td>C1</td><td>20/07/2020</td><td>ISSUED FOR INTERNAL REVIEW</td><td>MG</td><td>DESIGN PHASE</td></tr><tr><td>C</td><td>05/08/2020</td><td>ISSUED FOR FINAL DESIGN DOCUMENTATION</td><td>MG</td><td>FDD</td></tr><tr><td></td><td></td><td></td><td></td><td>FINAL DESIGN DOCUMENTATION</td></tr></table> | | | | | REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | A1 | 28/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 | A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | | B1 | 08/04/2020 | | ISSUED FOR INTERNAL REVIEW | MG | HEIGHT DATUM | B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | AHD | C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | DESIGN PHASE | C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FDD | | | | | FINAL DESIGN DOCUMENTATION | <div>SCALES ON A1 SIZE DRAWING</div> <div></div> | | | | | <div>CLIENT</div> <div> Transport Roads & Maritime Services</div> | | | | | <table><tr><th>TITLE</th><th>NAME</th><th>DATE</th></tr><tr><td>DRAWN</td><td>YURONG TAN</td><td>05/08/2020</td></tr><tr><td>DRG CHECK</td><td>BEN CHARLTON</td><td>05/08/2020</td></tr><tr><td>DESIGN</td><td>ANTHONY PAPAS</td><td>05/08/2020</td></tr><tr><td>DESIGN CHECK</td><td>ANTHONY PAPAS</td><td>05/08/2020</td></tr><tr><td>DESIGN MNGR</td><td>MALCOLM GRAHAM</td><td>05/08/2020</td></tr><tr><td>PROJECT MNGR</td><td>JOSHUA SMALL</td><td>05/08/2020</td></tr></table> | | | TITLE | NAME | DATE | DRAWN | YURONG TAN | 05/08/2020 | DRG CHECK | BEN CHARLTON | 05/08/2020 | DESIGN | ANTHONY PAPAS | 05/08/2020 | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | <div></div> | | | <div>SHEET 1</div> <table><tr><td>PACKAGE No.</td><td>JC/IV DOCUMENT NAME</td><td>REV</td></tr><tr><td>20_82</td><td>RIC-HSL-DRG-20-UD-140-811</td><td>C</td></tr></table> | | | PACKAGE No. | JC/IV DOCUMENT NAME | REV | 20_82 | RIC-HSL-DRG-20-UD-140-811 |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | HEIGHT DATUM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | AHD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | DESIGN PHASE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FDD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | FINAL DESIGN DOCUMENTATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TITLE | NAME | DATE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DRAWN | YURONG TAN | 05/08/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PACKAGE No. | JC/IV DOCUMENT NAME | REV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20_82 | RIC-HSL-DRG-20-UD-140-811 | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



NOTE:
MINIMUM CLEAR ZONE OFFSETS
FOR TREES ADJACENT TO ROADS
AND BARRIERS AS SHOWN ON
SETOUT PLANS & SCHEDULES

SOIL DEPTH & TYPES ARE AS
SHOWN ON GENERAL
ARRANGEMENT PLANS

01 TYPICAL PLANTING EDGE SETOUT
1:10

NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-00-SWD-001-001.rvt

| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
|-----|------------|---------------------------------------|----------|-----------------------------------|
| A1 | 26/08/2019 | NOT ISSUED | - | MGA ZONE 56 |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM |
| B1 | 08/04/2020 | NOT ISSUED | - | AHD |
| B | 29/04/2020 | NOT ISSUED | - | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | DESIGN PHASE |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FDD FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-00-SWD-001-001.rvt

| SCALES ON A1 SIZE DRAWING |
|---------------------------|
| |

CLIENT

 **Transport
Roads & Maritime
Services**

PLOT DATE / TIME
4/08/2020 2:14:06 PM

PLOT BY
MATTHEW WATSON

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | MATTHEW WATSON | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | MATTHEW WATSON | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN HOLLAND

ARCADIS

CPB CONTRACTORS

WSP

HASSELL

McMILLLEN JACOBS ASSOCIATES

willow

PBS

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
TYPICAL DETAILS - PLANTING

| SHEET 2 | PACKAGE No. | JCV DOCUMENT NAME | REV |
|---------|-------------|---------------------------|-----|
| | 20_82 | RIC-HSL-DRG-20-UD-140-812 | C |

A1



| DRAWING FILE LOCATION / NAME | | | | |
|--|------------|--|----------|-----------------------------------|
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| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
| A1 | 28/08/2019 | ISSUED FOR INTERNAL REVIEW | MG | MGA ZONE 56 |
| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | MG | HEIGHT DATUM |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | MG | AHD |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | MG | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | DESIGN PHASE |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FDD FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS
BIM 360://WestConnex Stage 3B/ERIC-HSL-MOD-00-SWD-001-001.rvt

SCALES ON A1 SIZE DRAWING

0 100 200 300 400 500mm

100 50 (1:10 AT A1)

CLIENT

 **Transport
Roads & Maritime
Services**

| PLOT DATE / TIME | | PLOT BY |
|----------------------|----------------|------------|
| 4/08/2020 2:14:13 PM | | YURONG TAN |
| TITLE | NAME | DATE |
| DRAWN | YURONG TAN | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | ANTHONY PAPAS | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

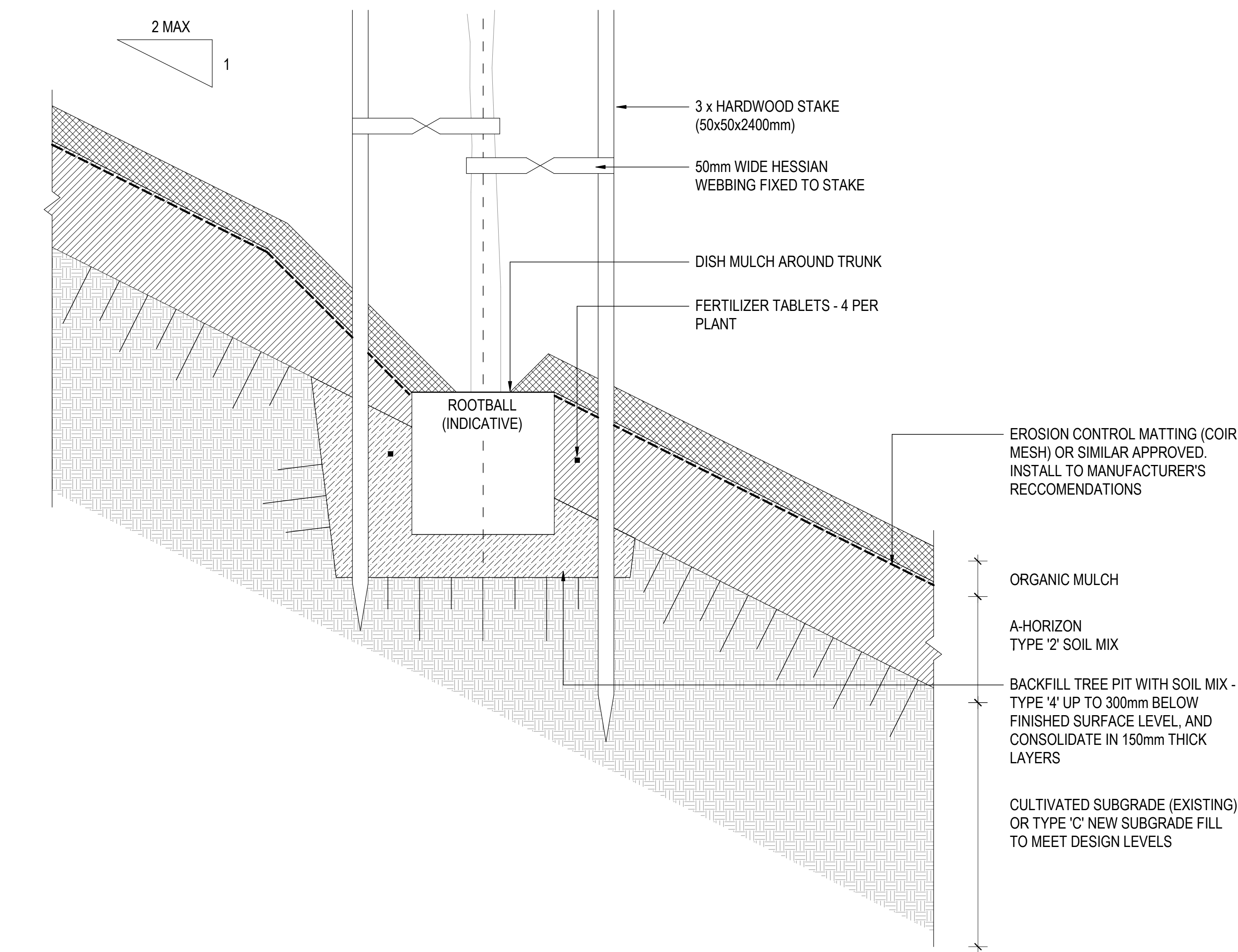


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|--|--|--|
| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN TYPICAL DETAILS - TREES | | |
| SHEET 1 PACKAGE No. 20_82 | | JCI.V DOCUMENT NAME RIC-HSL-DRG-20-UD-140-821 |

NOT FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



01 75L TREE ON STABILISED BATTER
1:10

NOT FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-00-SWD-001-001.rvt

| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
|-----|------------|---------------------------------------|----------|-----------------------------------|
| A1 | 26/08/2019 | NOT ISSUED | - | MGA ZONE 56 |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM |
| B1 | 08/04/2020 | NOT ISSUED | - | AHD |
| B | 29/04/2020 | NOT ISSUED | - | |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | DESIGN PHASE |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FDD FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-00-SWD-001-001.rvt

| SCALES ON A1 SIZE DRAWING |
|--|
| 0 100 200 300 400 500mm 100 50 (1:10 AT A1) |



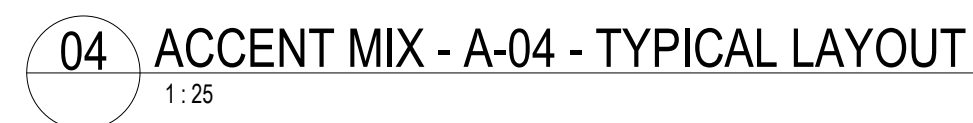
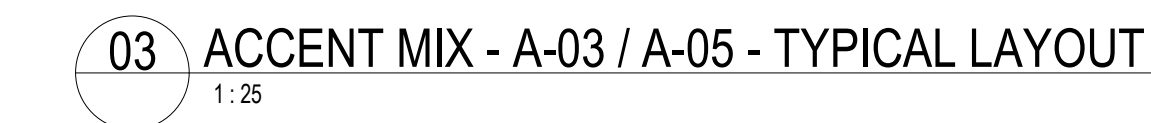
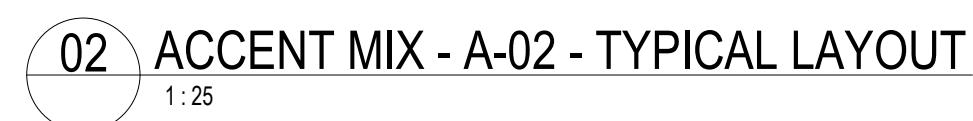
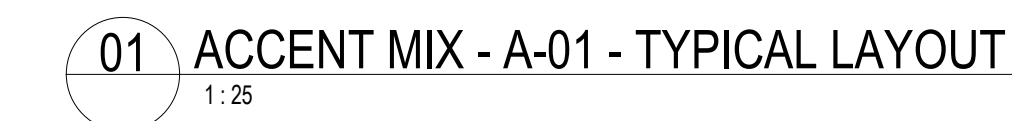
PLOT DATE / TIME
4/08/2020 2:14:18 PM

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | MATTHEW WATSON | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | MATTHEW WATSON | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |



| | |
|--|--|
| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN TYPICAL DETAILS - TREES | SHEET 2 |
| PACKAGE No. 20_82 | JCV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-822 |
| REV C | |

A1

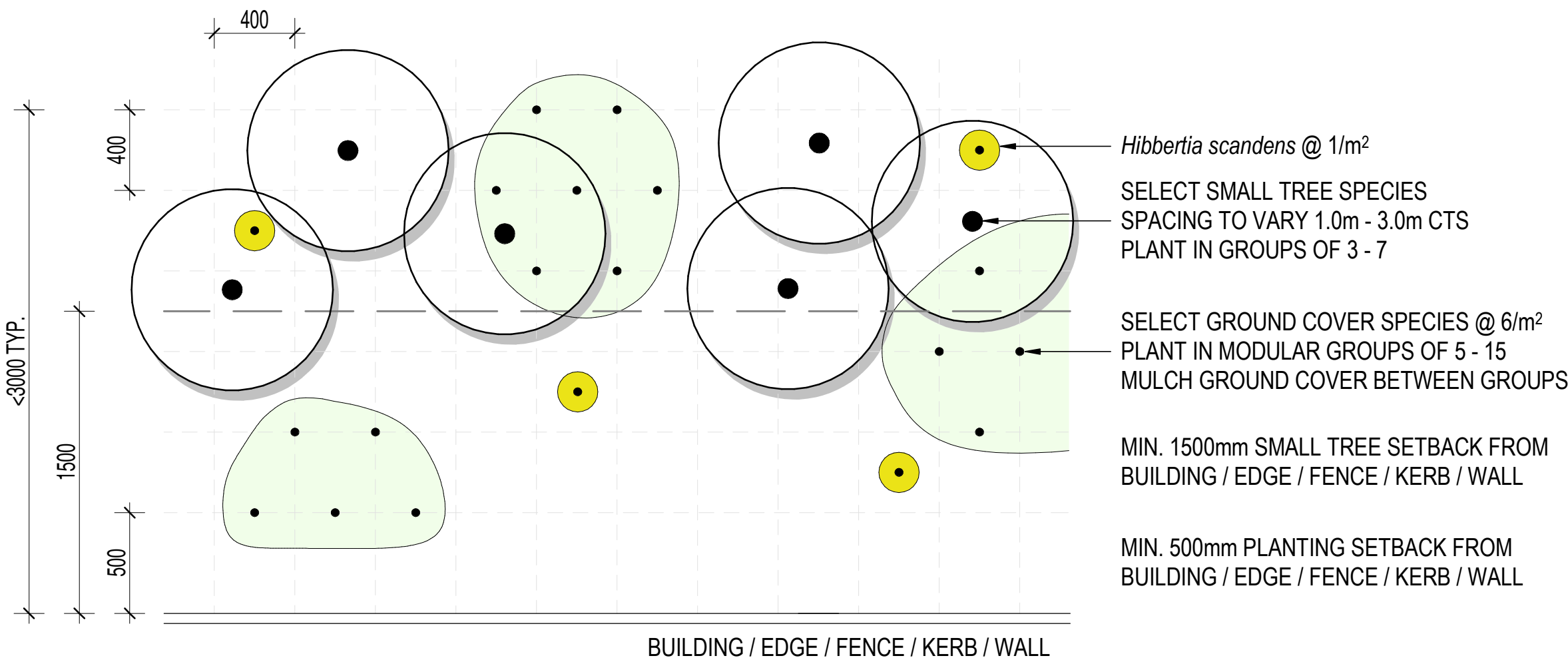


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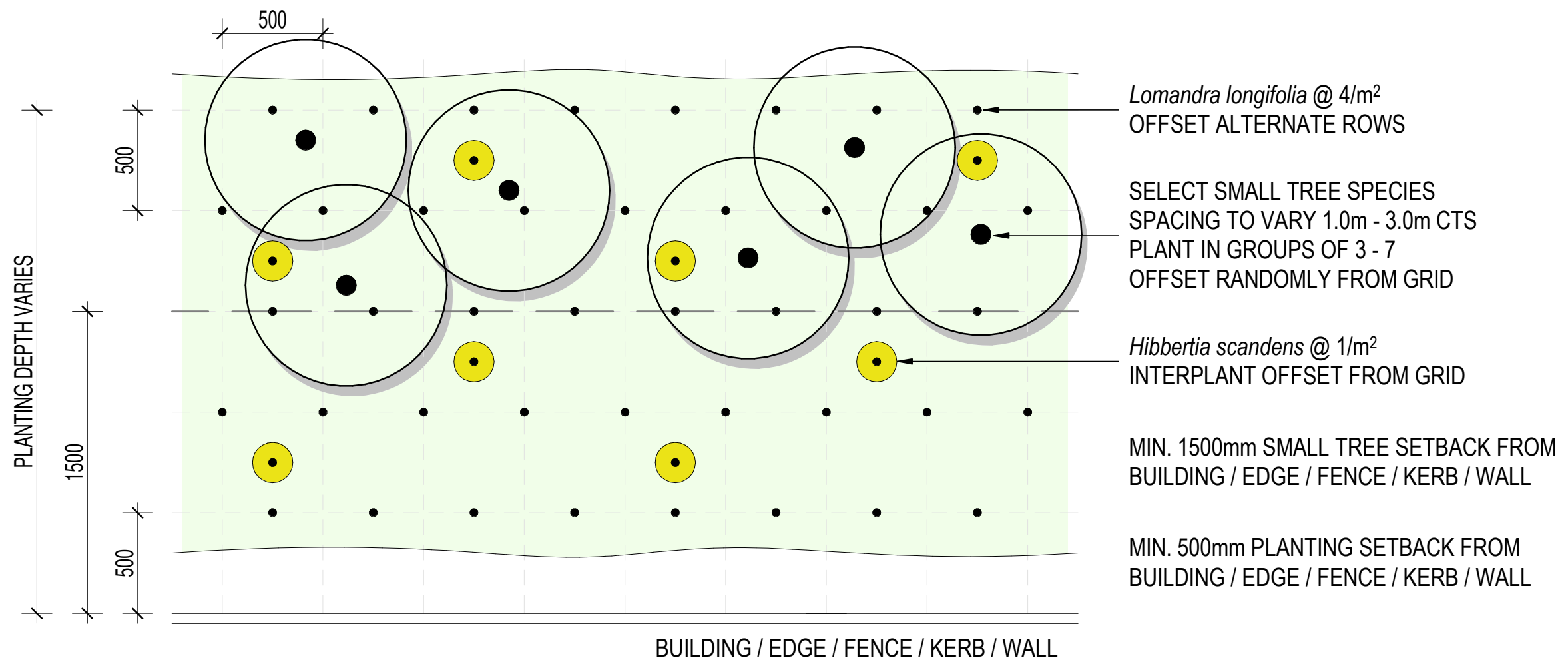
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|--|----------------|------------|--|---|--|--|--|--|--|--|---------------------------|---|--|---|--|--|---|----------|-------|----|------|------|-------|----------------|------------|-----------|--------------|------------|--------|----------------|------------|--------------|---------------|------------|-------------|----------------|------------|--------------|--------------|------------|---|--|--|---|--|
| REV DATE REVISION DESCRIPTION APPROVAL | | | | CO-ORDINATE SYSTEM MGA ZONE 56 | | | | SCALES ON A1 SIZE DRAWING  | | | | CLIENT  Transport Roads & Maritime Services | | | | <table><tr><th>TITLE</th><th>NAME</th><th>DATE</th></tr><tr><td>DRAWN</td><td>MATTHEW WATSON</td><td>05/08/2020</td></tr><tr><td>DRG CHECK</td><td>BEN CHARLTON</td><td>05/08/2020</td></tr><tr><td>DESIGN</td><td>MATTHEW WATSON</td><td>05/08/2020</td></tr><tr><td>DESIGN CHECK</td><td>ANTHONY PAPAS</td><td>05/08/2020</td></tr><tr><td>DESIGN MNGR</td><td>MALCOLM GRAHAM</td><td>05/08/2020</td></tr><tr><td>PROJECT MNGR</td><td>JOSHUA SMALL</td><td>05/08/2020</td></tr></table> | | | TITLE | | NAME | DATE | DRAWN | MATTHEW WATSON | 05/08/2020 | DRG CHECK | BEN CHARLTON | 05/08/2020 | DESIGN | MATTHEW WATSON | 05/08/2020 | DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |  | | | ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN TYPICAL DETAILS - PLANTING MIX LAYOUTS | |
| TITLE | NAME | DATE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DRAWN | MATTHEW WATSON | 05/08/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DRG CHECK | BEN CHARLTON | 05/08/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DESIGN | MATTHEW WATSON | 05/08/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1 28/08/2019 NOT ISSUED - | | | | - | | | | - | | | | - | | | | - | | | - | | | - | | | | | | | | | | | | | | | | | | | | | | | |
| A 11/09/2019 NOT ISSUED - | | | | HEIGHT DATUM | | | | - | | | | - | | | | - | | | - | | | - | | | | | | | | | | | | | | | | | | | | | | | |
| B1 08/04/2020 NOT ISSUED - | | | | AHD | | | | - | | | | - | | | | - | | | - | | | - | | | | | | | | | | | | | | | | | | | | | | | |
| B 29/04/2020 NOT ISSUED - | | | | - | | | | - | | | | - | | | | - | | | - | | | - | | | | | | | | | | | | | | | | | | | | | | | |
| C1 20/07/2020 ISSUED FOR INTERNAL REVIEW MG | | | | DESIGN PHASE | | | | - | | | | - | | | | - | | | - | | | - | | | | | | | | | | | | | | | | | | | | | | | |
| C 05/08/2020 ISSUED FOR FINAL DESIGN DOCUMENTATION MG | | | | FDD FINAL DESIGN DOCUMENTATION | | | | - | | | | - | | | | - | | | - | | | - | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET 1 | | | | | | | | | | | | PACKAGE No. 20_82 | | | JCI/V DOCUMENT NAME RIC-HSL-DRG-20-UD-140-831 | | | REV C | | | | | | | | | | | | | | | | | | | | | | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

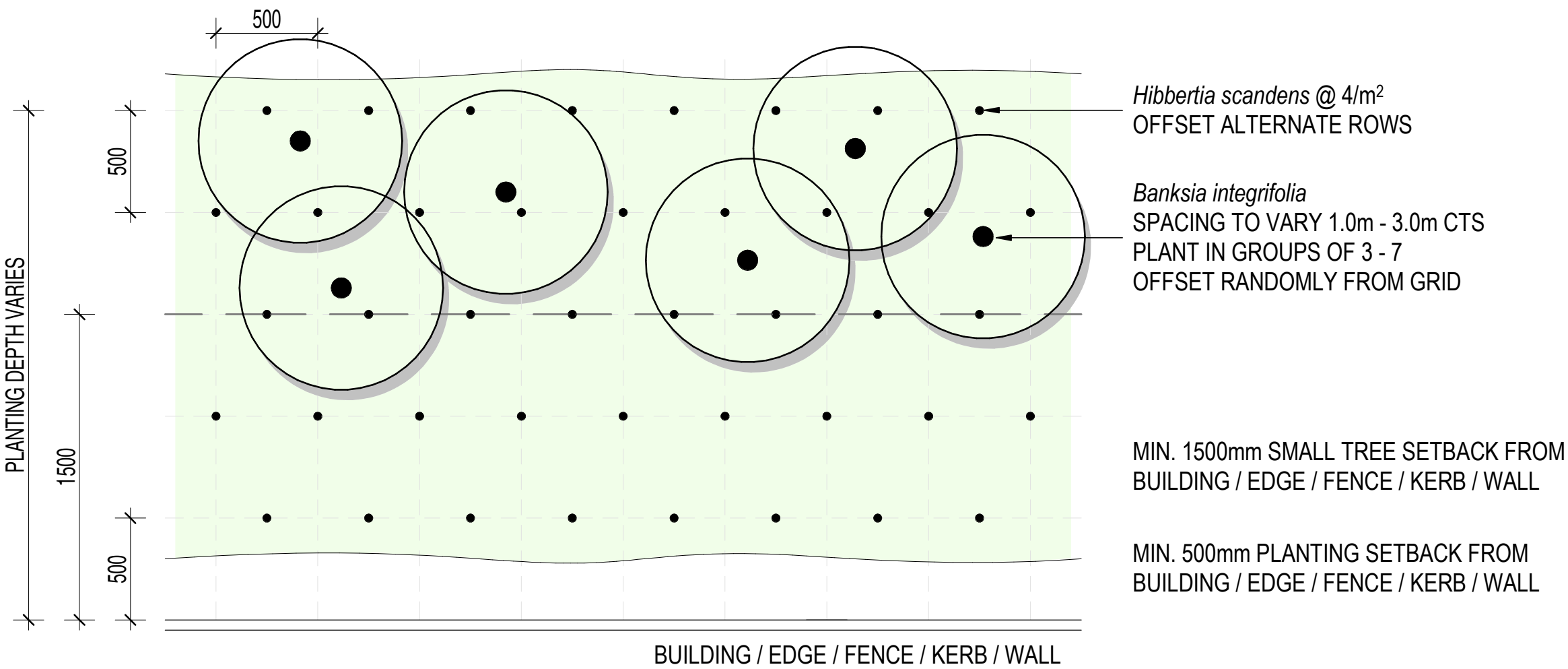
80mm ON A1 SIZE ORIGINAL



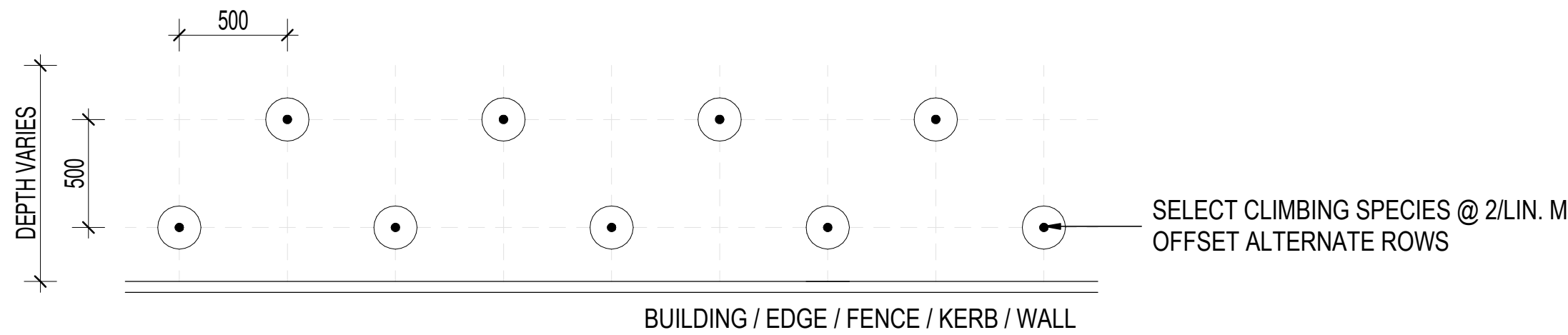
01 BULKY MIX - B-01 - TYPICAL LAYOUT
1:25



02 BULKY MIX - B-02 / B-03 - TYPICAL LAYOUT
1:25



03 BULKY MIX - B-04 - TYPICAL LAYOUT
1:25

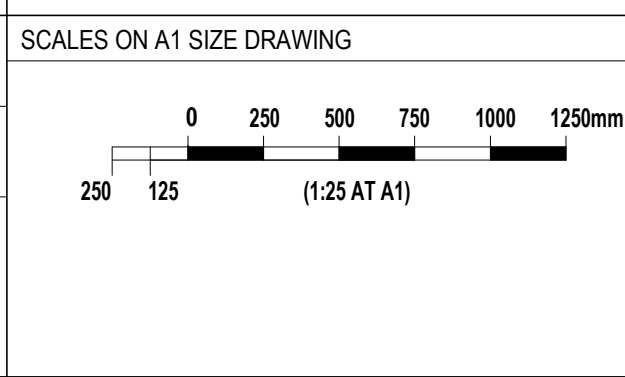


04 CLIMBING MIX - C-01 / C-02 - TYPICAL LAYOUT
1:25

DRAWING FILE LOCATION / NAME
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-00-SWD-001-001.rvt

| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM |
|-----|------------|---------------------------------------|----------|----------------------------|
| A1 | 26/08/2019 | NOT ISSUED | - | MGA ZONE 56 |
| A | 11/09/2019 | NOT ISSUED | - | HEIGHT DATUM |
| B1 | 08/04/2020 | NOT ISSUED | - | AHD |
| B | 29/04/2020 | NOT ISSUED | - | DESIGN PHASE |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG | FDD |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG | FINAL DESIGN DOCUMENTATION |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
BIM 360://WestConnex Stage 3B/RIC-HSL-MOD-00-SWD-001-001.rvt



Transport
Roads & Maritime
Services

PLOT DATE / TIME
4/08/2020 2:14:35 PM

| TITLE | NAME | DATE |
|--------------|----------------|------------|
| DRAWN | MATTHEW WATSON | 05/08/2020 |
| DRG CHECK | BEN CHARLTON | 05/08/2020 |
| DESIGN | MATTHEW WATSON | 05/08/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

ARCADIS
HASELL

CPB
CONTRACTORS

willow

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
TYPICAL DETAILS - PLANTING MIX LAYOUTS

SHEET 2

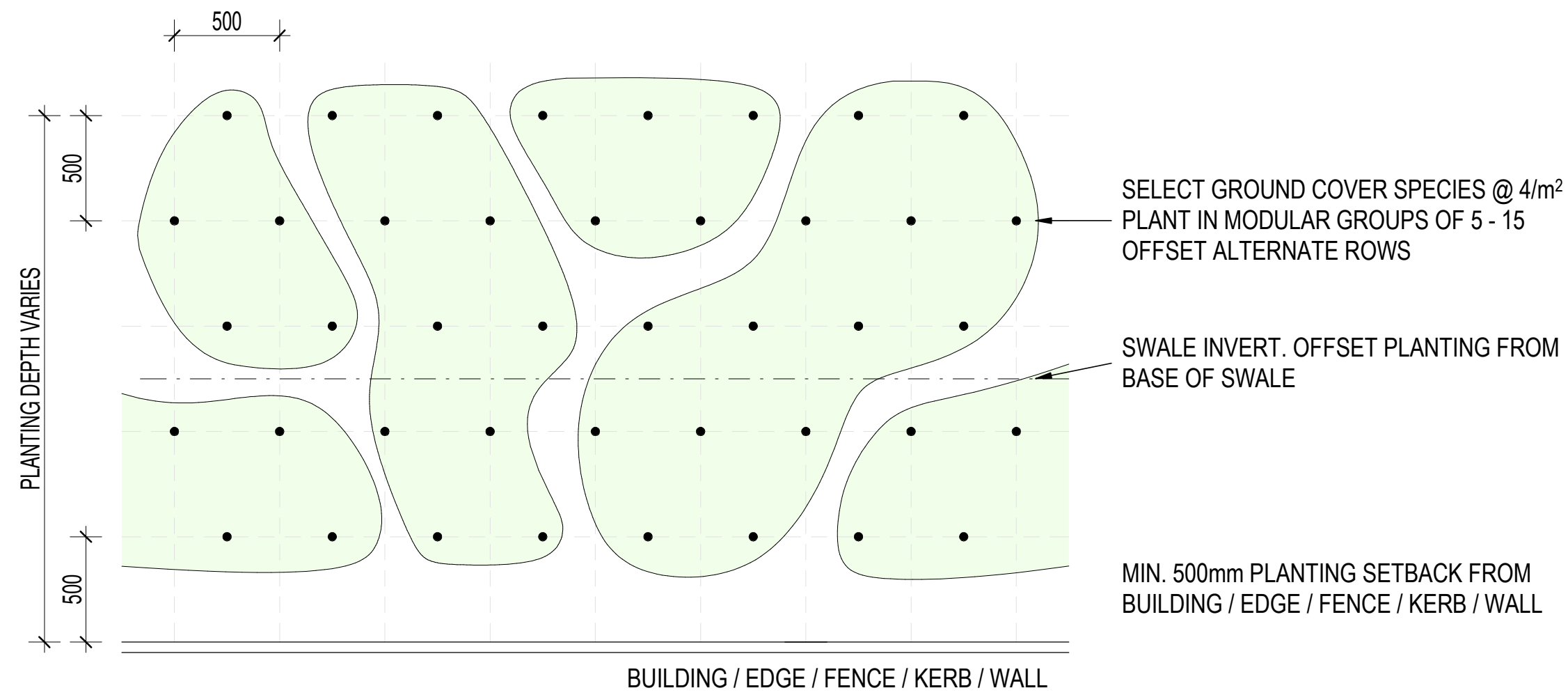
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A1

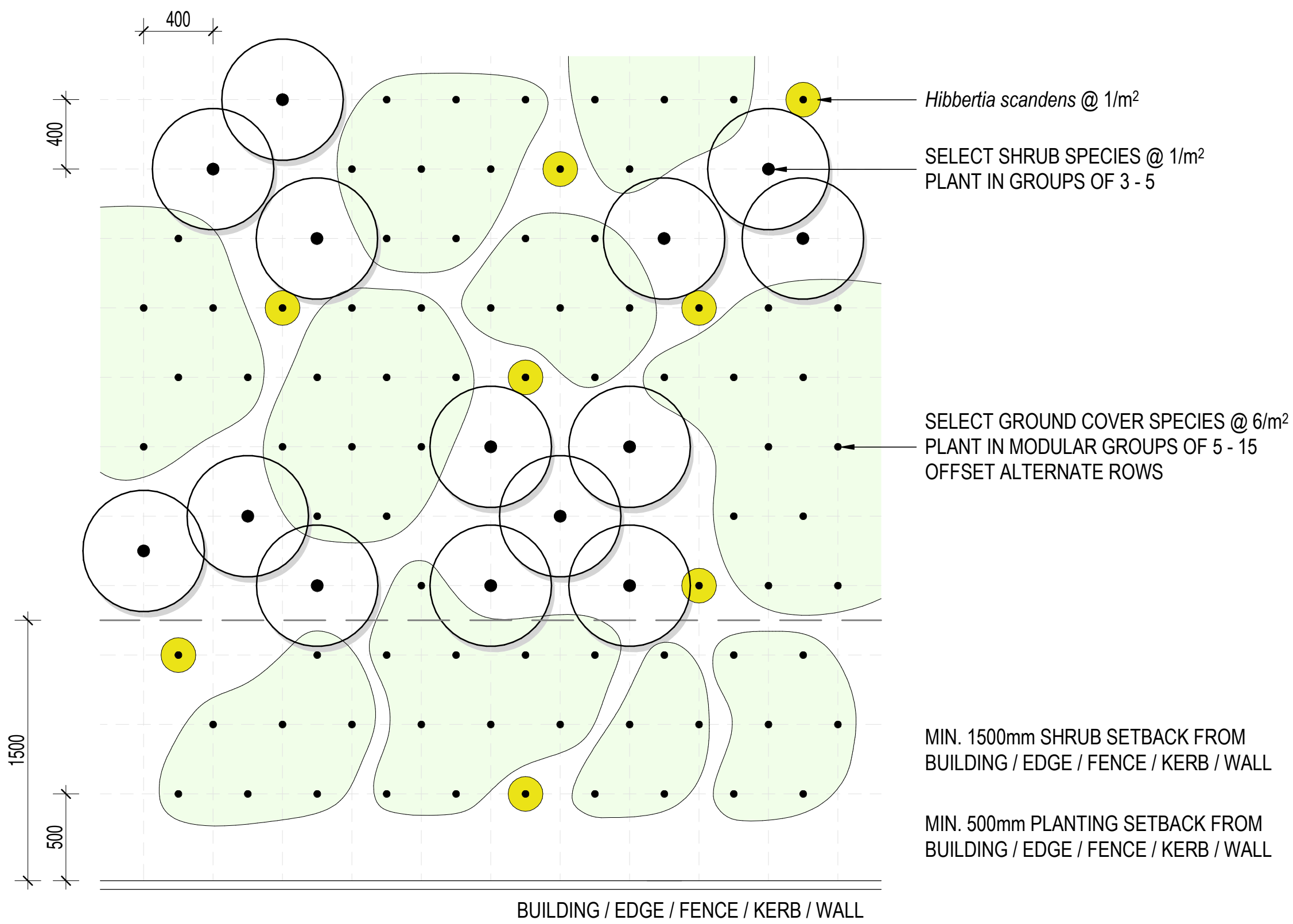
REV
C

NOT FOR CONSTRUCTION

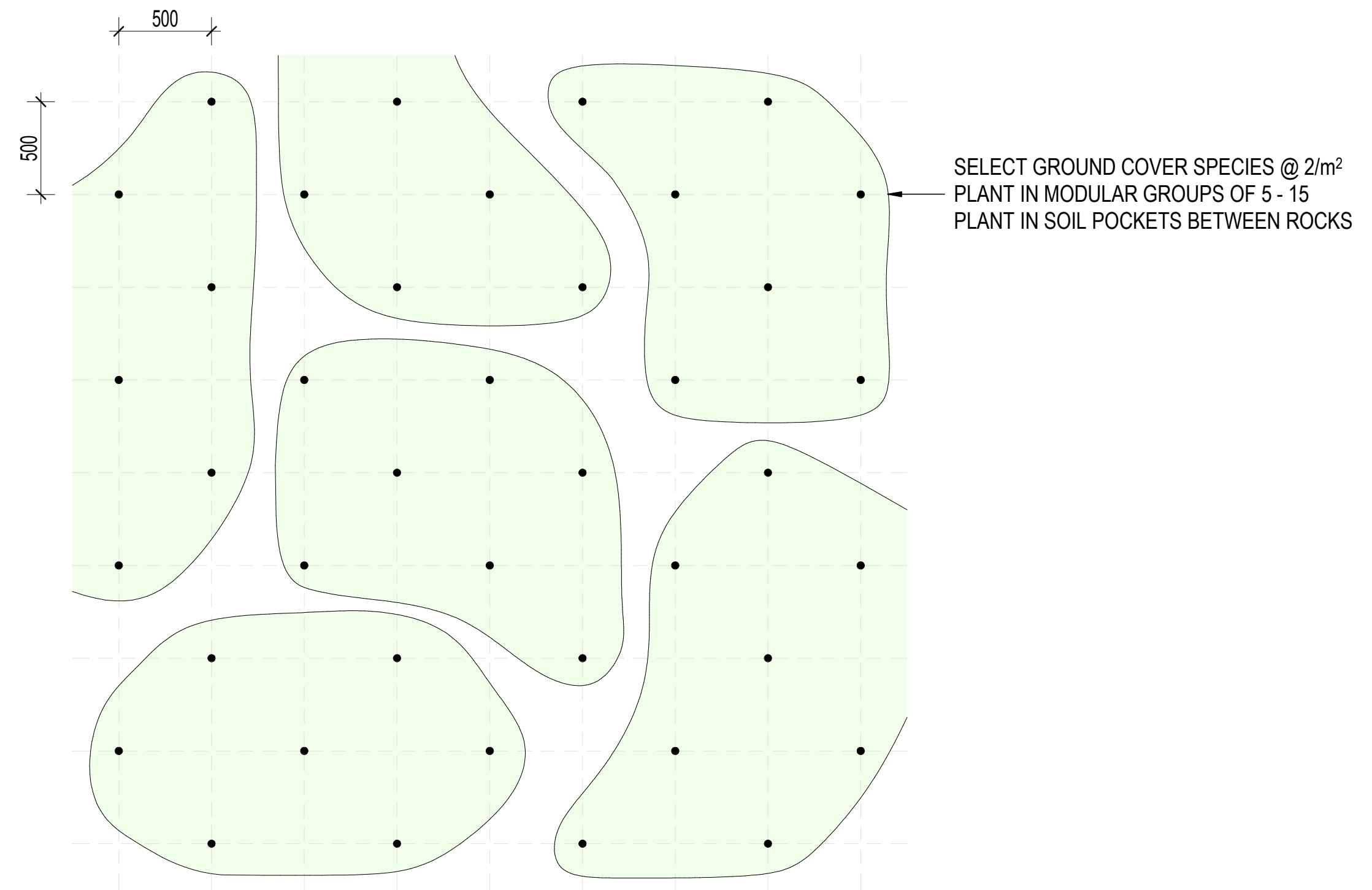
THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED



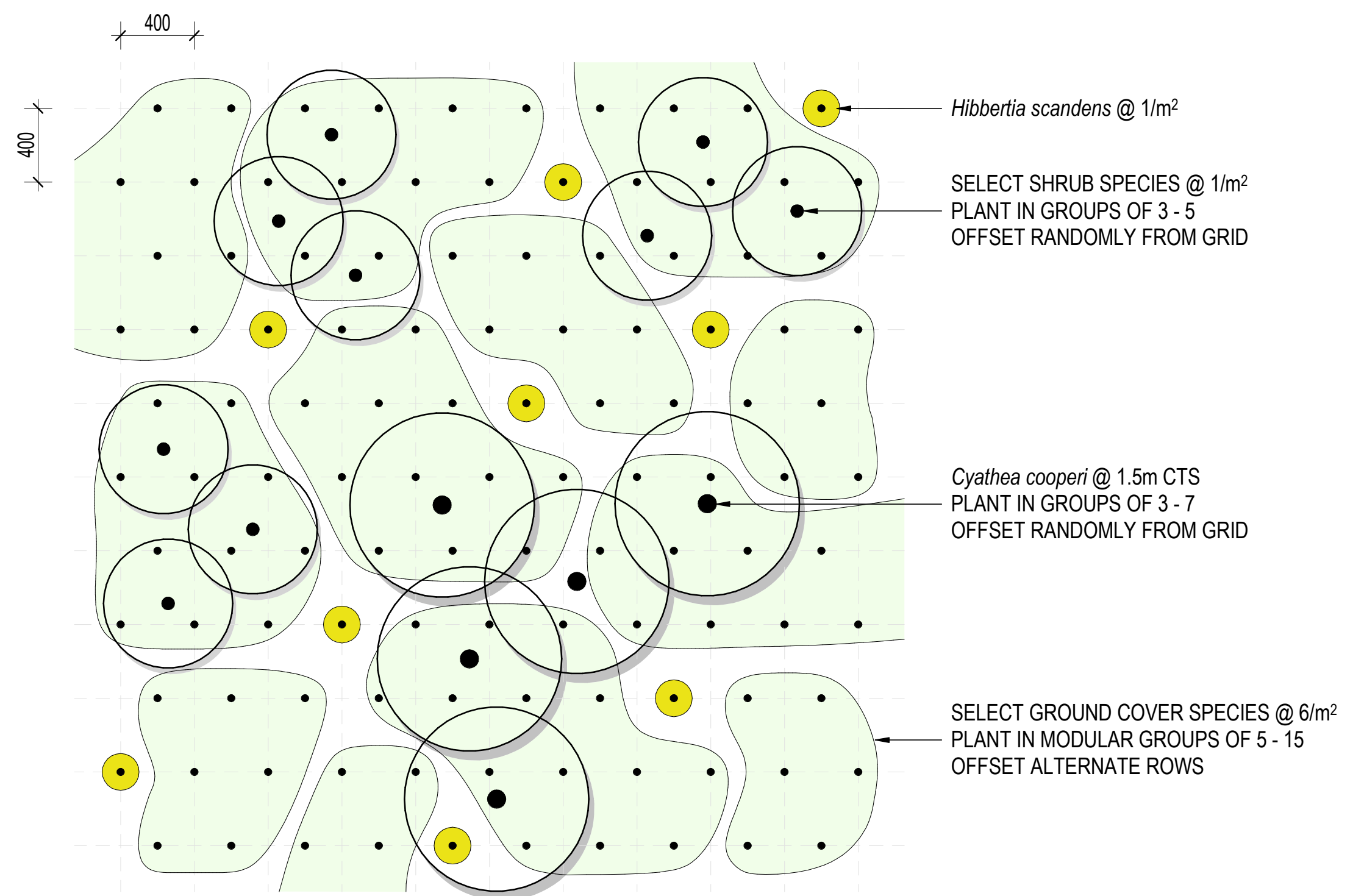
1 DRAINAGE MIX - DR-01 - TYPICAL LAYOUT
1:25



03 LOW MIX - L-01 - TYPICAL LAYOUT
1:25



02 DRAINAGE MIX - DR-02 - TYPICAL LAYOUT
1:25

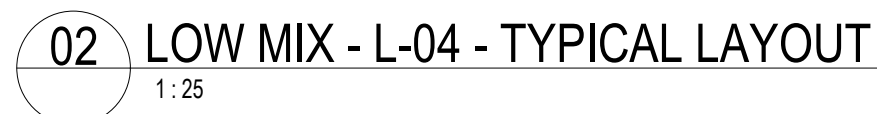
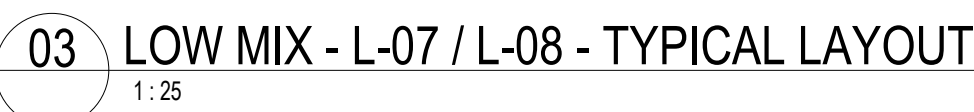
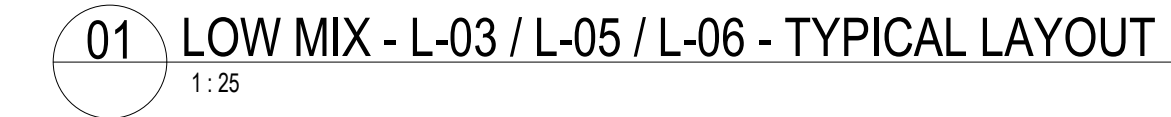


04 LOW MIX - L-02 - TYPICAL LAYOUT
1:25

NOT FOR CONSTRUCTION

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|--|------------|------------|--|--|---|--|--|--|--|--|--|--|---------------------------|--|----------|--|--|--|---|--|--|----|--------------------|--|--|--|--|---------------------------|--|--|--|--|--------|--|--|--|--|-------|--|--|--|--|------|--|--|--|--|------|--|--|--|--|-------|--|--|--|--|----------------|--|--|--|--|------------|--|--|--|--|-----------|--|--|--|--|--------------|--|--|--|--|------------|--|--|--|--|--------|--|--|--|--|----------------|--|--|--|--|------------|--|--|--|--|--------------|--|--|--|--|---------------|--|--|--|--|------------|--|--|--|--|-------------|--|--|--|--|----------------|--|--|--|--|------------|--|--|--|--|--------------|--|--|--|--|--------------|--|--|--|--|------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
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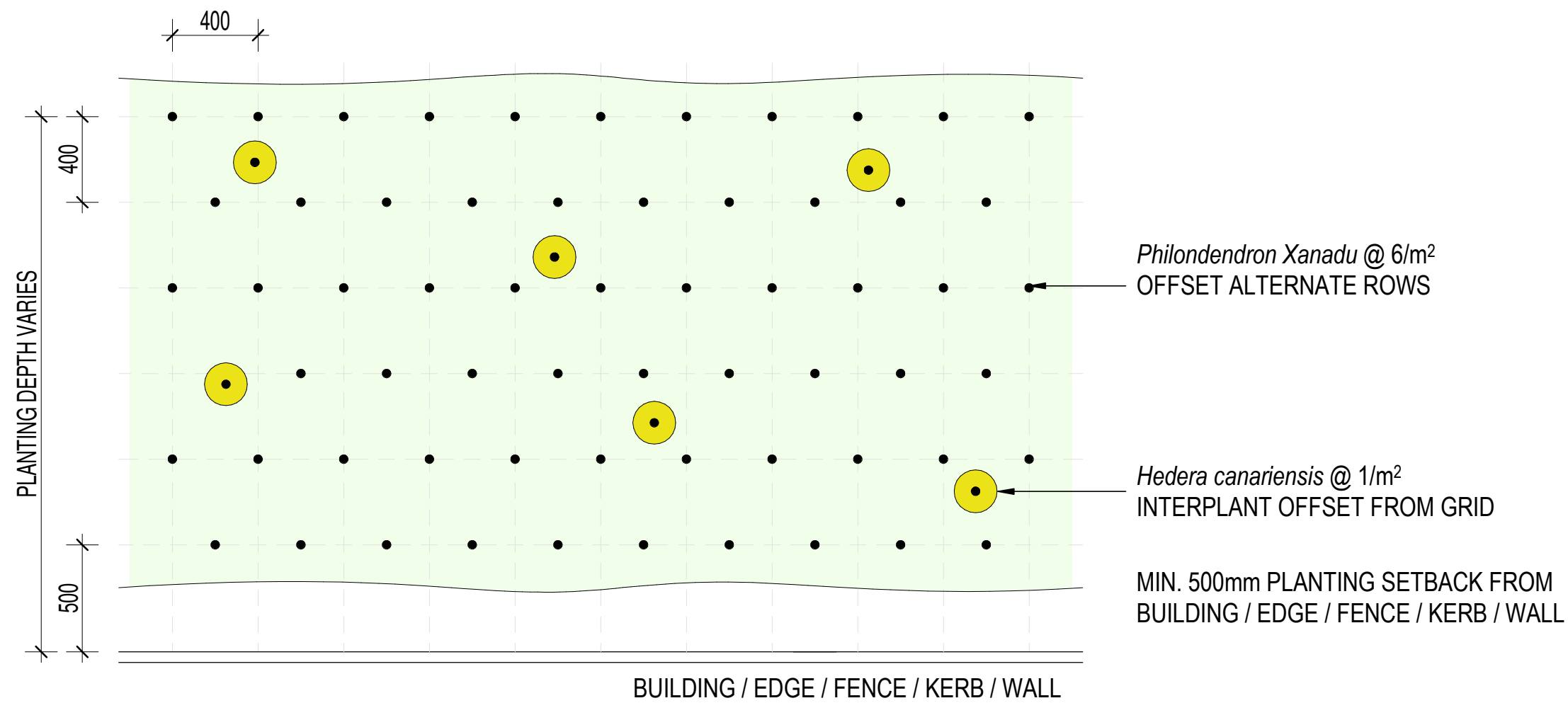
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A1

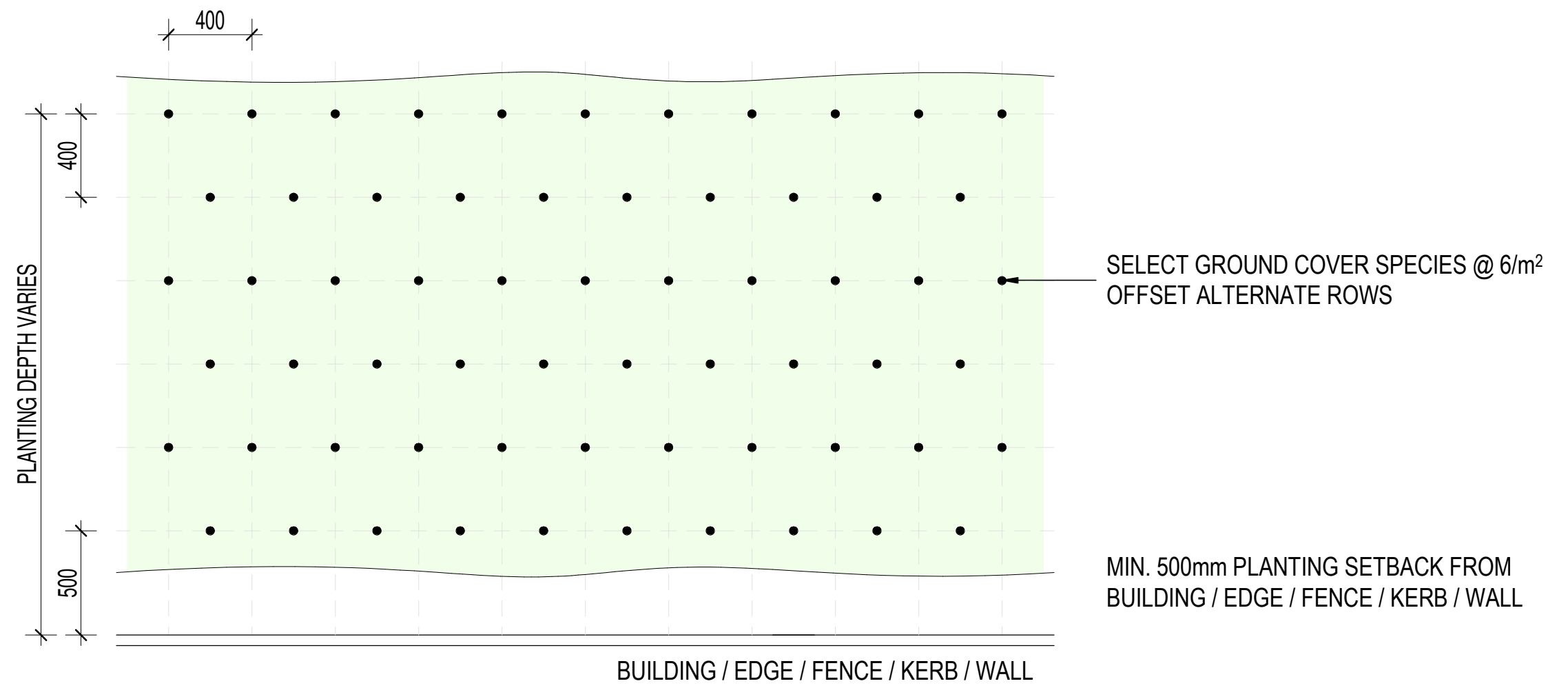
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| B1 08/04/2020 NOT ISSUED - | | | | | | | | | | | DESIGN MATTHEW WATSON 05/08/2020 | | | | | | | | | |
| B 29/04/2020 NOT ISSUED - | | | | | | | | | | | DESIGN CHECK ANTHONY PAPAS 05/08/2020 | | | | | | | | | |
| C1 20/07/2020 ISSUED FOR INTERNAL REVIEW MG | | | | DESIGN PHASE | | | | DESIGN MNGR MALCOLM GRAHAM 05/08/2020 | | | | | | | | | | | | |
| C 05/08/2020 ISSUED FOR FINAL DESIGN DOCUMENTATION MG | | | | FDD FINAL DESIGN DOCUMENTATION | | | | PROJECT MNGR JOSHUA SMALL 05/08/2020 | | | | | | | | | | | | |

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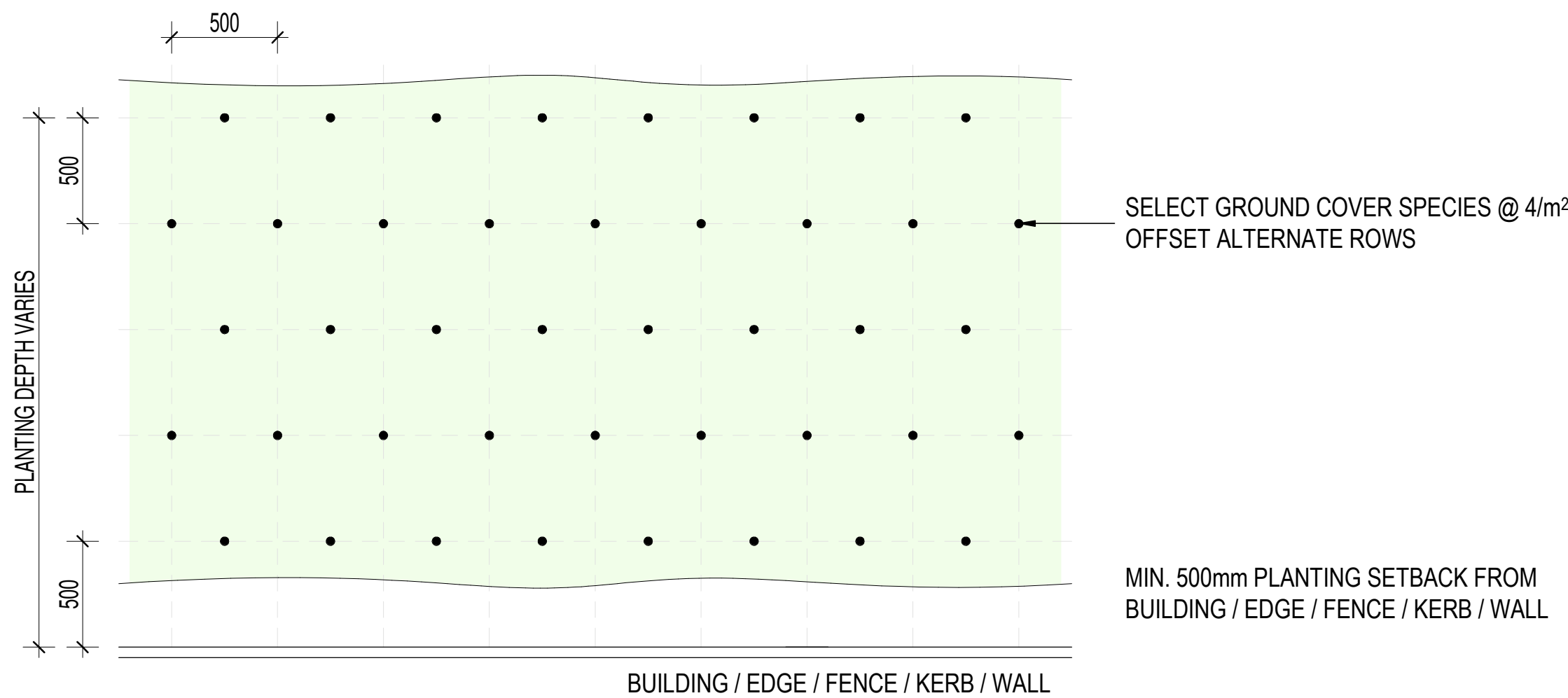
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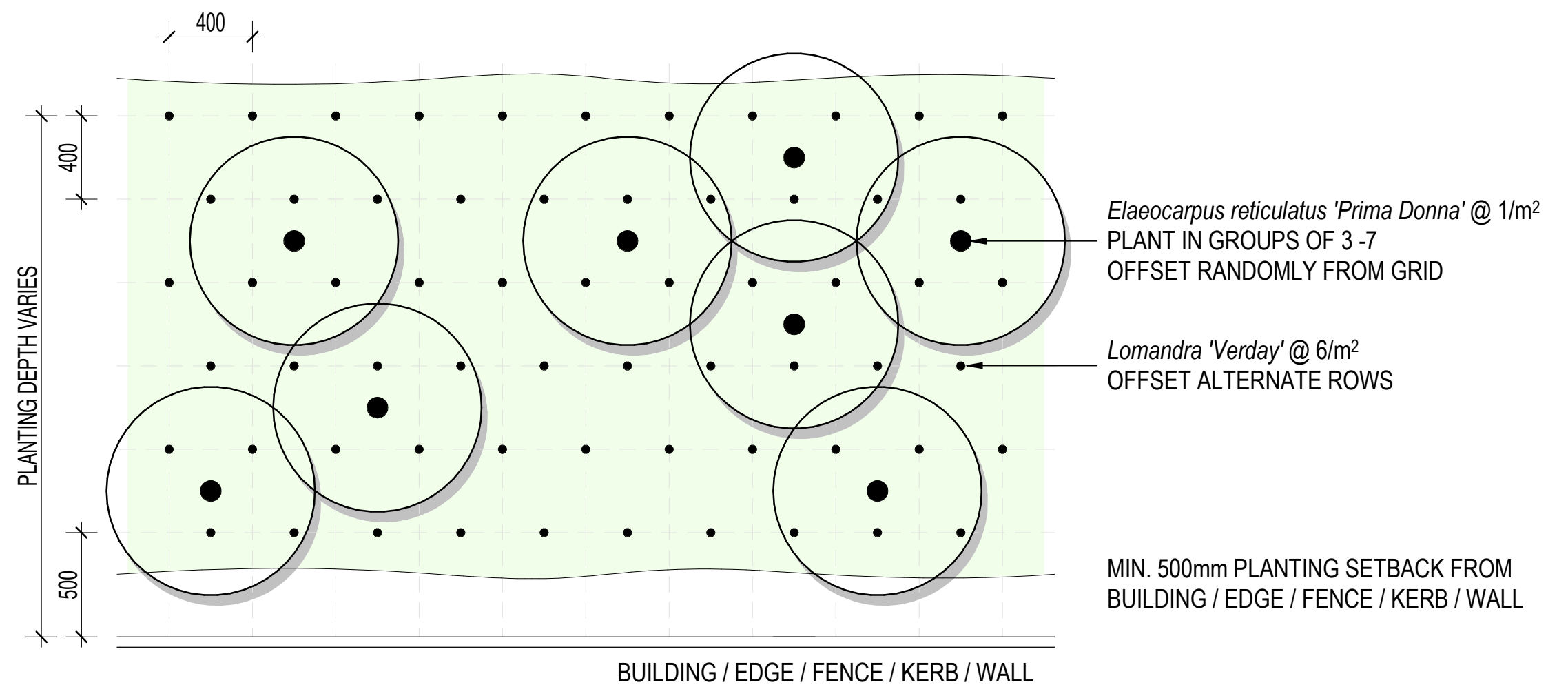
02 SKIRT MIX - S-01 / S-02 - TYPICAL LAYOUT

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03 SKIRT MIX - S-03 / S-04 / S-05 - TYPICAL LAYOUT

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04 SCREENING MIX - SC-01 - TYPICAL LAYOUT

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| DRAWING FILE LOCATION / NAME | | | |
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| A | 11/09/2019 | NOT ISSUED | - |
| B1 | 08/04/2020 | NOT ISSUED | - |
| B | 29/04/2020 | NOT ISSUED | - |
| C1 | 20/07/2020 | ISSUED FOR INTERNAL REVIEW | MG |
| C | 05/08/2020 | ISSUED FOR FINAL DESIGN DOCUMENTATION | MG |

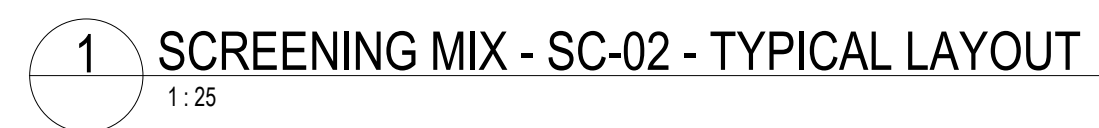
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| CLIENT | |
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| Transport Roads & Maritime Services | |

| PLOT DATE / TIME | | PLOT BY | |
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| 4/08/2020 2:15:06 PM | | MATTHEW WATSON | |
| TITLE | NAME | DATE | |
| DRAWN | MATTHEW WATSON | 05/08/2020 | |
| DRG CHECK | BEN CHARLTON | 05/08/2020 | |
| DESIGN | MATTHEW WATSON | 05/08/2020 | |
| DESIGN CHECK | ANTHONY PAPAS | 05/08/2020 | |
| DESIGN MNGR | MALCOLM GRAHAM | 05/08/2020 | |
| PROJECT MNGR | JOSHUA SMALL | 05/08/2020 | |

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| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD INNER WEST COUNCIL ROZELLE INTERCHANGE ROZELLE LOCAL ROADS - LANDSCAPE DESIGN TYPICAL DETAILS - PLANTING MIX LAYOUTS | | A1 | |
| SHEET 5 | | REV | |
| PACKAGE No. 20_82 | | JCJV DOCUMENT NAME RIC-HSL-DRG-20-UD-140-835 | |
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APPENDIX D DATA USABILITY SUMMARIES



Memo

| | | |
|--|----------------------|---------------|
| To: Chetan Jayaram | From: Brad May | Attention: XX |
| Email: Chetan.Jayaram@rozelleinterchange.com.au | | |
| Project No: SY180068.01 | Date: 8 January 2019 | |
| Subject: WestConnex Stage 3B Site Audit – WSP (2020) Pigtail Bridge Detailed Site Investigation | | |

Data Usability Summary Assessment

As part of the site audit, a data usability summary assessment was conducted on:

- WSP 2021, 'WestConnex Stage 3B – Rozelle Interchange – Sub Site Area – Pigtail Bridge – Detailed Site Investigation', 17 March 2021 (Ref: PS117368-CLM-REP-PT RevC, Final).

WSP conducted field and laboratory quality assurance and quality control (QA/QC) based on WSP's standard procedures and guidance documentation. Based on the assessments of the soil and groundwater data collected, WSP concluded that:

The sampling methods (including sample preservation, transport and decontamination procedures) and laboratory methods followed during the investigation works were consistent with standard protocols. It is therefore considered that the data is sufficiently precise and accurate for the purposes of this project.

The WSP DSI data are summarised in the following tables:

- Table B1.1, field QA samples summary,
- Table B1.2, summary of field QA/QC, and
- Table B1.3, summary of laboratory QA/QC.

Table B1.1 - QA Samples Summary

| | Total Samples | Field Duplicates ¹ | Inter-lab Duplicates ¹ | Trip Spike | Trip Blank | Rinsate |
|--------------|---------------|-------------------------------|-----------------------------------|------------|------------|---------|
| Soil | | | | | | |
| Arsenic | 23 | 3 | 3 | - | - | - |
| Arsenic ASLP | 5 | - | - | - | - | - |
| Barium | 23 | 3 | 3 | - | - | - |
| Beryllium | 23 | 3 | 3 | - | - | - |
| Boron | 23 | 3 | 3 | - | - | - |
| Cadmium | 23 | 3 | 3 | - | - | - |
| Cadmium ASLP | 5 | - | - | - | - | - |

| | Total Samples | Field Duplicates ¹ | Inter-lab Duplicates ¹ | Trip Spike | Trip Blank | Rinsate |
|--------------------|---------------|-------------------------------|-----------------------------------|------------|------------|---------|
| Chromium (total) | 23 | 3 | 3 | - | - | - |
| Chromium ASLP | 5 | - | - | - | - | - |
| Cobalt | 23 | 3 | 3 | - | - | - |
| Copper | 23 | 3 | 3 | - | - | - |
| Copper ASLP | 5 | - | - | - | - | - |
| Lead | 23 | 3 | 3 | - | - | - |
| Lead ASLP | 5 | - | - | - | - | - |
| Manganese | 23 | 3 | 3 | - | - | - |
| Mercury | 23 | 3 | 3 | - | - | - |
| Mercury ASLP | 5 | - | - | - | - | - |
| Nickel | 23 | 3 | 3 | - | - | - |
| Nickel ASLP | 5 | - | - | - | - | - |
| Selenium | 23 | 3 | 3 | - | - | - |
| Vanadium | 23 | 3 | 3 | - | - | - |
| Zinc | 23 | 3 | 3 | - | - | - |
| Zinc ASLP | 5 | - | - | - | - | - |
| Asbestos | 15 | - | - | - | - | - |
| TRH C6-C10 | 22 | - | - | 3 | 4 | - |
| TRH | 22 | 3 | 3 | - | - | - |
| BTEX | 22 | 3 | 3 | 3 | 4 | 2 |
| PAH | 22 | 3 | 3 | - | - | - |
| PAH ASLP | 5 | - | - | - | - | - |
| PCB | 15 | - | * | - | - | - |
| PFAS | 7 | 3 | 2 | - | - | - |
| Phenols | 22 | 3 | 3 | - | - | - |
| OCP | 15 | 3 | 3 | - | - | - |
| OPP | 15 | 3 | 3 | - | - | - |
| SVOC | 9 | - | - | - | - | - |
| VOC | 9 | - | - | - | - | - |
| CRS Suite | 16 | 1 | 1 | - | - | - |
| Groundwater | | | | | | |
| Arsenic | 3 | 1 | 1 | - | - | - |
| Cadmium | 3 | 1 | 1 | - | - | - |
| Chromium | 3 | 1 | 1 | - | - | - |
| Copper | 3 | 1 | 1 | - | - | - |

| | Total Samples | Field Duplicates ¹ | Inter-lab Duplicates ¹ | Trip Spike | Trip Blank | Rinsate |
|------------|---------------|-------------------------------|-----------------------------------|------------|------------|---------|
| Lead | 3 | 1 | 1 | - | - | - |
| Mercury | 3 | 1 | 1 | - | - | - |
| Nickel | 3 | 1 | 1 | - | - | - |
| Zinc | 3 | 1 | 1 | - | - | - |
| TRH | 3 | 1 | 1 | - | - | 1 |
| TRH C6-C10 | 3 | 1 | 1 | - | 1 | - |
| BTEX | 3 | 1 | 1 | 1 | 1 | - |
| PAH | 3 | 1 | 1 | - | - | - |
| Phenols | 3 | 1 | 1 | - | - | - |
| OCP | 3 | 1 | 1 | - | - | - |
| OPP | 3 | 1 | - | - | - | - |
| SVOC | 3 | 1 | 1 | - | - | - |
| VOC | 3 | 1 | 1 | - | - | - |

Notes:

1. Shows number of duplicate samples collected and the percentage of total samples analysed.

2. Arsenic, lead, cadmium, chromium, copper, nickel, and zinc.

3. Metals and OCPs/OPPs testing

– = not applicable, as trip spike/blank analysed for volatile compounds only.

*analysed on duplicate sample but not parent pair

Table B1.2 - Summary of field QA/QC

| Parameter | Complies | Comments ¹ |
|--|----------|---|
| Precision | | |
| Standard operating procedures (SOPs) appropriate and complied with | Yes | The sampling methods generally complied with industry standards and guidelines. |
| Field duplicates | Partial | <p>≥ 5%. RPD2 criteria < 30% - 50% when >10x LOR.</p> <p>All RPD exceedances were <10x LOR with the exception of Net Acidity (46% RPD) for soil duplicate pair WSP_PT_BH01_3.0 and QA03.</p> |
| Inter-laboratory duplicates | Yes | <p>≥ 5%. RPD2 criteria < 30% – 50% when >10x LOR.</p> <p>All RPD exceedances were <10x LOR.</p> |
| Accuracy | | |
| Matrix spikes samples appropriate | Yes | ≥ 1/media type. |
| Representativeness | | |
| Sample collection - preservation | Yes | All samples were collected directly into laboratory supplied jars/bottles and stored at cool temperatures. |

| Parameter | Complies | Comments ¹ |
|--------------------------------------|----------|--|
| Sample collection - sample splitting | N/A | Not detailed in report |
| Field equipment calibrated | Yes | Field equipment calibration sheets provided in appendix H |
| Decontamination procedures | Yes | The decontamination methods generally complied with industry standards and guidelines |
| Rinsate samples | Partial | Rinsate blanks not collected during batch on 27 th or 31 st March. All rinsate blank samples were < LORs. |
| Trip blanks | Partial | Trip blanks not collected 31 st March. All trip blank samples were < LORs |
| Trip spikes | Partial | Trip blanks not collected 31 st March. Trip spikes were not recovered >70% |
| Comparability | | |
| Consistent sampling staff | N/A | No information is included with respect to fieldwork staff. |
| Consistent weather/field conditions | N/A | No information is included with respect to weather/field conditions. |
| Completeness | | |
| Sample logs and field data | Yes | Standard field sampling sheets were used during the investigation. |
| Chain of Custody | Yes | CoCs included in report |

Notes:

For QC samples, specified frequency and acceptance criteria shown.

RPD = relative percentage difference.

Table B1.3 - Summary of Laboratory QA/QC

| Parameter | Complies | Comments ¹ |
|---|----------------|--|
| <i>Precision</i> | | |
| <i>Laboratory duplicates</i> | <i>Partial</i> | ≥ 10% samples (laboratory nominated). RPD exceedances: ES2012229 – Manganese, total PAH x2 ES2011171 – total PAH ES2011031 – total PAH |
| <i>Accuracy</i> | | |
| <i>Surrogate spikes</i> | <i>Partial</i> | Organics by GC, 70% - 130%. ES2011031 - 2-Chlorophenol-D4 |
| <i>Matrix spikes analysis appropriate</i> | <i>Partial</i> | ≥ 70% - 130%. ES2011031 – PFOS not determined |

| Parameter | Complies | Comments ¹ |
|---|----------|---|
| Laboratory control samples (LCSS) | Partial | <p>≥ 1/lab batch, 70% - 130%.</p> <p>Exceedances:</p> <p>ES2012229 – Pentachlorophenol and 4-Nitroquinoline-N-oxide</p> <p>ES2011171 - 4-Nitroquinoline-N-oxide and 4-Aminobiphenyl</p> <p>ES2011031 - 4-Nitroquinoline-N-oxide, phenol and 4-Aminobiphenyl</p> |
| Certified reference material (CRM) | n/a | - |
| Representativeness | | |
| Sample condition | Yes | - |
| Holding times | Partial | <p>Holding time exceedances:</p> <p>ES2012229 – pH and VOC</p> |
| Laboratory blanks | Yes | ≥ 1/lab batch, < LORs. |
| Comparability | | |
| NATA accredited laboratory | Yes | ALS Environmental NATA accreditation number 825. The secondary laboratory Eurofins Accreditation Number 1261 |
| NEPM methods or similar | Yes | ALS Environmental and Eurofins follows methods in accordance with the requirements of NEPC (1999). |
| Limits of reporting (LORs) consistent and appropriate | Partial | All limits of reporting were consistent with the exception of inter laboratory duplicate for water QA01A. |
| Completeness | | |
| Sample receipt | N/A | No COC provided |
| Laboratory Reports | Yes | - |

1. For QC samples, acceptance criteria shown. Acceptance criteria can vary based on analyte, statistical data and laboratory specific methods. Laboratory specified relates to detected concentrations based on LORs, e.g. result < 10 x LOR = no limit, 10 – 20 x LOR = 0 - 50%, > 20 x LOR = 0 - 20%. See laboratory reports for specific details.

Summary and Discussion

The following issues were identified with the data:

- Precision
 - RPD's for intra and inter laboratory duplicates were less than 30% for analytes <10 x the LOR. Laboratory duplicates exceeded laboratory QA/QC criteria. Laboratory duplicate exceedances were not significant or indicative of large errors.
- Accuracy
 - Minor exceedances of Laboratory Control Spikes were noted. The dataset is considered accurate to 95% confidence.
- Representativeness

- No outliers have been reported for QC samples collected to assist in the qualification of representativeness.
- Comparability
 - The data is considered to be acceptable, NATA accredited laboratories were used and the LORs were consistent with the exception of QA01A. The dataset is considered comparable.
 - Limited information was provided regarding the experience level of sampling staff.
- Completeness
 - Laboratory and field documentation is considered to be complete with the exception of COC's, which have not been provided.

1 BACKGROUND TO DATA USABILITY

1.1 INTRODUCTION

Information generated from environmental investigations requires some statement in regard to the usability of the data¹, and therefore quality assurance (QA) and quality control (QC) are an integral part of the analysis and interpretation of environmental data. QA/QC used in contaminated sites investigations is briefly reviewed in this section.

Quality assurance involves all of the actions, procedures, checks and decisions undertaken to ensure the representativeness and integrity of samples, and accuracy and reliability of analytical results (NEPC as amended 2013). Quality control is the component of QA which monitors and measures the effectiveness of other procedures by the comparison of these measures to previously decided objectives.

There are various components of QA/QC which address the operation of the laboratories and the routine procedures conducted to achieve a minimum level of quality. Examples of QA components include sample control, data transfer, instrument calibration, staff training, etc. Examples of QC components include the measurement of samples to assess the quality of reagents and standards, cleanliness of apparatus, accuracy and precision of methods and instruments, etc. Generally, the management of laboratory QA issues is addressed through accreditation by the National Association of Testing Authorities (NATA), or similar, and monitoring of these issues is not addressed on a project by project basis.

On a project specific basis, those involved in collecting, assessing or reviewing the relevant data should ensure the minimum level of QA is conducted. Appropriate numbers and types of QC samples should be collected and analysed, both field QC samples and laboratory QC samples. While minimum levels of QA/QC are specified in some guidelines, e.g. NSW EPA 1994, AS 4482.1-1997, NEPC as amended 2013, the minimum level required may vary between projects, based on site and project specific aspects. This means that the minimum specified requirements may not be sufficient for a particular project. As described in the NEPM (NEPC 1999):

As a general rule, the level of required QC is that which adequately measures the effects of all possible influences upon sample integrity, accuracy and precision, and is capable of predicting their variation with a high degree of confidence.

¹ To avoid confusion with the data quality objectives (DQOs) process, the term data usability is used rather than data quality

2 PARCC PARAMETERS

Following receipt of laboratory analytical results, data validation is conducted to determine if the specified acceptance criteria have been met. This is conducted to ensure that all data, and subsequent decisions based on that data, are technically sound. Data quality is typically discussed in terms of precision, accuracy, representativeness, comparability and completeness. These are referred to as the PARCC parameters². Field QA/QC and laboratory QC is described below within the PARCC framework.

2.1 PRECISION

2.1.1 Duplicates

Precision is a measure of the reproducibility of results under a given set of conditions and is assessed on the basis of agreement between a set of duplicate results obtained from duplicate analyses. The precision of a duplicate determination is measured by comparing the difference between the two samples to the average of the two samples, expressed as a relative percentage difference (RPD).

The determination is:

$$RPD = (P-D)/(P+D/2) \times 100 \quad P = \text{primary sample}$$

D = duplicate sample

Three types of duplicates are commonly used:

- field duplicates are used to measure the precision of the sampling and analytical process;
- inter-laboratory duplicates are used to check on the analytical performance of the primary laboratory; and
- laboratory duplicates are used to measure the precision of the analytical process.

2.1.2 Field Duplicates

Field duplicates (or blind replicates) are collected from the same location and submitted to the laboratory for analyses, as a primary sample. The sample nomenclature is such that the laboratory is not aware which sample is a duplicate. The RPD is calculated to determine the degree of repeatability (precision) of results obtained from the duplicate analysis. Where results are below the practical quantification limit (PQLs) or limits of reporting (LORs), i.e. non-detects, RPDs cannot be calculated.

² The PARCC parameters are sometimes referred to as data quality indicators (DQIs).

Where one result is detected, the results are considered to conform when the detected result is less than five times the PQL/LOR.

The PQL/LOR is the lowest concentration of an analyte that can be determined with acceptable precision (repeatability) and accuracy under the test conditions. The PQL/LOR is usually calculated as five times the lower limit of detection (or method detection limit). However, adjustments in PQLs/LORs may be required due to interference from high contaminant concentrations.

As environmental samples can exhibit a high degree of heterogeneity, field duplicates often exceed the acceptance criterion, particularly if the samples are co-collected, for example, because of the potential for losing volatiles during sample splitting. It is generally accepted that before results which fail the acceptance criterion are described as due to low concentrations or sample heterogeneity, the sample should be re-analysed. This may not be necessary when the analytical results are significantly less than the landuse criteria.

2.1.3 Inter-laboratory duplicates

Inter-laboratory duplicates (or split samples) are field duplicates which are sent to a second laboratory and analysed for the same analytes and, as far as possible, by the same methods. These provide a check on the analytical performance of the primary laboratory.

2.1.4 Laboratory Duplicates

Laboratory duplicates (or check samples) are field samples which are split by the laboratory and thereafter treated as separate samples. The RPD is calculated to determine the degree of repeatability (precision) of results obtained from the duplicate analysis.

USEPA (1994) specifies that for inorganics, if the results for laboratory duplicates fall outside of the recommended control limits for a particular analyte, all results for that analyte, in all associated samples of the same matrix, should be qualified as an estimated quantity. For organics, USEPA (1999) does not specify recommended actions for laboratory duplicates.

2.2 ACCURACY

Accuracy is a measure of the agreement between an experimental determination and the true value of the parameter being measured. Inasmuch as the true sample concentrations are not known, the determination of accuracy is achieved through the analysis of known reference materials or assessed by the analysis of matrix spikes. Spiking of reference material into the actual sample matrix is the preferred technique because it provides a measure of the matrix effects on the analytical recovery.

Accuracy is measured in terms of percentage recovery as defined by:

$$\%R = ((SSR - SR) / SA) \times 100$$

%R = percentage recovery spike

SSR = spiked sample result

SR = sample result

SA = spike added

2.2.1 Matrix spikes/matrix spike duplicates

These are samples prepared in the laboratory by dividing a sample into two aliquots and then spiking each with identical concentrations of specific analytes. The matrix spike (MS) and matrix spike duplicate (MSD) are then analysed separately and the results compared to determine the accuracy and precision of the analytes.

2.2.2 Surrogate spikes

Surrogate spikes provide an indication of analytical accuracy. They are used only for analyses which use gas chromatography and are compounds which are similar to the organic analytes of interest in chemical composition, extraction and chromatography, but which are not normally found in field samples. Surrogates are generally spiked into all sample aliquots prior to preparation and analysis. If the surrogate spike recovery does not meet the prescribed acceptance criteria, the samples should be re-analysed.

2.2.3 Laboratory control samples

Laboratory control samples (quality control check samples) are laboratory prepared samples of an appropriate clean matrix (i.e. sand or distilled water) which are spiked with known concentrations of specific analytes. The laboratory control sample (LCS) is then analysed and the results are used to assess sample preparation and analytical accuracy, free of matrix effects. Certified reference material (CRM) is another form of LCS, and involves the analysis of a known standard as part of the laboratory batch, e.g. British Columbia sediment samples for analysis of metals.

2.3 REPRESENTATIVENESS

Representativeness refers to the degree to which the samples reflect the site specific conditions. It is primarily dependent on the design and implementation of the sampling program, with representativeness of the data being partially ensured by the avoidance of cross-contamination, adherence to sample handling and analytical methods, use of field duplicates, ensuring that samples do not exceed holding times prior to analysis, use of chain-of-custody forms and other appropriate documentation.

There are a number of QC samples which can be collected to assist in the qualification of representativeness, including:

2.3.1 Rinsate blanks

Used to determine if sampling equipment has been adequately decontaminated to ensure that cross-contamination between samples has not occurred. The frequency for rinsate blanks is one per piece of equipment per day (AS 4482.1-1997), however it should be noted that cross-contamination will bias samples upwards, and the frequency should therefore be at the investigators discretion.

2.3.2 Trip blanks

Used only when volatile organics are sampled to determine if transport in motor vehicles or similar has resulted in contamination of the samples. For trip blanks, a sufficient number should be analysed to allow the representativeness of the sampling to be determined. However, it should be noted that cross-contamination will bias samples upwards, and the frequency should therefore be at the investigators discretion.

2.3.3 Trip spikes

Used only when volatile organics are sampled to attempt to quantify loss of volatiles during the analytical process. For trip spikes, a sufficient number of samples should be analysed to allow qualification of the likely loss of volatiles during the field sampling.

2.3.4 Laboratory blanks

Laboratory blanks (or method blanks, or analysis blanks) are used to verify that contaminants are not introduced into the samples during sample preparation and analysis. The NEPM (NEPC 1999) specifies that laboratory blanks should be conducted at a frequency of “at least one per process batch”. The acceptance criterion for laboratory blanks is non-detect at the PQL/LOR.

2.4 COMPARABILITY

Comparability is a qualitative parameter designed to express the confidence with which one data set may be compared with another, including established criteria. Comparability is maintained by using consistent methods and ensuring that PQLs/LORs are below the relevant criteria.

2.5 COMPLETENESS

Quality control sample completeness is defined as the number of QC samples which should have been analysed, compared to the actual number analysed. If the appropriate number of QC samples are not analysed with each matrix or sample batch, then the data reviewer should use professional judgement to determine if the associated sample data should be qualified.

Completeness also refers to the complete and correct inclusion of field/sample documentation and laboratory documentation.

2.5.1 QC sample frequency and criteria

Based on EPA made or approved guidelines, the following QC samples are required for all contaminated site investigations, unless otherwise specified as part of the data quality objectives (DQOs) process review. All data to be used for validation should conform as a minimum to the requirements specified, regardless of minimum sample size.

| Quality control sample | Frequency | Results ¹ |
|-------------------------------------|-----------------------------|------------------------------------|
| Precision | | |
| Field duplicates. | ≥ 5% | ≤ 30 - 50% ² |
| Inter-laboratory duplicates. | ≥ 5% | ≤ 30 - 50% ² |
| Laboratory duplicates. | ≥ 10% | Lab specified ³ |
| Accuracy | | |
| Surrogate spikes. | Organics by GC | 70 – 130% ⁴ |
| Matrix spikes (MSs). | ≥ 1/media type | 70 - 130% ⁵ |
| Laboratory control samples (LCSs). | ≥ 1/lab batch | 70 - 130% ⁶ |
| Certified reference material (CRM). | LCS for metals | Lab specified ⁷ |
| Representativeness | | |
| Rinsate samples. | ≥ 1/field batch | < LOR |
| Trip blanks. | ≥ 1/field batch (volatiles) | < LOR |
| Trip spikes. | ≥ 1/field batch (volatiles) | 70 - 130%, ≤ 30 - 50% ⁸ |
| Laboratory blanks. | ≥ 1/lab batch | < LOR |

Notes:

- Where results are laboratory specified, the laboratory analytical reports should be consulted for specific information.
- Relative percentage differences (RPDs) for field duplicates from AS 4482.1 (1997).
- RPDs for laboratory duplicates specified by the laboratory. Based on the magnitude of the results compared to the level of reporting (LOR), e.g. ALS: result < 10 x LOR = no limit, 10 – 20 x LOR = 0-50%, > 20 x LOR = 0-20%. LabMark: < 5 x LOR = 0-100%, 5 – 10 x LOR = 0- 75%, > 10 x LOR = 0-50% or 0-30% for metals.
- Surrogate recoveries specified by laboratory based on global acceptance criteria or dynamic recovery limits based on statistical evaluation of actual laboratory data.
- MS recoveries specified by laboratory based on global acceptance criteria.
- LCS recoveries specified by laboratory based on global acceptance criteria or dynamic recovery limits based on statistical evaluation of actual laboratory data.
- CRM recoveries specified by laboratory based on global acceptance criteria.
- Trip spike results are specified as either recoveries or RPDs.

3 REFERENCES

- Australian New Zealand Environment and Conservation Council (1996) *Guidelines for the laboratory analysis of contaminated soils*. ANZECC, Canberra, ACT.

- Australian Standard AS 4482.1 (2005) *Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and Semi-volatile compounds*. Standards Australia, Homebush, NSW.
- National Environment Protection Council (NEPC) (1999) *National Environmental Protection (Assessment of Site Contamination) Measure 1999* (as amended April 2013). National Environment Protection Council, Canberra.
- NSW Environment Protection Authority (2020) *Consultants Reporting on Contaminated Land – Contaminated Land Guidelines*. NSW EPA, Parramatta, NSW.
- United States Environmental Protection Agency, Contract Laboratory Program (1994)
- *National Functional Guidelines for Inorganic Data Review*. USEPA, Washington, DC.
- United States Environmental Protection Agency, Contract Laboratory Program (1999).
- *National Functional Guidelines for Organic Data Review*. USEPA, Washington, DC.



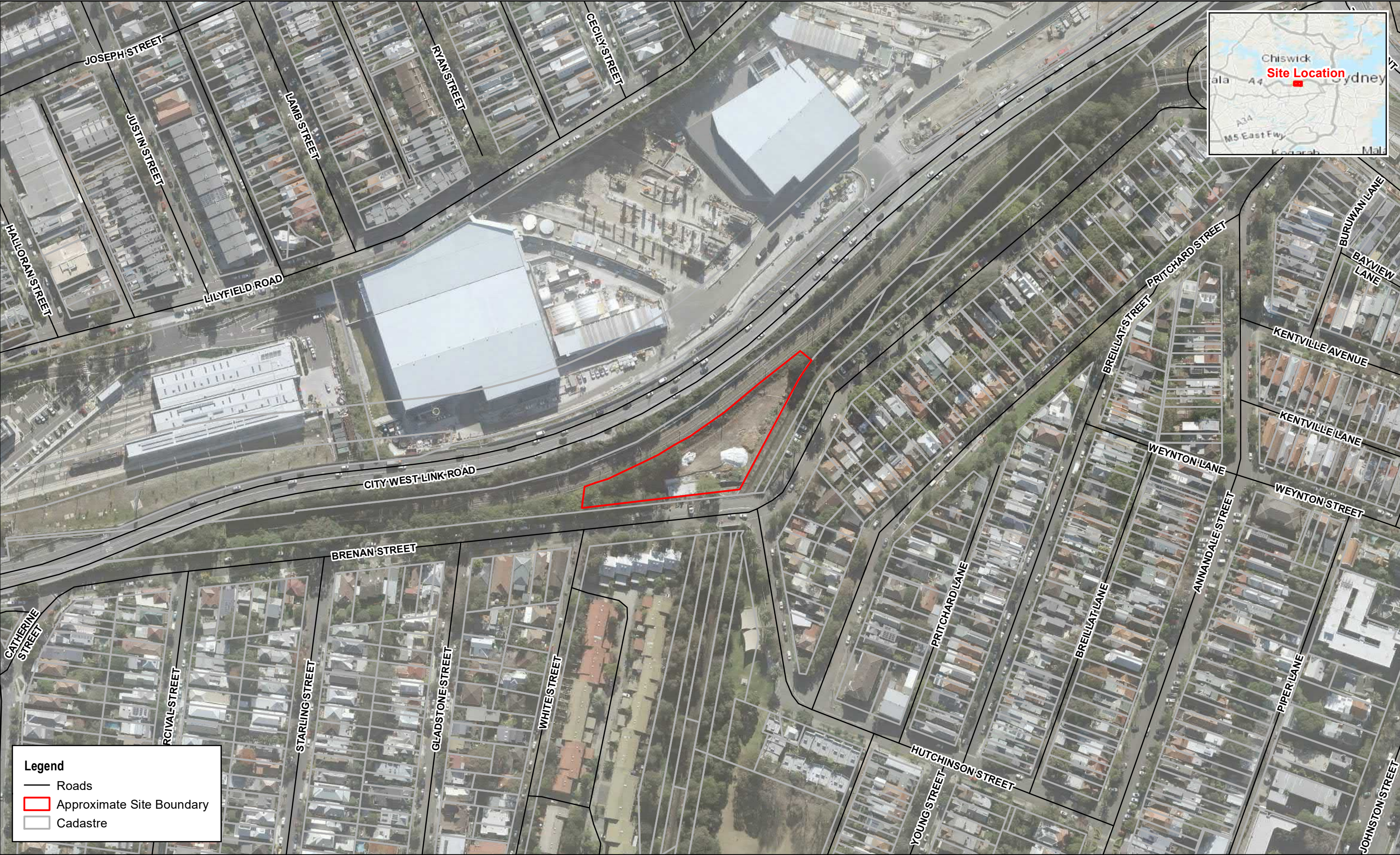
APPENDIX E WSP EXTRACTS

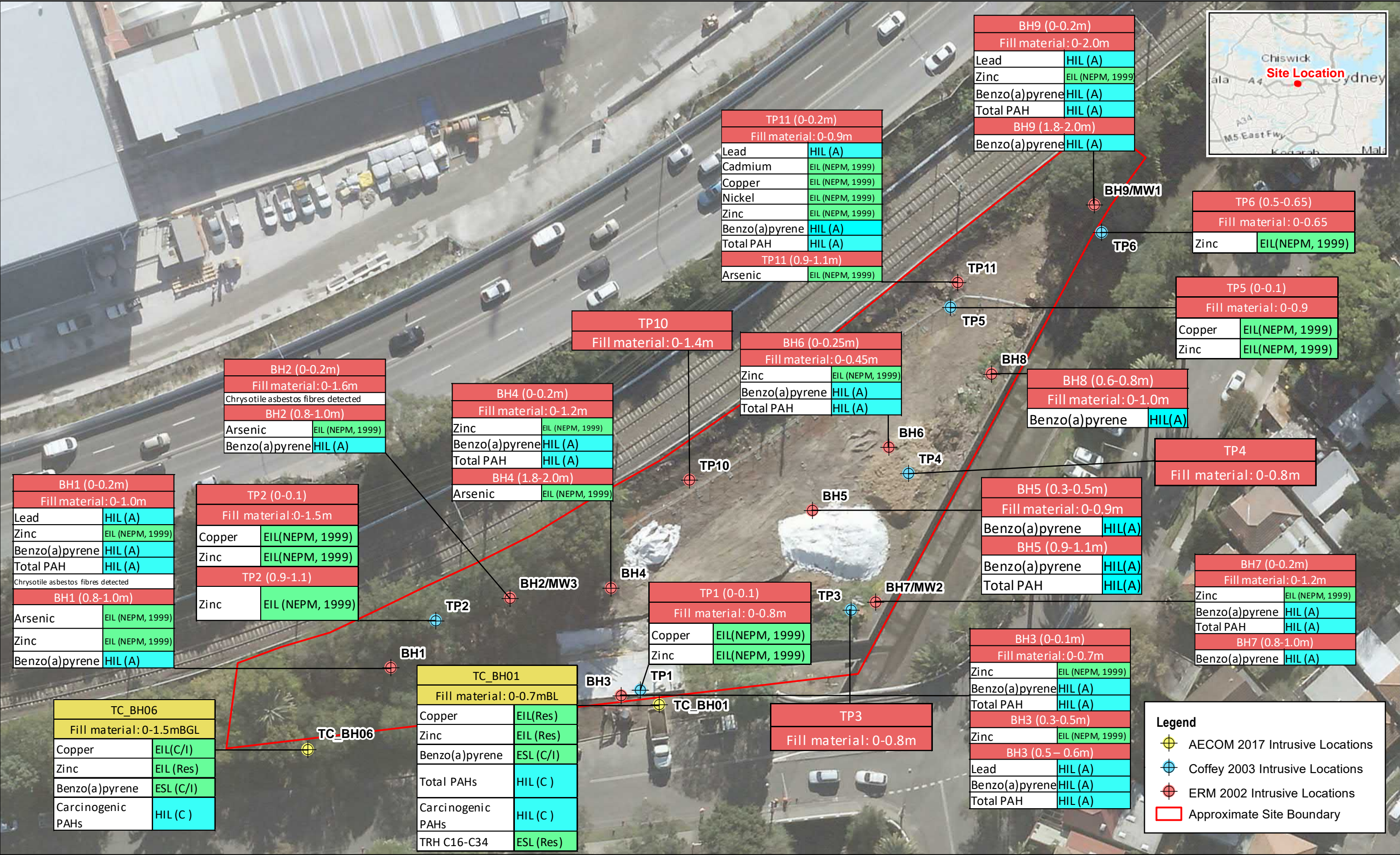


APPENDIX A

SITE FIGURES



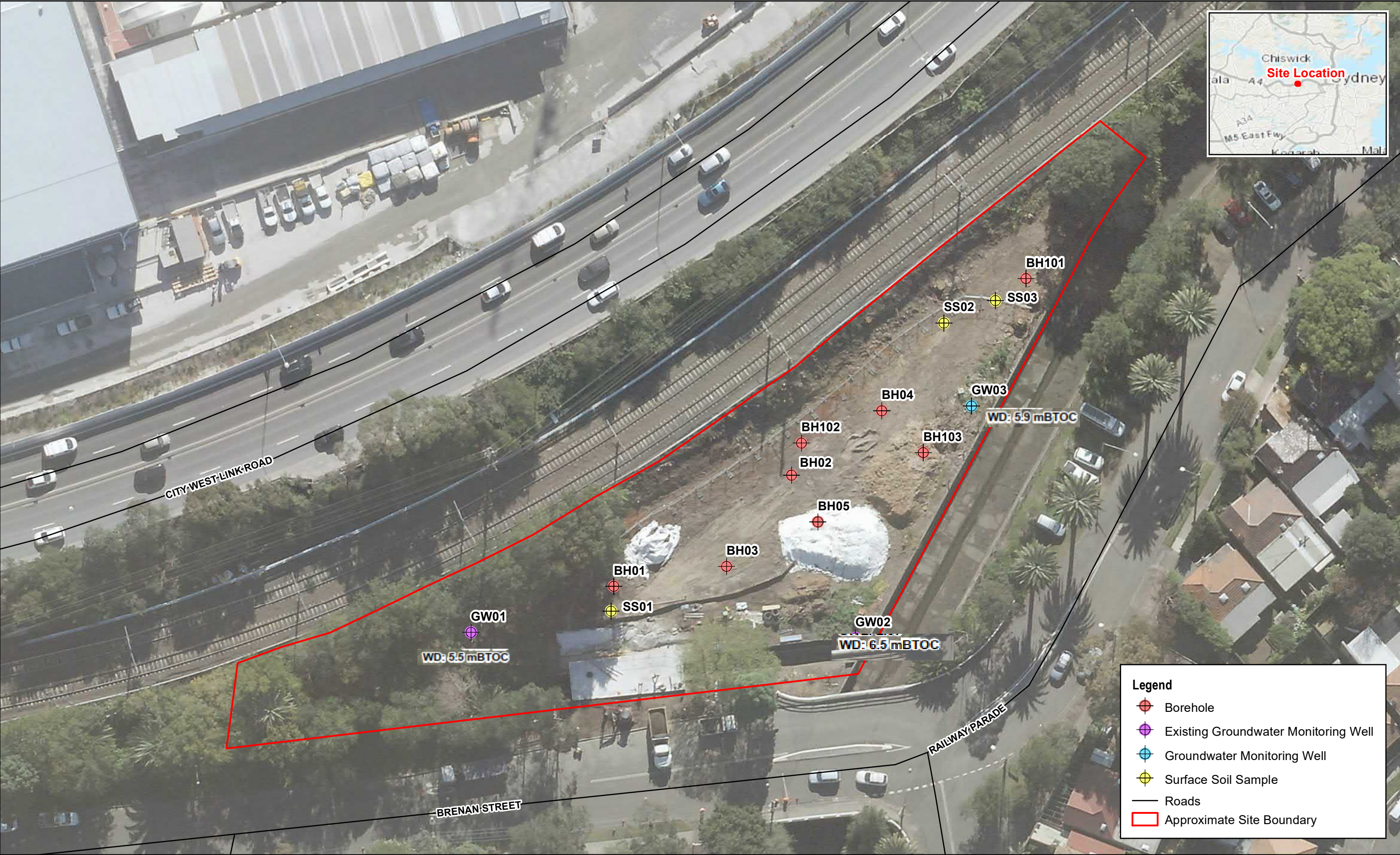


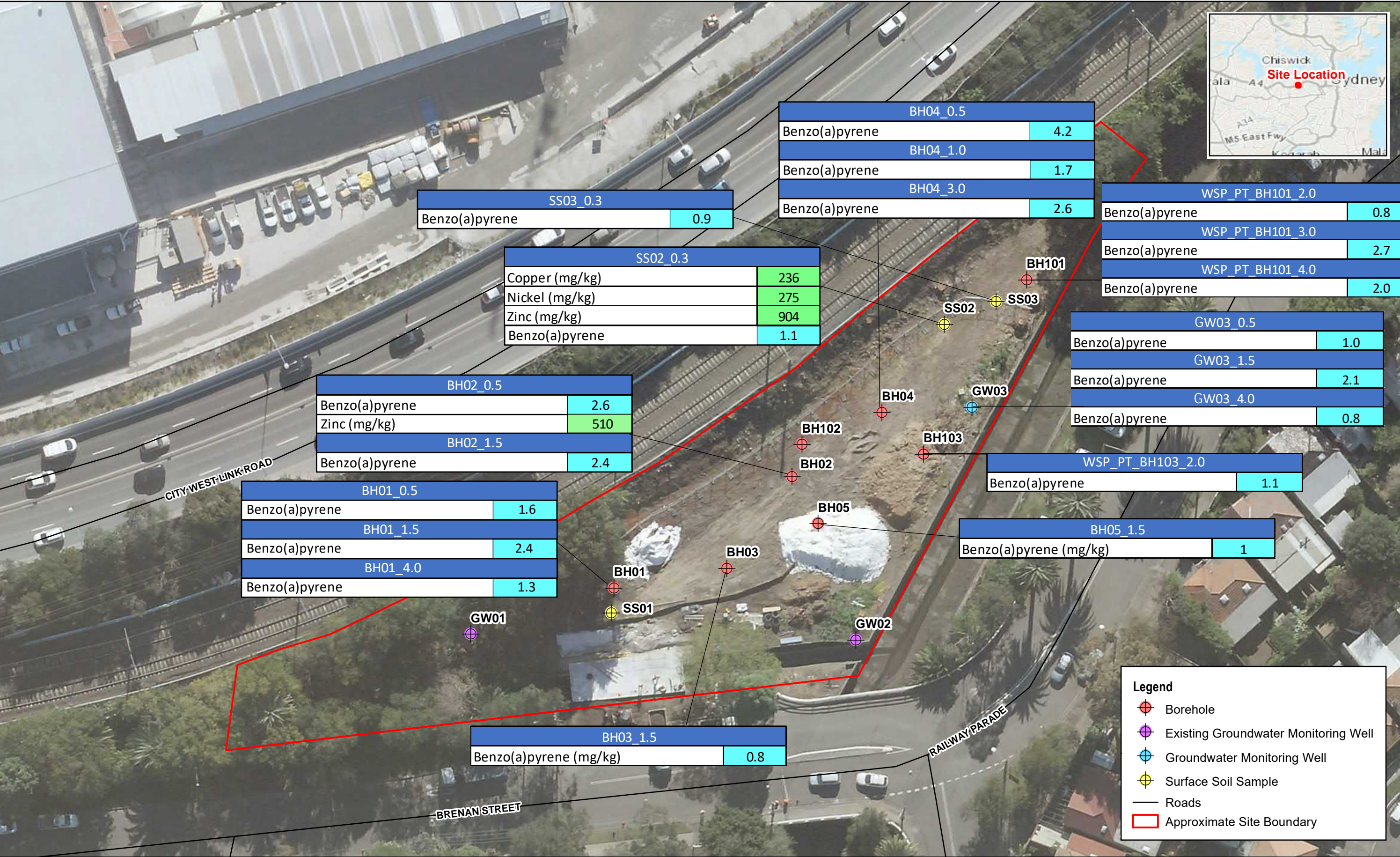


Data source: Metromap 2020
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

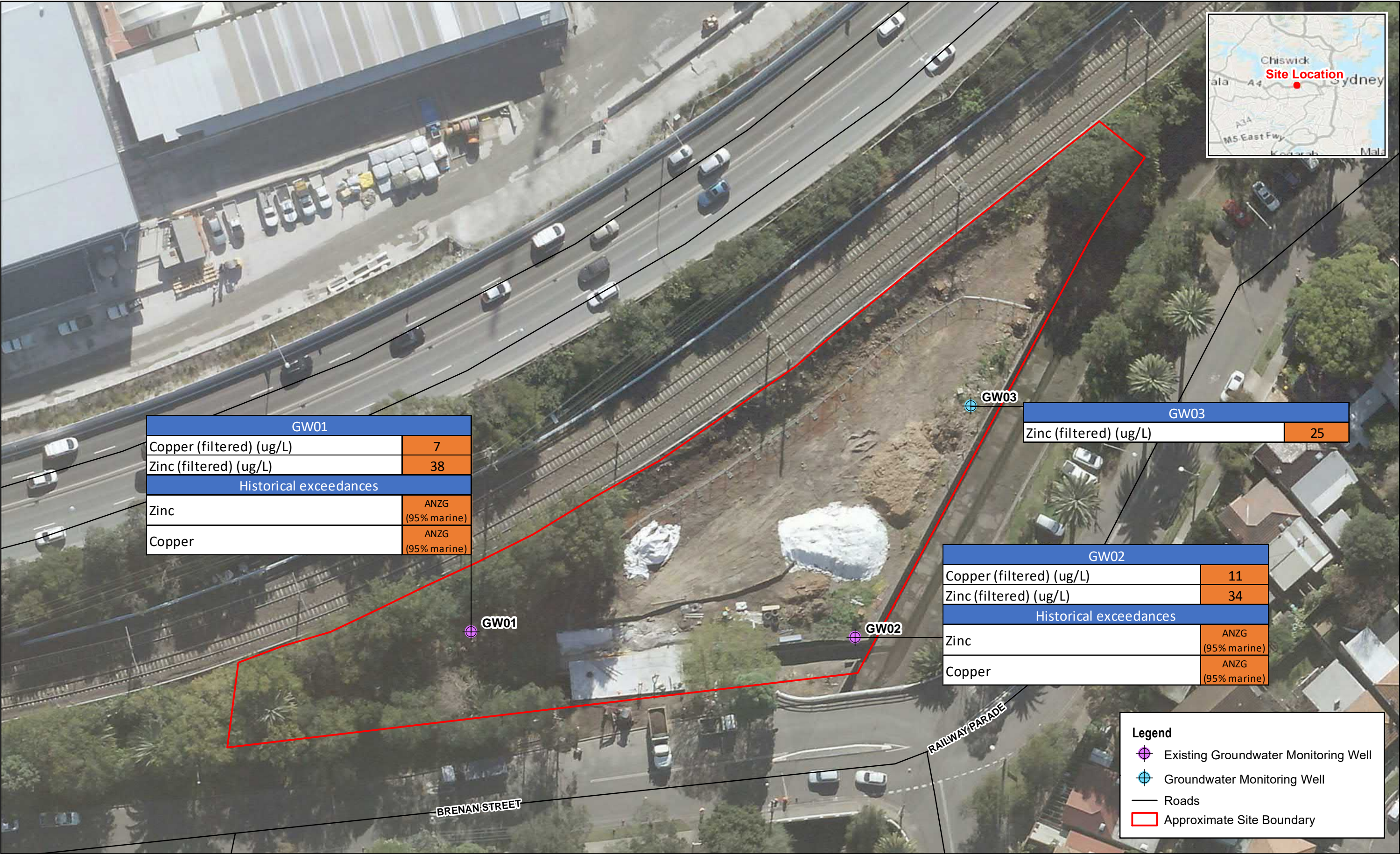
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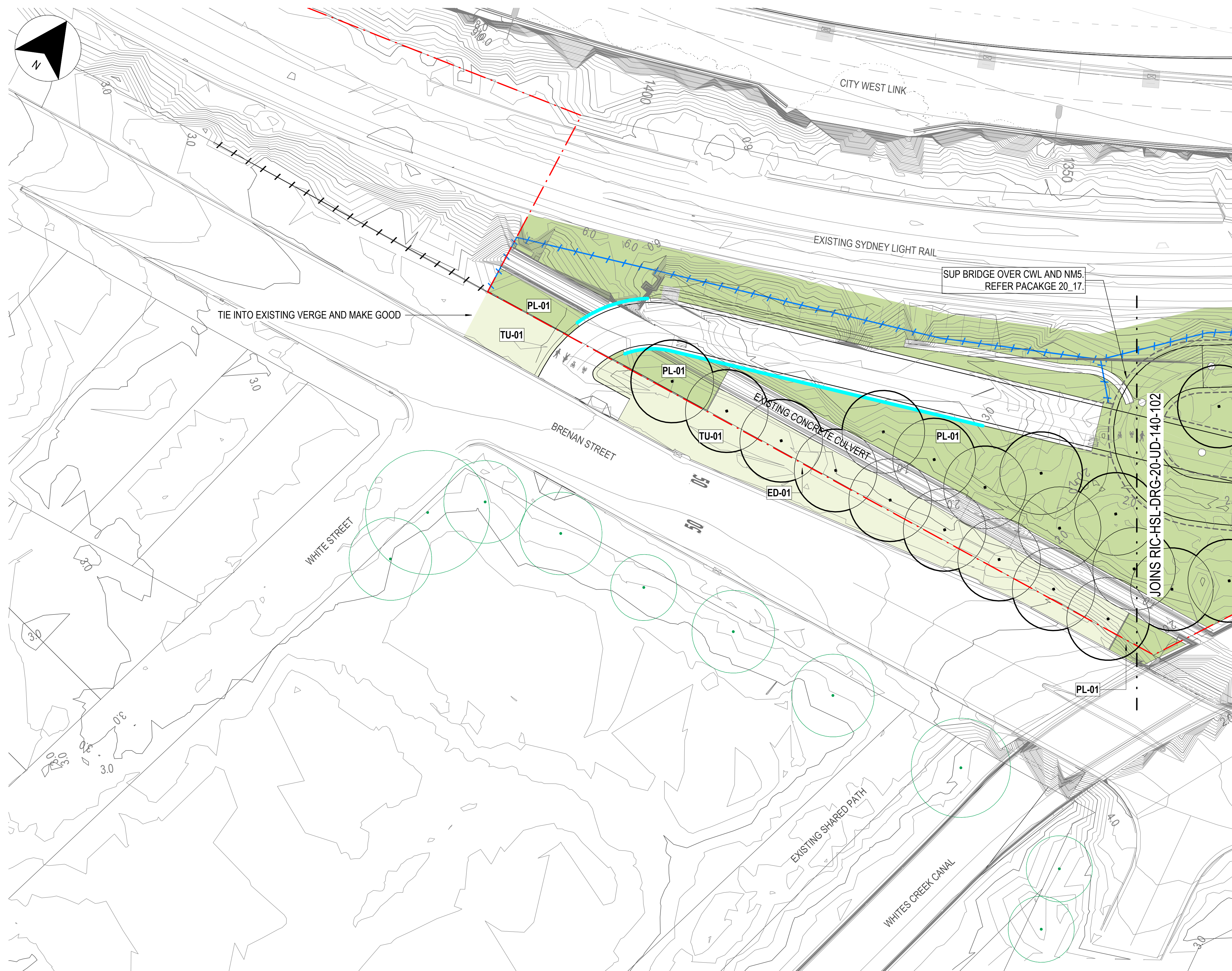












0 10 20 30 40 50 60 70 80mm ON A1 SIZE ORIGINAL



LEGEND






BOUNDARY

-  CADASTRAL BOUNDARY
 PROJECT BOUNDARY
 TEMPORARY WORKS BOUNDARY
 EXISTING FENCE
 PROPOSED FENCE
 PROPOSED THROWSCREEN

EXISTING FEATURES












- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)




- | | |
|---|-------------------------|
|  | CUT / FILL EMBANKMENT |
|  | TUNNEL |
|  | FUTURE WHT OVERPASS |
|  | RETAINING WALL |
|  | CUT AND COVER STRUCTURE |

SURFACE FINISHES



SOFT FINISHES

- | | |
|---|--|
|  | TU-01 - TURF AREAS |
|  | TU-02 - TURF ON STRUCTURE |
|  | PL-01 - MASSED PLANTING |
|  | PL-02 - MASSED PLANTING ON STRUCTURE |
|  | PL-03 - NATURALISED BATTER PLANTING |
|  | PL-07 - HYDROSEED TURF |
|  | PL-08 - STABILISED BATTER PLANTING |
|  | PL-09 - MASSED PLANTING ON BEDROCK |
|  | EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS. TO BE CONFIRMED. |
|  | EXISTING SANDSTONE TO BE RETAINED. |
|  | RESIDUAL LAND SUBJECTED TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN. |

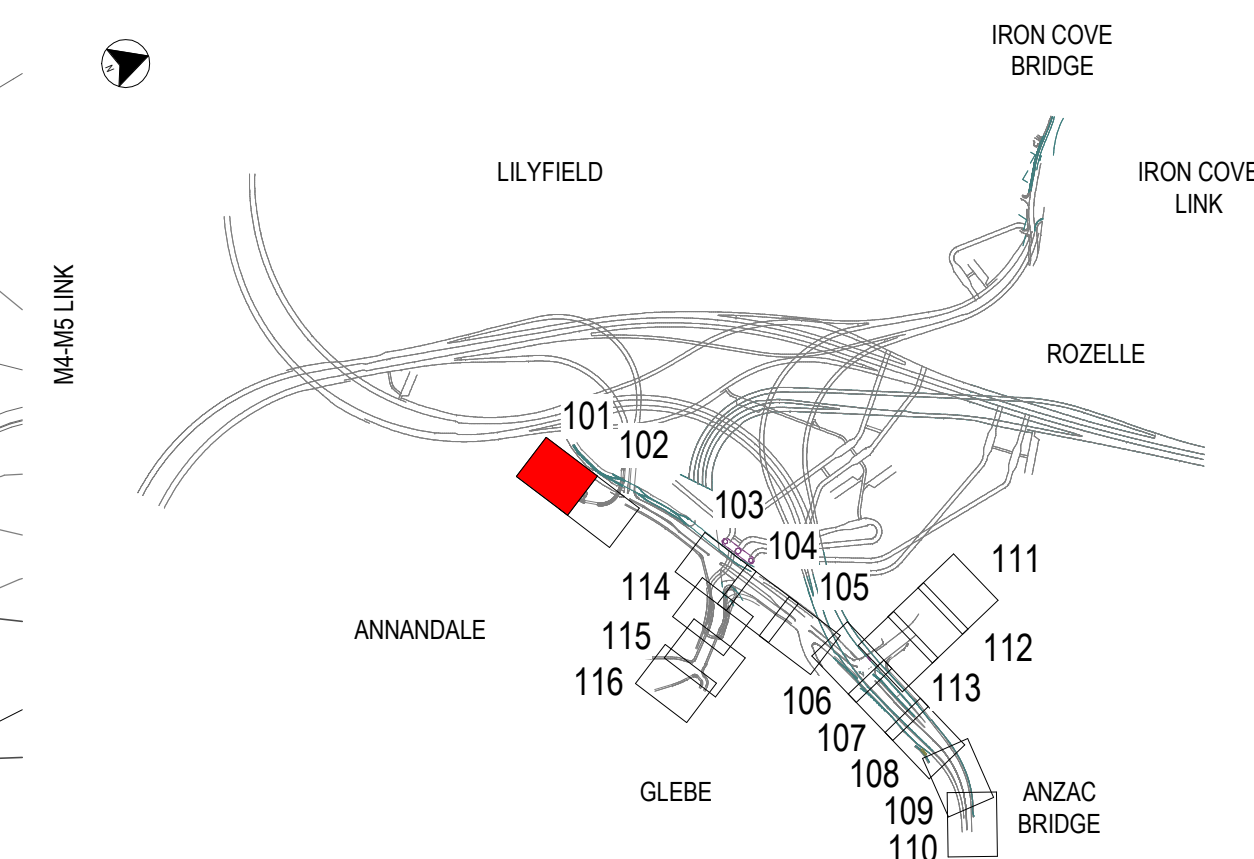
URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_83)

-  WA-XX - LANDSCAPE WALLS
 GR-01 - DECOMPOSED GRANITE PAVING
 ED-02 - STEEL EDGE

TREES

-  PROPOSED TREES.
REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
-  EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY).
SUBJECT TO ARBORICULTURE ASSESSMENT.

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.

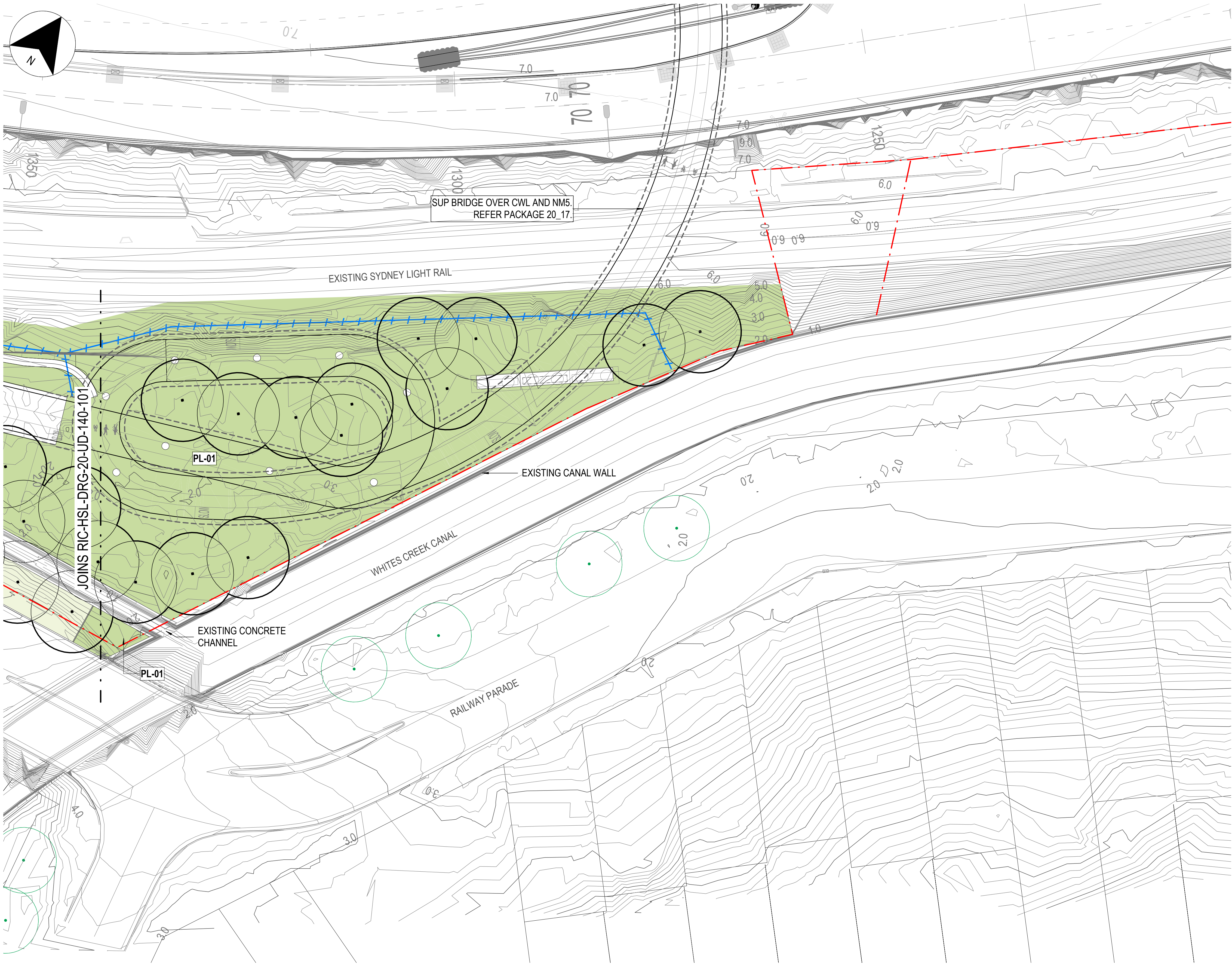


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| A | 11/09/2019 | ISSUED FOR DEVELOPED CONCEPT DESIGN | | MG | HEIGHT DATUM | | | | | | DESIGN | | ANTHONY PAPAS | | 24/04/2020 | | | | | | | |
| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW | | MG | AHD | | | | | | DESIGN CHECK | | ANTHONY PAPAS | | 24/04/2020 | | | | | | | |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN | | MG | DESIGN PHASE SDD SUBSTANTIAL DETAILED DESIGN | | | | | | DESIGN MNGR | | MALCOLM GRAHAM | | 24/04/2020 | | | | | | | |
| | | | | | | | | | | | | PROJECT MNGR | | JOSHUA SMALL | | 24/04/2020 | | | | | | |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

80mm ON A1 SIZE ORIGINAL



LEGEND

BOUNDARY

- CADASTRAL BOUNDARY
- PROJECT BOUNDARY
- TEMPORARY WORKS BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED THROWSCREEN

EXISTING FEATURES

- CONTOURS (1m INTERVAL)

ROAD FORMATION (REFER TO PACKAGE 20_00)

- CUT / FILL EMBANKMENT
- TUNNEL
- FUTURE WHT OVERPASS
- RETAINING WALL
- CUT AND COVER STRUCTURE

SURFACE FINISHES

SOFT FINISHES

- TU-01 - TURF AREAS
- TU-02 - TURF ON STRUCTURE
- PL-01 - MASSED PLANTING
- PL-02 - MASSED PLANTING ON STRUCTURE
- PL-03 - NATURALISED BATTER PLANTING
- PL-07 - HYDROSEED TURF
- PL-08 - STABILISED BATTER PLANTING
- PL-09 - MASSED PLANTING ON BEDROCK
- EXISTING VEGETATION TO BE RETAINED. SUBJECT TO CLEARING AND DEMOLITION WORKS. TO BE CONFIRMED.
- EXISTING SANDSTONE TO BE RETAINED.
- RESIDUAL LAND SUBJECT TO PROVISIONS OF THE RESIDUAL LAND MANAGEMENT PLAN.

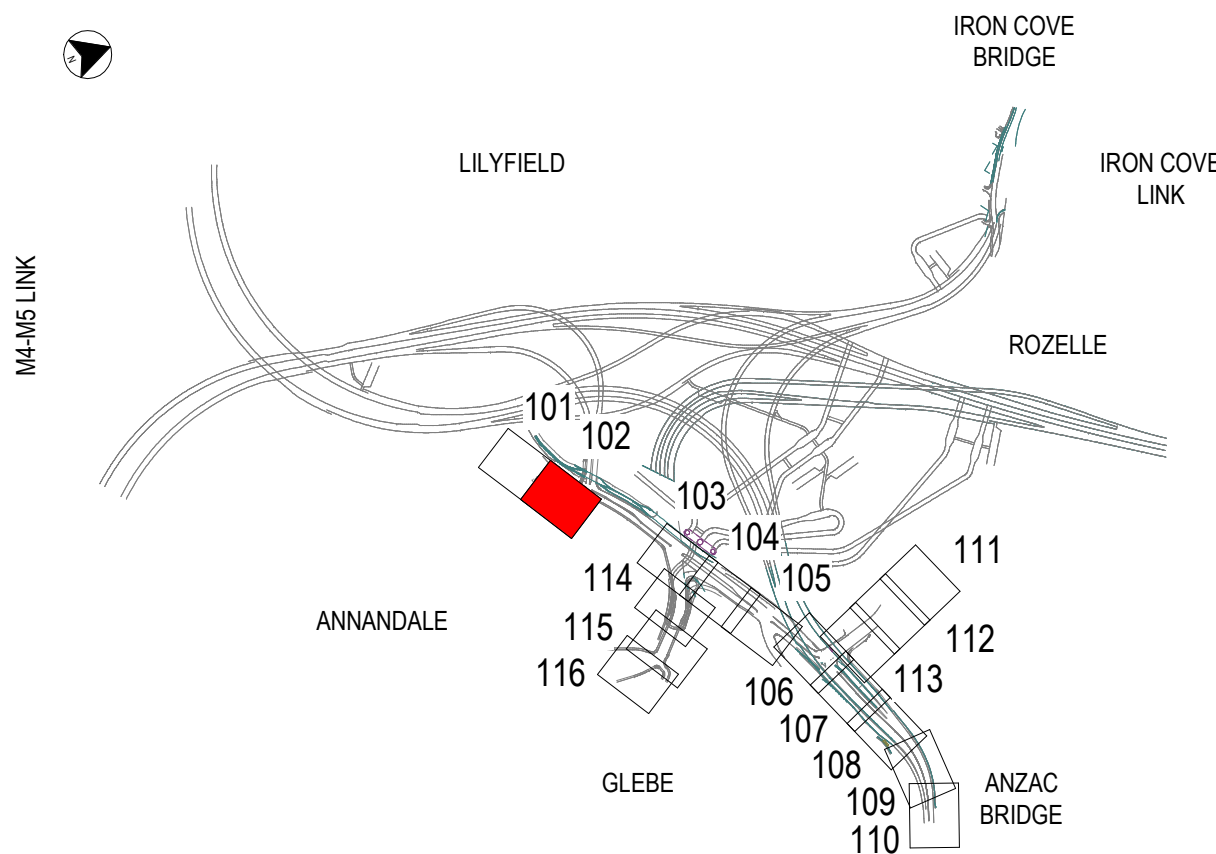
URBAN DESIGN ELEMENTS (REFER TO PACKAGE 20_83)

- WA-XX - LANDSCAPE WALLS
- GR-01 - DECOMPOSED GRANITE PAVING
- ED-02 - STEEL EDGE

TREES

- PROPOSED TREES. REFER TO PLANTING PLANS FOR SIZE AND SPECIES.
- EXISTING TREES TO BE RETAINED (SHOWN INDICATIVELY). SUBJECT TO ARBORICULTURE ASSESSMENT.

NOTE:
FOR ADDITIONAL LEGEND INFORMATION REFER TO DRAWING 140-004.



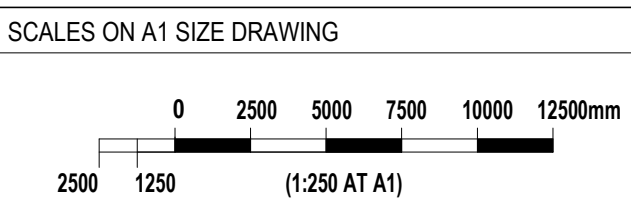
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| B1 | 08/04/2020 | ISSUED FOR INTERNAL REVIEW |
| B | 29/04/2020 | ISSUED FOR SUBSTANTIAL DETAILED DESIGN |

| APPROVAL | CO-ORDINATE SYSTEM |
|----------|-----------------------------|
| MG | MGA ZONE 56 |
| MG | HEIGHT DATUM |
| MG | AHD |
| MG | DESIGN PHASE |
| MG | SDD |
| MG | SUBSTANTIAL DETAILED DESIGN |

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
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Transport
Roads & Maritime
Services

PLOT DATE / TIME
29/04/2020 11:29:24 AM

PLOT BY
YURONG TAN

| TITLE | NAME | DATE |
|--------------|----------------|------------|
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| DRG CHECK | BEN CHARLTON | 24/04/2020 |
| DESIGN | ANTHONY PAPAS | 24/04/2020 |
| DESIGN CHECK | ANTHONY PAPAS | 24/04/2020 |
| DESIGN MNGR | MALCOLM GRAHAM | 24/04/2020 |
| PROJECT MNGR | JOSHUA SMALL | 24/04/2020 |

WestConnex
Rozelle Interchange

JOHN
HOLLAND

CPB
CONTRACTORS

ARCADIS

wsp

HASSELL

Ridley

WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD
INNER WEST COUNCIL
ROZELLE INTERCHANGE
ROZELLE LOCAL ROADS - LANDSCAPE DESIGN
GENERAL ARRANGEMENT PLAN

SHEET 2

PACKAGE No.
20_82

JCV DOCUMENT NAME
RIC-HSL-DRG-20-UD-140-102

REV

B

A1

APPENDIX C

BOREHOLE LOGS





BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH01

SHEET 1 OF 1

Client: **John Holland/CPB Contractors Joint Venture**
 Project: **Rozelle Interchange Pigtail Bridge**
 Borehole Location:
 Project Number: **PS117368**

Date Commenced: **6/4/20**
 Date Completed: **6/4/20**
 Recorded By: **SA**
 Log Checked By: **NG**

Drill Model/Mounting: **Macquarie Geotechnical**
 Borehole Diameter: **50 mm**

Driller:
 Driller Lic No:

Surface RL:
 Co-ords: **E 330659.9 N 6250328.1**

| Borehole Information | | | | | | | Field Material Description | | | | | | |
|----------------------|---------|-------|-------------------|-------|----------|-------------|----------------------------|-------------|------------|---|----------|----------------------------------|--|
| 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | | | RELATIVE DENSITY /CONSISTENCY | |
| METHOD | SUPPORT | WATER | WELL CONSTRUCTION | RL(m) | DEPTH(m) | FIELD TEST | SAMPLE | GRAPHIC LOG | USC SYMBOL | SOIL/ROCK MATERIAL FIELD DESCRIPTION | MOISTURE | VS FB VL SL ST VD | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| | | | | | | PID=0.0 ppm | J+B | | | [FILL] Silty SAND; brown, medium-coarse grained, moist, roots, some anthropogenic material (plastics, ceramics), occasional fine sandstone gravels | M | | BH01_0.1 No visual or olfactory evidence of contamination encountered BH01_0.5 No visual or olfactory evidence of contamination encountered |
| | | | | | 1.00 | PID=0.2 ppm | J+B | | | [REWORKED NATURAL] Sandy CLAY; dark brown, wet, moderate-high plasticity, occasional sandstone gravels | W | | BH01_1.5 No visual or olfactory evidence of contamination encountered |
| | | | | | 2.00 | PID=0.3 ppm | J+B | | | Becoming darker in colour (black) and moisture | | | BH01_3.0 QA03/QA03A No visual or olfactory evidence of contamination encountered |
| | | | | | 3 | PID=0.5 ppm | J | | | | | | BH01_4.0 No visual or olfactory evidence of contamination encountered |
| | | | | | 4.00 | PID=0.5 ppm | J | | | Target depth reached END OF BOREHOLE AT 4.00 m | | | |
| | | | | | 5 | | | | | | | | |
| | | | | | 6 | | | | | | | | |

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH02

SHEET 1 OF 1

Client: **John Holland/CPB Contractors Joint Venture**
 Project: **Rozelle Interchange Pigtail Bridge**
 Borehole Location:
 Project Number: **PS117368**

Date Commenced: **6/4/20**
 Date Completed: **6/4/20**
 Recorded By: **SA**
 Log Checked By: **NG**

Drill Model/Mounting: **Macquarie Geotechnical**
 Borehole Diameter: **50 mm**

Driller:
 Driller Lic No:

Surface RL:
 Co-ords: **E 330685 N 6250343.8**

| Borehole Information | | | | | | | Field Material Description | | | | | | |
|----------------------|---------|-------|-------------------|-------|----------|--------------------------|----------------------------|-------------|------------|---|----------|-------------------------------|--|
| METHOD | SUPPORT | WATER | WELL CONSTRUCTION | RL(m) | DEPTH(m) | FIELD TEST | SAMPLE | GRAPHIC LOG | USC SYMBOL | SOIL/ROCK MATERIAL FIELD DESCRIPTION | MOISTURE | RELATIVE DENSITY /CONSISTENCY | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| | | | | | | | | | | | | | |
| | | | | | 0.50 | PID=1.2 ppm PID=0 ppm | J+B J+B | | | [FILL] Silty SAND; brown, medium-coarse grained, moist, roots, some anthropogenic material (plastic, ceramic), occasional fine sandstone gravels | M | | WSP_PT_BH02_0.1 No visual or olfactory evidence of contamination encountered WSP_PT_BH02_0.5 No visual or olfactory evidence of contamination encountered |
| | | | | | 1 | | | | | Sandy CLAY; dark brown to black, wet, moderate-high plasticity, occasional sandstone gravels | W | | |
| | | | | | 2.00 | PID=1.3 ppm | J+B | | | | | | WSP_PT_BH02_1.5 No visual or olfactory evidence of contamination encountered |
| | | | | | 3 | PID=0.2 ppm | J | | | Increasing sand content with depth | | | WSP_PT_BH02_3.0 No visual or olfactory evidence of contamination encountered |
| | | | | | 4.00 | | | | | Target depth reached END OF BOREHOLE AT 4.00 m | | | |
| | | | | | 5 | | | | | | | | |
| | | | | | 6 | | | | | | | | |

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH03

SHEET 1 OF 1

Client: **John Holland/CPB Contractors Joint Venture**
 Project: **Rozelle Interchange Pigtail Bridge**
 Borehole Location:
 Project Number: **PS117368**

Date Commenced: **27/3/20**
 Date Completed: **27/3/20**
 Recorded By: **CW**
 Log Checked By: **NG**

Drill Model/Mounting: **Macquarie Geotechnical**
 Borehole Diameter: **50 mm**

Driller:
 Driller Lic No:

Surface RL:
 Co-ords: **E 330675.8 N 6250330.9**

| Borehole Information | | | | | | | Field Material Description | | | | | | |
|----------------------|---------|-------|-------------------|-------|----------|-------------------|----------------------------|-------------|------------|---|----------|---|---|
| METHOD | SUPPORT | WATER | WELL CONSTRUCTION | RL(m) | DEPTH(m) | FIELD TEST | SAMPLE | GRAPHIC LOG | USC SYMBOL | SOIL/ROCK MATERIAL FIELD DESCRIPTION | MOISTURE | RELATIVE DENSITY /CONSISTENCY | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| | | | | | 0.15 | PID=0.0 J+B+P ppm | J+B+P | | | [FILL] Topsoil, muddy, dark grey/black, building rubble on surface | M | VS FL SL LL PL SH CH MH VH F C G U O | BH03_0.15 No visual or olfactory evidence of contamination encountered BH03_0.5 |
| | | | | | | PID=1.2 J+B+P ppm | J+B+P | | | [FILL] Clayey SAND; backfilled | | | No visual or olfactory evidence of contamination encountered BH03_1.0 |
| | | | | | 1 | PID=0.8 J+B+P ppm | J+B+P | | | | | | No visual or olfactory evidence of contamination encountered BH03_1.5 |
| | | | | | 1.50 | PID=1.1 J+B+P ppm | J+B+P | | | [REWORKED NATURAL] Silty CLAY; wet, dark grey | W | | No visual or olfactory evidence of contamination encountered BH03_2.0 |
| | | | | | 2 | PID=0.5 J+B+P ppm | J+B+P | | | | | | No visual or olfactory evidence of contamination encountered BH03_3.0 |
| | | | | | 3 | PID=0.8 J+B+P ppm | J+B+P | | | | | | No visual or olfactory evidence of contamination encountered BH03_4.0 |
| | | | | | 4 | PID=0.4 J+B+P ppm | J+B+P | | | | | | QA01/QA01A No visual or olfactory evidence of contamination encountered |
| | | | | | 5.00 | | | | | Target depth reached END OF BOREHOLE AT 5.00 m | | | |
| | | | | | 6 | | | | | | | | |



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH04

SHEET 1 OF 1

Client: **John Holland/CPB Contractors Joint Venture**
 Project: **Rozelle Interchange Pigtail Bridge**
 Borehole Location:
 Project Number: **PS117368**

Date Commenced: **6/4/20**
 Date Completed: **6/4/20**
 Recorded By: **SA**
 Log Checked By: **NG**

Drill Model/Mounting: **Macquarie Geotechnical**
 Borehole Diameter: **50 mm**

Driller:
 Driller Lic No:

Surface RL:
 Co-ords: **E 330697.7 N 6250352.9**

| Borehole Information | | | | | | | Field Material Description | | | | | | |
|----------------------|---------|-------|-------------------|-------|----------|-------------|----------------------------|-------------|------------|---|----------|-------------------------------|---|
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | |
| METHOD | SUPPORT | WATER | WELL CONSTRUCTION | RL(m) | DEPTH(m) | FIELD TEST | SAMPLE | GRAPHIC LOG | USC SYMBOL | SOIL/ROCK MATERIAL FIELD DESCRIPTION | MOISTURE | RELATIVE DENSITY /CONSISTENCY | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| | | | | | | PID=0.1 ppm | J+B | | | [FILL] Silty SAND; brown, medium-coarse grained, moist, large roots, some anthropogenic material (plastics, ceramic), occasional fine sandstone gravels, brick, green wire | M | | WSP_PT_BH04_0.1 No visual or olfactory evidence of contamination encountered WSP_PT_BH04_0.5 No visual or olfactory evidence of contamination encountered WSP_PT_BH04_1.0 No visual or olfactory evidence of contamination encountered |
| | | | | | 1.00 | PID=0.0 ppm | J+B | | | | | | |
| | | | | | | PID=0.2 ppm | J+B | | | [REWORKED NATURAL] Clayey SAND; some orange/red clay (moderate plasticity), moist, sand lighter colour than surface, plastic, shells | W | | |
| | | | | | 2.00 | | | | | Clay content increasing with depth, becoming darker and moisture increasing | | | |
| | | | | | 3 | PID=0.0 ppm | J | | | | | | WSP_PT_BH04_3.0 No visual or olfactory evidence of contamination encountered |
| | | | | | 4 | | | | | | | | |
| | | | | | 5 | | | | | | | | |
| | | | | | 6.00 | | | | | Target depth reached END OF BOREHOLE AT 6.00 m | | | |

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH05

SHEET 1 OF 1

Client: **John Holland/CPB Contractors Joint Venture**
 Project: **Rozelle Interchange Pigtail Bridge**
 Borehole Location:
 Project Number: **PS117368**

Date Commenced: **31/3/20**
 Date Completed: **31/3/20**
 Recorded By: **SA**
 Log Checked By: **NG**

Drill Model/Mounting: **Macquarie Geotechnical**
 Borehole Diameter: **50 mm**

Driller:
 Driller Lic No:

Surface RL:
 Co-ords: **E 330688.7 N 6250337.2**

| Borehole Information | | | | | | | Field Material Description | | | | | | |
|----------------------|---------|-------|-------------------|-------|----------|-------------|----------------------------|-------------|------------|--|----------|--|--|
| METHOD | SUPPORT | WATER | WELL CONSTRUCTION | RL(m) | DEPTH(m) | FIELD TEST | SAMPLE | GRAPHIC LOG | USC SYMBOL | SOIL/ROCK MATERIAL FIELD DESCRIPTION | MOISTURE | RELATIVE DENSITY /CONSISTENCY | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| | | | | | | PID=0.0 ppm | J+B | | | [FILL] Silty SAND; brown, medium-coarse grained, moist, roots, some anthropogenic material (plastics, ceramic), occasional fine sandstone gravels | M | FB VL LD VS SL ST VD VT | BH05_0.1 No visual or olfactory evidence of contamination encountered BH05_0.5 No visual or olfactory evidence of contamination encountered |
| | | | | | 1.00 | PID=0.0 ppm | J+B | | | Sandy CLAY; dark brown, wet, moderate-high plasticity, occasional sandstone gravels | | | BH05_1.5 No visual or olfactory evidence of contamination encountered |
| | | | | | 2.00 | PID=0.0 ppm | J+B | | | Becoming darker in colour (black) and moisture | W | | BH05_3.0 No visual or olfactory evidence of contamination encountered |
| | | | | | 3.00 | PID=0.1 ppm | J+B | | | | | | BH05_4.0 No visual or olfactory evidence of contamination encountered |
| | | | | | 4.00 | PID=0.0 ppm | J | | | Target depth reached END OF BOREHOLE AT 4.00 m | | | |
| | | | | | 5.00 | | | | | | | | |
| | | | | | 6.00 | | | | | | | | |

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH101

SHEET 1 OF 1

Client: **John Holland/CPB Contractors Joint Venture**
 Project: **Rozelle Interchange Pigtail Bridge**
 Borehole Location:
 Project Number: **PS117368**

Date Commenced: **23/7/20**
 Date Completed: **23/7/20**
 Recorded By: **JR**
 Log Checked By: **NG**

Drill Model/Mounting: **Macquarie Geotechnical**
 Borehole Diameter: **50 mm**

Driller:
 Driller Lic No:

Surface RL: **2.943 m**
 Co-ords: **E 6250371.575 N 330718.132**

| Borehole Information | | | | | | | Field Material Description | | | | | | | |
|----------------------|---------|-------|-------------------|---|-------|----------|----------------------------|--------|-------------|------------|--------------------------------------|----------|-------------------------------|---------------------------------------|
| 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | | | | | |
| METHOD | SUPPORT | WATER | WELL CONSTRUCTION | | RL(m) | DEPTH(m) | FIELD TEST | SAMPLE | GRAPHIC LOG | USC SYMBOL | SOIL/ROCK MATERIAL FIELD DESCRIPTION | MOISTURE | RELATIVE DENSITY /CONSISTENCY | STRUCTURE AND ADDITIONAL OBSERVATIONS |
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This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH102

SHEET 1 OF 1

Client: **John Holland/CPB Contractors Joint Venture**
 Project: **Rozelle Interchange Pigtail Bridge**
 Borehole Location:
 Project Number: **PS117368**

Date Commenced: **23/7/20**
 Date Completed: **24/7/20**
 Recorded By: **JR**
 Log Checked By: **NG**

Drill Model/Mounting: **Macquarie Geotechnical**
 Borehole Diameter: **50 mm**

Driller:
 Driller Lic No:

Surface RL: **2.972 m**
 Co-ords: **E 6250348.352 N 330686.391**

| Borehole Information | | | | | | | Field Material Description | | | | | | |
|----------------------|---------|-------|-------------------|-------|----------|------------|----------------------------|-------------|------------|--------------------------------------|----------|--|--|
| 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | | | RELATIVE DENSITY /CONSISTENCY | |
| METHOD | SUPPORT | WATER | WELL CONSTRUCTION | RL(m) | DEPTH(m) | FIELD TEST | SAMPLE | GRAPHIC LOG | USC SYMBOL | SOIL/ROCK MATERIAL FIELD DESCRIPTION | MOISTURE | VS FB VS | |

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH103

SHEET 1 OF 1



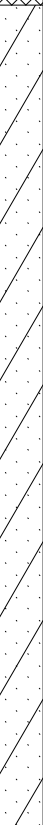

Client: **John Holland/CPB Contractors Joint Venture**
Project: **Rozelle Interchange Pigtail Bridge**
Borehole Location:
Project Number: **PS117368**

Date Commenced: **24/7/20**
Date Completed: **24/7/20**
Recorded By: **JR**
Log Checked By: **NG**

Drill Model/Mounting: **Macquarie Geotechnical**
Borehole Diameter: **50 mm**

Driller:
Driller Lic No:

Surface RL: **2.958 m**
Co-ords: **E 6250346.979 N 330703.579**

| Borehole Information | | | | | | | Field Material Description | | | | | | | | | |
|----------------------|---------|-------|-------------------|--|-------|----------|----------------------------|--------|---|------------|--|--|----------------------------------|--------------------------------|---------------------------------------|--|
| | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | | | RELATIVE DENSITY /CONSISTENCY | | | |
| METHOD | SUPPORT | WATER | WELL CONSTRUCTION | | RL(m) | DEPTH(m) | FIELD TEST | SAMPLE | GRAPHIC LOG | USC SYMBOL | SOIL/ROCK MATERIAL FIELD DESCRIPTION | MOISTURE | VS FB VL SL ST VD | MD J MD ST VD H | STRUCTURE AND ADDITIONAL OBSERVATIONS | |
| NDD | | | | | | | PID=0.9 ppm | J |  | | FILL: Clayey SAND with sandstone cobbles; (crushed sandstone from Tunnel Site C), yellow/white | M | | | WSP_PT_BH103_0.0 | |
| | | | | | | | PID=0.9 ppm | J | | | | | | | | |
| | | | | | 2 | 1 | PID=0.2 ppm | J | | | | | | | | WSP_PT_BH103_1.0 |
| | | | | | | 1.50 | PID=1.2 ppm | J |  | | FILL: Silty SAND; yellow/brown/black, f-c grained sand with yellow f-m grained sandstone gravels | | | | | |
| AS | | | | | | | PID=0.8 ppm | J | | | | | | | | WSP_PT_BH103_2.0 |
| | | | | | | | | |  | | | | | | | |
| | | | | | 2.80 | 0 | PID=1.2 ppm | J | | | | Sandy CLAY; dark brown, m plasticity, trace sandstone gravels, f grained, sticky with shells | W | | | WSP_PT_BH103_3.0 |
| | | | | | | | | | | | | | | | | |
| | | | | | -1 | 4 | PID=1.4 ppm | BAG | | | | Very wet and very sticky | | | | Sulphidic odour WSP_PT_BH103_4.0 |
| | | | | | | | | |  | | | | | | | |
| | | | | | -2 | 5 | PID=0 ppm | BAG | | | | | | | | WSP_PT_BH103_5.0 Sample recovery difficult, too wet |
| | | | | | | | | | | | | | | | | |
| | | | | | -3 | 6 | PID=0.8 ppm | BAG | | | | | | | | |
| | | | | | 6.60 | | | | | | | | | | | |
| | | | | | | | | | | | Target depth reached (PSM rock core logging commenced) END OF BOREHOLE AT 6.60 m | | | | | |
| | | | | | | | | | | | | | | | | |

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

GW03

SHEET 1 OF 1

Client: **John Holland/CPB Contractors Joint Venture**
 Project: **Rozelle Interchange Pigtail Bridge**
 Borehole Location:
 Project Number: **PS117368**

Date Commenced: **6/4/20**
 Date Completed: **6/4/20**
 Recorded By: **SA**
 Log Checked By: **NG**

Drill Model/Mounting: **Macquarie Geotechnical** Driller: **Mac Geotech** Surface RL: **2.540 m**
 Borehole Diameter: **50 mm** Driller Lic No: Co-ords: **E 330710.4 N 6250353.6**

| Borehole Information | | | | | | | Field Material Description | | | | | | |
|----------------------|---------|-------|--------------------------------------|-------|----------|----------------------------------|----------------------------|-------------|------------|---|----------|-------------------------------|---------------------------------------|
| METHOD | SUPPORT | WATER | WELL CONSTRUCTION | RL(m) | DEPTH(m) | FIELD TEST | SAMPLE | GRAPHIC LOG | USC SYMBOL | SOIL/ROCK MATERIAL FIELD DESCRIPTION | MOISTURE | RELATIVE DENSITY /CONSISTENCY | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| | | | Monument (1m) Plain pipe Grout | | | PID=0.0 ppm PID=0.0 ppm | J+B J+B | | | [FILL] Silty SAND; brown, medium-coarse grained, moist, large roots, some anthropogenic material (plastics, ceramic), occasional fine sandstone gravies, large fallen branches | D | | WSP_PT_GW03_0.1 WSP_PT_GW03_0.5 |
| | | | Bentonite seal | | 1.50 | PID=0.2 ppm | J+B | | | Sandy CLAY; moderate plasticity, very wet, dark grey/black, some shells, coarse sand as above | W | | WSP_PT_GW03_1.5 |
| | | | Sand 1mm uPVC slotted screen | | 3 | | | | | | | | |
| | | | | | -1 | | | | | | | | |
| | | | | | 4 | PID=0.0 ppm | J+B | | | | | | WSP_PT_GW03_4.0 |
| | | | | | -2 | | | | | | | | |
| | | | | | 5 | | | | | | | | |
| | | | | | -3 | | | | | | | | |
| | | | | | 5.80 | | | | | Natural SANDSTONE | | | |
| | | | Bottom cap | | 6.00 | | | | | Target depth reached END OF BOREHOLE AT 6.00 m | | | |

This borehole log should be read in conjunction with WSP's accompanying standard notes.



Contaminated Land Management Standard Form 3.1: Groundwater Well Development Record

| Job Information | |
|---------------------|---------------------------------|
| Date: 06/04/2020 | Time: Arrive 06:45 Depart 17:30 |
| Client: JNCPB | Job Number: PS117368 |
| Field Scientist: SA | Project Manager: NG |

| Well ID | GW01 | Time | 0800 | | | | |
|--------------------------|---------|---------------------|---------------------------------|----------|------------------|---------------|-----------|
| Did well purge dry? | (Y) / N | Volume removed (L)? | Approx 600 L (2 + but very con) | | | | |
| Water Quality Meter Type | N/A | | | | | | |
| Water Quality Parameters | | | | | | | |
| Volume purged (L) | pH | EC (mS/cm) | Redox (mV) | DO (ppm) | Temperature (°C) | Colour/ odour | Turbidity |
| | | | | | | | |
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| Well ID | GW02 | Time | 11:30 | | | | |
|--------------------------|---------|---------------------|-----------------------------|----------|------------------|---------------|-----------|
| Did well purge dry? | (Y) / N | Volume removed (L)? | Approx 100 L (4 x very con) | | | | |
| Water Quality Meter Type | N/A | | | | | | |
| Water Quality Parameters | | | | | | | |
| Volume purged (L) | pH | EC (mS/cm) | Redox (mV) | DO (ppm) | Temperature (°C) | Colour/ odour | Turbidity |
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| Version: B | Reviewer: C. McKay | Date: 07/04/2016 | Reviewer: C. McKay | Date: 07/04/2016 |
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Contaminated Land Management
Standard Form 3.1:
Groundwater Well Development Record

| | | | | | | | |
|--------------------------|-------|------------|---------------------|---------------------------|------------------|---------------|-----------|
| Well ID | GW03 | | Time | 16.30 | | | |
| Did well purge dry? | Y / N | | Volume removed (L)? | Approx 70L (3x sens cons) | | | |
| Water Quality Meter Type | N/A | | | | | | |
| Water Quality Parameters | | | | | | | |
| Volume purged (L) | pH | EC (mS/cm) | Redox (mV) | DO (ppm) | Temperature (°C) | Colour/ odour | Turbidity |
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| Version: B | Reviewer: C. McKay | Date: 07/04/2016 | Reviewer: C. McKay | Date: 07/04/2016 |
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APPENDIX E

LABORATORY ANALYTICAL TABLES



| Lab Report Number | Field ID | Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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* A Non Detect Multiplier of 0.5 has been applied

#1 Aged values apply to arsenic contamination present in soil > 2 years. Refer Schedule B5c for < 2 years.

#2 As Chromium III. Generic ACL value from NEPM 2013 Table 1B(3) using a clay content of 1%. The ACL should be adjusted based on site-specific Clay content (when available). To calculate a site specific EIL, add the ABC to the ACL

#3 Generic ACL value from NEPM 2013 Table 1B(2) Using a soil pH of 4.5. The ACL should be adjusted based on site-specific pH or CEC (when available). To calculate a site specific EIL, add the ABC to the ACL.

#4 Generic ACL value from NEPM 2013 Table 1B(4). To calculate a site specific EIL, add the added background concentration (ABC) to this value.

#5 Generic ACL value from NEPM 2013 Table 1B(3) using a CEC of 5 meg/100g. The ACL should be adjusted based on site-specific CEC (when available). To calculate a site specific EIL, add the added background concentration (ABC) to the ACL

#6 Generic ACL value from NEPM 2013 Table 1B(1) using a soil pH of 4.0 and a CEC of 5 meq/100g. The ACL should be adjusted based on site-specific pH and CEC (when available). To calculate a site specific EIL, add the ABC to the ACL.

#7 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should meet BaP TEQ HIL) & naphthalene (should meet relevant HSL)

#8 Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7) BaP TEQ calc by multiplying the conc of each carc. PAH in sample by its BaP TEF (ref Table 1A(1)) & summing

#9 PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-specific assessment of exposure to all PCBs (inc dioxin)

#10 Arsenic: HIL assu

#11 As Chromium VI

#12 Lead: HII's A B C based on blood lead models (IEURK & HII D on adult lead model for where 50% bioavailability considered. Site-specific bioavailability should be considered.

#13 Elemental mercury: HII does not address elemental mercury, a site specific assessment

#14 To obtain E1 subtract the sum of BTEX concentrations from the C6 - C10 fraction

#15 Derived soil USL exceeds soil saturation concentration

#16 Moderate reliability.

#17 Moderate reliability: To obtain FI subtract the sum of BTEX concentrations from the C8 - C10 fraction.

#17 MK
#18 C

#18 Sep

#19 -

#20 No

#21 A.

#22 Mi

#23 Yes

[illegible][illegible]

| statistics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|-------|-----|-------|-----|-------|-----|-------|-----|------|-----|-------|-----|------|-----|-------|-----|------|-----|-------|-----|-------|-----|-------|------|-------|------|------|-------|-------|-------|-----|----|-----|----|----|----|
| Number of Results | 31 | 5 | 32 | 5 | 31 | 5 | 33 | 5 | 31 | 5 | 33 | 5 | 31 | 5 | 32 | 5 | 31 | 5 | 33 | 5 | 31 | 5 | 33 | 5 | 33 | 5 | 33 | 5 | 33 | 5 | 24 | 32 | 5 | 32 | 32 | 32 |
| Minimum Detect | 0.6 | ND | 0.6 | ND | 0.5 | ND | 0.6 | ND | 0.6 | ND | 0.8 | ND | ND | ND | 0.5 | ND | ND | ND | ND | 0.5 | ND | 0.8 | ND | 1.6 | ND | 0.6 | ND | ND | ND | ND | 5 | 1 | 10 | ND | ND | |
| Maximum Concentration | 4.7 | <1 | 2.7 | <1 | 1.9 | <1 | 3.7 | <1 | 0.6 | <1 | 9.9 | <1 | <0.5 | <1 | 2.2 | <1 | <0.5 | <1 | 4.8 | <1 | 9.5 | <1 | 49.3 | <0.5 | 6.1 | <0.5 | <0.5 | <0.1 | 24 | 3 | 140 | <1 | <50 | | | |
| Average Concentration * | 1.3 | 0.5 | 0.67 | 0.5 | 0.57 | 0.5 | 1 | 0.5 | 0.26 | 0.5 | 2.6 | 0.5 | 0.25 | 0.5 | 0.59 | 0.5 | 0.25 | 0.5 | 1.3 | 0.5 | 2.5 | 0.5 | 12 | 0.25 | 1.5 | 0.25 | 0.05 | 9.4 | 1.4 | 28 | 0.5 | 25 | | | | |
| 95% UCL (Student's-t) * | 1.669 | 0.5 | 0.847 | 0.5 | 0.711 | 0.5 | 1.254 | 0.5 | 0.28 | 0.5 | 3.381 | 0.5 | 0.25 | 0.5 | 0.735 | 0.5 | 0.25 | 0.5 | 1.634 | 0.5 | 3.194 | 0.5 | 15.99 | 0.25 | 1.899 | 0.25 | 0.05 | 11.26 | 2.433 | 36.51 | 0.5 | 25 | | | | |

* A Non Detect Multiplier of 0.5 has been applied

[illegible]

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|-----------------|-----------|------|------|----|----|-----|----|-----|----|------|------|------|-----|----|----|----|-----|---------|---------|---------|--------|---------|------------------|------------------|------------------|------------------|-------|-------|------------------|------------------|------------------|------------------|------------------|-----|
| ES2011031 | BH03_0.5 | 27/03/2020 | <1 | - | 10 | - | <2 | 6 | - | 17 | - | 78 | <0.1 | - | <2 | - | <5 | 16 | 23 | - | <0.0004 | <0.001 | 0.600 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 13.1 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 600 | |
| | BH03_0.15 | 27/03/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.0004 | <0.001 | 0.431 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | - | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 431 | |
| | BH03_1.5 | 27/03/2020 | <1 | - | 13 | - | <2 | 16 | - | 60 | - | 54 | 0.3 | - | 3 | - | <5 | 29 | 52 | - | - | - | - | - | - | - | - | 29.6 | 891 | 337 | 25 | - | 8.4 | - | - | |
| | BH03_4.0 | 27/03/2020 | <1 | - | 8 | - | <2 | <5 | - | 7 | - | 15 | <0.1 | - | <2 | - | <5 | 14 | 7 | - | - | - | - | - | - | - | - | 22.7 | 212 | 466 | 35 | - | 8.1 | - | - | |
| ES2011171 | BH05_0.1 | 31/03/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.0004 | <0.001 | 0.153 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | - | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 153 | |
| | BH05_0.5 | 31/03/2020 | <1 | - | 10 | - | <2 | 8 | - | 21 | - | 71 | <0.1 | - | <2 | - | <5 | 14 | 42 | - | <0.0004 | <0.001 | 0.180 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 11.2 | - | - | - | 1 ¹²¹ | - | 0 ¹²⁰ | 180 | |
| | BH05_1.5 | 31/03/2020 | <1 | - | 8 | - | <2 | 16 | - | 43 | - | 38 | 0.2 | - | 3 | - | <5 | 22 | 42 | - | - | - | - | - | - | - | 25.2 | 1,060 | 19 | 1 | - | 11.2 | - | - | | |
| | BH05_3.0 | 31/03/2020 | <1 | - | 12 | - | <2 | 30 | - | 42 | - | 44 | 0.2 | - | 4 | - | <5 | 31 | 50 | - | - | - | - | - | - | - | 42.5 | 652 | 463 | 35 | - | 8.7 | - | - | | |
| ES2012229 | BH05_4.0 | 31/03/2020 | <1 | - | 12 | - | <2 | <5 | - | 14 | - | 19 | <0.1 | - | 3 | - | <5 | 20 | 19 | - | - | - | - | - | - | - | - | 26.8 | 190 | 603 | 45 | - | 7.5 | - | - | |
| | WSP_PT_BH01_0.1 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.0004 | <0.001 | 0.515 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | - | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 515 | |
| | WSP_PT_BH01_0.5 | 6/04/2020 | <1 | - | 9 | - | 3 | 60 | - | 158 | - | 81 | 0.1 | - | 9 | - | <5 | 18 | 217 | - | 0.277 | 0.051 | 0.546 | 0.05 | <0.0004 | 1 ¹²⁴ | 0 ¹²⁰ | 10.3 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 546 | |
| | WSP_PT_BH01_1.5 | 6/04/2020 | <1 | - | 8 | - | <2 | 18 | - | 22 | - | 27 | 0.3 | - | 3 | - | <5 | 18 | 19 | - | - | - | - | - | - | - | - | 24.3 | 604 | 16 | 1 | - | 8.8 | - | - | |
| ES2014102 | WSP_PT_BH01_3.0 | 6/04/2020 | <1 | - | 15 | - | <2 | 5 | - | 15 | - | 28 | <0.1 | - | 4 | - | <5 | 35 | 15 | - | - | - | - | - | - | - | - | 34.4 | - | 1,080 | 81 | - | 6.4 | - | - | |
| | WSP_PT_BH01_4.0 | 6/04/2020 | <1 | - | 12 | - | <2 | 7 | - | 22 | - | 24 | <0.1 | - | 3 | - | <5 | 24 | 23 | - | - | - | - | - | - | - | - | 32.8 | - | - | - | - | - | - | - | |
| | WSP_PT_BH02_0.1 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.0004 | <0.001 | 0.482 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | - | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 482 | |
| | WSP_PT_BH02_0.5 | 6/04/2020 | 1 | - | 19 | - | 2 | 54 | - | 174 | - | 68 | 1.0 | - | 5 | - | <5 | 41 | 510 | - | <0.0004 | <0.001 | 0.386 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 20.9 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 386 | |
| | WSP_PT_BH02_1.5 | 6/04/2020 | 1 | - | 12 | - | <2 | 35 | - | 113 | - | 48 | 0.3 | - | 4 | - | <5 | 25 | 291 | - | - | - | - | - | - | - | - | 19.4 | 2,760 | 356 | 27 | - | 8.8 | - | - | |
| | WSP_PT_BH02_3.0 | 6/04/2020 | <1 | - | 7 | - | <2 | 6 | - | 20 | - | 15 | <0.1 | - | 2 | - | <5 | 20 | 33 | - | - | - | - | - | - | - | - | 33.5 | 391 | 597 | 45 | - | 7.8 | - | - | |
| | WSP_PT_BH04_0.1 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.0004 | <0.001 | 0.445 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | - | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 445 | |
| | WSP_PT_BH04_0.5 | 6/04/2020 | <1 | - | 17 | - | <2 | 30 | - | 75 | - | 35 | <0.1 | - | 3 | - | <5 | 12 | 279 | - | <0.0004 | <0.001 | 0.673 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 11.4 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 673 | |
| | WSP_PT_BH04_1.0 | 6/04/2020 | <1 | - | 5 | - | <2 | 12 | - | 29 | - | 19 | 0.2 | - | <2 | 12 | - | <5 | 12 | 38 | - | - | - | - | - | - | - | 9.5 | - | 12 | <1 | - | 5.9 | - | - | |
| | WSP_PT_BH04_3.0 | 6/04/2020 | <1 | - | 12 | - | <2 | 24 | - | 62 | - | 33 | 0.3 | - | 3 | - | <5 | 33 | 96 | - | - | - | - | - | - | - | - | 26.4 | 229 | 620 | 46 | - | 7.3 | - | - | |
| | WSP_PT_GW03_0.1 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.0004 | <0.001 | 0.574 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | - | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 574 | |
| | WSP_PT_GW03_0.5 | 6/04/2020 | <1 | - | 10 | - | 6 | 22 | - | 67 | - | 236 | 0.2 | - | 8 | - | <5 | 21 | 275 | - | <0.0004 | <0.001 | 0.574 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 8.8 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 574 | |
| | WSP_PT_GW03_1.5 | 6/04/2020 | <1 | - | 3 | - | <2 | 17 | - | 36 | - | 15 | 0.1 | - | <2 | 17 | - | <5 | 11 | 22 | - | - | - | - | - | - | - | 15.3 | 1,890 | 13 | 1 | - | 9.3 | - | - | |
| | WSP_PT_GW03_4.0 | 6/04/2020 | <1 | - | 6 | - | <2 | 9 | - | 26 | - | 18 | 0.1 | - | <2 | 9 | - | <5 | 17 | 34 | - | - | - | - | - | - | - | 20.7 | 1,500 | 378 | 28 | - | 8.8 | - | - | |
| | WSP_PT_SS01_0.3 | 7/04/2020 | <1 | - | 8 | - | <2 | 10 | - | 40 | - | 18 | <0.1 | - | <2 | 10 | - | <5 | 14 | 62 | - | <0.0004 | <0.001 | 0.644 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 13.9 | 197 | <10 | <1 | 0 ¹²⁰ | 7.6 | 0 ¹²⁰ | 644 |
| | WSP_PT_SS02_0.3 | 7/04/2020 | 10 | - | 168 | - | 4 | 236 | - | 209 | - | 101 | <0.1 | - | 275 | - | <5 | 9 | 904 | - | <0.0004 | <0.001 | 0.451 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 15.6 | 165 | <10 | <1 | 0 ¹²⁰ | 7.2 | 0 ¹²⁰ | 451 | |
| | WSP_PT_SS03_0.3 | 7/04/2020 | <1 | - | 14 | - | <2 | 27 | - | 82 | - | 34 | <0.1 | - | 2 | - | <5 | 29 | 289 | - | <0.0004 | <0.001 | 0.543 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 14.6 | 117 | <10 | <1 | 0 ¹²⁰ | 7.3 | 0 ¹²⁰ | 543 | |
| | ES2014102 | WSP_PT_BH01_0.5 | 6/04/2020 | - | <0.1 | - | <1 | - | 30 | - | 2 | - | - | <0.1 | - | <1 | - | <5 | - | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | WSP_PT_BH02_0.5 | 6/04/2020 | - | <0.1 | - | 1 | - | - | 6 | - | - | - | <0.1 | - | <1 | - | <5 | - | 58 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | WSP_PT_BH02_1.5 | 6/04/2020 | - | <0.1 | - | <1 | - | - | <1 | - | - | - | <0.1 | - | <1 | - | <5 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| WSP_PT_BH04_0.5 | | 6/04/2020 | - | <0.1 | - | 1 | - | - | <1 | - | 2 | - | - | <0.1 | - | <1 | - | <5 | - | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| ES2026014 | WSP_PT_BH04_3.0 | 6/04/2020 | - | <0.1 | - | <1 | - | - | <1 | - | 4 | - | - | <0.1 | - | 1 | - | - | 47 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | WSP_PT_BH101_2.0 | 23/07/2020 | <1 | - | 14 | - | <2 | 23 | - | 66 | - | 25 | <0.1 | - | 2 | - | <5 | 29 | 143 | - | <0.0004 | <0.001 | 0.518 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 12.5 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 518 | |
| | WSP_PT_BH101_3.0 | 23/07/2020 | <1 | - | 12 | - | <2 | 23 | - | 65 | - | 43 | 0.4 | - | 4 | - | <5 | 37 | 87 | - | <0.0004 | <0.001 | 0.401 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 28.0 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 401 | |
| | WSP_PT_BH101_4.0 | 23/07/2020 | <1 | - | 20 | - | <3 | 21 | - | 78 | - | 54 | 0.3 | - | 6 | - | <5 | 43 | 72 | - | <0.0004 | <0.001 | 0.538 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 33.2 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 538 | |
| | WSP_PT_BH102_2.0 | 24/07/2020 | <1 | - | 17 | - | <2 | <5 | - | 10 | - | 28 | <0.1 | - | <2 | - | <5 | 12 | 18 | - | <0.0004 | <0.001 | 0.538 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 9.9 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 538 | |
| | WSP_PT_BH102_4.0 | 24/07/2020 | <1 | - | 11 | - | <2 | <5 | - | 6 | - | 30 | <0.1 | - | 6 | - | <5 | 27 | 13 | - | <0.0004 | <0.001 | 0.423 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 27.7 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 423 | |
| | WSP_PT_BH102_5.0 | 24/07/2020 | <1 | - | 6 | - | <2 | <5 | - | 9 | - | 22 | <0.1 | - | 3 | - | <5 | 23 | 9 | - | <0.0004 | <0.001 | 0.386 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 27.8 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 386 | |
| | WSP_PT_BH103_2.0 | 24/07/2020 | <1 | - | 16 | - | <2 | 20 | - | 55 | - | 28 | 0.2 | - | 4 | - | <5 | 37 | 72 | - | - | - | - | - | - | - | - | 25.0 | - | - | - | - | - | - | - | |
| | WSP_PT_BH103_2.5 | 24/07/2020 | <1 | - | 7 | - | <2 | <5 | - | 12 | - | 24 | <0.1 | - | <2 | - | <5 | 15 | 19 | - | <0.0004 | <0.001 | 0.442 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 24.8 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 442 | |
| | WSP_PT_BH103_3.0 | 24/07/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.0004 | <0.001 | 0.563 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 27.2 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 563 | |
| WSP_PT_BH103_4.0 | 24/07/2020 | <1 | - | 7 | - | <2 | <5 | - | <5 | - | 16 | <0.1 | - | 2 | - | <5 | 16 | 7 | - | <0.0004 | <0.001 | 0.453 | <0.01 | <0.0004 | 1 ¹¹⁹ | 0 ¹²⁰ | 23.9 | - | - | - | 0 ¹²⁰ | - | 0 ¹²⁰ | 453 | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|-------|------|-------|-------|-------|------|-------|-------|-------|-------|-------|------|-------|-------|-----|-------|-------|-------|--------|---------|-------|--------|---------|----|----|-------|-------|-------|-------|-------|-------|----|-------|
| Number of Results | 32 | 5 | 32 | 5 | 32 | 32 | 5 | 32 | 5 | 32 | 32 | 5 | 32 | 5 | 32 | 32 | 32 | 5 | 32 | 24 | 24 | 24 | 24 | 24 | 24 | 33 | 14 | 16 | 16 | 24 | 16 | 24 | 24 |
| Minimum Detect | 1 | ND | 3 | 1 | 2 | 5 | 30 | 6 | 2 | 15 | 0.1 | ND | 2 | 1 | ND | 9 | 7 | 8 | 0.277 | 0.051 | 0.153 | 0.05 | ND | 1 | ND | 8.8 | 117 | 12 | 1 | 1 | 5.9 | ND | 153 |
| Maximum Concentration | 10 | <0.1 | 168 | 1 | 6 | 236 | 30 | 209 | 6 | 236 | 1 | <0.1 | 275 | 1 | <5 | 43 | 904 | 58 | 0.277 | 0.051 | 0.673 | 0.05 | <0.0004 | 1 | 0 | 42.5 | 2,760 | 1,080 | 81 | 1 | 11.2 | 0 | 673 |
| Average Concentration * | 0.83 | 0.05 | 16 | 0.7 | 1.3 | 24 | 6.4 | 52 | 2.9 | 43 | 0.16 | 0.05 | 12 | 0.6 | 2.5 | 23 | 118 | 35 | 0.012 | 0.0026 | 0.48 | 0.0069 | 0.0002 | 1 | 0 | 22 | 776 | 311 | 23 | 0.042 | 8.1 | 0 | 477 |
| 95% UCL (Student's-t) * | 1.331 | 0.05 | 24.29 | 0.961 | 1.663 | 35.9 | 18.98 | 66.91 | 4.934 | 55.83 | 0.214 | 0.05 | 25.98 | 0.813 | 2.5 | 25.46 | 173.8 | 53.23 | 0.0315 | 0.00621 | 0.521 | 0.0101 | 0.0002 | 1 | 0 | 24.48 | 1,149 | 451.3 | 33.79 | 0.113 | 8.617 | 0 | 520.7 |

* A Non Detect Multiplier of 0.5 has been applied

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* A Non Detect Multiplier of 0.5 has been applied

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|-------------------------|---------|---------|---------|-------|-------|------|-----|-----|------|------|------|------|------|------|------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-------|------|-------|
| Number of Results | 8 | 8 | 8 | 5 | 24 | 18 | 18 | 18 | 18 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Minimum Detect | ND | ND | ND | 8.2 | 1 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 180 | 0.08 | 0.1 | ND | ND | ND | ND | ND |
| Maximum Concentration | <0.0005 | <0.0002 | <0.0002 | 8.6 | 1 | <0.5 | <1 | <1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <1 | <0.5 | <2 | <0.5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | 260 | 0.11 | 0.15 | <0.05 | <0.05 | <0.2 | <0.05 |
| Average Concentration * | 0.00025 | 0.0001 | 0.0001 | 8.5 | 0.042 | 0.25 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.41 | 0.25 | 0.82 | 0.25 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 41 | 0.031 | 0.033 | 0.025 | 0.025 | 0.1 | 0.025 |
| 95% UCL (Student's-t) * | 0.00025 | 0.0001 | 0.0001 | 8.665 | 0.113 | 0.25 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.448 | 0.25 | 0.897 | 0.25 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 60.95 | 0.0379 | 0.0435 | 0.025 | 0.025 | 0.1 | 0.025 |

* A Non Detect Multiplier of 0.5 has been applied

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* A Non Detect Multiplier of 0.5 has been applied

[illegible][illegible]

* A Non Detect Multiplier of 0.5 has been applied

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|--|
| EOL |
| NEPM 2013 Table 1B(5) Generic EIL – Urban Res & Public Open Space |
| NEPM 2013 Table 1A(3) Hills Comm/Ind D Soil |
| NEPM 2013 Table 1A(1) Hills Rec C Soil |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand |
| 0-1m |
| 1-2m |
| 2-4m |
| >=4m |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand |
| 0-1m |
| 1-2m |
| 2-4m |
| >=4m |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil |
| 0-2m |
| Leachate criteria using DAF of 20 times ANZG (2018) Marine water 95% toxicant DGVs |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil |

| | | |
|-----------|------------------|------------|
| ES2011031 | BH03_0.5 | 27/03/2020 |
| | BH03_0.15 | 27/03/2020 |
| | BH03_1.5 | 27/03/2020 |
| | BH03_4.0 | 27/03/2020 |
| ES2011171 | BH05_0.1 | 31/03/2020 |
| | BH05_0.5 | 31/03/2020 |
| | BH05_1.5 | 31/03/2020 |
| | BH05_3.0 | 31/03/2020 |
| ES2012229 | BH05_4.0 | 31/03/2020 |
| | WSP_PT_BH01_0.1 | 6/04/2020 |
| | WSP_PT_BH01_0.5 | 6/04/2020 |
| | WSP_PT_BH01_1.5 | 6/04/2020 |
| | WSP_PT_BH01_3.0 | 6/04/2020 |
| | WSP_PT_BH01_4.0 | 6/04/2020 |
| | WSP_PT_BH02_0.1 | 6/04/2020 |
| | WSP_PT_BH02_0.5 | 6/04/2020 |
| | WSP_PT_BH02_1.5 | 6/04/2020 |
| | WSP_PT_BH02_3.0 | 6/04/2020 |
| | WSP_PT_BH04_0.1 | 6/04/2020 |
| | WSP_PT_BH04_0.5 | 6/04/2020 |
| | WSP_PT_BH04_1.0 | 6/04/2020 |
| | WSP_PT_BH04_3.0 | 6/04/2020 |
| | WSP_PT_GW03_0.1 | 6/04/2020 |
| | WSP_PT_GW03_0.5 | 6/04/2020 |
| | WSP_PT_GW03_1.5 | 6/04/2020 |
| | WSP_PT_GW03_4.0 | 6/04/2020 |
| | WSP_PT_SS01_0.3 | 7/04/2020 |
| | WSP_PT_SS02_0.3 | 7/04/2020 |
| ES2014102 | WSP_PT_SS03_0.3 | 7/04/2020 |
| | WSP_PT_BH01_0.5 | 6/04/2020 |
| | WSP_PT_BH02_0.5 | 6/04/2020 |
| | WSP_PT_BH02_1.5 | 6/04/2020 |
| | WSP_PT_BH04_0.5 | 6/04/2020 |
| | WSP_PT_BH04_3.0 | 6/04/2020 |
| ES2026014 | WSP_PT_BH101_2.0 | 23/07/2020 |
| | WSP_PT_BH101_3.0 | 23/07/2020 |
| | WSP_PT_BH101_4.0 | 23/07/2020 |
| | WSP_PT_BH102_2.0 | 24/07/2020 |
| | WSP_PT_BH102_4.0 | 24/07/2020 |
| | WSP_PT_BH102_5.0 | 24/07/2020 |
| | WSP_PT_BH103_2.0 | 24/07/2020 |
| | WSP_PT_BH103_2.5 | 24/07/2020 |
| | WSP_PT_BH103_3.0 | 24/07/2020 |
| | WSP_PT_BH103_4.0 | 24/07/2020 |
| | | |
| | | |

| |
|-------------------------|
| Number of Results |
| Minimum Detect |
| Maximum Concentration |
| Average Concentration * |
| 95% UCL (Student's-t) * |

* A Non Detect Multiplier of 0.5 has been applied

[illegible][illegible]

* A Non Detect Multiplier of 0.5 has been applied



| | Hexachlorobutadiene | iodomethane | Isopropylbenzene | n-butylbenzene | p-propylbenzene | pentachloroethane | p-isopropyltoluene | sec-butylbenzene | Styrene | tert-butylbenzene | TCF | tetrachloroethane | trans-1,4-Dichloro-2-butene | trans-1,3-dichloropropene | trans-1,2-dichloroethene | trichlorofluoromethane | vinyl acetate | vinyl chloride |
|--|---------------------|-------------|------------------|----------------|-----------------|-------------------|--------------------|------------------|---------|-------------------|-------|-------------------|-----------------------------|---------------------------|--------------------------|------------------------|---------------|----------------|
| EOL | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 5 | 5 | 5 |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | |
| 0-1m | | | | | | | | | | | | | | | | | | |
| 1-2m | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | |
| >=4m | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | |
| 0-1m | | | | | | | | | | | | | | | | | | |
| 1-2m | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | |
| >=4m | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | | | | | | | | | | | | | | | | | | |
| 0-2m | | | | | | | | | | | | | | | | | | |
| Leachate criteria using DAF of 20 times ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | | | | | | | | | | | | | | | | | | |

| Lab Report Number | Field ID | Date | | | | | | | | | | | | | | | | |
|-------------------|------------------|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|----|----|
| ES2011031 | BH03_0.5 | 27/03/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | BH03_0.15 | 27/03/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | BH03_1.5 | 27/03/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | BH03_4.0 | 27/03/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_0.1 | 31/03/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | BH05_0.5 | 31/03/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | BH05_1.5 | 31/03/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | BH05_3.0 | 31/03/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | BH05_4.0 | 31/03/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_0.1 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH01_0.5 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH01_1.5 | 6/04/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_BH01_3.0 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH01_4.0 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH02_0.1 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH02_0.5 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH02_1.5 | 6/04/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_BH02_3.0 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH04_0.1 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH04_0.5 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH04_1.0 | 6/04/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_BH04_3.0 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_GW03_0.1 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_GW03_0.5 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_GW03_1.5 | 6/04/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_GW03_4.0 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_SS01_0.3 | 7/04/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_SS02_0.3 | 7/04/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_SS03_0.3 | 7/04/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| ES2014102 | WSP_PT_BH01_0.5 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH02_0.5 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH02_1.5 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH04_0.5 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH04_3.0 | 6/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2026014 | WSP_PT_BH101_2.0 | 23/07/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_BH101_3.0 | 23/07/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_BH101_4.0 | 23/07/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_BH102_2.0 | 24/07/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_BH102_4.0 | 24/07/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_BH102_5.0 | 24/07/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_BH103_2.0 | 24/07/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH103_2.5 | 24/07/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| | WSP_PT_BH103_3.0 | 24/07/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | WSP_PT_BH103_4.0 | 24/07/2020 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |

| Statistics | | | | | | | | | | | | | | | | | | |
|-------------------------|--|--|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| Number of Results | | | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| Minimum Detect | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Maximum Concentration | | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 |
| Average Concentration * | | | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 2.5 | 2.5 |
| 95% UCL (Student's-t) * | | | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 2.5 | 2.5 |

* A Non Detect Multiplier of 0.5 has been applied.



| | | TPH | | | | | TRH | | | | | | | BTX | | | | | |
|---|------------|---------|-----------|-----------|-----------|-----------------|----------|-------------------------|-----------|---------------------------------|-----------|-----------|-----------------|-------------------|---------|--------------|----------------|------------|--------------|
| | | | | | | | | | | | | | | | | | | | |
| | | C6 - C9 | C10 - C14 | C15 - C28 | C29 - C36 | C10 - C36 (Sum) | C6 - C10 | C6 - C10 less BTEX (F1) | C10 - C16 | C10 - C16 less Naphthalene (F2) | C16 - C34 | C34 - C40 | C10 - C40 (Sum) | Benzene | Toluene | Ethylbenzene | Xylene (m & p) | Xylene (o) | Xylene (Sum) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| EOL | | 20 | 50 | 100 | 50 | 50 | 20 | 20 | 50 | 50 | 100 | 100 | 100 | 1 | 1 | 1 | 2 | 1 | 2 |
| PFAS NEMP 2018 99% species protection | | | | | | | | | | | | | | | | | | | |
| ADWG 2018 - Health | | | | | | | | | | | | | | 1 | 800 | 300 | | | 600 |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | 700 ^{F2} | | | | | |
| NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | NL | | NL | | | | | NL | NL | NL | | | NL |
| 4-8m | | | | | | | NL | | NL | | | | | NL | NL | NL | | | NL |
| ≥8m | | | | | | | NL | | NL | | | | | NL | NL | NL | | | NL |
| Field ID | Date | | | | | | | | | | | | | | | | | | |
| WSP_PT_GW01 | 15/04/2020 | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 | <1 | <2 | <2 | <2 | <2 | <2 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_GW02 | 15/04/2020 | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 | <1 | <2 | <2 | <2 | <2 | <2 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_GW03 | 15/04/2020 | 570 | <50 | <100 | <50 | <50 | 580 | 140 | <100 | <100 | <100 | <100 | <100 | <1 | 444 | <2 | <2 | <2 | <2 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Comments

#1 No corresponding fact sheet for these pesticides. Guideline values for these

#2 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#3 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#4 Very high reliability

#5 Low reliability

#6 High reliability

#7 Moderate reliability

#8 Very Low reliability

Environmental Standards

NHMRC, August 2018, ADWG 2018 - Health

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs



| | | PAH | | | | | | | | | | | | | | | | | | | | Metals | | | | | | | | |
|---|------------|-------------------------|----------------------|--------------|----------------|------------|--------------------|----------------------|----------------|----------------------|----------------------|----------------------|----------|-----------------------|--------------|----------|------------------------|-------------|--------------|--------|------------|--------------------------------|--------------------|--------------------|---------------------|-------------------|-------------------|--------------------|-------------------|------------------|
| | | 2-(acetylamino)fluorene | 3-methylcholanthrene | Acenaphthene | Acenaphthylene | Anthracene | Benzo(a)anthracene | Benzo(b)fluoranthene | Benzo(a)pyrene | Benzo(k)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Naphthalene | Phenanthrene | Pyrene | PAHs (Sum) | Benzo(a)pyrene TEQ calc (Zero) | Arsenic (filtered) | Cadmium (filtered) | Chromium (filtered) | Copper (filtered) | Lead (filtered) | Mercury (filtered) | Nickel (filtered) | Zinc (filtered) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| EOL | | 2 | 2 | 1 | 1 | 1 | 1 | 4 | 0.5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.5 | 0.5 | 1 | 0.1 | 1 | 1 | 1 | 0.1 | 1 | 5 |
| PFAS NEMP 2018 99% species protection | | | | | | | | | | | | | | | | | | | | | | | 10 | 2 | | 2,000 | 10 | 1 | 20 | |
| ADWG 2018 - Health | | | | | | | | | 0.01 | | | | | | | | | | | | | | | 5.5 ⁴³ | | 1.3 ⁴⁴ | 4.4 ⁴⁵ | 0.4 ⁴⁴ | 70 ⁴⁶ | 15 ⁴⁴ |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | | | | 70 ⁴² | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | NL | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | NL | | | | | | | | | | | | |
| >=8m | | | | | | | | | | | | | | | | | | NL | | | | | | | | | | | | |
| Field ID | Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_GW01 | 15/04/2020 | <2 | <2 | <1.0 | <1.0 | <1.0 | <1.0 | <4 | <0.5 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 | 4 | <0.1 | <1 | 7 | <1 | <0.1 | 4 | 38 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_GW02 | 15/04/2020 | <2 | <2 | <1.0 | <1.0 | <1.0 | <1.0 | <4 | <0.5 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 | 1 | <0.1 | <1 | 11 | <1 | <0.1 | 3 | 34 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_GW03 | 15/04/2020 | <2 | <2 | <1.0 | <1.0 | <1.0 | <1.0 | <4 | <0.5 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 | 3 | <0.1 | <1 | 1 | 1 | <0.1 | <1 | 25 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Comments

#1 No corresponding fact sheet for these pesticides. Guideline values for these

#2 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#3 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#4 Very high reliability

#5 Low reliability

#6 High reliability

#7 Moderate reliability

#8 Very Low reliability

Environmental Standards

NHMRC, August 2018, ADWG 2018 - Health

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

| | | Per- and Polyfluoroalkyl Subst | | | | | | | | | | | | | | | | PFOS and PFOA | | | | | | | | | | | | | | | | Explosives | | | | |
|---|------------|---|---|-----------|---|-----------|---|-----------|---|-------------------------------|---|---------------------------------------|--|---------------------------------|------------------------------------|---------------------------|-----------------------|---------------------------------------|-----------------------------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-----------------------|--------------------|--------------------|--------------|---------------------------|--|--|
| | | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 4:2 Fluorotelomer sulfonic acid (4:2 FTS) | N-Et-FOSA | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Et-FOSE | N-Ethyl perfluorooctane sulfonamideacetic acid (Et) | N-Me-FOSA | N-Methyl perfluorooctane sulfonamideacetic acid (M) | Perfluorobutanoic acid (PFBA) | Perfluorooheptane sulfonic acid (PFHpS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluoropentanoic acid (PFPeA) | Perfluorodecansulfonic acid (PFDS) | Sum of PFAS (VA DER List) | Sum of PFHxS and PFOS | 6:2 Fluorotelomer Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate | Perfluorooctane sulfonic acid (PFOS) | PFOA | PFBS | PFDA | PFDA | PFDA | PFHpA | PFHxA | PFNA | PFTeA | PFTrIA | PFUnA | 1,3,5-Trinitrobenzene | 2,4-Dinitrotoluene | 2,6-dinitrotoluene | Nitrobenzene | 2,3,4,6-tetrachlorophenol | | |
| EQI | | µg/L | µg/L | µg/L | UG/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | MG/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | mg/L | mg/L | mg/L | mg/L | µg/L | | |
| PFAS NEMP 2018 99% species protection | | 0.05 | 0.05 | 0.05 | 0.05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADWG 2018 - Health | | | | | | | | | | | | | | | | | 0.07 | | | 0.00023 | 19 | 0.56 | | | | | | | | | | | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEMP 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >=8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field ID | Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_GW01 | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 21/04/2020 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.05 | <0.02 | <0.05 | <0.02 | <0.02 | <0.02 | <0.02 | <0.00002 | <0.01 | <0.01 | <0.05 | <0.05 | <0.01 | <0.01 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.05 | <0.02 | <0.02 | <0.002 | <0.004 | <0.004 | <0.002 | - | | |
| WSP_PT_GW02 | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 21/04/2020 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.05 | <0.02 | <0.1 | <0.02 | <0.02 | <0.02 | <0.02 | <0.00002 | <0.01 | <0.01 | <0.05 | <0.05 | <0.01 | <0.01 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.05 | <0.02 | <0.02 | <0.002 | <0.004 | <0.004 | <0.002 | - | | |
| WSP_PT_GW03 | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 21/04/2020 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.05 | <0.02 | <0.1 | <0.02 | <0.02 | <0.02 | <0.02 | <0.00002 | <0.01 | <0.01 | <0.05 | <0.05 | <0.01 | <0.01 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.05 | <0.02 | <0.02 | <0.002 | <0.004 | <0.004 | <0.002 | - | | |

Comments

#1 No corresponding fact sheet for these pesticides. Guideline values for these

#2 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#3 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#4 Very high reliability

#5 Low reliability

#6 High reliability

#7 Moderate reliability

#8 Very Low reliability

Environmental Standards

NHMRC, August 2018, ADWG 2018 - Health

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs



| | | Phenols | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------|-----------------------|-----------------------|--------------------|--------------------|-------------------|--------------------|----------------|----------------|---------------|-------------------------------|----------------------------|-------------------------|---------------|--------------------|------------------|--------|---------|-------|--------|-------------------|-------|-----------|-----------------|-------------------|-------|
| | | 2,4,5-trichlorophenol | 2,4,6-Trichlorophenol | 2,4-dichlorophenol | 2,4-dimethylphenol | 2,4-dinitrophenol | 2,6-dichlorophenol | 2-chlorophenol | 2-methylphenol | 2-nitrophenol | 3/4-methyl phenol (m/p-creso) | 4,6-Dinitro-2-methylphenol | 4-chloro-3-methylphenol | 4-nitrophenol | 2,6-dichlorophenol | Phenolics Total | Phenol | 4,4 DDE | a-BHC | Aldrin | Aldrin + Dieldrin | b-BHC | Chlordane | Chlordane (cis) | Chlordane (trans) | γ-BHC |
| EOL | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | mg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| PFAS NEMP 2018 99% species protection | | 2 | 2 | 2 | 2 | 30 | 2 | 2 | 2 | 2 | 0.004 | 30 | 2 | 30 | 4 | 50 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| ADWG 2018 - Health | | | 20 | 200 | | | | 300 | | | | | | 10 | | | | | | 0.3 | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | 22 | | 400 ⁿ | | | | | | | | | | |
| NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field ID | | Date | | | | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_GW01 | 15/04/2020 | <2 | <2 | <2 | <2 | - | <2 | <2 | <2 | <2 | <0.004 | - | <2 | - | <4 | - | <2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <50 | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_GW02 | 15/04/2020 | <2 | <2 | <2 | <2 | - | <2 | <2 | <2 | <2 | <0.004 | - | <2 | - | <4 | - | <2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <50 | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_GW03 | 15/04/2020 | <2 | <2 | <2 | <2 | - | <2 | <2 | 2 | <2 | <0.004 | - | <2 | - | <4 | - | <2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <50 | - | - | - | - | - | - | - | - | - | - |

Comments

#1 No corresponding fact sheet for these pesticides. Guideline values for these

#2 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#3 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#4 Very high reliability

#5 Low reliability

#6 High reliability

#7 Moderate reliability

#8 Very Low reliability

Environmental Standards

NHMRC, August 2018, ADWG 2018 - Health

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs



| OCP | | | | | | | | | | | | | | | | OPP | | | | | | | | | | | | | | | | | | | |
|---|------------|------|-------------|----------|---------------|--------------|---------------|---------------------|---------------------|-----------------|-----------------|------------|--------------------|-------------------|--------------|-----------------|-----------------|-----------------|-----------------|---------------------|---------------------|------------------|----------|------------|------------|--------|------------|--------------|-----------|------------------|---------------|-----------|----------------|-----------|--|
| | DDD | DDT | DDT+DDE+DDD | Dieldrin | Endrin ketone | Endosulfan I | Endosulfan II | Endosulfan sulphate | Endrin | Endrin aldehyde | γ-BHC (Lindane) | Heptachlor | Heptachlor epoxide | Hexachlorobenzene | Methoxychlor | Azinphos methyl | Bromophos-ethyl | Carbophenothion | Chlorfenvinphos | Chlorpyrifos | Chlorpyrifos-methyl | Demeton-S-methyl | Diazinon | Dichlorvos | Dimethoate | Ethion | Fenamiphos | Fenitrothion | Malathion | Methyl parathion | Monocrotophos | Parathion | Phimphos-ethyl | Prothioic | |
| | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | |
| EOL | 0.5 | 2 | 0.5 | 0.5 | 0.5 | | | | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 2 | 2 | 2 | 0.5 | 0.5 | |
| PFAS NEMP 2018 99% species protection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADWG 2018 - Health | | | | | | | | | | | | | | | | | #1 | 0.5 | | 10 | | | | 4 | 5 | 7 | | | | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | 0.008 ^{#7} | | | | | | | | | | | 0.009 ^{#5} | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >=8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field ID | Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_GW01 | 15/04/2020 | <0.5 | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <2.0 | <2.0 | <0.5 | <0.5 | | |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| WSP_PT_GW02 | 15/04/2020 | <0.5 | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <2.0 | <2.0 | <0.5 | <0.5 | | |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| WSP_PT_GW03 | 15/04/2020 | <0.5 | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <2.0 | <2.0 | <0.5 | <0.5 | | |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

Comments
#1 No corresponding fact sheet for these pesticides. Guideline values for these

#2 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#3 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#4 Very high reliability

#5 Low reliability

#6 High reliability

#7 Moderate reliability

#8 Very Low reliability

Environmental Standards
NHMRC, August 2018, ADWG 2018 - Health
ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs



| | | SVOC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------|--------------------------------|--------------------------------|--------------------------------|----------------------------|---------------------|-----------------|---------------------|---------------------|-----------------|----------------|------------|-----------------------|----------------|---------------------------------|-----------------|--------------------------|-----------------|---------------------------|----------------|------------------------------|--------------------|---|--------------|---------|------------|-----------------|--------------------------------|-----------------------------|---------------------------------|--------------------------------|---------------------------|-----------|-----------------|---------------------|--------------|-------|-------|
| | | 1,2,3,4- tetrachlorobenzene | 1,2,3,5- Tetrachlorobenzene | 1,2,4,5- tetrachlorobenzene | 1,3,5- Trichlorobenzene | 1-Chloronaphthalene | 1-naphthylamine | 2-chloronaphthalene | 2-methylnaphthalene | 2-naphthylamine | 2-nitroaniline | 2-Picoline | 3,3-Dichlorobenzidine | 3-nitroaniline | 4-(dimethylamino) azobenzene | 4-aminobiphenyl | 4-bromobiphenyl ether | 4-chloroaniline | 4-chlorobiphenyl ether | 4-nitroaniline | 4-Nitroquinoline-N- oxide | 5-nitro-o-tolidine | 7,12- dimethylbenz(a)anthr- acene | Acetophenone | Aniline | Azobenzene | Benzyl chloride | Bis(2-chloroethoxy) methane | Bis(2- chloroethyl)ether | Bis(2-chloroisopropyl) ether | Bis(2-ethylhexyl) phthalate | Butyl benzyl phthalate | Carbazole | Chlorobenzilate | Dibenz(a,h)acridine | Dibenzofuran | | |
| EOL | | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.002 | 0.002 | 0.002 | 0.005 | 0.004 | 0.002 | 0.002 | 0.004 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.005 | 0.002 | 0.002 | 0.005 | 0.005 | 0.002 | 0.002 | 0.002 | 0.002 | 0.005 | 0.002 |
| PFAS NEMP 2018 99% species protection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADWG 2018 - Health | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >=8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field ID | Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_GW01 | 15/04/2020 | - | - | - | - | - | <0.002 | <0.002 | <0.002 | - | <0.004 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | - | <0.002 | <0.002 | - | <0.01 | <0.002 | <0.002 | <0.002 | - | <0.002 | | |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| WSP_PT_GW02 | 15/04/2020 | - | - | - | - | - | <0.002 | <0.002 | <0.002 | - | <0.004 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | - | <0.002 | <0.002 | - | <0.01 | <0.002 | <0.002 | <0.002 | - | <0.002 | | |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| WSP_PT_GW03 | 15/04/2020 | - | - | - | - | - | <0.002 | <0.002 | <0.002 | - | <0.004 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | - | <0.002 | <0.002 | - | <0.01 | <0.002 | <0.002 | <0.002 | - | <0.002 | | |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |

Comments
#1 No corresponding fact sheet for these pesticides. Guideline values for these

#2 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#3 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#4 Very high reliability

#5 Low reliability

#6 High reliability

#7 Moderate reliability

#8 Very Low reliability

Environmental Standards
NHMRC, August 2018, ADWG 2018 - Health
ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs



| | | Diethylphthalate | Dimethyl phthalate | Di-n-butyl phthalate | Di-n-octyl phthalate | Diphenylamine | Hexachlorocyclopentadiene | Hexachloroethane | Hexachloropropene | Isophorone | Methpyrflene | N-nitrosodiethylamine | N-nitrosdi-n-butylamine | N-nitrosdi-n-propylamine | N-Nitrosodiphenyl & Diphenylamine | N-Nitrosomethylethylamine | N-nitrosomorpholine | N-nitrosopiperidine | N-nitrosopyrrolidine | Pentachlorobenzene | Pentachloronitrobenzene | Phenacetin | Pronamide | Trifluralin | 1,1,1,2-tetrachloroethane | 1,1,1-trichloroethane | 1,1,2,2-tetrachloroethane | 1,1-dichloroethane | 1,1,2-trichloroethane | 1,1-dichloroethane | 1,1-dichloropropene | 1,2,3-trichloropropane | 1,2,3-trichlorobenzene | 1,2-dibromo-3-chloropropane | 1,2,4-trimethylbenzene | 1,2,4-trichlorobenzene |
|---|------------|------------------|--------------------|----------------------|----------------------|---------------|---------------------------|------------------|-------------------|------------|--------------|-----------------------|-------------------------|--------------------------|-----------------------------------|---------------------------|---------------------|---------------------|----------------------|--------------------|-------------------------|------------|-----------|-------------|---------------------------|-----------------------|---------------------------|--------------------|-----------------------|--------------------|---------------------|------------------------|------------------------|-----------------------------|------------------------|------------------------|
| | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EOL | | 0.002 | 0.002 | 0.002 | 0.002 | 0.005 | 0.005 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.004 | 0.002 | 0.002 | 0.002 | 0.004 | 0.002 | 0.002 | 0.002 | 0.002 | 0.005 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.001 | 0.005 | 0.005 | 0.001 | 0.002 |
| PFAS NEMP 2018 99% species protection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADWG 2018 - Health | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >=8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field ID | Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_GW01 | 15/04/2020 | <0.002 | <0.002 | <0.002 | <0.002 | - | <0.01 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.002 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.002 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| WSP_PT_GW02 | 15/04/2020 | <0.002 | <0.002 | <0.002 | <0.002 | - | <0.01 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.002 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.002 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| WSP_PT_GW03 | 15/04/2020 | <0.002 | <0.002 | <0.002 | <0.002 | - | <0.01 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.002 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.002 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

Comments
#1 No corresponding fact sheet for these pesticides. Guideline values for these

#2 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#3 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#4 Very high reliability

#5 Low reliability

#6 High reliability

#7 Moderate reliability

#8 Very Low reliability

Environmental Standards
NHMRC, August 2018, ADWG 2018 - Health
ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

Comments

#1 No corresponding fact sheet for these pesticides. Guideline values for these pesticides are not available.

#2 Moderate reliability. DGV may not protect key test species for chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#3 High reliability. DGV may not protect key test species from chronic toxicity (refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#4 Very high reliability

#5 Low reliability

#6 High reliability

#7 Moderate reliability

#8 Very Low reliability

Environmental Standards
NHMRC, August 2018, ADWG 2018 - Health
ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs



| | | 1,1-dichloroethane | 1,2-dichloroethane | 1,3-dichloropropane | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene | 1,4-dichlorobenzene |
|---|------------|--------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| ECL | | 0.001 | 0.001 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.001 | 0.005 | 0.001 | 0.005 | 0.001 | 0.001 | 0.001 | 0.001 | 0.05 | 0.001 |
| PFAS NEMP 2018 99% species protection | | | | | | | | | | | | | | | | | | |
| ADWG 2018 - Health | | | | | | | | 0.03 | | | | | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | |
| >=8m | | | | | | | | | | | | | | | | | | |
| Field ID | Date | | | | | | | | | | | | | | | | | |
| WSP_PT_GW01 | 15/04/2020 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_GW02 | 15/04/2020 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_GW03 | 15/04/2020 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| | 21/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Comments

#1 No corresponding fact sheet for these pesticides. Guideline values for these

#2 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#3 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.

#4 Very high reliability

#5 Low reliability

#6 High reliability

#7 Moderate reliability

#8 Very Low reliability

Environmental Standards

NHMRC, August 2018, ADWG 2018 - Health

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs



| | NA | | | | | |
|-----|------------------|----------|--------------------|---------------|--------------|----------|
| | Moisture Content | CEC | Clay in soils <2um | Organic Fibre | pH (at 25°C) | pH (KCl) |
| | % | meq/100g | % | g/kg | PH UNITS | pH Unit |
| EQL | 1 | 0.2 | 1 | 0.1 | 0.1 | 0.1 |

| Lab Report Number | Field ID | Date | | | | | | |
|-------------------|-----------------|------------|------|------|----|---|------|------|
| ES2011031 | BH03_1.5 | 27/03/2020 | 29.6 | 15.7 | 24 | - | 11.5 | 8.4 |
| ES2011171 | BH05_1.5 | 31/03/2020 | 25.2 | 7.1 | 27 | - | 11.8 | 11.2 |
| ES2012229 | WSP_PT_BH01_1.5 | 6/04/2020 | 24.3 | 2.1 | 7 | - | 8.3 | 8.8 |
| | WSP_PT_BH02_1.5 | 6/04/2020 | 19.4 | 9 | 21 | - | 8.2 | 8.8 |
| | WSP_PT_BH04_1.0 | 6/04/2020 | 9.5 | 2.4 | 11 | - | 7.7 | 5.9 |
| | WSP_PT_GW03_1.5 | 6/04/2020 | 15.3 | 3.1 | 6 | - | 8.6 | 9.3 |
| | Average | | | 6.57 | 16 | | 9.35 | |



| | TRH | | | | | | | BTEX | | | | | |
|-----|----------|-------------------------|-----------|---------------------------------|-----------|-----------|-----------------|---------|---------|--------------|----------------|------------|--------------|
| | C6 - C10 | C6 - C10 less BTEX (F1) | C10 - C16 | C10 - C16 less Naphthalene (F2) | C16 - C34 | C34 - C40 | C10 - C40 (Sum) | Benzene | Toluene | Ethylbenzene | Xylene (m & p) | Xylene (o) | Xylene (Sum) |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 10 | 10 | 50 | 50 | 100 | 100 | 50 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.3 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <10 | <10 | <50 | <50 | <100 | <100 | <50 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | QA01 | 27/03/2020 | soil | <10 | <10 | <50 | <50 | <100 | <100 | <50 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <10 | <10 | <50 | <50 | <100 | <100 | <50 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 711626 | QA01A | 27/03/2020 | soil | <20 | <20 | <50 | <50 | <100 | <100 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | <10 | <10 | <50 | <50 | <100 | <100 | <50 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | QA01 | 31/03/2020 | soil | <10 | <10 | <50 | <50 | <100 | <100 | <50 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | <10 | <10 | <50 | <50 | <100 | <100 | <50 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 711818 | QA01A | 31/03/2020 | soil | <20 | <20 | <50 | <50 | <100 | <100 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | <10 | <10 | <50 | <50 | <100 | <100 | <50 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | QA03 | 6/04/2020 | soil | <10 | <10 | <50 | <50 | <100 | <100 | <50 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | <10 | <10 | <50 | <50 | <100 | <100 | <50 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 713605 | QA03A | 6/04/2020 | soil | <20 | <20 | <50 | <50 | <100 | <100 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | PAH | | | | | | | | | | | | | | | | |
|-----|----------------------|--------------|----------------|------------|-------------------|-----------------|------------------------|----------------------|----------------------|----------|-----------------------|--------------|----------|-------------------------|-------------|--------------|--------|
| | 3-methylcholanthrene | Acenaphthene | Acenaphthylene | Anthracene | Benz(a)anthracene | Benzo(a) pyrene | Benzo(b&j)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-c,d)pyrene | Naphthalene | Phenanthrene | Pyrene |
| EQL | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | QA01 | 27/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.8 | <0.5 | <0.5 | <0.5 | 0.9 | 0.6 |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 0 | 57 | 18 |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 711626 | QA01A | 27/03/2020 | soil | <0.5 | <0.5 | <0.5 | 5.8 | 0.6 | 0.5 | 1.2 | <0.5 | 1.0 | 0.7 | <0.5 | 1.4 | 1.0 | <0.5 | <0.5 | 3.4 | 1.3 |
| RPD | | | | - | 0 | 0 | 168 | 18 | 0 | 82 | 0 | 67 | 33 | 0 | 95 | 67 | 0 | 0 | 149 | 89 |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.9 | <0.5 | <0.5 | <0.5 | <0.5 | 0.9 |
| | QA01 | 31/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | 0.6 | 0.6 | 0.6 | <0.5 | <0.5 | 0.5 | <0.5 | 1.6 | <0.5 | <0.5 | <0.5 | 0.7 | 1.4 |
| RPD | | | | - | 0 | 0 | 0 | 18 | 18 | 18 | 0 | 0 | 0 | 0 | 56 | 0 | 0 | 0 | 33 | 43 |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.9 | <0.5 | <0.5 | <0.5 | <0.5 | 0.9 |
| 711818 | QA01A | 31/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | 0.6 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1.0 | <0.5 | <0.5 | <0.5 | <0.5 | 1.0 |
| RPD | | | | - | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 11 |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.8 | <0.5 | <0.5 | <0.5 | <0.5 | 0.8 |
| | QA03 | 6/04/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.8 | <0.5 | <0.5 | <0.5 | <0.5 | 0.7 |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.8 | <0.5 | <0.5 | <0.5 | <0.5 | 0.8 |
| 713605 | QA03A | 6/04/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 46 |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

| | | | PCB | | | | | | | | | | | | | | |
|-----|------------|-----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------------|-----------|----------|---------|--------|-----------|---------|-------|
| | PAHs (Sum) | Benzo(a)pyrene TEQ calc (Zero) | Arochlor 1016 | Arochlor 1232 | Arochlor 1242 | Arochlor 1248 | Arochlor 1254 | Arochlor 1260 | Arochlor 1221 | PCBs (Sum) | Aluminium | Antimony | Arsenic | Barium | Beryllium | Bismuth | Boron |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.5 | 0.5 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 10 | 10 | 2 | 10 | 1 | 10 | 10 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|------|------|------|------|------|------|------|------|-------|-----|----|-----|----|-----|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <0.5 | <0.5 | - | - | - | - | - | - | <0.1 | - | - | 12 | <10 | <1 | - |
| | QA01 | 27/03/2020 | soil | 2.3 | <0.5 | - | - | - | - | - | - | <0.1 | - | - | 10 | <10 | <1 | - |
| RPD | | | | 129 | 0 | - | - | - | - | - | - | 0 | - | - | 18 | 0 | 0 | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <0.5 | <0.5 | - | - | - | - | - | - | <0.1 | - | - | 12 | <10 | <1 | - |
| 711626 | QA01A | 27/03/2020 | soil | 16.9 | 0.8 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 5,900 | <10 | 13 | <10 | <2 | <10 |
| RPD | | | | 189 | 46 | - | - | - | - | - | - | 0 | - | - | 8 | 0 | 0 | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | 1.8 | <0.5 | - | - | - | - | - | - | <0.1 | - | - | 11 | 30 | <1 | - |
| | QA01 | 31/03/2020 | soil | 6.0 | 0.7 | - | - | - | - | - | - | <0.1 | - | - | 7 | 10 | <1 | - |
| RPD | | | | 108 | 33 | - | - | - | - | - | - | 0 | - | - | 44 | 100 | 0 | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | 1.8 | <0.5 | - | - | - | - | - | - | <0.1 | - | - | 11 | 30 | <1 | - |
| 711818 | QA01A | 31/03/2020 | soil | 2.6 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.1 | <0.5 | - | - | 15 | <10 | <2 | - |
| RPD | | | | 36 | 0 | - | - | - | - | - | - | 0 | - | - | 31 | 100 | 0 | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | 1.6 | <0.5 | - | - | - | - | - | - | <0.1 | - | - | 17 | <10 | <1 | - |
| | QA03 | 6/04/2020 | soil | 1.5 | <0.5 | - | - | - | - | - | - | <0.1 | - | - | 12 | 10 | <1 | - |
| RPD | | | | 6 | 0 | - | - | - | - | - | - | 0 | - | - | 34 | 0 | 0 | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | 1.6 | <0.5 | - | - | - | - | - | - | <0.1 | - | - | 17 | <10 | <1 | - |
| 713605 | QA03A | 6/04/2020 | soil | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.1 | <0.5 | - | - | - | 18 | <10 | <2 | - |
| RPD | | | | 105 | 0 | - | - | - | - | - | - | 0 | - | - | 6 | 0 | 0 | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | Metals | | | | | | | | | | | | | | | | |
|-----|---------|----------------------|----------|-----------------------|--------|--------|-------|-------|-----------|---------|------------|--------|------------|---------|----------|--------|----------|
| | Cadmium | Chromium (Trivalent) | Chromium | Chromium (hexavalent) | Cobalt | Copper | Iron | Lead | Manganese | Mercury | Molybdenum | Nickel | Phosphorus | Silicon | Selenium | Silver | Thallium |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.4 | 5 | 2 | 1 | 2 | 5 | 20 | 5 | 5 | 0.1 | 5 | 2 | 10 | 2 | 2 | 0.2 | 10 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|----|-----|----|----|-----|--------|-----|----|------|----|----|-----|-----|----|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <1 | - | 8 | - | <2 | <5 | - | 7 | 15 | <0.1 | - | <2 | - | - | <5 | - |
| | QA01 | 27/03/2020 | soil | <1 | - | 8 | - | <2 | <5 | - | 8 | 18 | <0.1 | - | <2 | - | - | <5 | - |
| RPD | | | | 0 | - | 0 | - | 0 | 0 | - | 13 | 18 | 0 | - | 0 | - | - | 0 | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <1 | - | 8 | - | <2 | <5 | - | 7 | 15 | <0.1 | - | <2 | - | - | <5 | - |
| 711626 | QA01A | 27/03/2020 | soil | <0.4 | - | 12 | - | <5 | <5 | 11,000 | 11 | 22 | <0.1 | <5 | <5 | 130 | 580 | <2 | <0.2 |
| RPD | | | | 0 | - | 40 | - | 0 | 0 | - | 44 | 38 | 0 | - | 0 | - | - | 0 | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | <1 | - | 12 | - | <2 | 30 | - | 42 | 44 | 0.2 | - | 4 | - | - | <5 | - |
| | QA01 | 31/03/2020 | soil | <1 | - | 6 | - | <2 | 6 | - | 16 | 23 | <0.1 | - | <2 | - | - | <5 | - |
| RPD | | | | 0 | - | 67 | - | 0 | 133 | - | 90 | 63 | 67 | - | 67 | - | - | 0 | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | <1 | - | 12 | - | <2 | 30 | - | 42 | 44 | 0.2 | - | 4 | - | - | <5 | - |
| 711818 | QA01A | 31/03/2020 | soil | <0.4 | <5 | 7.2 | <1 | <5 | 5.0 | - | 14 | 25 | <0.1 | - | <5 | - | - | - | - |
| RPD | | | | 0 | - | 50 | - | 0 | 143 | - | 100 | 55 | 67 | - | 0 | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | <1 | - | 15 | - | <2 | 5 | - | 15 | 28 | <0.1 | - | 4 | - | - | <5 | - |
| | QA03 | 6/04/2020 | soil | <1 | - | 7 | - | <2 | 7 | - | 24 | 18 | 0.1 | - | 2 | - | - | <5 | - |
| RPD | | | | 0 | - | 73 | - | 0 | 33 | - | 46 | 43 | 0 | - | 67 | - | - | 0 | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | <1 | - | 15 | - | <2 | 5 | - | 15 | 28 | <0.1 | - | 4 | - | - | <5 | - |
| 713605 | QA03A | 6/04/2020 | soil | <0.4 | - | 13 | - | <5 | <5 | - | 11 | 30 | <0.1 | - | <5 | - | - | <2 | - |
| RPD | | | | 0 | - | 14 | - | 0 | 0 | - | 31 | 7 | 0 | - | 0 | - | - | 0 | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

| | | | | | NA | | | | | | | | | | | | |
|-----|----------|-------|----------|-------|------------------|------------|---------------|---------------|-----------|----------------------------|-------------------------|--------------------------|----------|---------------------|---------|-----------|-------------------|
| | Titanium | Tin | Vanadium | Zinc | Moisture Content | % Moisture | <2mm Fraction | >2mm Fraction | ANCBT | Chromium Reducible Sulphur | CRS Suite - Liming Rate | Liming rate without ANCE | pH (KCl) | Bolstar (Sulprofos) | Merphos | Omethoate | Pirimiphos-methyl |
| | mg/kg | mg/kg | mg/kg | mg/kg | % | % | G | G | mole H+/t | mole H+/t | KG CaCO3/T | kg CaCO3/t | pH Unit | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 10 | 10 | 5 | 5 | 1 | 1 | 0.005 | 0.005 | 2 | 3 | 1 | 1 | 0.1 | 0.2 | 0.2 | 2 | 0.2 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|----|-----|----|-----|------|----|----|--------|-----|-------|----|------|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | 14 | 7 | 22.7 | - | - | - | 212 | 466 | - | 35 | 8.1 | - | - |
| | QA01 | 27/03/2020 | soil | - | - | 15 | 9 | 24.3 | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | 7 | 25 | 7 | - | - | - | - | - | - | - | - | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | 14 | 7 | 22.7 | - | - | - | 212 | 466 | - | 35 | 8.1 | - | - |
| 711626 | QA01A | 27/03/2020 | soil | 30 | <10 | 19 | 17 | - | 26 | - | - | - | - | - | <0.2 | <0.2 | <2 | <0.2 |
| RPD | | | | - | - | 30 | 83 | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | 31 | 50 | 42.5 | - | - | - | 652 | 463 | - | 35 | 8.7 | - | - |
| | QA01 | 31/03/2020 | soil | - | - | 15 | 20 | 27.5 | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | 70 | 86 | 43 | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | 31 | 50 | 42.5 | - | - | - | 652 | 463 | - | 35 | 8.7 | - | - |
| 711818 | QA01A | 31/03/2020 | soil | - | - | 16 | 16 | - | 25 | - | - | - | - | - | <0.2 | <0.2 | <2 | <0.2 |
| RPD | | | | - | - | 64 | 103 | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | 35 | 15 | 34.4 | - | - | - | - | 1,080 | - | 81 | 6.4 | - | - |
| | QA03 | 6/04/2020 | soil | - | - | 19 | 25 | 31.6 | - | - | - | 391 | 939 | - | 70 | 7.5 | - | - |
| RPD | | | | - | - | 59 | 50 | 8 | - | - | - | - | 14 | - | 15 | 16 | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | 35 | 15 | 34.4 | - | - | - | - | 1,080 | - | 81 | 6.4 | - | - |
| 713605 | QA03A | 6/04/2020 | soil | - | - | 36 | 14 | - | 37 | 46 | <0.005 | 190 | 1,200 | 83 | - | 7.3 | <0.2 | <0.2 |
| RPD | | | | - | - | 3 | 7 | - | - | - | - | - | 11 | - | - | 13 | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

| | | | | | | Per- and Polyfluoroalkyl Subst | | | | | | | | | | Major/minor ions | | |
|-----|------------|--------------|----------|----------------------|-----------|---|---|-------------------------------|---------------------------------------|---------------------------------|---------------------------|-----------------------------------|---|-----------------------|---------|------------------|-----------|--|
| | Pyrazophos | Sulphur as S | Terbufos | Tetrachlorlorvinphos | Tokuthion | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 4:2 Fluorotelomer sulfonic acid (4:2 FTS) | Perfluorobutanoic acid (PFBA) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoropentanoic acid (PFPeA) | Sum of PFAS (WA DER List) | Sum of US EPA PFAS (PFOS + PFOA)* | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* | Sum of PFHxS and PFOS | Calcium | Magnesium | Potassium | |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | µg/kg | µg/kg | mg/kg | mg/kg | mg/kg | mg/kg | |
| EQL | 0.2 | 5 | 0.2 | 0.2 | 0.2 | 0.0005 | 0.0005 | 0.001 | 0.0002 | 0.0002 | 0.0002 | 5 | 5 | 0.0002 | 5 | 5 | 5 | |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|--------|------|------|------|---------|---------|--------|---------|---------|----|----|---------|-------|-------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | <0.0005 | <0.0005 | <0.001 | <0.0002 | <0.0002 | - | - | <0.0002 | - | - |
| | QA01 | 27/03/2020 | soil | - | - | - | - | - | <0.0005 | <0.0005 | <0.001 | <0.0002 | <0.0002 | - | - | <0.0002 | - | - |
| RPD | | | | - | - | - | - | - | 0 | 0 | 0 | 0 | 0 | - | - | 0 | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | <0.0005 | <0.0005 | <0.001 | <0.0002 | <0.0002 | - | - | <0.0002 | - | - |
| 711626 | QA01A | 27/03/2020 | soil | <0.2 | 10,000 | <0.2 | <0.2 | <0.2 | - | - | - | - | - | - | - | - | 4,600 | 1,300 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | <0.0005 | <0.0005 | <0.001 | <0.0002 | <0.0002 | - | - | <0.0002 | - | - |
| | QA01 | 31/03/2020 | soil | - | - | - | - | - | <0.0005 | <0.0005 | <0.001 | <0.0002 | <0.0002 | - | - | <0.0002 | - | - |
| RPD | | | | - | - | - | - | - | 0 | 0 | 0 | 0 | 0 | - | - | 0 | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | <0.0005 | <0.0005 | <0.001 | <0.0002 | <0.0002 | - | - | <0.0002 | - | - |
| 711818 | QA01A | 31/03/2020 | soil | <0.2 | - | <0.2 | <0.2 | <0.2 | - | - | - | <0.005 | - | <5 | <5 | <0.005 | - | - |
| RPD | | | | - | - | - | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | <0.0005 | <0.0005 | <0.001 | <0.0002 | <0.0002 | - | - | <0.0002 | - | - |
| | QA03 | 6/04/2020 | soil | - | - | - | - | - | <0.0005 | <0.0005 | <0.001 | <0.0002 | <0.0002 | - | - | <0.0002 | - | - |
| RPD | | | | - | - | - | - | - | 0 | 0 | 0 | 0 | 0 | - | - | 0 | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | <0.0005 | <0.0005 | <0.001 | <0.0002 | <0.0002 | - | - | <0.0002 | - | - |
| 713605 | QA03A | 6/04/2020 | soil | <0.2 | - | <0.2 | <0.2 | <0.2 | - | - | - | <0.005 | - | <5 | <5 | <0.005 | - | - |
| RPD | | | | - | - | - | - | - | - | - | 0 | - | - | - | - | 0 | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | | PFOS and PFOA | | | | | | | Radioactive | Explosives | | | | | | | |
|-----|--------|--------------------------------------|-----------------------------|--------------------------------------|--------|--------|--------|--------|-------------|--------------------|--------------------|--------------|---------------------------|-----------------------|-----------------------|--------------------|--------------------|
| | Sodium | 6:2 Fluorotelomer Sulfonate (6:2 FS) | 8:2 Fluorotelomer sulfonate | Perfluorooctane sulfonic acid (PFOS) | PFOA | PFBS | PFHpA | PFHxA | Uranium | 2,4-Dinitrotoluene | 2,6-dinitrotoluene | Nitrobenzene | 2,3,4,6-tetrachlorophenol | 2,4,5-trichlorophenol | 2,4,6-Trichlorophenol | 2,4-dichlorophenol | 2,4-dimethylphenol |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 5 | 0.0005 | 0.0005 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 1 | 0.5 | 0.5 | 0.5 | 5 | 0.5 | 0.5 | 0.5 | 0.5 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|-------|---------|---------|---------|---------|---------|---------|---------|-----|------|------|------|----|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | <0.5 | <0.5 | <0.5 |
| | QA01 | 27/03/2020 | soil | - | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | <0.5 | <0.5 | <0.5 |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - | - | 0 | 0 | 0 |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | <0.5 | <0.5 | <0.5 |
| 711626 | QA01A | 27/03/2020 | soil | 1,700 | - | - | - | - | - | - | - | 1.9 | <0.5 | <0.5 | <0.5 | <5 | <1 | <0.5 | <0.5 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 0 |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | <0.5 | <0.5 | <0.5 |
| | QA01 | 31/03/2020 | soil | - | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | <0.5 | <0.5 | <0.5 |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - | - | 0 | 0 | 0 |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | <0.5 | <0.5 | <0.5 |
| 711818 | QA01A | 31/03/2020 | soil | - | <0.01 | - | <0.005 | <0.005 | - | - | - | - | - | - | - | - | <1 | <1 | <0.5 |
| RPD | | | | - | 0 | - | 0 | 0 | - | - | - | - | - | - | - | - | 0 | 0 | 0 |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | <0.5 | <0.5 | <0.5 |
| | QA03 | 6/04/2020 | soil | - | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | <0.5 | <0.5 | <0.5 |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - | - | 0 | 0 | 0 |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | <0.5 | <0.5 | <0.5 |
| 713605 | QA03A | 6/04/2020 | soil | - | <0.01 | - | <0.005 | <0.005 | - | - | - | - | - | - | - | - | <1 | <1 | <0.5 |
| RPD | | | | - | 0 | - | 0 | 0 | - | - | - | - | - | - | - | - | 0 | 0 | 0 |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | Phenols | | | | | | | | | | | | | | | | 4,4-DDE |
|-----|-------------------|--------------------|----------------|----------------|---------------|--------------------------------|----------------------------|---------------------------------|-------------------------|---------------|---------|-------------------|--------|--------------------|-----------------------------|---------------------------------|---------|
| | 2,4-dinitrophenol | 2,6-dichlorophenol | 2-chlorophenol | 2-methylphenol | 2-nitrophenol | 3/4-methyl phenol (m/p-cresol) | 4,6-Dinitro-2-methylphenol | 4,6-Dinitro-o-cyclohexyl phenol | 4-chloro-3-methylphenol | 4-nitrophenol | Dinoseb | Pentachlorophenol | Phenol | tetrachlorophenols | Phenols (Total Halogenated) | Phenols (Total Non Halogenated) | |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 5 | 0.5 | 0.5 | 0.2 | 0.5 | 0.4 | 5 | 20 | 0.5 | 5 | 20 | 1 | 0.5 | 10 | 1 | 20 | 0.05 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|----|------|------|------|------|------|----|-----|------|----|-----|----|------|-----|----|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <1 | - | - | <0.5 | - | - | <2 | <0.5 | - | - |
| | QA01 | 27/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <1 | - | - | <0.5 | - | - | <2 | <0.5 | - | - |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | - | - | 0 | - | - | 0 | 0 | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <1 | - | - | <0.5 | - | - | <2 | <0.5 | - | - |
| 711626 | QA01A | 27/03/2020 | soil | <5 | <0.5 | <0.5 | <0.2 | <1 | <0.4 | <5 | <20 | <1 | <5 | <20 | <1 | <0.5 | <10 | <1 |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | - | - | 0 | - | - | 0 | 0 | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <1 | - | - | <0.5 | - | - | <2 | <0.5 | - | - |
| | QA01 | 31/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <1 | - | - | <0.5 | - | - | <2 | <0.5 | - | - |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | - | - | 0 | - | - | 0 | 0 | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <1 | - | - | <0.5 | - | - | <2 | <0.5 | - | - |
| 711818 | QA01A | 31/03/2020 | soil | <5 | <0.5 | <0.5 | <0.2 | <1 | <0.4 | <5 | <20 | <1 | <5 | <20 | <1 | <0.5 | <10 | <1 |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | - | - | 0 | - | - | 0 | 0 | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <1 | - | - | <0.5 | - | - | <2 | <0.5 | - | - |
| | QA03 | 6/04/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <1 | - | - | <0.5 | - | - | <2 | <0.5 | - | - |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | - | - | 0 | - | - | 0 | 0 | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | <0.5 | <0.5 | <0.5 | <0.5 | <1 | - | - | <0.5 | - | - | <2 | <0.5 | - | - |
| 713605 | QA03A | 6/04/2020 | soil | <5 | <0.5 | <0.5 | <0.2 | <1 | <0.4 | <5 | <20 | <1 | <5 | <20 | <1 | <0.5 | <10 | <1 |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | - | - | 0 | - | - | 0 | 0 | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | OCP | | | | | | | | | | | | | | | | |
|-----|-------|--------|-------------------|-------|-----------|-----------------|-------------------|-------|-------|-------|-------------|----------|------------|---------------|--------------|---------------|---------------------|
| | a-BHC | Aldrin | Aldrin + Dieldrin | b-BHC | chlordane | Chlordane (cis) | Chlordane (trans) | d-BHC | DDD | DDT | DDT+DDE+DDD | Dieldrin | Endosulfan | Endrin ketone | Endosulfan I | Endosulfan II | Endosulfan sulphate |
| | mg/kg | mg/kg | mg/kg | mg/kg | µg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | µg/kg | µg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.05 | 0.05 | 0.05 | 0.05 | 50 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 50 | 50 | 0.05 | 0.05 | 0.05 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-------|-------|-------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <50 | <50 | <0.05 | <0.05 | <0.05 |
| | QA01 | 27/03/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <50 | <50 | <0.05 | <0.05 | <0.05 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <50 | <50 | <0.05 | <0.05 | <0.05 |
| 711626 | QA01A | 27/03/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <100 | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | <50 | <0.05 | <0.05 | <0.05 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | - | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <50 | <50 | <0.05 | <0.05 | <0.05 |
| | QA01 | 31/03/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <50 | <50 | <0.05 | <0.05 | <0.05 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <50 | <50 | <0.05 | <0.05 | <0.05 |
| 711818 | QA01A | 31/03/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <100 | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | <50 | <0.05 | <0.05 | <0.05 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | - | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <50 | <50 | <0.05 | <0.05 | <0.05 |
| | QA03 | 6/04/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <50 | <50 | <0.05 | <0.05 | <0.05 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <50 | <50 | <0.05 | <0.05 | <0.05 |
| 713605 | QA03A | 6/04/2020 | soil | <0.05 | <0.05 | <0.05 | <0.05 | <100 | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | <50 | <0.05 | <0.05 | <0.05 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | - | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | Endrin | Endrin aldehyde | g-BHC (Lindane) | Heptachlor | Heptachlor epoxide | Hexachlorobenzene | Methoxychlor | Toxaphene | Azinophos methyl | Bromophos-ethyl | Carbophenothion | Chlorfenvinphos | Chlorpyrifos | Chlorpyrifos-methyl | Demeton-S-methyl | Diazinon | Dichlorvos |
|-----|--------|-----------------|-----------------|------------|--------------------|-------------------|--------------|-----------|------------------|-----------------|-----------------|-----------------|--------------|---------------------|------------------|----------|------------|
| | mg/kg | µg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.05 | 50 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 1 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|-------|-----|-------|-------|-------|-------|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | QA01 | 27/03/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| 711626 | QA01A | 27/03/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <1 | <0.2 | - | - | <0.2 | <0.2 | - | <0.2 | <0.2 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | - | - | 0 | 0 | 0 | - | 0 |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | QA01 | 31/03/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| 711818 | QA01A | 31/03/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <1 | <0.2 | - | - | <0.2 | <0.2 | - | <0.2 | <0.2 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | - | - | 0 | 0 | 0 | - | 0 |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| | QA03 | 6/04/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| 713605 | QA03A | 6/04/2020 | soil | <0.05 | <50 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <1 | <0.2 | - | - | <0.2 | <0.2 | <0.2 | - | <0.2 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | - | - | 0 | 0 | 0 | - | 0 |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

| EQL | OPP | | | | | | | | | | | | | | | | | |
|-----|------------|------------|--------|------------|--------------|----------|-----------|------------------|---------------|-----------|---------|-----------------|------------|--------|--|----------------------------|----------------------------|-------------------|
| | Dimethoate | Disulfoton | Ethion | Fenamiphos | Fenitrothion | Fenthion | Malathion | Methyl parathion | Monocrotophos | Parathion | Phorate | Pirimphos-ethyl | Prothiofos | Ronnel | | a-Net Acidity without ANCE | s-Net Acidity without ANCE | Analysed Material |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | | moles H+/t | %w/w S | % |
| EQL | 0.05 | 0.2 | 0.05 | 0.05 | 0.2 | 0.05 | 0.05 | 0.2 | 0.2 | 0.2 | 0.2 | 0.05 | 0.05 | 0.2 | | 10 | 0.02 | 0.1 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|-------|------|-------|-------|------|-------|-------|------|------|------|------|-------|-------|------|-------|------|-----|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <0.05 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | - | <0.05 | <0.05 | - | 466 | 0.75 | - |
| | QA01 | 27/03/2020 | soil | <0.05 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | - | <0.05 | <0.05 | - | - | - | - |
| RPD | | | | 0 | - | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | - | - | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | <0.05 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | - | <0.05 | <0.05 | - | 466 | 0.75 | - |
| 711626 | QA01A | 27/03/2020 | soil | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <2 | <0.2 | <0.2 | - | - | <0.2 | - | - | - |
| RPD | | | | 0 | - | 0 | - | - | 0 | 0 | 0 | 0 | 0 | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | <0.05 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | - | <0.05 | <0.05 | - | 463 | 0.74 | - |
| | QA01 | 31/03/2020 | soil | <0.05 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | - | <0.05 | <0.05 | - | - | - | - |
| RPD | | | | 0 | - | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | <0.05 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | - | <0.05 | <0.05 | - | 463 | 0.74 | - |
| 711818 | QA01A | 31/03/2020 | soil | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | <2 | <0.2 | <0.2 | <0.2 | - | - | <0.2 | - | - | - |
| RPD | | | | 0 | - | 0 | - | - | 0 | 0 | 0 | 0 | 0 | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | <0.05 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | - | <0.05 | <0.05 | - | 1,080 | 1.73 | - |
| | QA03 | 6/04/2020 | soil | <0.05 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | - | <0.05 | <0.05 | - | 939 | 1.50 | - |
| RPD | | | | 0 | - | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | - | 14 | 14 | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | <0.05 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | - | <0.05 | <0.05 | - | 1,080 | 1.73 | - |
| 713605 | QA03A | 6/04/2020 | soil | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | <2 | <0.2 | <0.2 | <0.2 | - | - | <0.2 | - | - | 100 |
| RPD | | | | 0 | - | 0 | - | - | 0 | 0 | 0 | 0 | 0 | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

| | SPOCAS | | | | | | | | | | | | | | | | |
|-----|----------------------------|---------------------|---------------------------|---------------------|--|-------------|-----------------------------|----------------------------|--------------------------------------|-----------------------|---------------------------|----------------------------|----------------------------|----------------------------|------------------------|---------------------|-----------------|
| | Acid Neutralising Capacity | ANC Fineness Factor | Chromium Reducible Sulfur | Extraneous Material | HCl Extractable Sulfur Correction Factor | Liming Rate | Net Acidity (acidity units) | Net Acidity (sulfur units) | sulfidic - Titratable Actual Acidity | sulfidic-Acid Neutral | Titratable Actual Acidity | 1,2,3,4-tetrachlorobenzene | 1,2,3,5-Tetrachlorobenzene | 1,2,4,5-tetrachlorobenzene | 1,3,5-Trichlorobenzene | 1-Chloronaphthalene | 1-naphthylamine |
| | %CaCO3 | - | %S | % | FACTOR | kg CaCO3/t | mole H+/t | %S | %S | %S | mole H+/t | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.01 | 0.5 | 0.005 | 0.1 | 1 | 1 | 10 | 0.02 | 0.003 | 0.01 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|-----|-------|------|-----|----|-------|------|--------|------|----|------|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | 1.06 | 1.5 | 0.747 | - | - | 24 | 324 | 0.52 | <0.02 | 0.34 | <2 | - | - | - | - |
| | QA01 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | 1.06 | 1.5 | 0.747 | - | - | 24 | 324 | 0.52 | <0.02 | 0.34 | <2 | - | - | - | - |
| 711626 | QA01A | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | <0.5 | <0.5 | <0.5 | <0.5 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | 3.26 | 1.5 | 0.743 | - | - | 2 | 28 | 0.05 | <0.02 | 1.05 | <2 | - | - | - | - |
| | QA01 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | 3.26 | 1.5 | 0.743 | - | - | 2 | 28 | 0.05 | <0.02 | 1.05 | <2 | - | - | - | - |
| 711818 | QA01A | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | 1.5 | 1.73 | - | - | 81 | 1,080 | 1.73 | <0.02 | - | <2 | - | - | - | - |
| | QA03 | 6/04/2020 | soil | 1.96 | 1.5 | 1.50 | - | - | 51 | 678 | 1.09 | <0.02 | 0.63 | <2 | - | - | - | - |
| RPD | | | | - | 0 | 14 | - | - | 45 | 46 | 45 | 0 | - | 0 | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | 1.5 | 1.73 | - | - | 81 | 1,080 | 1.73 | <0.02 | - | <2 | - | - | - | - |
| 713605 | QA03A | 6/04/2020 | soil | 0.94 | 1.5 | 2.0 | <0.1 | 2.0 | - | 1,100 | 1.8 | <0.003 | 0.30 | <2 | - | - | - | - |
| RPD | | | | - | 0 | 14 | - | - | - | 2 | 4 | 0 | - | 0 | - | - | - | - |

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**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

| | 2-chloronaphthalene | 2-methylnaphthalene | 2-naphthylamine | 2-nitroaniline | 2-Picoline | 3,3-Dichlorobenzidine | 4-(dimethylamino) azobenzene | 4-aminobiphenyl | 4-bromophenyl phenyl ether | 4-chlorophenyl phenyl ether | 7,12-dimethylbenz(a)anthracene | Acetophenone | Aniline | Benzyl chloride | Bis(2-chloroethoxy) methane | Bis(2-chloroisopropyl) ether | Bis(2-ethylhexyl) phthalate |
|-----|---------------------|---------------------|-----------------|----------------|------------|-----------------------|------------------------------|-----------------|----------------------------|-----------------------------|--------------------------------|--------------|---------|-----------------|-----------------------------|------------------------------|-----------------------------|
| EQL | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA01 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 711626 | QA01A | 27/03/2020 | soil | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA01 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 711818 | QA01A | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA03 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 713605 | QA03A | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

| | SVOC | | | | | | | | | | | | | | | | |
|-----|------------------------|-----------|-----------|-----------|---------------------|--------------|------------------|--------------------|----------------------|----------------------|---------------|-------|----------|---------------|---------------------------|------------------|----------------------|
| | Butyl benzyl phthalate | Coumaphos | Demeton-O | Demeton-S | Dibenz(a,j)acridine | Dibenzofuran | Diethylphthalate | Dimethyl phthalate | Di-n-butyl phthalate | Di-n-octyl phthalate | Diphenylamine | EPN | Ethoprop | Fensulfothion | Hexachlorocyclopentadiene | Hexachloroethane | Mevinphos (Phosdrin) |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.5 | 2 | 0.2 | 0.2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.2 | 0.2 | 0.2 | 0.5 | 0.5 | 0.2 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA01 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 711626 | QA01A | 27/03/2020 | soil | <0.5 | <2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA01 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 711818 | QA01A | 31/03/2020 | soil | - | <2 | <0.2 | <0.2 | - | - | - | - | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA03 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 713605 | QA03A | 6/04/2020 | soil | - | <2 | <0.2 | <0.2 | - | - | - | - | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

| | Naled (Dibrom) | N-nitrosodi-n-butylamine | N-nitrosodi-n-propylamine | N-nitrosopiperidine | Pentachlorobenzene | Pentachloronitrobenzene | Pronamide | Trichloronate | Trifluralin | | 1,1,1,2-tetrachloroethane | 1,1,1-trichloroethane | 1,1,2,2-tetrachloroethane | 1,1-dichloroethane | 1,1,2-trichloroethane | 1,1-dichloroethene | 1,2,3-trichloropropane | 1,2,3-trichlorobenzene |
|-----|----------------|--------------------------|---------------------------|---------------------|--------------------|-------------------------|-----------|---------------|-------------|--|---------------------------|-----------------------|---------------------------|--------------------|-----------------------|--------------------|------------------------|------------------------|
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.2 | 0.5 | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA01 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 711626 | QA01A | 27/03/2020 | soil | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA01 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 711818 | QA01A | 31/03/2020 | soil | <0.2 | - | - | - | - | - | <0.2 | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA03 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 713605 | QA03A | 6/04/2020 | soil | <0.2 | - | - | - | - | - | <0.2 | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

| | 1,2,4-trimethylbenzene | 1,2,4-trichlorobenzene | 1,2-dibromoethane | 1,2-dichlorobenzene | 1,2-dichloroethane | 1,2-dichloropropane | 1,3,5-trimethylbenzene | 1,3-dichlorobenzene | 1,3-dichloropropane | 1,4-dichlorobenzene | 2-butanone (MEK) | 4-chlorotoluene | 4-methyl-2-pentanone (MIBK) | Acetone | Allyl chloride | Bromobenzene | Bromochloromethane | VOC |
|-----|------------------------|------------------------|-------------------|---------------------|--------------------|---------------------|------------------------|---------------------|---------------------|---------------------|------------------|-----------------|-----------------------------|---------|----------------|--------------|--------------------|-----|
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | |
| EQL | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA01 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 711626 | QA01A | 27/03/2020 | soil | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA01 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 711818 | QA01A | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA03 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 713605 | QA03A | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

| | DC | | | | | | | | | | | | | | | | |
|-----|----------------------|-----------|--------------|------------------|----------------------|----------------------|--------------|---------------|---------------|------------|-------------------------|------------------------|----------------|-------------------------|-----------------|---------------------|-------------|
| | Bromodichloromethane | Bromoform | Bromomethane | Carbon disulfide | Carbon tetrachloride | Chlorodibromomethane | Chloroethane | Chlorobenzene | Chloromethane | Chloroform | cis-1,3-dichloropropene | cis-1,2-dichloroethene | Dibromomethane | Dichlorodifluoromethane | Dichloromethane | Hexachlorobutadiene | Iodomethane |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA01 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 711626 | QA01A | 27/03/2020 | soil | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA01 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 711818 | QA01A | 31/03/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | QA03 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 713605 | QA03A | 6/04/2020 | soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | Isopropylbenzene | Styrene | TCE | Tetrachloroethene | trans-1,3-dichloropropene | trans-1,2-dichloroethene | Trichlorofluoromethane | Vinyl chloride |
|-----|------------------|---------|-------|-------------------|---------------------------|--------------------------|------------------------|----------------|
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | |
|-------------------|-----------------|------------|-------------|------|------|------|------|------|------|------|------|
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - |
| | QA01 | 27/03/2020 | soil | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - |
| ES2011031 | BH03_4.0 | 27/03/2020 | soil | - | - | - | - | - | - | - | - |
| 711626 | QA01A | 27/03/2020 | soil | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| RPD | | | | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - |
| | QA01 | 31/03/2020 | soil | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - |
| ES2011171 | BH05_3.0 | 31/03/2020 | soil | - | - | - | - | - | - | - | - |
| 711818 | QA01A | 31/03/2020 | soil | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - |
| | QA03 | 6/04/2020 | soil | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - |
| ES2012229 | WSP_PT_BH01_3.0 | 6/04/2020 | soil | - | - | - | - | - | - | - | - |
| 713605 | QA03A | 6/04/2020 | soil | - | - | - | - | - | - | - | - |
| RPD | | | | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | TRH | | | | | BTEX | | | | | | | | | | | |
|--|-------------------------|---------------------------------|-----------|-----------|-----------------|---------|------|---------|------|--------------|------|----------------|------|------------|------|--------------|------|
| | C6 - C10 less BTEX (F1) | C10 - C16 less Naphthalene (F2) | C16 - C34 | C34 - C40 | C10 - C40 (Sum) | Benzene | | Toluene | | Ethylbenzene | | Xylene (m & p) | | Xylene (o) | | Xylene (Sum) | |
| | | | | | | | | | | | | | | | | | |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | µg/L | mg/kg | µg/L | mg/kg | µg/L | mg/kg | µg/L | mg/kg | µg/L | mg/kg | µg/L |
| EQL | 10 | 50 | 100 | 100 | 50 | 0.1 | 1 | 0.1 | 2 | 0.1 | 2 | 0.2 | 2 | 0.1 | 2 | 0.3 | 2 |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2018 Table 2 Health Public open space | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | |
| 0-1m | NL #14 | NL #14 | | | | NL #14 | | NL #14 | | NL #14 | | | | | | NL #14 | |
| 1-2m | NL #14 | NL #14 | | | | NL #14 | | NL #14 | | NL #14 | | | | | | NL #14 | |
| 2-4m | NL #14 | NL #14 | | | | NL #14 | | NL #14 | | NL #14 | | | | | | NL #14 | |
| >=4m | NL #14 | NL #14 | | | | NL #14 | | NL #14 | | NL #14 | | | | | | NL #14 | |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | 180#15 | | 300 | 2,800 | | 50 | | 85 | | 70 | | | | | | 105 | |
| 0-2m | 180#15 | | 300 | 2,800 | | 50 | | 85 | | 70 | | | | | | 105 | |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | | | 2,500 | 10,000 | | | | | | | | | | | | | |

| Lab Report Number | Field ID | Date | | | | | | | | | | | | | | | | |
|-------------------|-------------|------------|-----|---|---|---|---|------|----|------|----|------|----|------|----|------|----|------|
| ES2011031 | TB01 | 27/03/2020 | <10 | - | - | - | - | <0.2 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 |
| ES2011031 | Trip Blank | 27/03/2020 | <10 | - | - | - | - | <0.2 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 |
| ES2011031 | TS01 | 23/03/2020 | 54 | - | - | - | - | <0.2 | - | 18.3 | - | 3.3 | - | 16.8 | - | 7.0 | - | 23.8 |
| ES2012229 | RB01 | 6/04/2020 | - | - | - | - | - | - | <1 | - | <2 | - | <2 | - | <2 | - | <2 | <2 |
| ES2012229 | RB02 | 7/04/2020 | - | - | - | - | - | - | <1 | - | <2 | - | <2 | - | <2 | - | <2 | <2 |
| ES2012229 | WSP_PT_TB01 | 6/04/2020 | <10 | - | - | - | - | <0.2 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 |
| ES2012229 | WSP_PT_TB02 | 7/04/2020 | <10 | - | - | - | - | <0.2 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 |
| ES2012229 | WSP_PT_TS01 | 6/04/2020 | 22 | - | - | - | - | <0.2 | - | 12.0 | - | 3.2 | - | 16.7 | - | 7.5 | - | 24.2 |
| ES2012229 | WSP_PT_TS02 | 7/04/2020 | 21 | - | - | - | - | <0.2 | - | 9.4 | - | 2.6 | - | 14.0 | - | 6.3 | - | 20.3 |

Comments

- #1 Aged values apply to arsenic contamination present in soil > 2 years. Refer Schedule B5c for < 2 years.
- #2 As Chromium III. Generic ACL value from NEPM 2013 Table 1B(3) using a clay content of 1%. The ACL should be adjusted based on site-specific Clay content (when available). To calculate a site specific EIL, add the ABC to the ACL.
- #3 Generic ACL value from NEPM 2013 Table 1B(2) using a soil pH of 4.5. The ACL should be adjusted based on site-specific pH or CEC (when available). To calculate a site specific EIL, add the ABC to the ACL.
- #4 Generic ACL value from NEPM 2013 Table 1B(4). To calculate a site specific EIL, add the added background concentration (ABC) to this value.
- #5 Generic ACL value from NEPM 2013 Table 1B(3) using a CEC of 5 meq/100g. The ACL should be adjusted based on site-specific CEC (when available). To calculate a site specific EIL, add the added background concentration (ABC) to the ACL.
- #6 Generic ACL value from NEPM 2013 Table 1B(1) using a soil pH of 4.0 and a CEC of 5 meq/100g. The ACL should be adjusted based on site-specific pH and CEC (when available). To calculate a site specific EIL, add the ABC to the ACL.
- #7 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should meet BaP TEQ HIL) & naphthalene (should meet relevant HSL)
- #8 Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7) BaP TEQ calc by multiplying the conc of each carc. PAH in sample by its BaP TEF (ref Table 1A(1)) & summing
- #9 PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-specific assessment of exposure to all PCBs (inc dioxin like PCBs) should be undertaken
- #10 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (refer Schedule B7).
- #11 As Chromium VI
- #12 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bioavailability should be considered where appropriate.
- #13 Elemental mercury: HIL does not address elemental mercury. a site specific assessment should be considered if elemental mercury is present, or suspected to be present.
- #14 Derived soil HSL exceeds soil saturation concentraton
- #15 Moderate reliability. To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
- #16 Moderate reliability.
- #17 Separate management limits for BTEX & napthalene are not available hence should not be subtracted from the relevant fractions to obtain F1 & F2
- #18 -
- #19 No
- #20 A. SMYLIE
- #21 Mid brown soil.
- #22 Yes
- #23 Ch
- #24 Mid brown soil containing several pieces of asbestos cement sheeting ranging from approximately 5x5x2mm - 20x25x5mm.



| | | | | TPH | | | | | TRH | | | | | | | BTEX | | | | | |
|-------------------|-------------|------------|-------------|---------|-----------|-----------|-----------|-----------------|----------|-------------------------|-----------|---------------------------------|-----------|-----------|-----------------|---------|---------|--------------|----------------|------------|--------------|
| | | | | C6 - C9 | C10 - C14 | C15 - C28 | C29 - C36 | C10 - C36 (Sum) | C6 - C10 | C6 - C10 less BTEX (F1) | C10 - C16 | C10 - C16 less Naphthalene (F2) | C16 - C34 | C34 - C40 | C10 - C40 (Sum) | Benzene | Toluene | Ethylbenzene | Xylene (m & p) | Xylene (o) | Xylene (Sum) |
| EQL | | | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| | | | | 20 | 50 | 100 | 50 | 50 | 20 | 20 | 50 | 50 | 100 | 100 | 100 | 1 | 1 | 1 | 2 | 1 | 2 |
| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | | |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | 570 | <50 | <100 | <50 | <50 | 580 | 140 | <100 | <100 | <100 | <100 | <100 | <1 | 436 | <2 | <2 | <2 | <2 |
| | QA01 | 15/04/2020 | water | 570 | <50 | <100 | <50 | <50 | 580 | 160 | <100 | <100 | <100 | <100 | <100 | <1 | 400 | <2 | <2 | <2 | <2 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | 570 | <50 | <100 | <50 | <50 | 580 | 140 | <100 | <100 | <100 | <100 | <100 | <1 | 436 | <2 | <2 | <2 | <2 |
| | QA01A | 15/04/2020 | water | 730 | <50 | <100 | <100 | <100 | 810 | 380 | <50 | <50 | <100 | <100 | <100 | <5 | 430 | <5 | <10 | <5 | <15 |
| RPD | | | | 25 | 0 | 0 | 0 | 0 | 33 | 92 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | | | | PAH | | | | | | | | | | | | | | | | | | | | | |
|-------------------|-------------|------------|-------------|--------------------------|----------------------|--------------|----------------|------------|--------------------|--------------------------|-----------------|------------------------|----------------------|----------------------|----------|-----------------------|--------------|----------|-------------------------|-------------|--------------|--------|------------|--------------------------------|---|
| | | | | 2-(acetylamino) fluorene | 3-methylcholanthrene | Acenaphthene | Acenaphthylene | Anthracene | Benzo(a)anthracene | Benzo(b+g,k)fluoranthene | Benzo(a) Pyrene | Benzo(b&k)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-c,d)pyrene | Naphthalene | Phenanthrene | Pyrene | PAHs (Sum) | Benzo(a)pyrene TEQ (calc Zero) | |
| | | | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | |
| EQL | | | | 2 | 2 | 1 | 1 | 1 | 1 | 4 | 0.5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.5 | 0.5 | |
| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | | | | | | |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <2 | <2 | <1.0 | <1.0 | <1.0 | <1.0 | <4 | <0.5 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 | |
| | QA01 | 15/04/2020 | water | <2 | <2 | <1.0 | <1.0 | <1.0 | <1.0 | <4 | <0.5 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 | |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <2 | <2 | <1.0 | <1.0 | <1.0 | <1.0 | <4 | <0.5 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 | |
| | QA01A | 15/04/2020 | water | - | <5 | <1 | <1 | <1 | <1 | - | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | - | |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | | | | Metals | | | | | | | | Phenols | | | | | | | | | | | | | | | |
|-------------------|-------------|------------|-------------|--------------------|--------------------|---------------------|-------------------|-----------------|--------------------|-------------------|-----------------|---------------------------|-----------------------|-----------------------|--------------------|--------------------|-------------------|--------------------|----------------|----------------|---------------|--------------------------------|----------------------------|-------------------------|---------------|-------------------|--------|
| | | | | Arsenic (filtered) | Cadmium (filtered) | Chromium (filtered) | Copper (filtered) | Lead (filtered) | Mercury (filtered) | Nickel (filtered) | Zinc (filtered) | 2,3,4,6-tetrachlorophenol | 2,4,5-trichlorophenol | 2,4,6-Trichlorophenol | 2,4-dichlorophenol | 2,4-dimethylphenol | 2,4-dinitrophenol | 2,6-dichlorophenol | 2-chlorophenol | 2-methylphenol | 2-nitrophenol | 3/4-methyl phenol (m/p-cresol) | 4,6-Dinitro-2-methylphenol | 4-chloro-3-methylphenol | 4-nitrophenol | Pentachlorophenol | Phenol |
| EQL | | | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | mg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| | | | | 1 | 0.1 | 1 | 1 | 1 | 0.1 | 1 | 5 | 10 | 2 | 2 | 2 | 2 | 30 | 2 | 2 | 2 | 2 | 0.004 | 30 | 2 | 30 | 4 | 2 |
| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | | | | | | | | |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | 3 | <0.1 | <1 | 1 | 1 | <0.1 | <1 | 25 | - | <2 | <2 | <2 | <2 | - | <2 | <2 | 2 | <2 | <0.004 | - | <2 | - | <4 | <2 |
| | QA01 | 15/04/2020 | water | 3 | <0.1 | <1 | <1 | <1 | <0.1 | <1 | 19 | - | <2 | <2 | <2 | <2 | - | <2 | <2 | 2 | <2 | <0.004 | - | <2 | - | <4 | <2 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | - | 0 | 0 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | 3 | <0.1 | <1 | 1 | 1 | <0.1 | <1 | 25 | - | <2 | <2 | <2 | <2 | - | <2 | <2 | 2 | <2 | <0.004 | - | <2 | - | <4 | <2 |
| 714397 | QA01A | 15/04/2020 | water | 3 | <0.2 | <1 | 7 | 11 | <0.1 | <1 | 90 | <10 | <10 | <10 | <3 | <3 | <30 | <3 | <3 | <3 | <10 | <0.006 | <30 | <10 | <30 | <10 | <3 |
| RPD | | | | 0 | 0 | 0 | 150 | 167 | 0 | 0 | 113 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | - | 0 | 0 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| EQL | Explosives | | | | OCP | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----------------------|--------------------|--------------------|--------------|----------|-------|--------|-------------------|-------|-----------|-----------------|-------------------|-------|------|------|-------------|----------|---------------|--------------|---------------|---------------------|--------|-----------------|-----------------|------------|--------------------|-------------------|--------------|
| | 1,3,5-Trinitrobenzene | 2,4-Dinitrotoluene | 2,6-dinitrotoluene | Nitrobenzene | 4,4'-DDE | α-BHC | Aldrin | Aldrin + Dieldrin | β-BHC | Chlordane | Chlordane (cis) | Chlordane (trans) | δ-BHC | DDD | DDT | DDT+DDE+DDD | Dieldrin | Endrin ketone | Endosulfan I | Endosulfan II | Endosulfan sulphate | Endrin | Endrin aldehyde | γ-BHC (Lindane) | Heptachlor | Heptachlor epoxide | Hexachlorobenzene | Methoxychlor |
| | mg/L | mg/L | mg/L | mg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| | 0.002 | 0.004 | 0.004 | 0.002 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 2 |

| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|-------------|------------|-------------|--------|--------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.002 | <0.004 | <0.004 | <0.002 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 |
| | QA01 | 15/04/2020 | water | <0.002 | <0.004 | <0.004 | <0.002 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.002 | <0.004 | <0.004 | <0.002 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 |
| 714397 | QA01A | 15/04/2020 | water | - | <0.005 | <0.005 | <0.05 | <5 | <5 | <5 | - | <5 | - | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| RPD | | | | - | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | - | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | | | | OPP | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|-------------|------------|-------------|------------------|-----------------|-----------------|-----------------|--------------|---------------------|------------------|----------|------------|------------|--------|------------|----------|-----------|------------------|---------------|-----------|-----------------|------------|----------------------------|----------------------------|----------------------------|------------------------|---------------------|-----------------|---------------------|---------------------|-----------------|
| | | | | Azinophos methyl | Bromophos-ethyl | Carbophenothion | Chlorfenvinphos | Chlorpyrifos | Chlorpyrifos-methyl | Demeton-S-methyl | Diazinon | Dichlorvos | Dimethoate | Ethion | Fenamiphos | Fenthion | Malathion | Methyl parathion | Monocrotophos | Parathion | Pirimphos-ethyl | Prothiofos | 1,2,3,4-Tetrachlorobenzene | 1,2,3,5-Tetrachlorobenzene | 1,2,4,5-Tetrachlorobenzene | 1,3,5-Trichlorobenzene | 1-Chloronaphthalene | 1-naphthylamine | 2-chloronaphthalene | 2-methylnaphthalene | 2-naphthylamine |
| | | | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | |
| EQL | | | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 2 | 2 | 2 | 0.5 | 0.5 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.002 | 0.002 | 0.002 | 0.005 |
| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <2.0 | <2.0 | <0.5 | <0.5 | - | - | - | - | - | <0.002 | <0.002 | <0.002 | - | |
| | QA01 | 15/04/2020 | water | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <2.0 | <2.0 | <0.5 | <0.5 | - | - | - | - | - | <0.002 | <0.002 | <0.002 | - | |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - | - | 0 | 0 | 0 | - | |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.0 | <2.0 | <2.0 | <0.5 | <0.5 | - | - | - | - | - | <0.002 | <0.002 | <0.002 | - | |
| 714397 | QA01A | 15/04/2020 | water | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 0 | - | |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | | | | SVOC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|--|--|--|----------------|------------|-----------------------|----------------|-----------------------------|-----------------|----------------------------|-----------------|-----------------------------|----------------|--------------------------|---------------------|--------------------------------|--------------|---------|------------|-----------------|----------------------------|-------------------------|------------------------------|-----------------------------|------------------------|-----------|-----------------|---------------------|--------------|------------------|--------------------|-------|--|--|--|
| | | | | 2-nitroaniline | 2-Picoline | 3,3-Dichlorobenzidine | 3-nitroaniline | 4-(dimethylamino)azobenzene | 4-aminobiphenyl | 4-bromophenyl phenyl ether | 4-chloroaniline | 4-chlorophenyl phenyl ether | 4-nitroaniline | 4-Nitroquinoline-N-oxide | 5-nitro-o-toluidine | 7,12-dimethylbenz(a)anthracene | Acetophenone | Aniline | Azobenzene | Benzyl chloride | Bis(2-chloroethoxy)methane | Bis(2-chloroethyl)ether | Bis(2-chloroisopropyl) ether | Bis(2-ethylhexyl) phthalate | Butyl benzyl phthalate | Carbazole | Chlorobenzilate | Dibenz(a,i)acridine | Dibenzofuran | Diethylphthalate | Dimethyl phthalate | | | | |
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | | | |
| EQL | | | | 0.004 | 0.002 | 0.002 | 0.004 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.005 | 0.002 | 0.002 | 0.005 | 0.005 | 0.002 | 0.002 | 0.002 | 0.005 | 0.002 | 0.002 | 0.002 | | | |
| Lab Report Number | | | | Field ID | | Date | | Matrix Type | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES2012663 | | | | WSP_PT_GW03 | | 15/04/2020 | | water | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | QA01 | | 15/04/2020 | | water | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| ES2012663 714397 | | | | WSP_PT_GW03 | | 15/04/2020 | | water | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | QA01A | | 15/04/2020 | | water | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RPD | | | | 0 | 0 | 0 | - | 0 | 0 | 0 | - | 0 | - | - | - | - | 0 | 0 | 0 | - | - | 0 | - | 0 | 0 | - | - | - | - | 0 | 0 | 0 | | | |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | | | | Di-n-butyl phthalate | Di-n-octyl phthalate | Diphenylamine | Hexachlorocyclopentadiene | Hexachloroethane | Hexachloropropene | Isophorone | Methapyrrene | N-nitrosodiethylamine | N-nitrosodi-n-butylamine | N-nitrosodi-n-propylamine | N-Nitrosodiphenyl & Diphenylamine | N-Nitrosomethylethylamine | N-nitrosomorpholine | N-nitrosopiperidine | N-nitrosopyrrolidine | Pentachlorobenzene | Pentachloronitrobenzene | Phenacetin | Pronamide | Trifluralin |
|-------------------|-------------|------------|-------------|----------------------|----------------------|---------------|---------------------------|------------------|-------------------|------------|--------------|-----------------------|--------------------------|---------------------------|-----------------------------------|---------------------------|---------------------|---------------------|----------------------|--------------------|-------------------------|------------|-----------|-------------|
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | | | 0.002 | 0.002 | 0.005 | 0.005 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.004 | 0.002 | 0.002 | 0.002 | 0.004 | 0.002 | 0.002 | 0.002 | 0.002 | 0.005 |
| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | | | | | |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.002 | <0.002 | - | <0.01 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.002 | - |
| | QA01 | 15/04/2020 | water | <0.002 | <0.002 | - | <0.01 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.002 | - |
| RPD | | | | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.002 | <0.002 | - | <0.01 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.004 | <0.002 | <0.002 | <0.002 | <0.002 | - |
| 714397 | QA01A | 15/04/2020 | water | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | - | - | <0.005 | <0.005 | - | - | - | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 |
| RPD | | | | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | 0 | - | - | - | 0 | - | 0 | 0 | - | 0 | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | | | | 1,1,1,2-tetrachloroethane | 1,1,1-trichloroethane | 1,1,2,2-tetrachloroethane | 1,1-dichloroethane | 1,1,2-trichloroethane | 1,1-dichloroethene | 1,1-dichloropropene | 1,2,3-trichloropropene | 1,2,3-trichlorobenzene | 1,2-dibromo-3-chloropropene | 1,2,4-trimethylbenzene | 1,2,4-trichlorobenzene | 1,2-dibromoethane | 1,2-dichlorobenzene | 1,2-dichloroethane | 1,2-dichloropropene | 1,3,5-trimethylbenzene | 1,3-dichlorobenzene | 1,3-dichloropropene | 1,4-dichlorobenzene | 2,2-dichloropropene | 2-butanone (MEK) | 2-chlorotoluene | 2-hexanone (MBK) | 4-chlorotoluene | 4-methyl-2-pentanone (MIBK) | Acetone | Allyl chloride | |
|-------------------|-------------|------------|-------------|---------------------------|-----------------------|---------------------------|--------------------|-----------------------|--------------------|---------------------|------------------------|------------------------|-----------------------------|------------------------|------------------------|-------------------|---------------------|--------------------|---------------------|------------------------|---------------------|---------------------|---------------------|---------------------|------------------|-----------------|------------------|-----------------|-----------------------------|---------|----------------|--------|
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | |
| EQL | | | | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.001 | 0.005 | 0.005 | 0.001 | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.001 | 0.005 | 0.05 | 0.001 | 0.001 | 0.001 | 0.001 |
| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.002 | <0.005 | <0.002 | <0.005 | <0.005 | <0.005 | <0.002 | <0.005 | <0.002 | <0.005 | <0.005 | <0.05 | <0.005 | <0.05 | <0.005 | <0.05 | - | - |
| | QA01 | 15/04/2020 | water | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.002 | <0.005 | <0.002 | <0.005 | <0.005 | <0.005 | <0.002 | <0.005 | <0.002 | <0.005 | <0.005 | <0.05 | <0.005 | <0.05 | <0.005 | <0.05 | - | - |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.002 | <0.005 | <0.002 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <0.005 | <0.05 | <0.005 | <0.05 | - | - |
| | | | 714397 | QA01A | 15/04/2020 | water | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | - | <0.005 | <0.05 | <0.005 | <0.005 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | - | - | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | - | - | 0 | 0 | - | - | |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| VOC | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|--------------|--------------------|----------------------|-----------|--------------|------------------|----------------------|----------------------|--------------|---------------|---------------|------------|---------------------------|-------------------------|------------------------|----------------|-------------------------|-----------------|---------------------|-------------|------------------|----------------|-----------------|-------------------|--------------------|------------------|---------|-------------------|
| | Bromobenzene | Bromochloromethane | Bromodichloromethane | Bromoform | Bromomethane | Carbon disulfide | Carbon tetrachloride | Chlorodibromomethane | Chloroethane | Chlorobenzene | Chloromethane | Chloroform | cis-1,4-Dichloro-2-butene | cis-1,3-dichloropropene | cis-1,2-dichloroethene | Dibromomethane | Dichlorodifluoromethane | Dichloromethane | Hexachlorobutadiene | Iodomethane | Isopropylbenzene | n-butylbenzene | n-propylbenzene | Pentachloroethane | p-isopropyltoluene | sec-butylbenzene | Styrene | tert-butylbenzene |
| EQL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.005 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.002 | 0.001 | 0.001 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.001 | 0.005 |
| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.005 | - | <0.005 | <0.005 | <0.05 | 0.01 | <0.005 | <0.005 | <0.05 | <0.005 | <0.005 | <0.05 | <0.005 | <0.005 | <0.05 | - | <0.002 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| | QA01 | 15/04/2020 | water | <0.005 | - | <0.005 | <0.005 | <0.05 | 0.01 | <0.005 | <0.005 | <0.05 | <0.005 | <0.005 | <0.05 | <0.005 | <0.005 | <0.05 | - | <0.002 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| RPD | | | | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.005 | - | <0.005 | <0.005 | <0.05 | 0.01 | <0.005 | <0.005 | <0.05 | <0.005 | <0.005 | <0.05 | <0.005 | <0.005 | <0.05 | - | <0.002 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| 714397 | QA01A | 15/04/2020 | water | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.012 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | <0.005 | - |
| RPD | | | | 0 | - | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | - | 0 | 0 | 0 | - | - | - | - | 0 | - |
| RPD | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | | | | TCE | Tetrachloroethene | trans-1,4-Dichloro-2-butene | trans-1,3-dichloropropene | trans-1,2-dichloroethene | Trichlorofluoromethane | Vinyl acetate | Vinyl chloride |
|-------------------|-------------|------------|-------------|--------|-------------------|-----------------------------|---------------------------|--------------------------|------------------------|---------------|----------------|
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | | | 0.001 | 0.001 | 0.005 | 0.001 | 0.001 | 0.001 | 0.05 | 0.001 |
| Lab Report Number | Field ID | Date | Matrix Type | | | | | | | | |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <0.05 | <0.05 |
| | QA01 | 15/04/2020 | water | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <0.05 | <0.05 |
| RPD | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RPD | | | | - | - | - | - | - | - | - | - |
| ES2012663 | WSP_PT_GW03 | 15/04/2020 | water | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <0.05 | <0.05 |
| 714397 | QA01A | 15/04/2020 | water | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | - | <0.005 |
| RPD | | | | 0 | 0 | - | 0 | 0 | 0 | - | 0 |
| RPD | | | | - | - | - | - | - | - | - | - |

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: (1 - 10 x EQL); 30 (10 - 20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



| | TPH | | | | | TRH | | | | | | | BTEX | | | | | | | | | |
|-------------|---------|------------|-----------|-----------|-----------------|----------|-------------------------|-----------|---------------------------------|-----------|-----------|-----------------|---------|---------|--------------|----------------|------------|--------------|--------------------------|----------------------|--------------|----------------|
| | C6 - C9 | C10 - C14 | C15 - C28 | C29 - C36 | C10 - C36 (Sum) | C6 - C10 | C6 - C10 less BTEX (F1) | C10 - C16 | C10 - C16 less Naphthalene (F2) | C16 - C34 | C34 - C40 | C10 - C40 (Sum) | Benzene | Toluene | Ethylbenzene | Xylene (m & p) | Xylene (o) | Xylene (Sum) | 2-(acetylamino) fluorene | 3-methylcholanthrene | Acenaphthene | Acenaphthylene |
| | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| EQL | 20 | 50 | 100 | 50 | 50 | 20 | 20 | 50 | 50 | 100 | 100 | 100 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 1 | 1 |
| Field ID | | Date | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_RB01 | | 15/04/2020 | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_TB01 | | 15/04/2020 | | | | | | | | | | | | | | | | | | | | |



| | | PAH | | | | | | | | | | | | | | | | Metals | | | | | |
|-------------|--|------------|-------------------|--------------------------|-----------------|------------------------|----------------------|----------------------|----------|-----------------------|--------------|----------|-------------------------|-------------|--------------|--------|------------|--------------------------------|--------------------|--------------------|---------------------|-------------------|-----------------|
| | | Anthracene | Benz(a)anthracene | Benzo(b,i,k)fluoranthene | Benzo(a) pyrene | Benzo(b&j)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-c,d)pyrene | Naphthalene | Phenanthrene | Pyrene | PAHs (Sum) | Benzo(a)pyrene TEQ calc (Zero) | Arsenic (filtered) | Cadmium (filtered) | Chromium (filtered) | Copper (filtered) | Lead (filtered) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| EQL | | 1 | 1 | 4 | 0.5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.5 | 0.5 | 1 | 0.1 | 1 | 1 | 1 | |
| Field ID | | Date | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_RB01 | | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_TB01 | | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | |



| | | | | Explosives | | | | Phenols | | | | | | | | | | | | | | |
|-----|--------------------|-------------------|-----------------|-----------------------|--------------------|--------------------|--------------|---------------------------|-----------------------|-----------------------|--------------------|--------------------|-------------------|--------------------|----------------|----------------|---------------|--------------------------------|----------------------------|-------------------------|---------------|-------------------|
| | Mercury (filtered) | Nickel (filtered) | Zinc (filtered) | 1,3,5-Trinitrobenzene | 2,4-Dinitrotoluene | 2,6-dinitrotoluene | Nitrobenzene | 2,3,4,6-tetrachlorophenol | 2,4,5-trichlorophenol | 2,4,6-Trichlorophenol | 2,4-dichlorophenol | 2,4-dimethylphenol | 2,4-dinitrophenol | 2,6-dichlorophenol | 2-chlorophenol | 2-methylphenol | 2-nitrophenol | 3/4-methyl phenol (m/p-cresol) | 4,6-Dinitro-2-methylphenol | 4-chloro-3-methylphenol | 4-nitrophenol | Pentachlorophenol |
| | | | | | | | | | | | | | | | | | | | | | | |
| EQL | 0.1 | 1 | 5 | 0.002 | 0.004 | 0.004 | 0.002 | 10 | 2 | 2 | 2 | 2 | 30 | 2 | 2 | 2 | 2 | 0.004 | 30 | 2 | 30 | 4 |

| Field ID | Date | | | | | | | | | | | | | | | | | | | | | |
|-------------|------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WSP_PT_RB01 | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_TB01 | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



| | OCP | | | | | | | | | | | | | | | | | | | | | | |
|-----|--------|---------|-------|--------|-------------------|-------|----------|-----------------|-------------------|-------|------|------|-------------|----------|---------------|--------------|---------------|---------------------|--------|-----------------|-----------------|------------|--|
| | Phenol | 4,4-DDE | α-BHC | Aldrin | Aldrin + Dieldrin | β-BHC | chlordan | Chlordane (cis) | Chlordane (trans) | γ-BHC | DDD | DDT | DDT+DDE+DDD | Dieldrin | Endrin ketone | Endosulfan I | Endosulfan II | Endosulfan sulphate | Endrin | Endrin aldehyde | γ-BHC (Lindane) | Heptachlor | |
| | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | |
| EQL | 2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | |

| Field ID | Date | | | | | | | | | | | | | | | | | | | | | |
|-------------|------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WSP_PT_RB01 | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_TB01 | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



| | | | | OPP | | | | | | | | | | | | | | | | | | |
|-----|--------------------|-------------------|--------------|------------------|-----------------|-----------------|-----------------|--------------|---------------------|------------------|----------|------------|------------|--------|------------|----------|-----------|------------------|---------------|-----------|-----------------|------------|
| | Heptachlor epoxide | Hexachlorobenzene | Methoxychlor | Azinophos methyl | Bromophos-ethyl | Carbophenothion | Chlorfenvinphos | Chlorpyrifos | Chlorpyrifos-methyl | Demeton-S-methyl | Diazinon | Dichlorvos | Dimethoate | Ethion | Fenamiphos | Fenthion | Malathion | Methyl parathion | Monocrotophos | Parathion | Pirimphos-ethyl | Prothiofos |
| | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| EQL | 0.5 | 0.5 | 2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 2 | 2 | 2 | 0.5 | 0.5 |

| Field ID | Date | | | | | | | | | | | | | | | | | | | | | |
|-------------|------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WSP_PT_RB01 | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_TB01 | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



| | | 1,2,3,4-tetrachlorobenzene | 1,2,3,5-Tetrachlorobenzene | 1,2,4,5-tetrachlorobenzene | 1,3,5-Trichlorobenzene | 1-Chloronaphthalene | 1-naphthylamine | 2-chloronaphthalene | 2-methylnaphthalene | 2-naphthylamine | 2-nitroaniline | 2-Picoline | 3,3-Dichlorobenzidine | 3-nitroaniline | 4-(dimethylamino)azobenzene | 4-aminobiphenyl | 4-bromophenyl phenyl ether | 4-chloroaniline | 4-chlorophenyl phenyl ether | 4-nitroaniline | 4-Nitroquinoline-N-oxide | 5-nitro-o-toluidine | 7,12-dimethylbenz(a)anthracene | |
|-------------|--|----------------------------|----------------------------|----------------------------|------------------------|---------------------|-----------------|---------------------|---------------------|-----------------|----------------|------------|-----------------------|----------------|-----------------------------|-----------------|----------------------------|-----------------|-----------------------------|----------------|--------------------------|---------------------|--------------------------------|--|
| | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | |
| EQL | | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.002 | 0.002 | 0.002 | 0.005 | 0.004 | 0.002 | 0.002 | 0.004 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | |
| Field ID | | Date | | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_RB01 | | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_TB01 | | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | | |



| | | SVOC | | | | | | | | | | | | | | | | | | | | | |
|-------------|--|--------------|---------|------------|-----------------|-----------------------------|--------------------------|------------------------------|-----------------------------|------------------------|-----------|-----------------|---------------------|--------------|------------------|--------------------|----------------------|----------------------|---------------|---------------------------|------------------|-------------------|------------|
| | | Acetophenone | Aniline | Azobenzene | Benzyl chloride | Bis(2-chloroethoxy) methane | Bis(2-chloroethyl) ether | Bis(2-chloroisopropyl) ether | Bis(2-ethylhexyl) phthalate | Butyl benzyl phthalate | Carbazole | Chlorobenzilate | Dibenz(a,j)acridine | Dibenzofuran | Diethylphthalate | Dimethyl phthalate | Di-n-butyl phthalate | Di-n-octyl phthalate | Diphenylamine | Hexachlorocyclopentadiene | Hexachloroethane | Hexachloropropene | Isophorone |
| | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | 0.002 | 0.002 | 0.002 | 0.005 | 0.002 | 0.002 | 0.005 | 0.005 | 0.002 | 0.002 | 0.002 | 0.005 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.005 | 0.005 | 0.002 | 0.002 | 0.002 |
| Field ID | | Date | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_RB01 | | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_TB01 | | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | |



| | | Methapyrilene | N-nitrosodiethylamine | N-nitrosodi-n-butylamine | N-nitrosodi-n-propylamine | N-Nitrosodiphenyl & Diphenylamine | N-Nitrosomethylethylamine | N-nitrosomorpholine | N-nitrosopiperidine | N-nitrosopyrrolidine | Pentachlorobenzene | Pentachloronitrobenzene | Phenacetin | Pronamide | Trifluralin | 1,1,1,2-tetrachloroethane | 1,1,1-trichloroethane | 1,1,2,2-tetrachloroethane | 1,1-dichloroethane | 1,1,2-trichloroethane | 1,1-dichloroethene | 1,1-dichloropropene | 1,2,3-trichloropropane |
|-------------|--|---------------|-----------------------|--------------------------|---------------------------|-----------------------------------|---------------------------|---------------------|---------------------|----------------------|--------------------|-------------------------|------------|-----------|-------------|---------------------------|-----------------------|---------------------------|--------------------|-----------------------|--------------------|---------------------|------------------------|
| | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | 0.002 | 0.002 | 0.002 | 0.002 | 0.004 | 0.002 | 0.002 | 0.002 | 0.004 | 0.002 | 0.002 | 0.002 | 0.002 | 0.005 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.001 |
| Field ID | | Date | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_RB01 | | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_TB01 | | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



| | | 1,2,3-trichlorobenzene | 1,2-dibromo-3-chloropropane | 1,2,4-trimethylbenzene | 1,2,4-trichlorobenzene | 1,2-dibromoethane | 1,2-dichlorobenzene | 1,2-dichloroethane | 1,2-dichloropropane | 1,3,5-trimethylbenzene | 1,3-dichlorobenzene | 1,3-dichloropropane | 1,4-dichlorobenzene | 2,2-dichloropropane | 2-butanone (MEK) | 2-chlorotoluene | 2-hexanone (MBK) | 4-chlorotoluene | 4-methyl-2-pentanone (MIBK) | Acetone | Allyl chloride | Bromobenzene | Bromochloromethane |
|-------------|--|------------------------|-----------------------------|------------------------|------------------------|-------------------|---------------------|--------------------|---------------------|------------------------|---------------------|---------------------|---------------------|---------------------|------------------|-----------------|------------------|-----------------|-----------------------------|---------|----------------|--------------|--------------------|
| | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | 0.005 | 0.005 | 0.001 | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.001 | 0.005 | 0.05 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| Field ID | | Date | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_RB01 | | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_TB01 | | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



| | | VOC | | | | | | | | | | | | | | | | | | | | | |
|-------------|--|----------------------|-----------|--------------|------------------|----------------------|----------------------|--------------|---------------|---------------|------------|---------------------------|-------------------------|------------------------|----------------|-------------------------|-----------------|---------------------|-------------|------------------|----------------|-----------------|-------------------|
| | | Bromodichloromethane | Bromoform | Bromomethane | Carbon disulfide | Carbon tetrachloride | Chlorodibromomethane | Chloroethane | Chlorobenzene | Chloromethane | Chloroform | cis-1,4-Dichloro-2-butene | cis-1,3-dichloropropene | cis-1,2-dichloroethene | Dibromomethane | Dichlorodifluoromethane | Dichloromethane | Hexachlorobutadiene | Iodomethane | Isopropylbenzene | n-butylbenzene | n-propylbenzene | Pentachloroethane |
| | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.005 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.002 | 0.001 | 0.001 | 0.005 | 0.005 | 0.005 |
| Field ID | | Date | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_RB01 | | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | |
| WSP_PT_TB01 | | 15/04/2020 | | | | | | | | | | | | | | | | | | | | | |



| | p-isopropyltoluene | sec-butylbenzene | Styrene | tert-butylbenzene | TCE | Tetrachloroethene | trans-1,4-Dichloro-2-butene | trans-1,3-dichloropropene | trans-1,2-dichloroethene | Trichlorofluoromethane | Vinyl acetate | Vinyl chloride |
|-----|--------------------|------------------|---------|-------------------|-------|-------------------|-----------------------------|---------------------------|--------------------------|------------------------|---------------|----------------|
| | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | 0.005 | 0.005 | 0.001 | 0.005 | 0.001 | 0.001 | 0.005 | 0.001 | 0.001 | 0.001 | 0.05 | 0.001 |

| Field ID | Date | | | | | | | | | | | |
|-------------|------------|---|---|---|---|---|---|---|---|---|---|---|
| WSP_PT_RB01 | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - |
| WSP_PT_TB01 | 15/04/2020 | - | - | - | - | - | - | - | - | - | - | - |

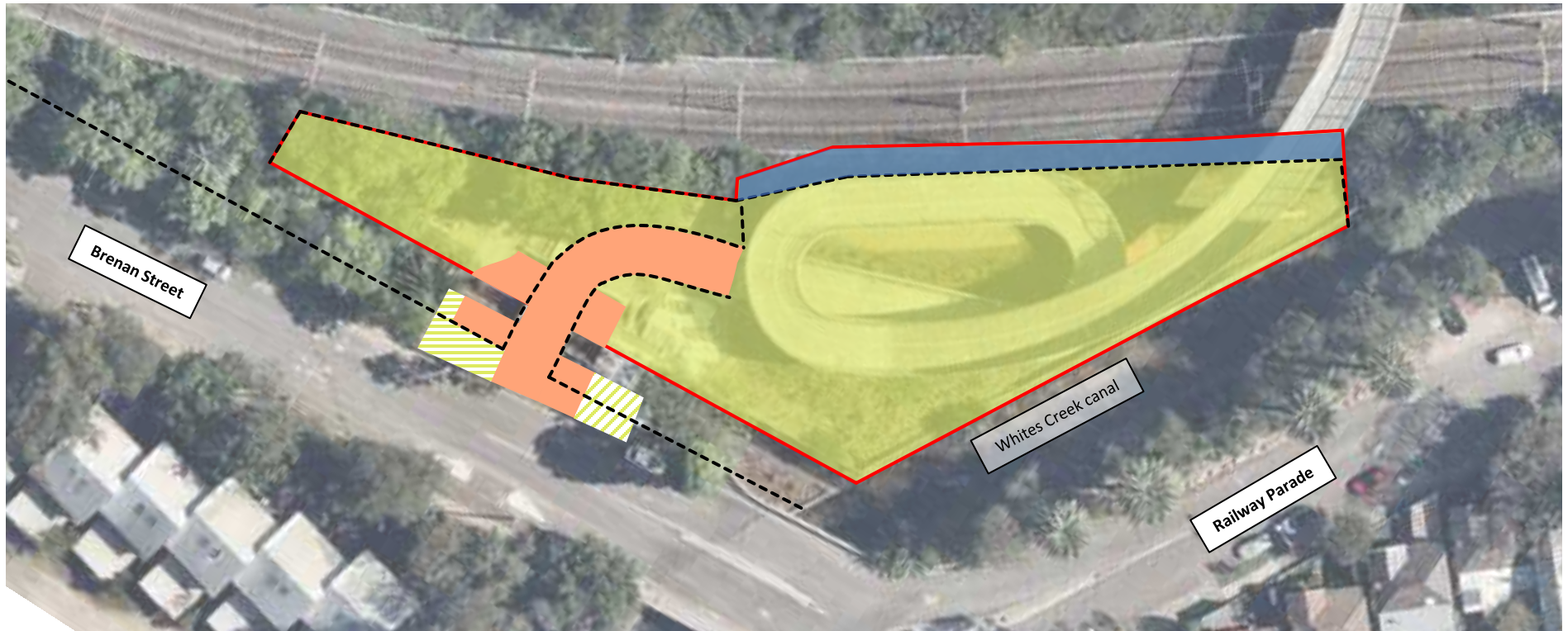


Image source: nearmap (3 Oct 2023)







- | | | |
|---|---|---|
|  Approximate site boundary |  Soil capping remediation area – northern batter (no geotextile) |  Hardstand sealed area |
|  Fencing/balustrade |  Geotextile and soil capping remediation area (massed planting) |  Landscaping only disturbed (reinstated to existing condition) |



Figure 4 – Site landform and remediation areas

APPENDIX A

FIGURES





Image source: SixMaps

Figure 1 – Site locality plan



Image source: nearmap (3 Oct 2023)

— Site boundary - - - DSI investigation area



Figure 2 – Site layout



Image source: nearmap (3 Oct 2023)

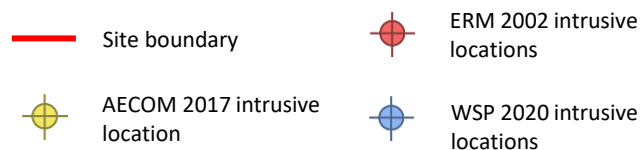


Figure 3 – Human health recreational open space criteria exceedances

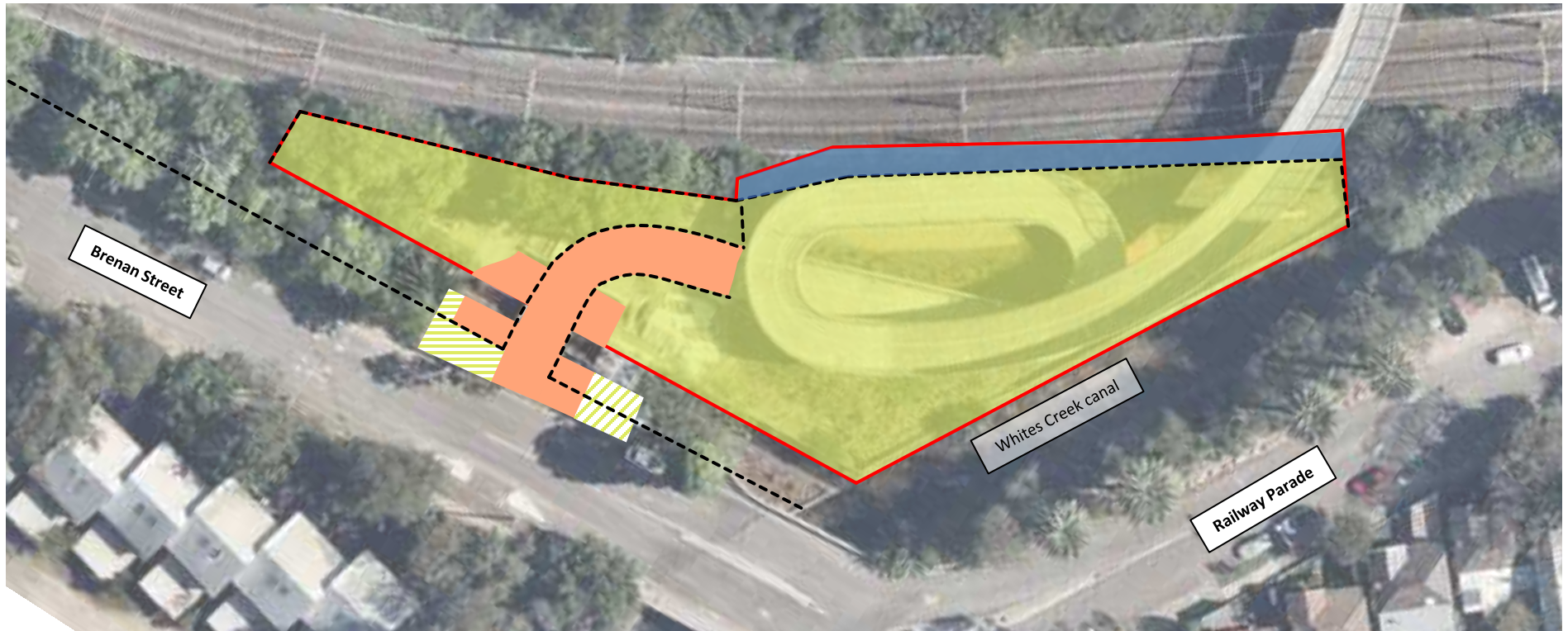


Image source: nearmap (3 Oct 2023)







- | | | |
|---|---|---|
|  Approximate site boundary |  Soil capping remediation area – northern batter (no geotextile) |  Hardstand sealed area |
|  Fencing/balustrade |  Geotextile and soil capping remediation area (massed planting) |  Landscaping only disturbed (reinstated to existing condition) |

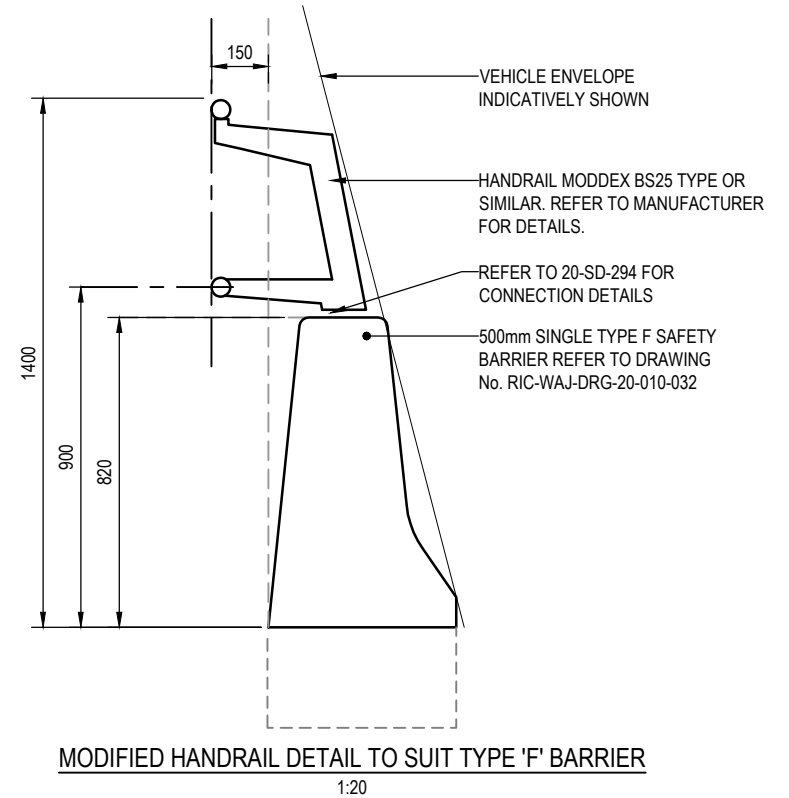
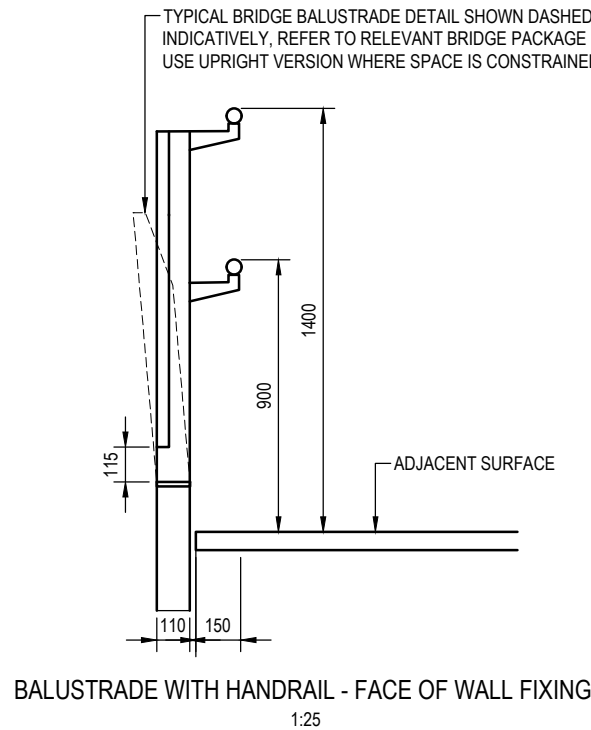
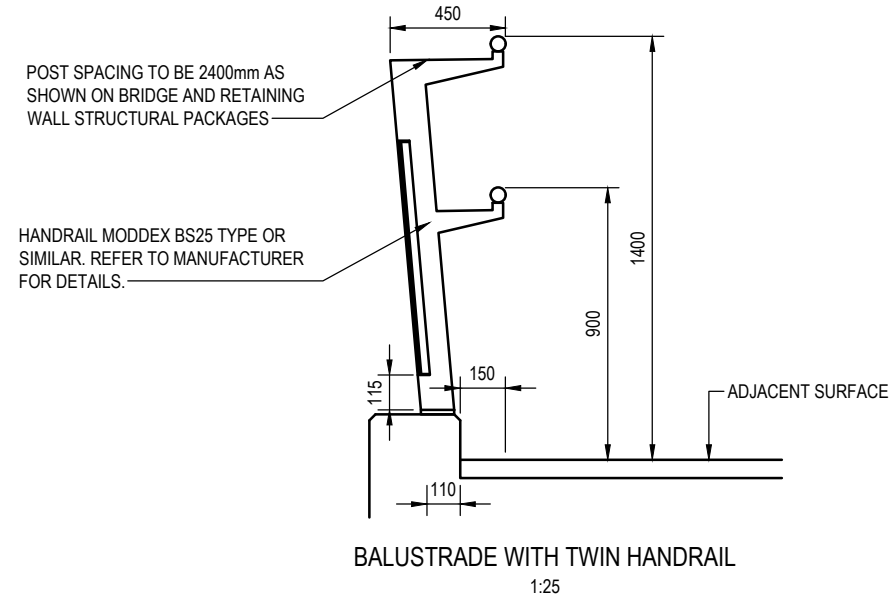
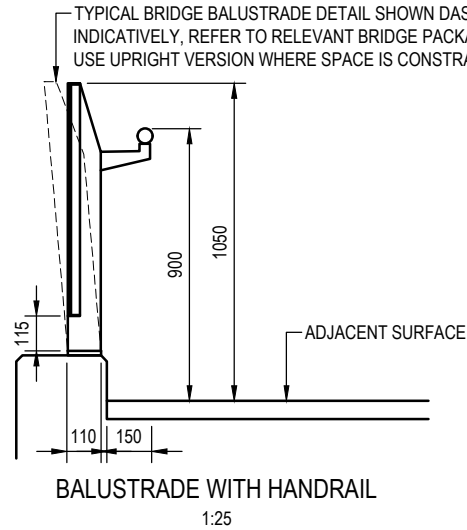
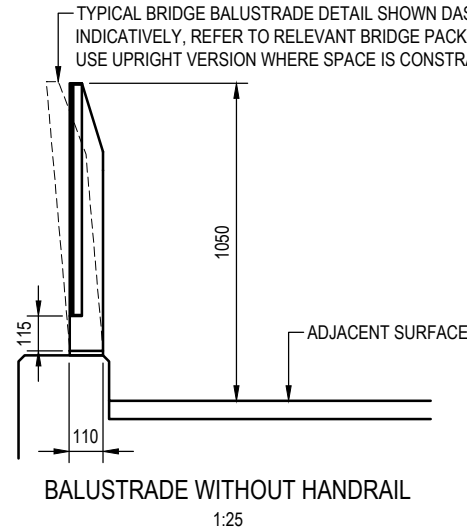


Figure 4 – Site landform and remediation areas



Figure 4-11: Rozelle - Concept Plan - Drawing 1 of 4

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED



ISSUED FOR CONSTRUCTION

DRAWING SET No. DS2020 / 000610



| DRAWING FILE LOCATION / NAME | | | |
|---|------------|----------------------------|----------|
| C:\01-PROJECTWISE_PROJECTS\WCX3B\WCX3B - RIC-PW-EXPORT\RD20-010\RIC-WAJ-DRG-20-RD-010-092.DWG | | | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL |
| 00 | 01/06/2020 | ISSUED FOR CONSTRUCTION | MG |
| 00-A1 | 12/08/2020 | ISSUED FOR POST IFC CDR | KB |
| 00-A | 02/09/2020 | ISSUED FOR POST IFC REVIEW | KB |
| 01 | 22/10/2020 | ISSUED FOR CONSTRUCTION | KB |
| 02 | 06/05/2022 | ISSUED FOR CONSTRUCTION | IS |

| DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING | |
|---|--------------|
| RIC-WAJ-MOD-20-RD-000-001_M.TXT | |
| SCALES ON A3 SIZE DRAWING | |
| 0 100 200 300 400 | SCALE 1:10mm |
| 0 200 300 600 800 | SCALE 1:20mm |
| 0 0.25 0.5 0.75 1.0 | SCALE 1:25m |

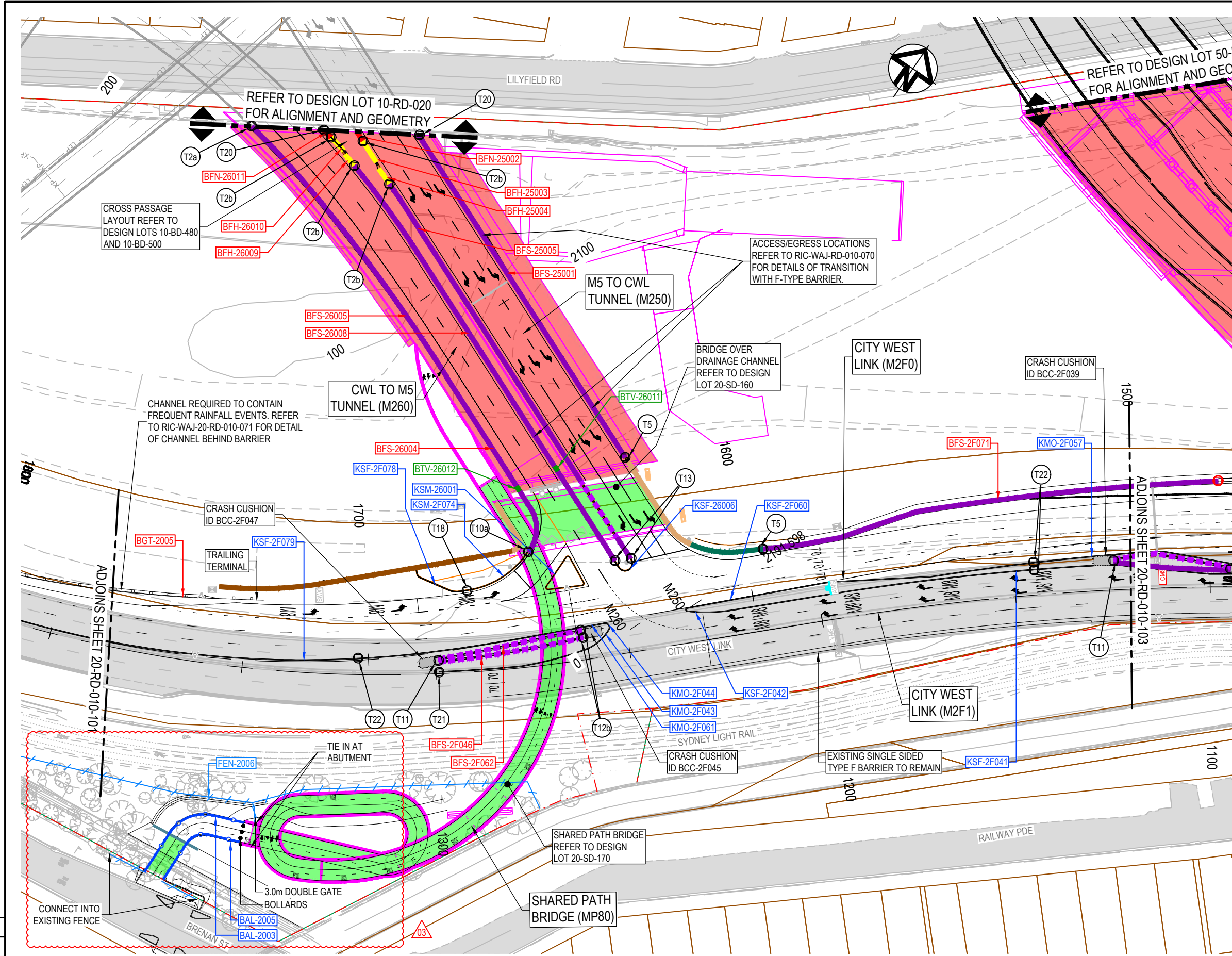
| CLIENT | |
|---|--|
|  Transport Roads & Maritime Services | |

| PLOT DATE / TIME | | PLOT BY | |
|------------------------|-------------|----------------|--|
| 17/05/2022 11:18:17 AM | | Zdunek, Michal | |
| TITLE | NAME | DATE | |
| DRAWN | M. ZDUNEK | 06/05/2022 | |
| DRG CHECK | J. LUMBA | 06/05/2022 | |
| DESIGN | K. YI | 06/05/2022 | |
| DESIGN CHECK | A. GREY | 06/05/2022 | |
| DESIGN MNGR | I. SINCLAIR | 06/05/2022 | |
| PROJECT MNGR | I. SINCLAIR | 06/05/2022 | |

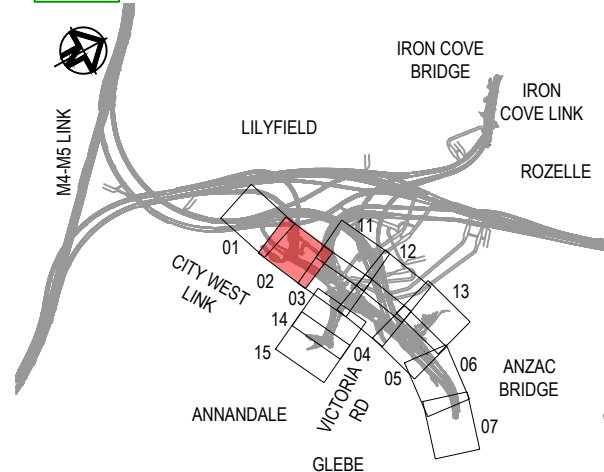


| | | |
|---|---------------------------|--|
| WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD | | A3 |
| ROZELLE INTERCHANGE & WESTERN HARBOUR TUNNEL | | |
| CWL - ROAD FURNITURE BALUSTRADE & HANDRAIL DETAILS | |   |
| PACKAGE No. | JCJV DOCUMENT NAME | REV |
| 20_01 | RIC-WAJ-DRG-20-RD-010-092 | 02 |

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED



- LEGEND**
- EXISTING PAVEMENT
 - EXISTING CADASTRAL BOUNDARY
 - PERMANENT WORKS AREA BOUNDARY
 - TEMPORARY AREA WORKS BOUNDARY
 - EXISTING BRIDGE / STRUCTURE / BUILDING
 - PROPOSED BRIDGE / STRUCTURE / BUILDING
 - PROPOSED CUT AND COVER
 - KERB/BARRIER TRANSITION OR DISCONTINUITY
 - CRASH CUSHION
 - RETAINING WALL
 - W-BEAM / THRIE BEAM SAFETY BARRIER
 - KLEMMFIX. REFER TO DESIGN LOT 20-RD-020 FOR DETAILS
 - SINGLE SIDED TYPE F SAFETY BARRIER
 - NARROW SINGLE SIDED TYPE F SAFETY BARRIER
 - HALF TYPE F SAFETY BARRIER
 - DOUBLE SIDED TYPE F SAFETY BARRIER
 - SPLIT CARRIAGEWAY TYPE F SAFETY BARRIER
 - VERTICAL CONCRETE BARRIER
 - MEDIUM PERFORMANCE BARRIER ON RETAINING WALL STRUCTURE
 - MEDIUM PERFORMANCE BARRIER ON MISCELLANEOUS STRUCTURE
 - MEDIUM PERFORMANCE BARRIER ON BRIDGE STRUCTURE
 - STRUCTURAL SPLIT BARRIER
 - SLOTTED SINGLE SIDED TYPE F SAFETY BARRIER
 - MOVEABLE MEDIAN SYSTEM
 - INFRARED TRAFFIC LOGGER (TIRTL)
 - GATE
 - FENCING
 - KERBS
 - PROPOSED BRIDGE / STRUCTURE / BUILDING
 - VEHICULAR CROSSING
 - HANDRAIL
 - BALUSTRADE
 - PEDESTRIAN FENCE
 - BUS SHELTER
 - BOLLARD
 - BARRIER TAG
 - KERB TAG
 - FENCE TAG
 - BALUSTRADE TAG
 - HANDRAIL TAG
 - TIRTL TAG



KEY PLAN


ISSUED FOR CONSTRUCTION

| | | | | | | | | | | | | | | | | | | | |
|---|------------|--|----------|------------------------|--|--|--------------|-------------|------------|---|--|--|---------------------------|--|--|---|--|--|--|
| DRAWING FILE LOCATION / NAME C:\01-PROJECTWISE_PROJECTS\WCX3B\WCX3B - RIC-PW-EXPORT\RD20-010\RIC-WAJ-DRG-20-RD-010-102.DWG | | | | | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING RIC-WAJ-MOD-20-RD-000-001_M.TXT | | | | | PLOT DATE / TIME 12/07/2022 3:52:22 PM | | | PLOT BY Zdunek, Michal | | | <div>       </div> <div>WESTCONNEX M4 / M5 LINK, CITY WEST LINK & VICTORIA ROAD ROZELLE INTERCHANGE & WESTERN HARBOUR TUNNEL CWL - ROAD FURNITURE GENERAL ARRANGEMENT PLAN</div> <div>SHEET 2</div> <div>PACKAGE No. JCJV DOCUMENT NAME</div> <div>20_01 RIC-WAJ-DRG-20-RD-010-102</div> <div>REV 03</div> | | | |
| REV | DATE | REVISION DESCRIPTION | APPROVAL | CO-ORDINATE SYSTEM | SCALES ON A3 SIZE DRAWING | CLIENT | TITLE | NAME | DATE | | | | | | | | | | |
| 00 | 01/06/2020 | ISSUED FOR CONSTRUCTION | MG | MGA ZONE 56 |  SCALE 1:1000m |  Transport Roads & Maritime Services | DRAWN | M. ZDUNEK | 06/05/2022 | | | | | | | | | | |
| 00-A1 | 12/08/2020 | ISSUED FOR POST IFC CDR | KB | HEIGHT DATUM | | | DRG CHECK | J. LUMBA | 06/05/2022 | | | | | | | | | | |
| 00-A | 02/09/2020 | ISSUED FOR POST IFC REVIEW | KB | AHD | | | DESIGN | K. YI | 06/05/2022 | | | | | | | | | | |
| 00-B | 02/10/2020 | ISSUED FOR POST IFC REVIEW | KB | DESIGN PHASE | | | DESIGN CHECK | A. GREY | 06/05/2022 | | | | | | | | | | |
| 01 | 22/10/2020 | ISSUED FOR CONSTRUCTION | KB | IFC | | | DESIGN MNGR | I. SINCLAIR | 06/05/2022 | | | | | | | | | | |
| 02 | 16/04/2021 | ISSUED FOR CONSTRUCTION, RIC-RFI-001965, RIC-RFI-002065 AND RIC-RFI-002082 | NK | ISSUE FOR CONSTRUCTION | | | PROJECT MNGR | I. SINCLAIR | 06/05/2022 | | | | | | | | | | |
| 03 | 06/05/2022 | ISSUED FOR CONSTRUCTION, RIC-RFI-002276 | IS | | | | | | | | | | | | | | | | |

APPENDIX B


PHOTOLOG




| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| Photo No. | Date |  |
|--|------------|---|
| 1 | 22/11/2021 | |
| Description Geofabric placed over south-eastern portion of site (corner Brenan Street and Railway Parade, looking east). | | |


| Photo No. | Date |  |
|--|------------|--|
| 2 | 22/11/2021 | |
| Description Geofabric placed over south-eastern portion of site (corner Brenan Street and Railway Parade, looking south-west). | | |


| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| | | |
|---|-------------|---|
| Photo No. | Date |  |
| 3 | 22/11/2021 | |
| Description Geofabric placed over western portion of site at approximate toe of northern batter (looking north-east). | | |

| Photo No. | Date |  |
|--|------------|--|
| 4 | 22/11/2021 | |
| Description Geofabric placed over western portion of site at approximate toe of northern batter (looking north-east). Pinned fabric and layer overlap visible. | | |


| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| Photo No. | Date | |
|---|------------|---|
| 5 | 22/11/2021 | |
| Description Geofabric placed over north-eastern portion of site (looking south-east). | |  |


| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| | | |
|--|------------|---|
| Photo No. | Date |  |
| 6 | 28/09/2022 | |
| Description Geofabric placed over central-eastern portion of site (looking north-east, Railway Parade to the left of photograph) | | |


| Photo No. | Date |  |
|--|------------|--|
| 7 | 28/09/2022 | |
| Description Geofabric placed over central portion of site (west of Photograph 6, looking north). Previously inspected area (Photograph 5) visible in rear of photograph. | | |

| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |

| Photo No. | Date | |
|---|------------|---|
| 8 | 28/09/2022 | |
| Description Portion of geofabric placed over central portion of site (Photograph 7). Pinned fabric and layer overlap visible. | |  |


| Photo No. | Date | |
|---|------------|--|
| 9 | 28/09/2022 | |
| Description Geofabric placed over northern portion of site (looking north). | |  |


| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |

| Photo No. | Date |  |
|---|------------|---|
| 10 | 28/09/2022 | |
| Description Landscaped northern portion of site shown in Photograph 5 (looking south-east). Overlap against existing structures visible in right of photograph. | | |


| Photo No. | Date | |
|--|------------|--|
| 11 | 28/09/2022 | |
| Description Central portion of site (looking south-west). Landscaped western portion of site shown in Photograph 4 and overlap against existing structures visible in right of photograph. | | |



| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| Photo No. | Date |  |
|---|------------|---|
| 12 | 18/11/2021 | |
| Description Compost stockpile SP19 sampled by WSP. | | |


| Photo No. | Date |  |
|---|------------|--|
| 13 | 13/09/2022 | |
| Description Compost stockpile SP23 sampled by WSP. | | |


| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |

| | | |
|-------------|------------|---|
| Photo No. | Date |  |
| 14 | 06/10/2022 | |
| Description | | |


Mulch SP25 sampled by WSP.

| Photo No. | Date |  |
|---|------------|--|
| 15 | 30/04/2021 | |
| Description Natural sand (post-screening) stockpile SP09 sampled by WSP. Photo taken by WSP. | | |

| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| | | |
|---|-------------|---|
| Photo No. | Date |  |
| 16 | 30/04/2021 | |
| Description Portion of natural sand stockpile (pre-screening) SP10 sampled by WSP. Photo taken by WSP. | | |

| Photo No. | Date | |
|--|------------|---|
| 17 | 30/09/2021 | |
| Description Natural sand stockpile SP18 sampled by WSP. Photo taken by WSP. | |  <div>30 Sep 2021, 13:20:24</div> |

| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| Photo No. | Date | |
|--|------------|---|
| 18 | 28/07/2023 | |
| Description Geofabric placed over north-eastern portion of site (looking north-east). Photo taken by JHCPB. | |  |

| Photo No. | Date | |
|--|------------|--|
| 19 | 28/07/2023 | |
| Description Geofabric placed over north-eastern portion of site (looking south-west). Photo taken by JHCPB. | |  |

| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| Photo No. | Date |  |
|--|------------|---|
| 20 | 16/11/2022 | |
| Description Northern batter area – erosion matting visible beneath mulch. Photo taken by JHCPB. | | |

| Photo No. | Date |  |
|--|------------|--|
| 21 | 01/11/2023 | |
| Description Concrete slab installed to facilitate footbridge construction over Brenan Street channel (visible in bottom left of photograph). Photo taken by WSP. | | |


| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| Photo No. | Date |  |
|--|------------|---|
| 22 | 01/11/2023 | |
| Description Geofabric placed over south-western portion of site (looking south-west). Photo taken by WSP. | | |

| Photo No. | Date |  |
|--|------------|--|
| 23 | 01/11/2023 | |
| Description Geofabric placed over south-western portion of site (looking east). Photo taken by WSP. | | |

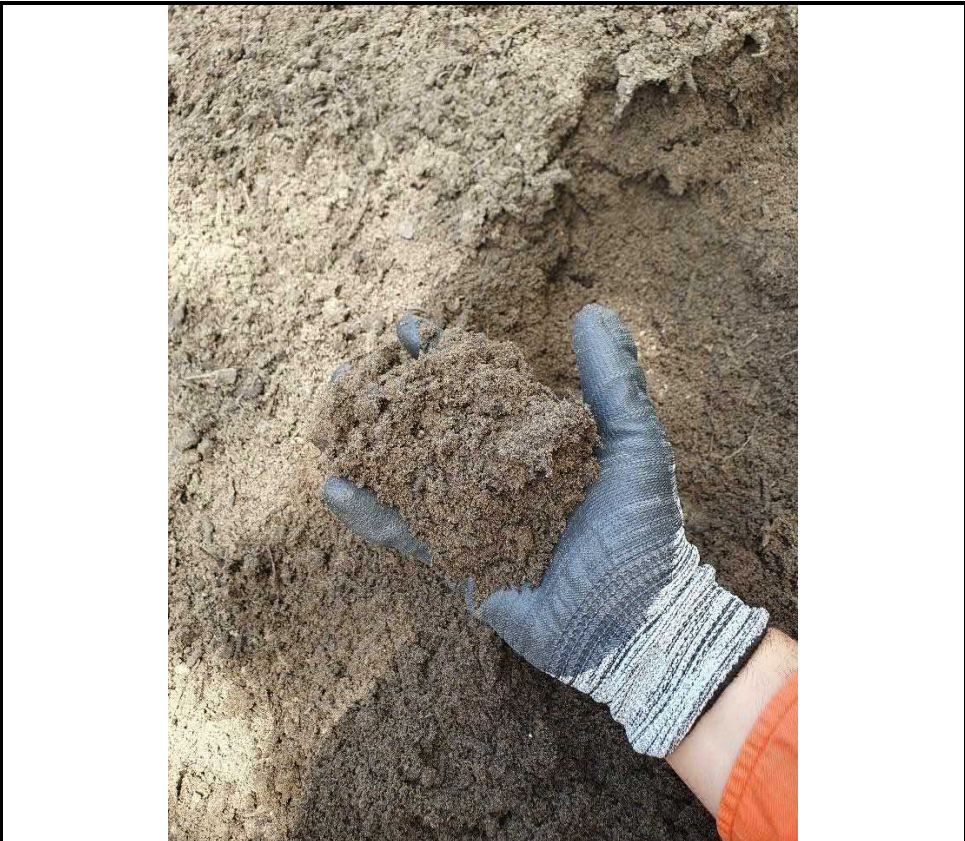
| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| Photo No. | Date | |
|---|------------|---|
| 24 | 01/11/2023 | |
| Description Concrete pathway in south-western portion of site (looking west, Brenan Street in top left of photograph). Photo taken by WSP. | |  |

| Photo No. | Date | |
|--|------------|--|
| 25 | 01/11/2023 | |
| Description Concrete pathway in south-western portion of site extending to elevated footbridge (looking north). Photo taken by WSP. | |  |


| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |


| Photo No. | Date |  |
|---|------------|---|
| 26 | 01/11/2023 | |
| Description Mulch stockpile inspection conducted by JHCPB. Photo taken by JHCPB. | | |

| Photo No. | Date |  |
|---|------------|--|
| 27 | 08/11/2023 | |
| Description Topsoil inspection conducted by JHCPB. Photo taken by JHCPB. | | |

| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |

| Photo No. | Date |  |
|--|------------|---|
| 28 | 16/11/2023 | |
| Description Revegetated northern portion of the site. Photo taken by JHCPB. | | |

| Photo No. | Date |  |
|---|------------|--|
| 29 | 16/11/2023 | |
| Description Revegetated western portion of the site. Photo taken by JHCPB. | | |

| | | |
|---|--|--------------------------------|
|  | PHOTOGRAPHIC LOG | |
| Client Name JHCPB Contractors Joint Venture | Site Location Rozelle Interchange – Pigtail Bridge | Project No. PS117368 |

| Photo No. | Date |  |
|---|------------|---|
| 30 | 16/11/2023 | |
| Description Revegetated south-western portion of the site. Photo taken by JHCPB. | | |

| Photo No. | Date |  |
|--|------------|--|
| 31 | 16/11/2023 | |
| Description Site entrance from Brenan Street. Photo taken by JHCPB. | | |

APPENDIX D

IMPORT MATERIAL LABORATORY ANALYTICAL SUMMARY TABLES



| TRH | | | | | | | TRH - Silica Gel Clean-up | | | | | BTEXN | | | | | | |
|--------------------------|------------------------------------|----------------------------|---|----------------------------|----------------------------|----------------------|------------------------------|---|------------------------------|------------------------------|--------------------------------|---------|----------|--------------|------------|-----------------|---------------|-------------------|
| TRH G5 - C10 Fraction F1 | TRH G5 - C10 Fraction Less BTEX F1 | TRH >C10 - C16 Fraction F2 | TRH >C10 - C16 Fraction Less Naphthalene F2 | TRH >C16 - C24 Fraction F3 | TRH >C24 - C40 Fraction F4 | TRH >C10 - C40 (Sum) | TRH >C10 - C16 SG Cleanup F2 | TRH >C16 - C16 SG Cleanup Less Naphthalene F2 | TRH >C16 - C24 SG Cleanup F3 | TRH >C24 - C40 SG Cleanup F4 | TRH C10 - C40 (Sum) SG Cleanup | Benzene | Toluene | Ethylbenzene | Xylene (o) | Xylenes (m & p) | Xylenes (sum) | Naphthalene (VOC) |
| mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| 10 | 10 | 50 | 50 | 100 | 100 | 50 | 50 | 50 | 100 | 100 | 50 | 0.2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 1 |
| | 180 | | 120 | 1,300 300 | 5,600 2,800 | | 120 | | 1,300 300 | 5,600 2,800 | | 65 50 | 105 85 | 125 70 | | | 45 105 | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 800 700 | | 1,000 1,000 | | 3,500 2,500 | 10,000 10,000 | | 1,000 1,000 | | 3,500 2,500 | 10,000 10,000 | | | | | | | | |

Material not imported to site

Import Material Analytical Summary Table - Mulch and Compost/Garden Organics

| | | PAH | | | | | | | | | | | | | | | | | | Metals | | | | | | | | | | | |
|---|---------------|--------------|----------------|------------|--------------------|----------------|----------------------------------|----------------------|----------------------|----------------------|----------|-----------------------|--------------|----------|-------------------------|-------------|--------------|--------|-----------|---------|--------|---------|----------|-----------------------|-----------|-------|---------|-------------|----------|-----------|-----|
| | | Acenaphthene | Acenaphthylene | Anthracene | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(a)pyrene TEQ (lower bound) | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-c,d)pyrene | Naphthalene | Phenanthrene | Pyrene | PAH (Sum) | Arsenic | Boron | Cadmium | Chromium | Chromium (hexavalent) | Copper | Lead | Mercury | Nickel | Selenium | Zinc | |
| | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | |
| EOL | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 2 | 10 | 0.4 | 2 | 0.5 | 5 | 5 | 0.1 | 2 | 2 | 5 | |
| NEPM 2013 Table 18(5) EIL - Urban Res & Public Open Space (compost / mulch) | | | | | | | | | | | | | | | | 170 | | | | 100 | | | | 200 / 200 | 300 / 170 | 1,100 | | 1,600 / 610 | | 870 / 420 | |
| NEPM 2013 Table 18(6) ESUs for Urban Res (Fine / Coarse) | | | | | | 0.7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2.0 2020 HH Public Open Space | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(1) Hills Rec C Soil | | | | | | | 3 | | | | | | | | | | | | 300 | 300 | 20,000 | 90 | 300 | 17,000 | 600 | 80 | 1,200 | 700 | 30,000 | | |
| NSW EPA Compost Order 2016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NSW EPA Pasteurised Organics Order 2016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 18(7) Management Limits in Res / Parkland (Fine / Coarse) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lab Report | Sample ID | Material | Sampled Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E52141770 | WSP_SP19_1 | Compost | 18 Nov 2021 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.5 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.5 | 7 | <50 | <1 | 16 | - | 26 | 26 | <0.1 | 5 | <5 | 92 | |
| | WSP_SP19_2 | | 18 Nov 2021 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 9 | <50 | <1 | 19 | - | 25 | 31 | <0.1 | 7 | <5 | 98 | |
| | WSP_SP19_3 | | 18 Nov 2021 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 7 | <50 | <1 | 15 | - | 23 | 32 | <0.1 | 5 | <5 | 87 |
| | WSP_SP19_4 | | 18 Nov 2021 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 7 | <50 | <1 | 18 | - | 23 | 35 | <0.1 | 9 | <5 | 110 |
| E52232848 | WSP_SP19_FMT1 | Compost | 18 Nov 2021 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | WSP_SP23_1 | | 13 Sep 2022 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <50 | <1 | 10 | - | 16 | 20 | <0.1 | 5 | <5 | 56 | |
| | WSP_SP23_2 | | 13 Sep 2022 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <50 | <1 | 8 | - | 18 | 17 | <0.1 | 4 | <5 | 55 | |
| | WSP_SP23_3 | | 13 Sep 2022 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <50 | <1 | 11 | - | 14 | 21 | <0.1 | 4 | <5 | 46 | |
| E52235773 | WSP_SP23_4 | Mulch | 13 Sep 2022 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <50 | <1 | 26 | - | 20 | 20 | <0.1 | 10 | <5 | 56 | |
| | WSP_SP23_FMT | | 13 Sep 2022 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | WSP_SP25_1 | | 06 Oct 2022 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 6 | <50 | <1 | 5 | - | 6 | 13 | <0.1 | <2 | <5 | 22 |
| | WSP_SP25_2 | | 06 Oct 2022 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1.5 | 0.6 | 2.9 | 6 | 3.0 | 7 | 12 | <0.1 | <2 | <5 | 22 |
| E52326330 | WSP_SP25_3 | Compost | 06 Oct 2022 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 20 | <50 | <1 | 27 | - | 18 | 13 | <0.1 | <2 | <5 | 17 |
| | WSP_SP25_4 | | 06 Oct 2022 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5 | <50 | <1 | <2 | 2.9 | <5 | 9 | <0.1 | <2 | <5 | 14 | |
| | WSP_SP25_FMT1 | | 06 Oct 2022 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | WSP_SP49_1 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 | <50 | <1 | 16 | - | 40 | 35 | <0.1 | 5 | <5 | 130 |
| E52326329 | WSP_SP49_2 | Mulch | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5 | <50 | <1 | 10 | - | 28 | 24 | <0.1 | 4 | <5 | 95 |
| | WSP_SP49_3 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <5 | <50 | <1 | 10 | - | 28 | 24 | <0.1 | 4 | <5 | 100 |
| | WSP_SP49_4 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <5 | <50 | <1 | 11 | - | 32 | 30 | <0.1 | 4 | <5 | 150 |
| | WSP_SP49_5 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <5 | <50 | <1 | 11 | - | 35 | 30 | <0.1 | 4 | <5 | 121 |
| | WSP_SP49_6 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <5 | <50 | <1 | 14 | - | 32 | 31 | <0.1 | 6 | <5 | 117 |
| | WSP_SP49_7 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <5 | <50 | <1 | 10 | - | 27 | 26 | <0.1 | 4 | <5 | 99 |
| | WSP_SP49_8 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6 | <50 | <1 | 14 | - | 39 | 34 | <0.1 | 5 | <5 | 130 |
| | WSP_SP49_9 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <5 | <50 | <1 | 11 | - | 30 | 25 | <0.1 | 4 | <5 | 103 |
| | WSP_SP49_10 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <5 | <50 | <1 | 11 | - | 30 | 29 | <0.1 | 4 | <5 | 107 |
| | WSP_SP49_11 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <5 | <50 | <1 | 10 | - | 29 | 28 | <0.1 | 4 | <5 | 108 |
| | WSP_SP49_12 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5 | <50 | <1 | 20 | - | 31 | 31 | <0.1 | 4 | <5 | 112 |
| | WSP_SP49_FMT1 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | WSP_SP49_FMT2 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| WSP_SP49_FMT3 | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| E52326329 | WSP_SP50_1 | Mulch | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7 | <50 | <1 | 12 | - | 11 | 57 | <0.1 | <2 | <5 | 79 |
| | WSP_SP50_2 | | 07 Aug 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | | | | | |

Import Material Analytical Summary Table - Mulch and Compost/Garden Organics

[illegible]

Import Material Analytical Summary Table - Mulch and Compost/Garden Organics

| | | Organochlorine Pesticides | | | | | | | | | | Organophosphorous Pesticides | | | | | | | | | | | | | | | Pesticides | | | | | PCBs | Halogenate d Benzenes | Asbestos | FMT | | | | CEC | pH | |
|---|---------------|---------------------------|---------------------|--------|-----------------|---------------|-------|------------|--------------------|--------------|-----------------|------------------------------|-----------------|-----------------|--------------|---------------------|----------|------------|------------|--------|------------|--------------|-----------|------------------|---------------|-----------|------------------|------------|------------------|------------------------------------|-------------------|---------------------------------------|--------------------------|----------------------|------------|------------|-----------------------------------|-------|----------|-------|-------|
| | | Indosulfan II | Indosulfan sulphate | Endrin | Endrin aldehyde | Endrin ketone | γ-BHC | Heptachlor | Heptachlor epoxide | Methoxychlor | Azinphos-methyl | Bromophos-ethyl | Carbophenothion | Chlorfenvinphos | Chlorpyrifos | Chlorpyrifos-methyl | Diazinon | Dichlorvos | Dimethoate | Ethion | Fenamiphos | Fenitrothion | Malathion | Parathion-methyl | Monocrotophos | Parathion | Pirimiphos-ethyl | Prothidios | Demeton-s-methyl | PCB (Sum of Total-Lab Reported) | Hexachlorobenzene | Asbestos (Fines and Fibrous FA-AF) | Asbestos (ACM) | % Plastic - Rigid | % Glass | % Metal | % Plastic - Thin flexible film | CEC | pH (Lab) | | |
| | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EOL | | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.2 | 0.2 | 0.2 | 0.05 | 0.05 | 0.05 | 0.1 | 0.05 | 0.001 | 0.01 | 0.1 | 0.1 | 0.1 | 0.05 | 1 | 0.1 | |
| NEPM 2013 Table 1B(5) EIL - Urban Res & Public Open Space (compost / mulch) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1B(6) ESLs for Urban Res (Fine / Coarse) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2.0 2020 HH Public Open Space | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(1) HLLs Rec C Soil | | | | 20 | | | | 10 | | 400 | | | | | 250 | | | | | | | | | | | | | | | 1 | 10 | | | | | | | | | | |
| NSW EPA Compost Order 2016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NSW EPA Pasteurised Organics Order 2016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland (Fine / Coarse) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lab Report | Sample ID | Material | Sampled Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES2141770 | WSP_SP19_1 | Compost | 18 Nov 2021 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | <0.1 | <0.05 | <0.001 | <0.01 | - | - | - | - | - | - | | |
| | WSP_SP19_2 | | 18 Nov 2021 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | <0.1 | <0.05 | <0.001 | <0.01 | - | - | - | - | - | - | | |
| | WSP_SP19_3 | | 18 Nov 2021 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | <0.1 | <0.05 | <0.001 | <0.01 | - | - | - | - | - | - | | |
| | WSP_SP19_4 | | 18 Nov 2021 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | <0.1 | <0.05 | <0.001 | <0.01 | - | - | - | - | - | - | | |
| ES232848 | WSP_SP19_FMT1 | | 18 Nov 2021 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | WSP_SP23_1 | Compost | 13 Sep 2022 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | <0.1 | <0.05 | <0.001 | <0.01 | <0.10 | <0.10 | <0.10 | <0.05 | - | - | | |
| | WSP_SP23_2 | | 13 Sep 2022 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | <0.1 | <0.05 | <0.001 | <0.01 | - | - | - | - | - | - | | |
| | WSP_SP23_3 | | 13 Sep 2022 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | <0.1 | <0.05 | <0.001 | <0.01 | - | - | - | - | - | - | | |
| ES2235773 | WSP_SP23_FMT | | 13 Sep 2022 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | <0.1 | <0.05 | <0.001 | <0.01 | <0.10 | <0.10 | <0.10 | <0.05 | - | - | | | |
| | WSP_SP25_1 | Mulch | 06 Oct 2022 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <1.0 | <1.0 | <0.25 | <0.25 | <0.25 | <0.2 | <0.25 | - | - | - | - | - | - | | | | |
| | WSP_SP25_2 | | 06 Oct 2022 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <1.0 | <1.0 | <0.25 | <0.25 | <0.25 | <0.2 | <0.25 | - | - | - | - | - | - | | | | |
| | WSP_SP25_3 | | 06 Oct 2022 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <1.0 | <1.0 | <0.25 | <0.25 | <0.25 | <0.2 | <0.25 | - | - | - | - | - | - | | | | |
| ES2326330 | WSP_SP25_4 | | 06 Oct 2022 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <1.0 | <1.0 | <0.25 | <0.25 | <0.25 | <0.2 | <0.25 | - | - | - | - | - | - | | | | |
| | WSP_SP25_FMT1 | | 06 Oct 2022 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| | WSP_SP49_1 | Compost | 07 Aug 2023 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <1.0 | <1.0 | <0.25 | <0.25 | <0.25 | <0.2 | <0.25 | <0.001 | <0.01 | - | - | - | - | 294 | 7.2 | | |
| | WSP_SP49_2 | | 07 Aug 2023 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <1.0 | <1.0 | <0.25 | <0.25 | <0.25 | <0.2 | <0.2 | | | | | | | | | | |

Import Material Analytical Summary Table - Natural Material

| | | TPH | | | | | TRH | | | | | | | BTEXN | | | | | | | |
|---|-------------|----------------|------------------|------------------|------------------|------------------------|----------------------|------------------------|-----------------------|---|-----------------------|-----------------------|------------------------|-------------------|---------|---------|--------------|----------------|------------|--------------|------------|
| | | <6-C9 Fraction | C10-C14 Fraction | C15-C28 Fraction | C29-C36 Fraction | C10-C36 Fraction (Sum) | <6-C10 Fraction (F1) | <6-C10 (F1 minus BTEX) | <10-C15 Fraction (F2) | <10-C16 Fraction (F2 minus Naphthalene) | C16-C24 Fraction (F3) | C25-C40 Fraction (F4) | C10-C40 Fraction (Sum) | Naphthalene (NOG) | benzene | Toluene | Ethylbenzene | Xylene (m & p) | Xylene (o) | Xylene Total | Total BTEX |
| | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| ECL | | 10 | 20 | 50 | 50 | 50 | | 10 | 50 | 50 | 100 | 100 | 50 | 0.5 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.3 | 0.2 |
| NEPM 2013 Table 18(5) Generic EIL - Urban Res & Public Open Space (compost / mulch) | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 18(6) ESLs for Urban Res (Fine / Coarse) | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 7 Rec CHSL for Asbestos in Soil | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 2 Health Public open space | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | | | | | | | | | | | | | | | | | | | | |
| NSW 2014 Excavated Natural Material (Absolute Max) | | | | | | | | | | | | | | | | | | | | | |
| NSW 2014 Excavated Natural Material (Max Average) | | | | | | | | | | | | | | | | | | | | | |
| National Environment Protection Council, 1999 Background Ranges | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 18(7) Management Limits in Res / Parkland (Fine / Coarse) | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| Lab Report | Sample ID | Sampled Date | | | | | | | | | | | | | | | | | | | |
| ES2116353 | WSP_SP09_1 | 30 Apr 2021 | | | | | | | | | | | | | | | | | | | |
| | QA04 | 30 Apr 2021 | | | | | | | | | | | | | | | | | | | |
| | 792474 | 30 Apr 2021 | | | | | | | | | | | | | | | | | | | |
| | ES2116353 | WSP_SP09_2 | 30 Apr 2021 | | | | | | | | | | | | | | | | | | |
| | | WSP_SP09_3 | 30 Apr 2021 | | | | | | | | | | | | | | | | | | |
| | | WSP_SP09_4 | 30 Apr 2021 | | | | | | | | | | | | | | | | | | |
| | | WSP_SP09_FMT | 30 Apr 2021 | | | | | | | | | | | | | | | | | | |
| | WSP_SP10_1 | 30 Apr 2021 | | | | | | | | | | | | | | | | | | | |
| | WSP_SP10_2 | 30 Apr 2021 | | | | | | | | | | | | | | | | | | | |
| | WSP_SP10_3 | 30 Apr 2021 | | | | | | | | | | | | | | | | | | | |
| WSP_SP10_4 | 30 Apr 2021 | | | | | | | | | | | | | | | | | | | | |
| WSP_SP10_FMT | 30 Apr 2021 | | | | | | | | | | | | | | | | | | | | |
| ES2135337 | WSP_SP18_1 | 30 Sep 2021 | | | | | | | | | | | | | | | | | | | |
| | WSP_SP18_2 | 30 Sep 2021 | | | | | | | | | | | | | | | | | | | |
| | WSP_SP18_3 | 30 Sep 2021 | | | | | | | | | | | | | | | | | | | |
| ES2232882 | WSP_SP24_1 | 13 Sep 2022 | | | | | | | | | | | | | | | | | | | |
| | WSP_SP24_2 | 13 Sep 2022 | | | | | | | | | | | | | | | | | | | |
| | WSP_SP24_3 | 13 Sep 2022 | | | | | | | | | | | | | | | | | | | |
| | WSP_SP24_4 | 13 Sep 2022 | | | | | | | | | | | | | | | | | | | |

Comments
* Value reported as total plastics.

Comments
* Value reported as total plastics.

Comments
* Value reported as total plastics

Import Material Analytical Summary Table - Natural Material

| | | Organochlorine Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Pesticides | | | | |
|---|--------------|---------------------------|----------|----------|---------------------|----------|-----------|-----------------|-------------------|----------|-------|-------|----------------|----------|------------|--------------|---------------|---------------------|--------|-----------------|---------------|--------------------|------------|--------------------|--------------|----------|-----------|---------------------|------------|------------|---------------------|------------------|------------|--|--|--|--|
| | | p,p'-DDE | p,p'-DDE | p,p'-DDE | p,p'-DDE + Dieldrin | p,p'-DDE | Chlordane | Chlordane (cis) | Chlordane (trans) | p,p'-DDE | DDD | DDT | p,p'-DDE + DDD | Dieldrin | Endosulfan | Endosulfan I | Endosulfan II | Endosulfan sulphate | Endrin | Endrin aldehyde | Endrin ketone | p,p'-DDE (Lindane) | Heptachlor | Heptachlor epoxide | Methoxychlor | p,p'-DDE | Toxaphene | Endosulfan S-methyl | Heptachlor | Endosulfan | Endosulfan S-methyl | Endosulfan ethyl | | | | | |
| | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | | | | |
| EQI | | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 180 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | 0.05 | 0.05 | 0.2 | 0.2 | 0.05 | | | | | |
| NEPM 2013 Table 18(5) Generic EIL - Urban Res & Public Open Space (compost / mulch) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 18(6) ESLs for Urban Res (Fine / Coarse) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 2 Health Public open space | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(1) HSL Rec C Soil | | | | | 10 | | 70 | | | | | | 400 | | 340 | | | | | 20 | | | | 10 | | 400 | 30 | | | | | | | | | | |
| NSW 2014 Excavated Natural Material (Absolute Max) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NSW 2014 Excavated Natural Material (Max Average) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| National Environment Protection Council, 1999 Background Ranges | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 18(7) Management Limits in Res / Parkland (Fine / Coarse) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lab Report | Sample ID | Sampled Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES2116353 | WSP_SP09_1 | 30 Apr 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | | |
| | QA04A | 30 Apr 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | | |
| | 792474 | 30 Apr 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.1 | - | - | <0.2 | - | | | | | | |
| | WSP_SP09_2 | 30 Apr 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | |
| | WSP_SP09_3 | 30 Apr 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | |
| | WSP_SP09_4 | 30 Apr 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | |
| | WSP_SP09_FMT | 30 Apr 2021 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | |
| | WSP_SP10_1 | 30 Apr 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | |
| | WSP_SP10_2 | 30 Apr 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | |
| | WSP_SP10_3 | 30 Apr 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | |
| WSP_SP10_FMT | 30 Apr 2021 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| ES2135337 | WSP_SP18_1 | 30 Sep 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | |
| | WSP_SP18_2 | 30 Sep 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | | |
| | WSP_SP18_3 | 30 Sep 2021 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | | |
| ES2232882 | WSP_SP24_1 | 13 Sep 2022 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | |
| | WSP_SP24_2 | 13 Sep 2022 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | | |
| | WSP_SP24_3 | 13 Sep 2022 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | | |
| | WSP_SP24_4 | 13 Sep 2022 | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | <0.05 | <0.05 | <0.2 | - | <0.05 | | | | | |

Comments
* Value reported as total plastics.



Import Material Analytical Summary Table - Natural Material

| | | | Organophosphorous Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PCBs | | | | | | | | | | | | | | | | |
|---|--------------|--------------|------------------------------|-----------------|--------------------|-----------------|-----------------|-----------------|--------------|---------------------|-----------|-----------|-----------|----------|------------|------------|------------|--------|----------|--------------|--------------|--------------|-------|-----------|--------|------------------|---------------------|---------------|----------------|------------|---------|----------|------------|--------|---------|-------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|---|--|
| | | | Folathion | Alachlor methyl | Isstar (Sulgrados) | Bromophos-ethyl | Carbophenothion | Chlorfenvinphos | Chlorpyrifos | Chlorpyrifos-methyl | Coumaphos | Dameton-O | Dameton-S | Diazinon | Dichlorvos | Dinethoate | Disulfoton | Ethion | Ethionap | Fenitrothion | Fenitrothion | Fenitrothion | FFN | Malathion | Mephos | Methyl parathion | Mevinphos (Phosden) | Monocrotophos | Naled (Dibrom) | Dinethoate | Phorate | Prothios | Pyrazophos | Ronnel | Tenbufo | Trichlorate | Tetrachlorvinphos | | | | | | | | | | | | | | |
| | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | | | |
| EOL | | | 0.2 | 0.05 | 0.2 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 2 | 0.2 | 0.2 | 0.05 | 0.05 | 0.05 | 0.2 | 0.05 | 0.2 | 0.2 | 0.2 | 0.05 | 0.2 | 0.05 | 0.2 | 0.05 | 0.2 | 0.2 | 0.2 | 0.2 | 2 | 0.2 | 0.2 | 0.05 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | |
| NEPM 2013 Table 18(5) Generic EIL - Urban Res & Public Open Space (compost / mulch) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 18(6) ESLs for Urban Res (Fine / Coarse) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 2 Health Public open space | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 14(1) HLLs Rec C Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NSW 2014 Excavated Natural Material (Absolute Max) | | | | | | | | | | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| NSW 2014 Excavated Natural Material (Max Average) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| National Environment Protection Council, 1999 Background Ranges | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 18(7) Management Limits in Res / Parkland (Fine / Coarse) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lab Report | Sample ID | Sampled Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E52116353 | WSP_SP09_1 | 30 Apr 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| | QA04 | 30 Apr 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| 792474 | QA04A | 30 Apr 2021 | <0.2 | <0.2 | <0.2 | - | - | <0.2 | <0.2 | <0.2 | <2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <2 | <0.2 | <2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | | | |
| E52116353 | WSP_SP09_2 | 30 Apr 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | |
| | WSP_SP09_3 | 30 Apr 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | |
| | WSP_SP09_4 | 30 Apr 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| | WSP_SP09_FMT | 30 Apr 2021 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| | WSP_SP10_1 | 30 Apr 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| | WSP_SP10_2 | 30 Apr 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| | WSP_SP10_3 | 30 Apr 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| | WSP_SP10_4 | 30 Apr 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| E52135337 | WSP_SP10_FMT | 30 Apr 2021 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | |
| | WSP_SP18_1 | 30 Sep 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| | WSP_SP18_2 | 30 Sep 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| E52232882 | WSP_SP18_3 | 30 Sep 2021 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | |
| | WSP_SP24_1 | 13 Sep 2022 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| | WSP_SP24_2 | 13 Sep 2022 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| | WSP_SP24_3 | 13 Sep 2022 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| E52232882 | WSP_SP24_4 | 13 Sep 2022 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |
| | WSP_SP24_4 | 13 Sep 2022 | - | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | - | <0.05 | - | <0.05 | - | <0.2 | - | <0.2 | - | <0.2 | - | - | - | <0.05 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | | | | |

Comments
* Value reported as total plastics.

Import Material Analytical Summary Table - Natural Material

| | | Halogenated Benzenes | Asbestos | | FMT | | | |
|---|--------------|-------------------------|----------------|------------------------------------|-----------------|-------|-------|------------------------------|
| | | Hexachlorobenzene | Asbestos (ACM) | Asbestos (Fines and Fibrous -FAAF) | Plastic - Rigid | Glass | Metal | Plastic - Thin flexible film |
| | | mg/kg | % (w/w) | % (w/w) | % | % | % | % |
| EQL | | 0.05 | 0.01 | 0.001 | 0.05 | 0.1 | 0.1 | 0.05 |
| NEPM 2013 Table 18(5) Generic EIL - Urban Res & Public Open Space (compost / mulch) | | | | | | | | |
| NEPM 2013 Table 18(6) ESLs for Urban Res (Fine / Coarse) | | | | | | | | |
| NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil | | | 0.02 | 0.001 | | | | |
| PFAS NEMP 2020 Table 2 Health Public open space | | | | | | | | |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | 10 | | | | | | |
| NSW 2014 Excavated Natural Material (Absolute Max) | | | | | | | 0.1 | |
| NSW 2014 Excavated Natural Material (Max Average) | | | | | | | 0.05 | |
| National Environment Protection Council, 1999 Background Ranges | | | | | | | | |
| NEPM 2013 Table 18(7) Management Limits in Res / Parkland (Fine / Coarse) | | | | | | | | |
| Lab Report | Sample ID | Sampled Date | | | | | | |
| ES2116353 | WSP_SP09_1 | 30 Apr 2021 | <0.05 | <0.01 | <0.001 | - | - | - |
| | QA04A | 30 Apr 2021 | <0.05 | - | - | - | - | - |
| 792474 | QA04A | 30 Apr 2021 | <0.05 | - | - | - | - | - |
| ES2116353 | WSP_SP09_2 | 30 Apr 2021 | <0.05 | <0.01 | <0.001 | - | - | - |
| | WSP_SP09_3 | 30 Apr 2021 | <0.05 | <0.01 | <0.001 | - | - | - |
| | WSP_SP09_4 | 30 Apr 2021 | <0.05 | <0.01 | <0.001 | - | - | - |
| | WSP_SP09_FMT | 30 Apr 2021 | - | - | - | <0.05 | <0.10 | <0.05 |
| | WSP_SP10_1 | 30 Apr 2021 | <0.05 | <0.01 | <0.001 | - | - | - |
| | WSP_SP10_2 | 30 Apr 2021 | <0.05 | <0.01 | <0.001 | - | - | - |
| | WSP_SP10_3 | 30 Apr 2021 | <0.05 | <0.01 | <0.001 | - | - | - |
| | WSP_SP10_4 | 30 Apr 2021 | <0.05 | <0.01 | <0.001 | - | - | - |
| | WSP_SP10_FMT | 30 Apr 2021 | - | - | - | <0.05 | <0.10 | <0.05 |
| | WSP_SP18_1 | 30 Sep 2021 | - | <0.01 | <0.001 | - | - | - |
| ES2135337 | WSP_SP18_2 | 30 Sep 2021 | - | <0.01 | <0.001 | - | - | - |
| | WSP_SP18_3 | 30 Sep 2021 | - | <0.01 | <0.001 | - | - | - |
| | WSP_SP24_1 | 13 Sep 2022 | <0.05 | <0.01 | <0.001 | - | - | - |
| ES2232882 | WSP_SP24_2 | 13 Sep 2022 | <0.05 | <0.01 | <0.001 | - | - | - |
| | WSP_SP24_3 | 13 Sep 2022 | <0.05 | <0.01 | <0.001 | - | - | - |
| | WSP_SP24_4 | 13 Sep 2022 | <0.05 | <0.01 | <0.001 | - | - | - |

Comments
* Value reported as total plastics.

Import Material RPD Summary Table

| | Metals | | | | | | | | | | | | | | | | | | | |
|-----|---------|-------|---------|----------|--------|-------|---------|--------|----------|-------|---------|-------|--------|-------|---------------|-----------------|-------|-------|-------|----------|
| | Arsenic | Boron | Cadmium | Chromium | Copper | Lead | Mercury | Nickel | Selenium | Zinc | p,p-DDE | a-BHC | Aldrin | b-BHC | cis-Chlordane | trans-Chlordane | d-BHC | DDD | DDT | Dieldrin |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 2 | 10 | 0.4 | 2 | 5 | 5 | 0.1 | 2 | 2 | 5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |

| Lab Report | Sample ID | Sampled Date | | | | | | | | | | | | | | | | | | | |
|------------|------------|--------------|-----|-----|------|------|-----|-----|------|-----|----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ES2116353 | WSP_SP09_1 | 30 Apr 2021 | <5 | <50 | <1 | 3 | <5 | 7 | <0.1 | <2 | <5 | 9 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 |
| | QA04 | 30 Apr 2021 | <5 | <50 | <1 | 3 | <5 | 5 | <0.1 | <2 | <5 | 8 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.05 |
| | RPD% | | - | - | - | 0% | - | 33% | - | - | - | 12% | - | - | - | - | - | - | - | - | - |
| 792474 | QA04A | 30 Apr 2021 | <2 | <10 | <0.4 | <5 | <5 | <5 | <0.1 | <5 | <2 | 12 | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 |
| | RPD% | | - | - | - | 18% | - | 95% | - | - | - | 29% | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | |
| ES2326330 | WSP_SP49_5 | 07 Aug 2023 | <5 | <50 | <1 | 11 | 35 | 30 | <0.1 | 4 | <5 | 121 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 |
| | QA13 | 07 Aug 2023 | <5 | <50 | <1 | 13 | 18 | 24 | <0.1 | 3 | <5 | 69 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 |
| | RPD% | | - | - | - | 17% | 64% | 22% | - | 29% | - | 55% | - | - | - | - | - | - | - | - | - |
| 1014415 | QA13A | 07 Aug 2023 | 3.8 | <10 | <0.4 | 72 | 30 | 26 | <0.1 | 5.3 | <2 | 120 | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 |
| | RPD% | | 41% | - | - | 147% | 15% | 14% | - | 28% | - | 1% | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | |
| ES2328614 | WSP_SP52_1 | 23 Aug 2023 | 5 | <50 | <1 | 11 | 27 | 30 | <0.1 | 4 | <5 | 144 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 |
| | QA14 | 23 Aug 2023 | <5 | <50 | <1 | 9 | 27 | 26 | <0.1 | 3 | <5 | 103 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 |
| | RPD% | | 67% | - | - | 20% | 0% | 14% | - | 29% | - | 33% | - | - | - | - | - | - | - | - | - |
| 1019282 | QA14A | 23 Aug 2023 | 2.9 | 19 | <0.4 | 7.4 | 23 | 31 | <0.1 | <5 | <2 | 86 | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | <0.5 |
| | RPD% | | 53% | - | - | 39% | 16% | 3% | - | 46% | - | 50% | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | |
| ES2338800 | WSP_SP66_2 | 09 Nov 2023 | <5 | <50 | <1 | 25 | 31 | 16 | <0.1 | 6 | <5 | 109 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | <0.25 |
| 1042652 | QA21A | 09 Nov 2023 | 3.4 | 11 | <0.4 | 23 | 22 | 12 | <0.1 | 5.1 | <2 | 88 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | <0.5 | <0.5 | <0.5 |
| RPD% | | | 21% | 46% | 0% | 5% | 21% | 18% | 0% | 11% | 0% | 14% | 0% | 0% | 0% | 0% | - | - | 0% | 0% | 0% |

RPDs have only been considered where a concentration is greater than 1 times the LOR.
Acceptable RPDs for each LOR multiplier range are: 100 (<10 x LOR); 50 (>10 x LOR)

Import Material RPD Summary Table

| | Organochlorine Pesticides | | | | | | | | | | | | | | | | | | | |
|-----|---------------------------|------------|--------------|---------------|---------------------|--------|-----------------|---------------|-------|------------|--------------------|--------------|-----------|-----------|-----------------|---------|-----------------|-----------------|-----------------|--------------|
| | Arsenic | Endosulfan | Endosulfan I | Endosulfan II | Endosulfan sulphate | Endrin | Endrin aldehyde | Endrin ketone | γ-BHC | Heptachlor | Heptachlor epoxide | Methoxychlor | Toxaphene | Tokuthion | Azinphos-methyl | Bolstar | Bromophos-ethyl | Carbophenothion | Chlorfenvinphos | Chlorpyrifos |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 2 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.5 | 0.2 | 0.05 | 0.2 | 0.05 | 0.05 | 0.05 | 0.05 |

| Lab Report | Sample ID | Sampled Date | | | | | | | | | | | | | | | | | | |
|------------|------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|------|-------|-------|-------|
| ES2116353 | WSP_SP09_1 | 30 Apr 2021 | <5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | - | <0.25 | - | <0.25 | <0.25 | <0.25 |
| | QA04 | 30 Apr 2021 | <5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | - | - | <0.25 | - | <0.25 | <0.25 | <0.25 |
| | RPD% | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 792474 | QA04A | 30 Apr 2021 | <2 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.2 | <0.1 | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 |
| | RPD% | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | |
| ES2326330 | WSP_SP49_5 | 07 Aug 2023 | <5 | <0.15 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | - | - | <0.25 | - | <0.25 | <0.25 | <0.25 |
| | QA13 | 07 Aug 2023 | <5 | <0.15 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | - | - | <0.25 | - | <0.25 | <0.25 | <0.25 |
| | RPD% | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1014415 | QA13A | 07 Aug 2023 | 3.8 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 |
| | RPD% | | 41% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | |
| ES2328614 | WSP_SP52_1 | 23 Aug 2023 | 5 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | - | - | <0.25 | - | <0.25 | <0.25 | <0.25 |
| | QA14 | 23 Aug 2023 | <5 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | - | - | <0.25 | - | <0.25 | <0.25 | <0.25 |
| | RPD% | | 67% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1019282 | QA14A | 23 Aug 2023 | 2.9 | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <10 | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 |
| | RPD% | | 53% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | |
| ES2338800 | WSP_SP66_2 | 09 Nov 2023 | <5 | <0.15 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0 | - | - | <0.25 | - | <0.25 | <0.25 | <0.25 |
| | QA21A | 09 Nov 2023 | 3.4 | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <10 | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 |
| | RPD% | | 21% | - | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | - | - | - | - | - | - | - |

RPDs have only been considered where a concentration is greater than 1 times the LOR.
Acceptable RPDs for each LOR multiplier range are: 100 (<10 x LOR); 50 (>10 x LOR)

Import Material RPD Summary Table

| | Organophosphorous Pesticides | | | | | | | | | | | | | | | | | | | |
|-----|------------------------------|---------------------|-----------|-----------|-----------|----------|------------|------------|------------|-------|--------|----------|------------|--------------|--------------|----------|-----------|---------|------------------|-----------|
| | Arsenic | Chlorpyrifos-methyl | Coumaphos | Demeton-o | Demeton-S | Diazinon | Dichlorvos | Dimethoate | Disulfoton | EPN | Ethion | Ethoprop | Fenamiphos | Fenitrothion | Fensulfotion | Fenthion | Malathion | Merphos | Parathion-methyl | Mevinphos |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 2 | 0.05 | 2 | 0.2 | 0.2 | 0.05 | 0.05 | 0.05 | 0.2 | 0.2 | 0.05 | 0.2 | 0.05 | 0.2 | 0.2 | 0.05 | 0.05 | 0.2 | 0.2 | 0.2 |

| Lab Report | Sample ID | Sampled Date | | | | | | | | | | | | | | | | | | |
|------------|------------|--------------|-----|-------|----|------|------|-------|-------|-------|------|------|-------|------|-------|------|------|-------|-------|------|
| ES2116353 | WSP_SP09_1 | 30 Apr 2021 | <5 | <0.25 | - | - | - | <0.25 | <0.25 | <0.25 | - | - | <0.25 | - | <0.25 | - | - | <0.25 | <0.25 | - |
| | QA04 | 30 Apr 2021 | <5 | <0.25 | - | - | - | <0.25 | <0.25 | <0.25 | - | - | <0.25 | - | <0.25 | - | - | <0.25 | <0.25 | - |
| | RPD% | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 792474 | QA04A | 30 Apr 2021 | <2 | <0.2 | <2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| | RPD% | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | |
| ES2326330 | WSP_SP49_5 | 07 Aug 2023 | <5 | <0.25 | - | - | - | <0.25 | <0.25 | <0.25 | - | - | <0.25 | - | <0.25 | - | - | <0.25 | <0.25 | - |
| | QA13 | 07 Aug 2023 | <5 | <0.25 | - | - | - | <0.25 | <0.25 | <0.25 | - | - | <0.25 | - | <0.25 | - | - | <0.25 | <0.25 | - |
| | RPD% | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1014415 | QA13A | 07 Aug 2023 | 3.8 | <0.2 | <2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| | RPD% | | 41% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | |
| ES2328614 | WSP_SP52_1 | 23 Aug 2023 | 5 | <0.25 | - | - | - | <0.25 | <0.25 | <0.25 | - | - | <0.25 | - | <0.25 | - | - | <0.25 | <0.25 | - |
| | QA14 | 23 Aug 2023 | <5 | <0.25 | - | - | - | <0.25 | <0.25 | <0.25 | - | - | <0.25 | - | <0.25 | - | - | <0.25 | <0.25 | - |
| | RPD% | | 67% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1019282 | QA14A | 23 Aug 2023 | 2.9 | <0.5 | <5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | RPD% | | 53% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | |
| ES2338800 | WSP_SP66_2 | 09 Nov 2023 | <5 | <0.25 | - | - | - | <0.25 | <0.25 | <0.25 | - | - | <0.25 | - | <0.25 | - | - | <0.25 | <0.25 | - |
| | QA21A | 09 Nov 2023 | 3.4 | <0.5 | <5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | RPD% | | 21% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

RPDs have only been considered where a concentration is greater than 1 times the LOR.
Acceptable RPDs for each LOR multiplier range are: 100 (<10 x LOR); 50 (>10 x LOR)

Import Material RPD Summary Table

| | | | | | | | | | | | | | | Pesticides-Others | | | Halogenated Benzenes |
|-----|---------|---------------|----------------|-----------|-----------|---------|----------------|------------|------------|--------|----------|-------------------|---------------|-------------------|------------------|---------------------------------|----------------------|
| | Arsenic | Monocrotophos | Naled (Dibrom) | Onethoate | Parathion | Phorate | Primphos-ethyl | Prothiofos | Pyrazophos | Ronnel | Terbufos | Tetrachlorvinphos | Trichloronate | Demeton-s-methyl | Priniphos-methyl | PCB (Sum of Total-Lab Reported) | Hexachlorobenzene |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 2 | 0.2 | 0.2 | 2 | 0.2 | 0.2 | 0.05 | 0.05 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.05 | 0.2 | 0.1 | 0.05 |

| Lab Report | Sample ID | Sampled Date | | | | | | | | | | | | | | | | | |
|------------|------------|--------------|-----|------|------|----|------|------|-------|-------|------|------|------|------|------|-------|------|------|-------|
| ES2116353 | WSP_SP09_1 | 30 Apr 2021 | <5 | <1.0 | - | - | <1.0 | - | <0.25 | <0.25 | - | - | - | - | - | <0.05 | - | <0.1 | <0.05 |
| | QA04 | 30 Apr 2021 | <5 | <1.0 | - | - | <1.0 | - | <0.25 | <0.25 | - | - | - | - | - | <0.05 | - | <0.1 | <0.05 |
| | RPD% | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 792474 | QA04A | 30 Apr 2021 | <2 | <2 | <0.2 | <2 | <0.2 | <0.2 | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.5 | <0.05 |
| | RPD% | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | |
| ES2326330 | WSP_SP49_5 | 07 Aug 2023 | <5 | <1.0 | - | - | <1.0 | - | <0.25 | <0.25 | - | - | - | - | - | <0.25 | - | <0.2 | <0.25 |
| | QA13 | 07 Aug 2023 | <5 | <1.0 | - | - | <1.0 | - | <0.25 | <0.25 | - | - | - | - | - | <0.25 | - | <0.2 | <0.25 |
| | RPD% | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1014415 | QA13A | 07 Aug 2023 | 3.8 | <2 | <0.2 | <2 | <0.2 | <0.2 | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.1 | <0.05 |
| | RPD% | | 41% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | |
| ES2328614 | WSP_SP52_1 | 23 Aug 2023 | 5 | <1.0 | - | - | <1.0 | - | <0.25 | <0.25 | - | - | - | - | - | <0.25 | - | <0.2 | <0.25 |
| | QA14 | 23 Aug 2023 | <5 | <1.0 | - | - | <1.0 | - | <0.25 | <0.25 | - | - | - | - | - | <0.25 | - | <0.2 | <0.25 |
| | RPD% | | 67% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1019282 | QA14A | 23 Aug 2023 | 2.9 | <5 | <0.5 | <5 | <0.5 | <0.5 | - | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.5 | <1 | <0.5 |
| | RPD% | | 53% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | |
| ES2338800 | WSP_SP66_2 | 09 Nov 2023 | <5 | <1.0 | - | - | <1.0 | - | <0.25 | <0.25 | - | - | - | - | - | <0.25 | - | <0.2 | <0.25 |
| 1042652 | QA21A | 09 Nov 2023 | 3.4 | <5 | <0.5 | <5 | <0.5 | <0.5 | - | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.5 | <1 | <0.5 |
| RPD% | | | 21% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0% | 0% |

RPDs have only been considered where a concentration is greater than 1 times the LOR.
Acceptable RPDs for each LOR multiplier range are: 100 (<10 x LOR); 50 (>10 x LOR)

Import Material Trip Spike and Trip Blank Results

| | BTEX | | | | | | | | TPH | TRH | |
|-----|-------------------|---------|---------|--------------|----------------|------------|--------------|------------|----------------|----------------------|------------------------|
| | Naphthalene (VOC) | Benzene | Toluene | Ethylbenzene | Xylene (m & p) | Xylene (o) | Xylene Total | Total BTEX | C6-C9 Fraction | C6-C10 Fraction (F1) | C6-C10 (F1 minus BTEX) |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 1 | 0.2 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.2 | 10 | 10 | 10 |

| Lab report | Sample ID | Sample type | Date | | | | | | | | | | | |
|------------|---------------|-------------|-------------|----|------|------|------|------|------|------|------|------|-----|------|
| ES2221341 | Trip Blank | Trip blank | 17 Jun 2022 | <1 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <10 | <10 | <10 |
| ES2232882 | Trip Blank_7 | Trip blank | 13 Sep 2022 | <1 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <10 | <10 | <10 |
| | Trip Spike_7 | Trip spike | | - | - | 120% | 123% | 118% | 118% | 118% | 120% | - | - | - |
| ES2308131 | Trip Blank_11 | Trip blank | 13 Mar 2023 | <1 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <10 | <10 | <10 |
| | Trip Spike_11 | Trip spike | | - | - | 94% | 94% | 96% | 95% | 96% | 95% | 100% | 98% | 100% |
| ES2310673 | Trip Blank_12 | Trip blank | 30 Mar 2023 | <1 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <10 | <10 | <10 |
| | Trip Spike_12 | Trip spike | | - | - | 96% | 100% | 98% | 100% | 98% | 98% | 93% | 93% | 91% |
| ES2315369 | Trip Blank_14 | Trip blank | 09 May 2023 | <1 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <10 | <10 | <10 |
| | Trip Spike_14 | Trip spike | | - | - | 82% | 83% | 82% | 80% | 81% | 82% | - | - | - |
| ES2317008 | Trip Blank_15 | Trip blank | 22 May 2023 | <1 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <10 | <10 | <10 |
| | Trip Spike_15 | Trip spike | | - | - | 92% | 95% | 96% | 96% | 96% | 95% | - | - | - |

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