Butler Partners
geotechnical • geo-environmental • groundwater

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Project No. 019-113A

17 February 2021

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL
Approval no: DEV2020/1147
Date: 18-Feb-2021

Queensland Government

Rosenlund Contractors Pty Ltd
PO Box 169
Virginia Qld 4014

Email: **brendan.gray@rosenlund.com.au**

Attention: Mr B Gray

Dear Brendan

RE: TREE CLEARANCE AND WASTE REMOVAL METHODOLOGY- NORTHERN PORTION FORMER YERONGA TAFE 70 PARK ROAD, YERONGA

1.0 INTRODUCTION

It is understood that as part of the planning process for the remedial works being undertaken at the Former Yeronga TAFE site, both Rosenlund Contractors Pty Ltd (Rosenlund) and the site owners, Economic Development Queensland (EDQ), require assessment of a number of trees and vegetation that are potentially required to be removed in order to safely manage demolition waste fill material. The location of the site is presented in the attached Smart Map (Drawing No. 1 Rev A).

Butler Partners Pty Ltd (Butler Partners) initially undertook an investigation of the material beneath the slabs of the former buildings across the site in March 2019 by the excavation of thirty-nine test pits. The initial building slab investigation locations are presented in Drawing No. 2 Rev C. The investigation found that a number of the former building slab areas were underlain by construction and demolition (C&D) waste containing fibro fragments which laboratory analysis confirmed to be Asbestos Containing Materials (ACM). The locations where ACM fragments were initially identified within C&D waste are presented in Drawing No. 2 Rev C.

The majority of the C&D waste with ACM that was identified in previous investigations across the site has been removed, Drawing No. 7 Rev B shows where on the site C&D waste remains in-situ as of February 2021.

2.0 ADDITIONAL INVESTIGATION

During the removal of the C&D waste material across the site it became apparent that the ACM impacted waste extended beyond the footprints of the former buildings. In order to identify the extent of the ACM impacted C&D waste across the site, an additional investigation was undertaken in December 2019 by test pitting within the suspected areas in the northern vegetated portion of the site. The additional and previous investigation locations specific to this tree assessment are presented in the attached Drawing No. 8 Rev C.

As part of the additional investigation a total of nine test pits were excavated within the northern portion of the site where the majority of trees and vegetation in question is also present. The approximate extent of the vegetation/ tree cover and test pit locations is presented in Drawing No. 8 Rev C. C&D Waste was identified within fill materials in six of the nine locations and Asbestos Containing Material (ACM) was present in one test pit (TP-N8), across the area. The depths of the C&D Waste and/or ACM materials ranged from surface level in TP-N1 to as deep as 1.9m in TP-N5. Photographs taken during test pitting on 3 December 2019 are presented in Photograph 1 and Photograph 2.

Although the fill identified in TP-N1, TP-N4, TP-N5, TP-N6 and TP-N9 were not observed to contain ACM, there was C&D waste such as glass, bricks and steel present, indicating the fill to be of the same origin and highly likely to contain ACM and also are considered to not comply with the 'Aesthetic Criteria' outlined in the National Environment Protection (Assessment of Site Contamination) Amendment Measure (NEPM), 2013. The test pit logs of the investigation locations specific to the northern portion of the site have been included.

Photograph 1: An example of C&D Waste (circled in red) found in Test Pit (TP-N5) within the northern vegetated portion of the site. (Image Date: 3 December 2019)

Photograph 2: An example of ACM (circled in red) found in Test Pit (TP-N8) excavated in the northern vegetated portion of the site. (Image Date: 3 December 2019)

A bund currently exists in the north of the site, this bund currently contains trees/vegetation and divides the northern vegetated area and the rest of the site. This bund extends from the far western boundary to the eastern boundary shown in Photograph 3 and Photograph 4. A layer of geofabric can be seen in Photograph 5, this was placed across the bund to separate the C&D waste with ACM (contents of the bund) and the clean fill to the south of the bund at the conclusion of the waste removal works in December 2019.

Given the presence of C&D Waste and ACM that has been observed on the southern side of the bund, this material is required to be removed as part of the development of the site. The vegetation/trees that are growing within this bund require removal and the area is shown on the attached Drawing No. 8 Rev C.

Photograph 3: A view of the northern vegetated portion of the site facing towards the west, with the bund material that contains C&D Waste and ACM pictured in the right of the photograph. (Image Date: 3 July 2019)

Photograph 4: A view facing towards the east during waste removal works, with the bund and northern vegetated portion of the site visible in the left of the photograph. (Image Date: 4 April 2019)

Photograph 5: A panoramic view of the northern portion of the site after the conclusion of filling works, the northern vegetated portion of the site is visible with geofabric placed on the bund material pictured in the top right of the photograph. (Image Date: 9 October 2019)

3.0 TREE SURVEY

Rosenlund has provided a tree survey report to Butler Partners which identified sixty-seven trees within the northern portion of the site, of which thirty-one trees fall within the areas of the site which require management. Table 1 below shows which tree numbers listed in Lambert and Rehbein Pty Ltd (Lambert and Rehbein's) December 2020 Tree Report, requiring removal.

Table 1: Tree identification numbers as listed in Lambert and Rehbein's Tree Report stating the requirement for removal.

Tree ID Number	Scientific Name (species marked with * are exotic species or species from elsewhere in Australia)	Common Name	Significant Vegetation	Retain/Remove
1	*Libidibia ferrea*	Leopard tree	Unlikely	Remove
2	*Corymbia citriodora*	Lemon scented gum	Unlikely	Retain
3	*Libidibia ferrea*	Leopard tree	No	Retain
4	*Corymbia citriodora*	Lemon scented gum	Possibly	Retain
5	*Syzygium luehmannii*	Small leafed Lilly pilly	No	Retain
6	*Corymbia torelliana*	Cadaghi	No	Retain
7	*Corymbia citriodora*	Lemon scented gum	Possibly	Retain
8	*Corymbia tessellaris*	Moreton Bay ash	Unlikely	Retain
9	*Syzygium paniculatum*	Magenta cherry	No	Remove
10	*Waterhousia floribunda*	Weeping Lilly pilly	No	Remove
11	*Waterhousia floribunda*	Weeping Lilly pilly	No	Remove
12	*Syzygium paniculatum*	Magenta cherry	No	Remove
13	*Waterhousia floribunda*	Weeping Lilly pilly	No	Remove
14	*Syzygium paniculatum*	Magenta cherry	No	Remove
15	*Syzygium paniculatum*	Magenta cherry	No	Remove
16	*Grevillea robusta*	Silky oak	No	Remove
17	*Syzygium paniculatum*	Magenta cherry	No	Remove
18	*Syzygium paniculatum*	Magenta cherry	No	Remove
19	*Ficus benjamina*	Weeping fig	Possibly	Remove
20	*Ficus obliqua*	Small leaf fig	No	Remove
21	*Ficus benjamina*	Weeping fig	Unlikely	Remove
22	*Koelreuteria elegans*	Golden rain tree	No	Remove
23	*Koelreuteria elegans*	Golden rain tree	No	Remove
24	*Cassia spp*	Cassia tree	No	Remove
25	*Libidibia ferrea*	Leopard tree	No	Remove
26	*Koelreuteria elegans*	Golden rain tree	No	Remove
27	*Grevillea robusta*	Silky oak	Possibly	Remove
28	*Syzygium paniculatum*	Magenta cherry	No	Remove
29	*Eucalyptus grandis*	Flooded gum	Unlikely	Remove
30	*Mixed species*	Golden cane, Chinese Elm, Cocus Palm	No	Remove
31	*Jacaranda mimosaefolia*	Jacaranda	Unlikely	Retain
32	*Jacaranda mimosaefolia*	Jacaranda	Unlikely	Retain
33	*Roystonea regia*	Royal Cuban palm	No	Remove
34	*Tipuana tipu*	Pride of Bolivia	Unlikely	Retain, within rail reserve
35	*Tipuana tipu*	Pride of Bolivia	Unlikely	Retain, within rail reserve
36	*Lophostemon suaveolens*	Swamp brush box	Unlikely	Retain, within rail reserve
37	*Tipuana tipu*	Pride of Bolivia	Unlikely	Retain, within rail reserve
38	*Alphitonia excelsa*	Soapy / Red ash	No	Retain, within

Tree ID Number	Scientific Name (species marked with * are exotic species or species from elsewhere in Australia)	Common Name	Significant Vegetation	Retain/Remove
				rail reserve
39	*Tipuana tipu*	Pride of Bolivia	No	Retain
40	*Tipuana tipu*	Pride of Bolivia	No	Retain
41	*Tipuana tipu*	Pride of Bolivia	Unlikely	Retain
42	*Tipuana tipu*	Pride of Bolivia	Unlikely	Retain
43	*Tipuana tipu*	Pride of Bolivia	Possibly	Retain
44	*Tipuana tipu*	Pride of Bolivia	Possibly	Retain
45	*Tipuana tipu*	Pride of Bolivia	Possibly	Retain
46	*Tipuana tipu*	Pride of Bolivia	Possibly	Retain
47	*Tipuana tipu*	Pride of Bolivia	Possibly	Retain
48	*Tipuana tipu*	Pride of Bolivia	Possibly	Retain
49	*Tipuana tipu*	Pride of Bolivia	Possibly	Retain
50	*Tipuana tipu*	Pride of Bolivia	Possibly	Retain
51	*Celtis sinensis*	Chinese elm	No	Remove
52	*Tipuana tipu* *Celtis sinensis*	Pride of Bolivia & Chinese elm	No	Remove
53	*Tipuana tipu*	Pride of Bolivia	No	Remove
54	*Xanthostemon chrysanthus*	Golden penda	No	Remove
55	*Xanthostemon chrysanthus*	Golden penda	No	Remove
56	*Acacia leiocalyx*	Black wattle	No	Remove
57	*Acacia leiocalyx*	Black wattle	No	Retain
58	*Syzygium paniculatum*	Magenta cherry	No	Remove
59	*Ficus benghalensis*	Banyan fig	Possibly	Retain
60	*Ficus benghalensis*	Banyan fig	Possibly	Retain
61	*Libidibia ferrea*	Leopard tree	Unlikely	Retain
62	*Castanospermum australe*	Black bean	Unlikely	Retain
63	*Araucaria columnaris*	Cook pine tree	Unlikely	Retain
64	*Ficus benjamina*	Weeping fig	Unlikely	Retain
65	*Ficus benghalensis*	Banyan fig	Possibly	Retain
66	*Ficus benghalensis*	Banyan fig	Possibly	Retain
67	*Araucaria columnaris*	Cook pine tree	No	Retain

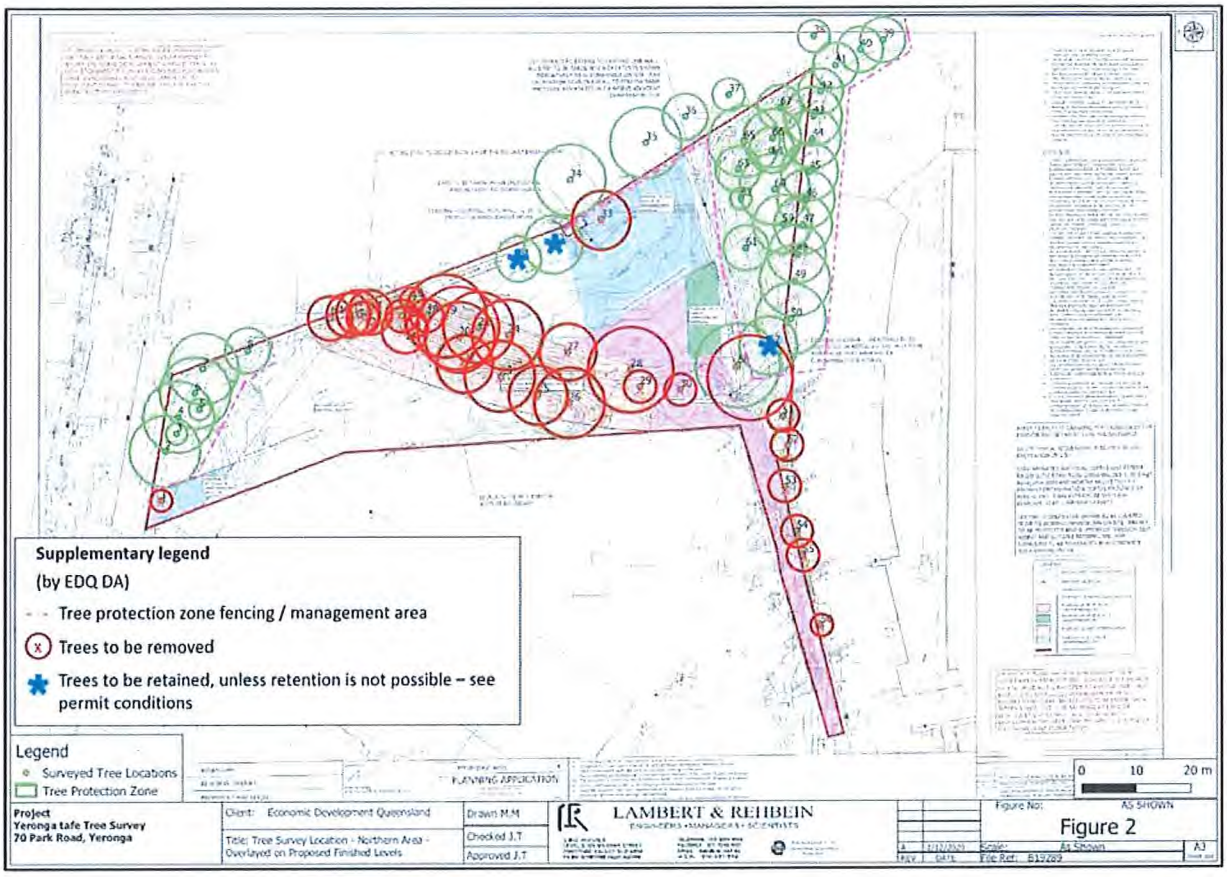


Figure 1: Lambert and Rehbein's Tree Survey Location- Northern Area- Overlayed on Proposed Finished Levels

The details of the Tree Survey letter report are as follows:

> *Yeronga TAFE Vegetation Survey*
> *Lambert & Rehbein Pty Ltd*
> Dated: 4 December 2020

Please be aware that the trees identified to be removed in Table 1 are based off Figure 1 (Lambert and Rehbein's Tree Survey Location Drawing, dated 1 December 2020) provided to Butler Partners by Rosenlund. If development is to extend outside of the areas shaded on Drawing No. 8 Rev C further tree removal may be necessary given the extent of the waste material through the northern portion of the site.

It is noted that Drawing No. 8 Rev C is based on the Protest bulk earthworks design Drawing Number PTP/03196/EWF05, dated 21 December 2020.

4.0 REMEDIATION METHODOLOGY

Prior to the required excavation of the ACM impacted C&D waste across the areas identified in Drawing No. 8 Rev C the trees should be safely cut back to approximate ground level. The resulting three branches and trunks may be reused by the way of mulching or other reuse. The tree root 'balls' and surrounding soils should be disposed of to landfill as they are within soils that have been identified to contain ACM.

Excavation of the ACM impacted C&D fill materials shall occur to the depths identified within the attached Test Pit Report sheets, generally to the underlying natural soils or where fill materials visually free of both C&D waste and ACM are encountered. A two metre exclusion zone exists from the Queensland Railway boundary, the approximate exclusion zone is presented in Drawing No. 8 Rev C. All remediation works shall be supervised by a suitably qualified environmental engineer/scientist in order to ensure the works are completed to an appropriate standard and also to guide the final excavation depths. Boundary asbestos air monitoring and standard dust suppression techniques shall be undertaken during the works to ensure the safety of staff and surrounding site users. Appropriate PPE shall also be worn by those in the immediate vicinity of the works.

5.0 VALIDATION

Upon the removal of the ACM impacted C&D waste across the identified areas, a visual inspection shall be undertaken by a member of Butler Partners staff by walking the area in 5m wide sections to confirm the successful removal of ACM. Sampling shall then be undertaken across the area by the collection of one sample per every 10m x 10m section of excavated area.

Samples shall be submitted to a NATA accredited laboratory for Asbestos Presence/Absence.

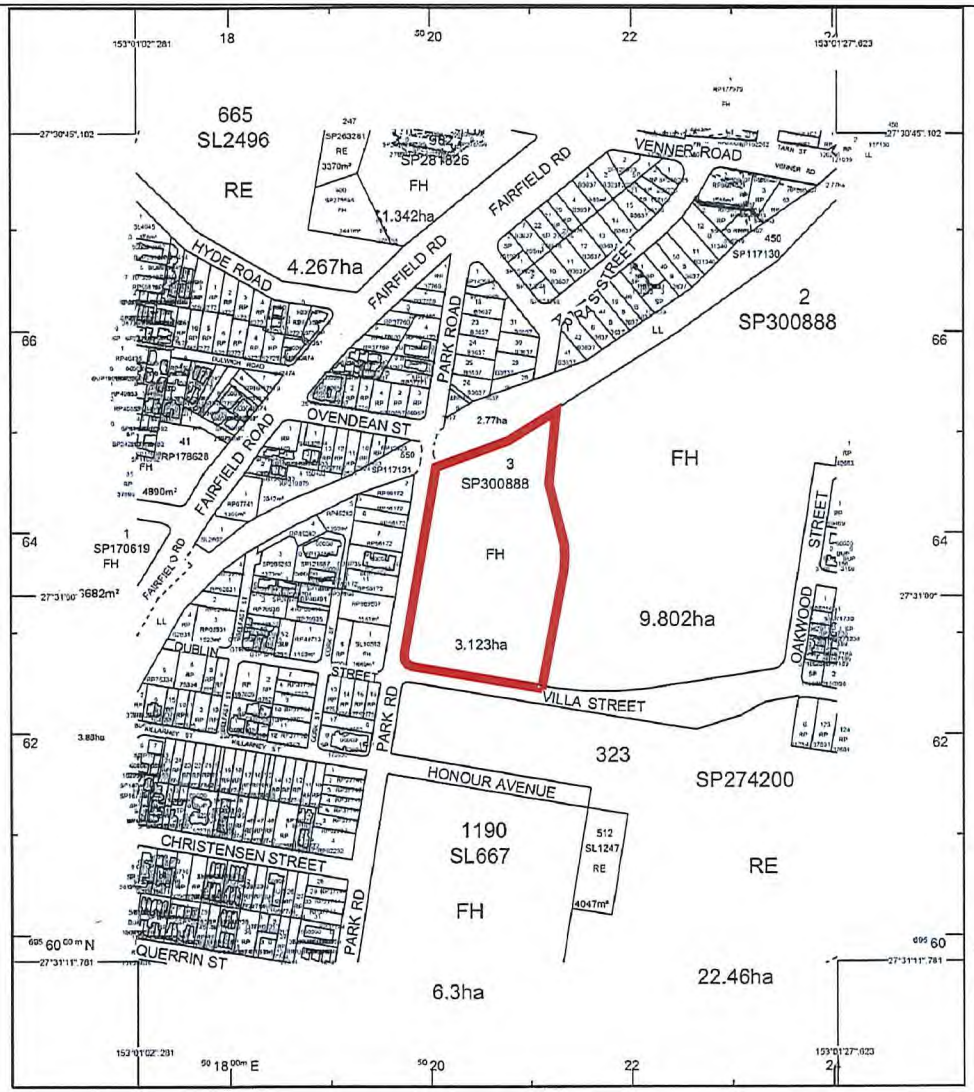
Yours faithfully
BUTLER PARTNERS PTY LTD

RICHARD PEARCE
Environmental Scientist

MICHAEL MELLES
Senior Environmental Engineer

Reviewed by:
SUZANNE WALKER
Principal

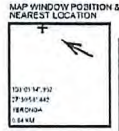
Attachments: *Drawing No. 1 Rev A, Drawing No. 2 Rev. C, Drawing No. 7 Rev B, Drawing No. 8 Rev. C, Test Pit Report Sheets and Explanatory notes.*



STANDARD MAP NUMBER
9542-44442

0 100 200 300 400 500 m
HORIZONTAL DATUM:GDA94 ZONE:56 SCALE 1 : 5000

MAP WINDOW POSITION & NEAREST LOCATION



SUBJECT PARCEL DESCRIPTION

DCDB	
Lot/Plan	3/SP300888
Area/Volume	3.123ha
Tenure	FREEHOLD
Local Government	BRISBANE CITY
Locality	YERONGA
Segment/Parcel	1270 1/51

CLIENT SERVICE STANDARDS

PRINTED (dd/mm/yyyy) 09/04/2019

DCDB 08/04/2019

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GDA

LEGEND

Site Boundary

Reference: Queensland Government DNR&M's 'SmartMap', dated 08.04.2019.

File Location: Z:\Projects\2019Series\019-113A Yeronga, 70 Park Road\Drawings\Environmental_DECEMBER 2019\019-113A Dwg1 RevA Smart Map Dec2019.dwg

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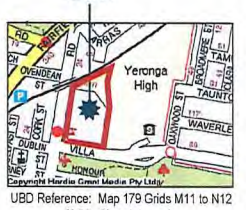
Site



UBD Reference: Map 179 Grids M11 to N12 (ACS,v8) not to scale

Former Yeronga TAFE Investigation and Remediation

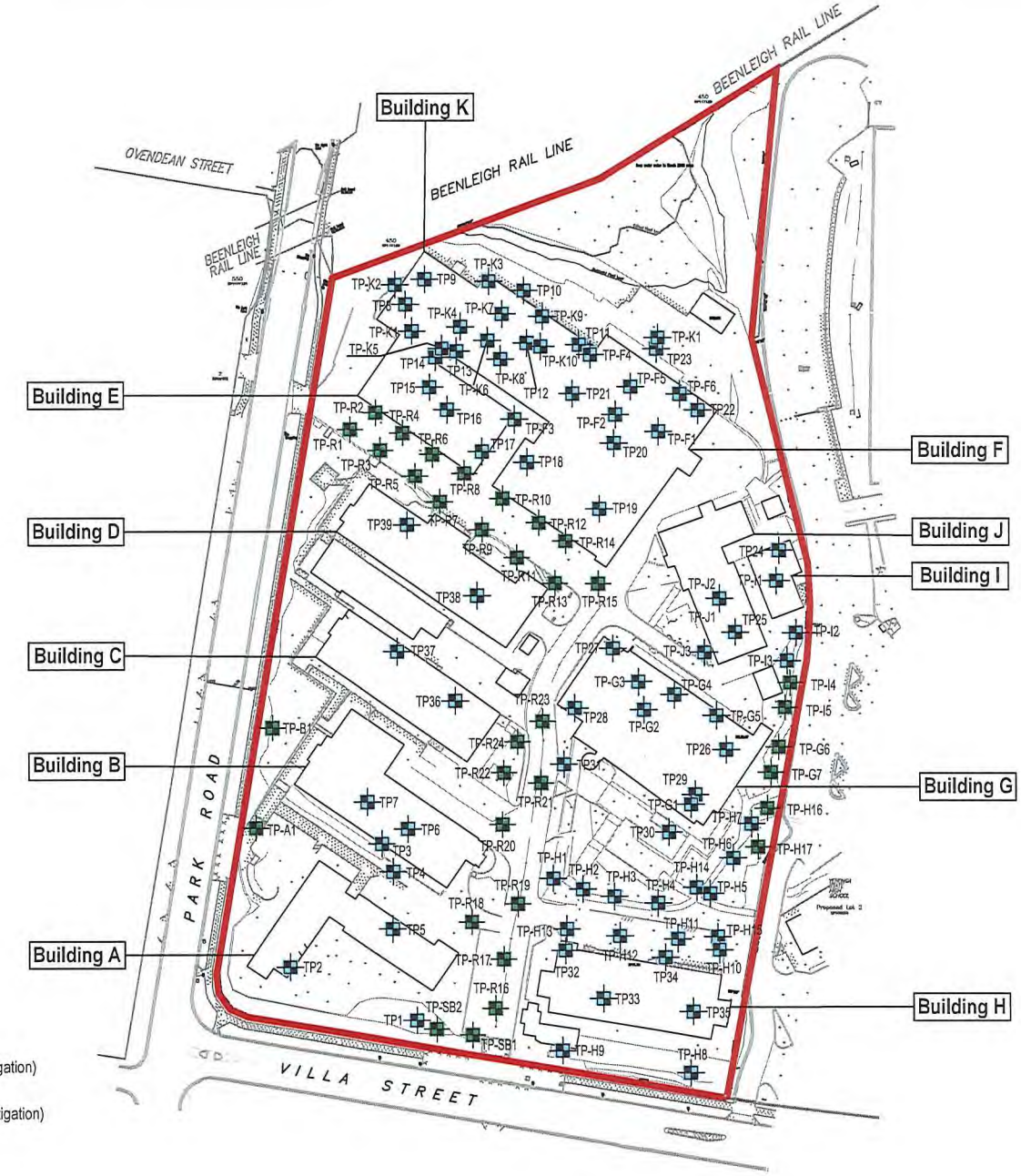
70 Park Road, Yeronga

Site Locality Plan

CLIENT: Rosenlund Contracting Pty Ltd

SCALE AT A3:
AS SHOWN

DATE:	DECEMBER 2019
DRAWN:	LA
APPROVED:	
PROJECT No:	019-113A
DRAWING No: 1	REV: A



LEGEND

- TP1 — Test Pit (Mar - Apr 2019 Investigation)
- TP-A1 — Test Pit (Nov - Dec 2019 Investigation)
- Site Boundary

Reference: RPS Australia Asia Pacific, 'Contour and Utility Investigative Survey, Yeronga TAFE', Drawing No. 139204DET_1_B, dated 23.04.2018, received 05.04.2019.

File Location: Z:\Projects\2019Series\019-113A Yeronga, 70 Park Road\Drawings\Environmental_DECEMBER 2019\019-113A Dwg2 RevC_Dec2019.dwg

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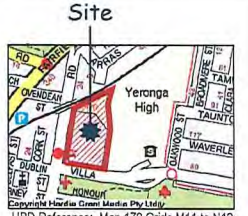


UBD Reference: Map 179 Grids M11 to N12 (ACS,v8) not to scale

Former Yeronga TAFE Investigation and Removal of Waste Material Beneath Building Footprints

70 Park Road, Yeronga

Investigation Locations

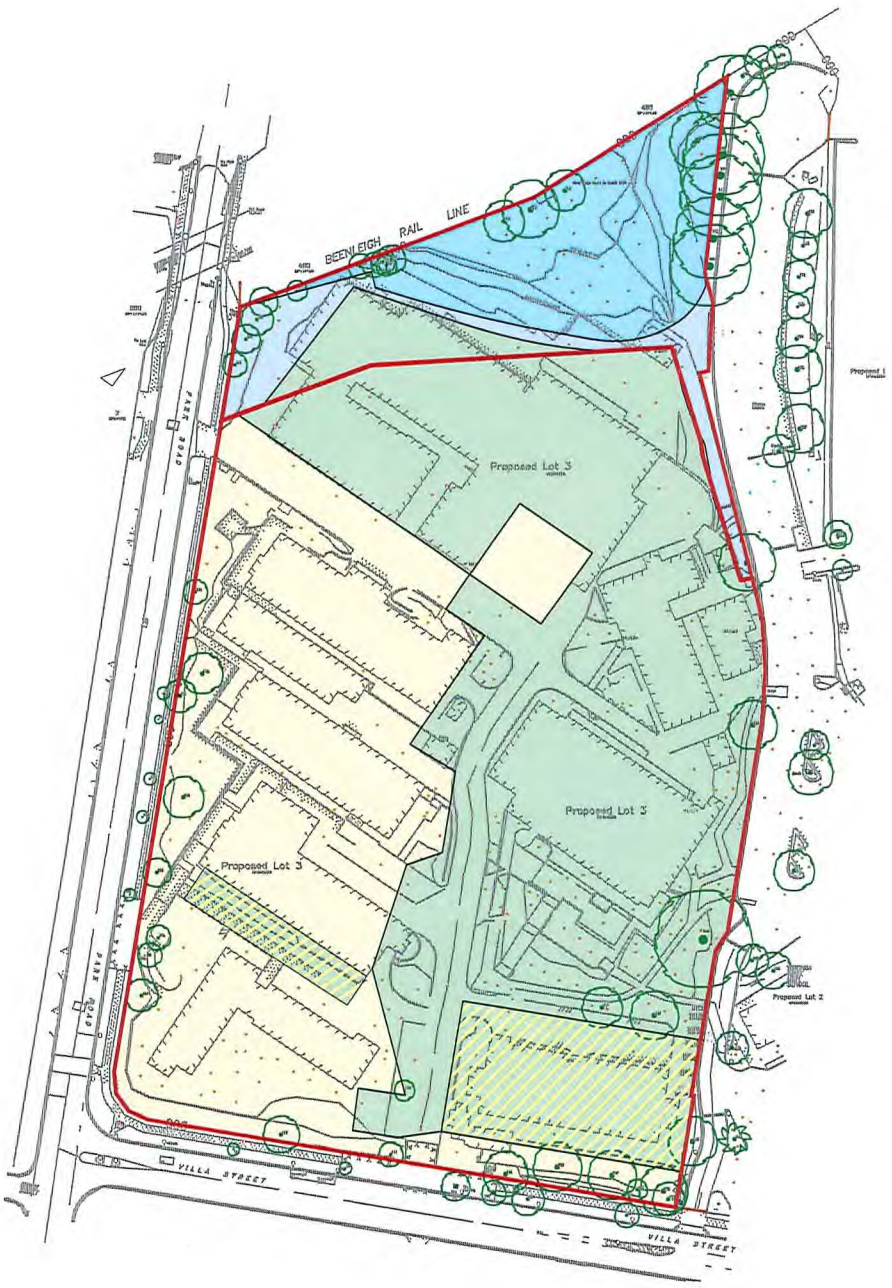
CLIENT: Rosenlund Contracting Pty Ltd

SCALE AT A3:

0 10 20 30 40 50m

1:1250

DATE:	DECEMBER 2019
DRAWN:	LA
APPROVED:	
PROJECT No:	019-113A
DRAWING No:	2 REV: C



LEGEND

- Waste Material Contaning ACM Remains In-Situ.
- Requires Further Investigation
- Waste Material Contaning ACM Has Been Removed Uncontrolled Fill Remains In-Situ.
- Clean Validated
- Uncontrolled Fill Remains In-Situ.

Reference: RPS's 'Countour and Utility Investigation Survey', Drawing No PR 139204 1 B, dated 23.04.2018

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Former Yeronga TAFE
Investigation and Removal of Waste Material Beneath Building Footprints

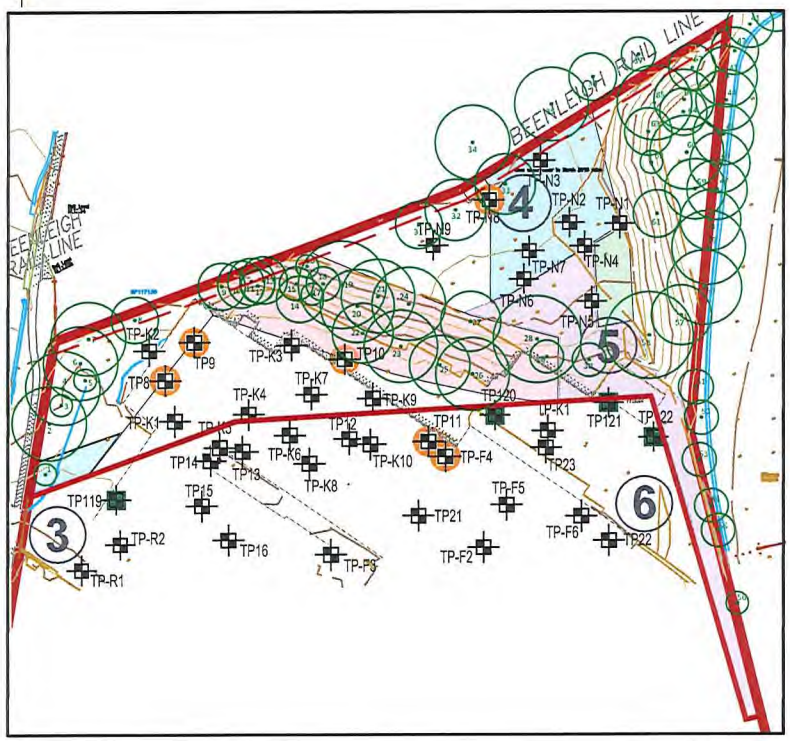
70 Park Road, Yeronga

Waste Removal Areas

CLIENT: Rosenlund Contracting Pty Ltd

SCALE AT A3:
0 25 50m
1:1250

DATE:	FEBRUARY 2019
DRAWN:	LA
APPROVED:	
PROJECT No:	019-113A
DRAWING No: 7	REV: B



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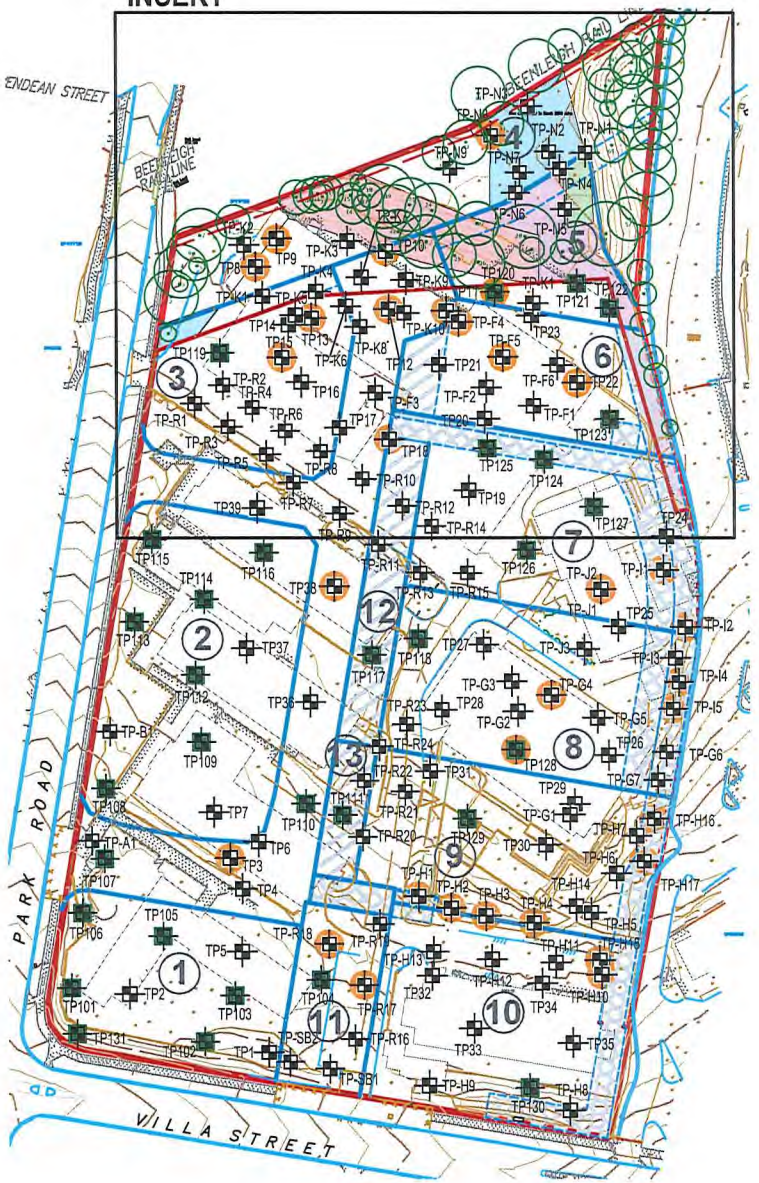

INSERT

LEGEND

- **TP-N1** Test Pit (Previous Investigation)
- **TP101** Test Pit (Current Investigation 2020)
- **TP104** ACM Identified in Test Pit
- Site Boundary
- Future Lot Subdivision
- No Work within 2m Setbak from Railway Embackment
- Tree
- Removal Up to 2m of Construction and Demolition Waste with Asbestos Containing Material
- Removal Up to 1.8m of Construction and Demolition Waste with Asbestos Containing Material
- Removal Up to 2m of Construction and Demolition Waste with Contaminated Bund
- Removal of 0.7-1.2m of Construction and Demolition Waste with Asbestos Containing Material

Reference: RPS Australia Asia Pacific, 'Contour and Utility Investigative Survey, Yeronga TAFE', Drawing No. 139204DET_1_B, dated 23.04.2018, received 05.04.2019.

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Former Yeronga TAFE
Investigation and Removal of Waste Material Beneath Building Footprints
70 Park Road, Yeronga

WasteRemoval and Tree Clearance Plan - Northern Portion

CLIENT: **Rosenland Contracting Pty Ltd**

SCALE AT A3:
0 10 20 30 40 50m
1:1250

DATE:	FEBRUARY 2021
DRAWN:	LA
APPROVED:	
PROJECT No:	019-113A
DRAWING No: 8	REV: C

ENVIRONMENTAL TEST PIT REPORT

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TEST PIT K1

Client: Rosenlund Contractors Pty Lty
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 9 April 2019
Ground Surface Level: RL10.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		10.0					
	FILL - red, orange and brown, silty clay with cobbles						
	- dark brown, silty clay with cobblesand bricks						
	- fine to medium grained, with tree roots						
	SILTY CLAY - grey-brown, with tree roots						
	End of Test Pit at 0.8 m						
1		9.0					
2		8.0					
3		7.0					
4		6.0					

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 8T Caterpillar Excavator **Bucket Size:** 1000mm **Logged By:** RP

Groundwater: No free groundwater encounted during excavation

Remarks: *Ground surface level are approximate, based off BCC's 2014 City Plan Contours Map

ENVIRONMENTAL TEST PIT REPORT

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TEST PIT K2

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 9 April 2019
Ground Surface Level: RL10.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		10.0					
	FILL - red, orange and brown, silty clay with cobbles and bricks						
1	***SILTY CLAY (CH)*** - grey-brown	9.0					
	TUFF/SANDSTONE						
	End of Test Pit at 1.3 m						
2		8.0					
3		7.0					
4		6.0					

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 8T Caterpillar Excavator **Bucket Size:** 1000mm **Logged By:** RP

Groundwater: No free groundwater encounted during excavation

Remarks: *Ground surface level are approximate, based off BCC's 2014 City Plan Contours Map

ENVIRONMENTAL TEST PIT REPORT

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TEST PIT K3

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 9 April 2019
Ground Surface Level: RL10.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		10.0					
	FILL - red, orange and brown, silty clay with cobbles and bricks						
1		9.0					
	- dark brown, silty clay with plastic and bricks						
2		8.0					
	- dark grey, silty clay with cobble (reworked natural)						
	End of Test Pit at 2.6 m						
3		7.0					
4		6.0					

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 8T Caterpillar Excavator **Bucket Size:** 1000mm **Logged By:** RP

Groundwater: No free groundwater encounted during excavation

Remarks: *Ground surface level are approximate, based off BCC's 2014 City Plan Contours Map

ENVIRONMENTAL TEST PIT REPORT

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Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

TEST PIT K4

Page No: 1 of 1
Date: 9 April 2019
Ground Surface Level: RL10.5m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		10.5					
	FILL - red, orange and brown, silty clay with cobbles						
	- dark brown	10.0					
	- fine to medium gravel						
1	***SILTY CLAY (CH)*** - grey mottled orange						
	End of Test Pit at 1.4 m	9.0					
2		8.0					
3		7.0					
4							

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 8T Caterpillar Excavator **Bucket Size:** 1000mm **Logged By:** RP

Groundwater: No free groundwater encounted during excavation

Remarks: *Ground surface level are approximate, based off BCC's 2014 City Plan Contours Map

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TEST PIT K7

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 9 April 2019
Ground Surface Level: RL10.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		10.0					
	FILL - orange-brown, silty clay with cobbles - yellow-brown - bricks and cobbles						
1	- dark grey-brown, gravelly clay with cobbles, tiles and bricks	9.0					
2	***SILTY CLAY (CH)*** - grey mottled orange	8.0					
	End of Test Pit at 2.65 m						
3		7.0					
4		6.0					

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 8T Caterpillar Excavator **Bucket Size:** 1000mm **Logged By:** RP

Groundwater: No free groundwater encounted during excavation

Remarks: *Ground surface level are approximate, based off BCC's 2014 City Plan Contours Map

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TEST PIT K9

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 9 April 2019
Ground Surface Level: RL10.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		10.0					
	FILL - orange-brown, silty clay with cobbles						
	- yellow-brown, with bricks						
	- grey-brown, with bricks						
1		9.0					
2		8.0					
	- grey mottled orange, silty clay with bricks (reworked natural)						
3		7.0					
	SILTY CLAY - grey mottled orange						
	End of Test Pit at 3.3 m						
4		6.0					

D Disturbed Sample (ASS) **B** Bulk Sample **E** Environmental Sample **A** Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 8T Caterpillar Excavator **Bucket Size:** 1000mm **Logged By:** RP

Groundwater: No free groundwater, but pereched water at 2.1m depth encounted during excavation

Remarks: *Ground surface level are approximate, based off BCC's 2014 City Plan Contours Map

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TEST PIT N1

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

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Date: 3 December 2019
Ground Surface Level: RL8m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		8.0					
	FILL - grey-brown, gravelly sand, with bricks, fibro fragments, and fine to medium gravel			A	0.1 0.2	TPN1-1	
1	- orange-brown, with bricks, fine to medium gravel	7.0					
2	***SANDSTONE*** - orange-brown and white	6.0					
	End of Test Pit at 2 m						
3		5.0					
4		4.0					

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 5T Volvo **Bucket Size:** 450mm **Logged By:** RP **Hand Held GPS Coordinates:** **E:** 0502109
Groundwater: No free groundwater encounted during excavation **N:** 6956488
Remarks: *Approximate ground surface level interpolated from

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TEST PIT N2

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 3 December 2019
Ground Surface Level: RL7.5m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		7.5					
	FILL - grey-brown, silty sand			A	0.0	TPN2-1	
	- grey				0.1		
	SANDY CLAY - orange-brown and white	7.0					
	End of Test Pit at 0.7 m						
1		6.0					
2		5.0					
3		4.0					
4							

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 5T Volvo **Bucket Size:** 450mm **Logged By:** RP **Hand Held GPS Coordinates:** E: 0502100
Groundwater: No free groundwater encounted during excavation N: 6956503
Remarks: *Approximate ground surface level interpolated from

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TEST PIT N3

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 3 December 2019
Ground Surface Level: RL6.5m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		6.5					
	FILL - dark brown, silty sand, with rootlets			A	0.0 – 0.1	TPN3-1	
	- orange-brown, sandy clay	6.0					
1	***SANDY CLAY*** - grey-brown (moist)	5.0					
2	End of Test Pit at 1.9 m						
3		4.0					
		3.0					
4							

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 5T Volvo **Bucket Size:** 450mm **Logged By:** RP **Hand Held GPS Coordinates:** **E:** 0502095
Groundwater: Free groundwater encounted at 0.7m during excavation **N:** 6956499
Remarks: *Approximate ground surface level interpolated from

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TEST PIT N4

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 3 December 2019
Ground Surface Level: RL7.5m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		7.5					
	FILL - orange-brown, silty sand, with bricks, clay pipe, plastic and tiles			A	0.0 0.1	TPN4-1	
		7.0		A	0.6 0.7	TPN4-2	
1				A	1.2 1.3	TPN4-3	
		6.0					
	SILTY CLAY - grey			A	1.8 1.9	TPN4-4	
2	End of Test Pit at 2.1 m						
		5.0					
3							
		4.0					
4							

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 5T Volvo **Bucket Size:** 450mm **Logged By:** RP **Hand Held GPS Coordinates:** **E:** 0502103
Groundwater: No free groundwater encounted during excavation **N:** 6956487
Remarks: *Approximate ground surface level interpolated from

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TEST PIT N5

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

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Date: 3 December 2019
Ground Surface Level: RL7.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		7.0					
	FILL - grey-brown, sandy clay, with bricks, possible ACM pipe fragments, plastic, tiles and concrete			A	0.0 0.1	TPN5-1	
				A	0.8 0.9	TPN5-2	
1		6.0					
				A	1.5 1.6	TPN5-3	
2	***SILTY SANDY CLAY*** - grey-brown	5.0					
	End of Test Pit at 2.3 m						
3		4.0					
4		3.0					

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 5T Volvo **Bucket Size:** 450mm **Logged By:** RP **Hand Held GPS Coordinates:** **E:** 0502104
Groundwater: No free groundwater encounted during excavation **N:** 6956474
Remarks: *Approximate ground surface level interpolated from

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TEST PIT N6

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 3 December 2019
Ground Surface Level: RL__m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		0.0					
	FILL - grey-brown, silty sand, with concrete, bricks, wires and PVC pipes			A	0.0 0.1	TPN6-1	
	- orange-brown			A	0.7 0.8	TPN6-2	
1		-1.0		A	1.5 1.6	TPN6-3	
2	***SILTY CLAY*** - grey-brown	-2.0					
	End of Test Pit at 2.5 m						
3		-3.0					
4		-4.0					

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 5T Volvo **Bucket Size:** 450mm **Logged By:** RP **Hand Held GPS Coordinates:** E: 0502092
Groundwater: No free groundwater encounted during excavation N: 6956478
Remarks: *Approximate ground surface level interpolated from

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TEST PIT N7

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

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Date: 3 December 2019
Ground Surface Level: RL7.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		7.0					
	FILL - white, sand, with rootlets			A	0.1	TPN7-1	
	- white, sand				0.2		
	- orange-brown, silty clay, with fine to medium gravel						
				A	0.7	TPN7-2	
1		6.0			0.8		
	SILTY CLAY - grey						
2	End of Test Pit at 1.9 m	5.0					
3		4.0					
4		3.0					

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 5T Volvo **Bucket Size:** 450mm **Logged By:** RP **Hand Held GPS Coordinates:** **E:** 0502093
Groundwater: No free groundwater encounted during excavation **N:** 6956483
Remarks: *Approximate ground surface level interpolated from

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TEST PIT N8

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 3 December 2019
Ground Surface Level: RL6.5m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		6.5					
	FILL - grey-brown, silty clay, with ACM fragments, tiles and plastic			A	0.1 0.2	TPN8-1	
		6.0		A	0.5 0.6	TPN8-2	
1							
	- grey-brown and orange, silty clay (possible reworked natural)	5.0					
	SILTY CLAY - grey-brown						
2	End of Test Pit at 2 m						
		4.0					
3							
		3.0					
4							

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 5T Volvo **Bucket Size:** 450mm **Logged By:** RP **Hand Held GPS Coordinates:** E: 0502086
Groundwater: No free groundwater encounted during excavation N: 6956492
Remarks: *Approximate ground surface level interpolated from

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TEST PIT N9

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 3 December 2019
Ground Surface Level: RL7.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		7.0					
	FILL - orange-brown, silty sand, with fragments of bricks and clay pipes			A	0.1 0.2	TPN9-1	
				A	0.7 0.8	TPN9-2	
1		6.0					
	SILTY CLAY - grey-brown						
2	End of Test Pit at 1.95 m	5.0					
3		4.0					
4		3.0					

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 5T Volvo **Bucket Size:** 450mm **Logged By:** RP **Hand Held GPS Coordinates:** **E:** 0502076
Groundwater: No free groundwater encounted during excavation **N:** 6956484
Remarks: *Approximate ground surface level interpolated from

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TEST PIT 8

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 12 March 2019
Ground Surface Level: RL9.8m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		9.8					
	FILL - orange-brown, silty sand, with concrete and cobbles				0.2		
	- ACM fragments, steel, plastic and bricks			A	0.3	TP08-1	
	- orange-brown, with river cobbles				0.7		
	- black-brown, with ACM fragments	9.0		A	0.8	TP08-2	
1	***SILTY CLAY (CH)*** - orange-red and brown						
	End of Test Pit at 1.2 m						
		8.0					
2							
		7.0					
3							
		6.0					
4							

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: 8T Komatsu **Bucket Size:** 1000mm **Logged By:** RP

Groundwater: No free groundwater encounted during excavation

Remarks: *Ground surface level are approximate, based off BCC's 2014 City Plan Contours Map

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TEST PIT 10

Client: Rosenlund Contractors Pty Ltd
Project: Proposed Mix Use Development
Location: 70 Park Road, Yeronga
Project No: 019-113A

Page No: 1 of 1
Date: 12 March 2019
Ground Surface Level: RL9.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0		9.0					
	FILL						
	- orange-brown, silty sand, with concrete and bricks				0.2		
	- ACM fragments			A	0.3	TP10-1	
	- orange, with bricks, gravel, tiles and steel						
1		8.0			1.0		
	- ACM fragments, bricks and plates			A	1.1	TP10-2	
	- bricks, plates, tiles and plastics						
2		7.0					
	- dark brown, with plates, tiles and bricks						
3		6.0					
	SILTY CLAY (CH)						
	- orange-red and brown						
	End of Test Pit at 3.3 m						
4		5.0					
5		4.0					

D Disturbed Sample (ASS) B Bulk Sample E Environmental Sample A Asbestos Sample

This Environmental Test Pit is not intended for geotechnical engineering interpretation.

Excavator: **Bucket Size:** 1000mm/1500mm **Logged By:** RP

Groundwater: No free groundwater encounted during excavation

Remarks: *Ground surface level are approximate, based off BCC's 2014 City Plan Contours Map

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Notes on Description and Classification of Soil

The methods of description and classification of soils used in this report are generally based on Australian Standard AS1726-1993 Geotechnical Site Investigations.

Soil description is based on an assessment of disturbed samples, as recovered from bores and excavations, or from undisturbed materials as seen in excavations and exposures or in undisturbed samples. Descriptions given on report sheets are an interpretation of the conditions encountered at the time of investigation.

In the case of cone or piezocone penetrometer tests, actual soil samples are not recovered and soil description is inferred based on published correlations, past experience and comparison with bore and/or test pit data (if available).

Soil classification is based on the particle size distribution of the soil and the plasticity of the portion of the material finer than 0.425mm. The description of particle size distribution and plasticity is based on the results of visual field estimation, laboratory testing or both. When assessed in the field, the properties of the soil are estimated; precise description will always require laboratory testing to define soil properties.

Where soil can be clearly identified as FILL this will be noted as the main soil type followed by a description of the composition of the fill (e.g. FILL – yellow-brown, fine to coarse grained gravelly clay fill with concrete rubble). If the soil is assessed as possibly being fill this will be noted as an additional observation.

Soils are generally described using the following sequence of terms. In certain instances, not all of the terms will be included in the soil description.

MAIN SOIL TYPE (CLASSIFICATION GROUP SYMBOL)
- strength/density, colour, structure/grain size, secondary and minor components, additional observations

Information on the definition of descriptive and classification terms follows.

SOIL TYPE and CLASSIFICATION GROUP SYMBOLS

	Major Divisions	Particle Size	Classification Group Symbol	Typical Names
COARSE GRAINED SOILS (more than half of material is larger than 0.075mm)	BOULDERS	>200mm		
	COBBLES	63 – 200mm		
	GRAVELS (more than half of coarse fraction is larger than 2.36mm)	Coarse: 20 – 63mm Medium: 6 – 20mm Fine: 2.36 – 6mm	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines, uniform gravels.
			GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (more than half of coarse fraction is smaller than 2.36mm)	Coarse: 0.6 – 2.36mm Medium: 0.2 – 0.6mm Fine: 0.075 – 0.2mm	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands and gravelly sands; little or no fines, uniform sands.
			SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (more than half of material is smaller than 0.075mm)	SILTS & CLAYS (liquid limit <50%)		ML	Inorganic silts and very fine sands, silty/clayey fine sands or clayey silts with low plasticity.
			CL and CI	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS & CLAYS (liquid limit >50%)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils.
			CH	Inorganic clays of high plasticity.
			OH	Organic clays of medium to high plasticity, organic silts.
	HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils.

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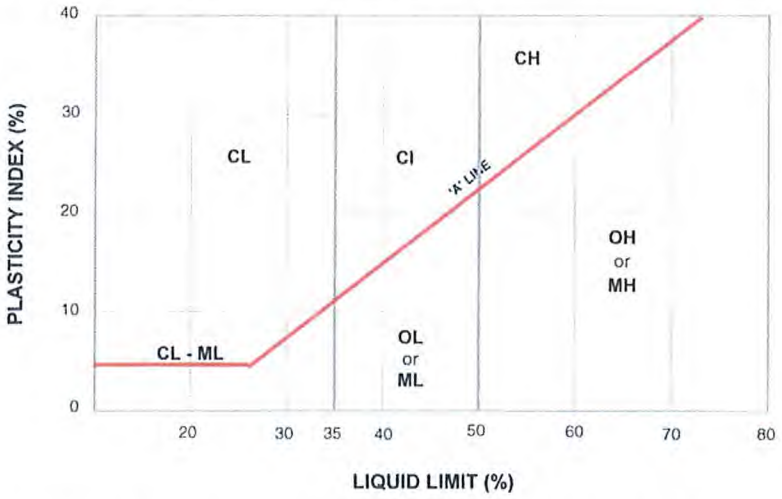
PLASTICITY CHART FOR CLASSIFICATION OF FINE GRAINED SOILS



(Reference: Australian Standard AS1726-1993 Geotechnical site investigations)

DESCRIPTIVE TERMS FOR MATERIAL PROPORTIONS

Coarse Grained Soils		Fine Grained Soils	
% Fines	Modifier	% Coarse	Modifier
<5	Omit, or use 'trace'	<15	Omit, or use trace.
5 – 12	Describe as 'with clay/silt' as applicable.	15 – 30	Describe as 'with sand/gravel' as applicable.
>12	Prefix soil as 'silty/clayey' as applicable	>30	Prefix soil as 'sandy/gravelly' as applicable.

STRENGTH TERMS – COHESIVE SOILS

Strength Term	Undrained Shear Strength	Field Guide to Strength
Very soft	<12kPa	Exudes between the fingers when squeezed in hand.
Soft	12 – 25kPa	Can be moulded by light finger pressure.
Firm	25 – 50kPa	Can be moulded by strong finger pressure.
Stiff	50 – 100kPa	Cannot be moulded by fingers, can be indented by thumb.
Very stiff	100 – 200kPa	Can be indented by thumb nail.
Hard	>200kPa	Can be indented with difficulty by thumb nail.

DENSITY TERMS – NON COHESIVE SOILS

Density Term	Density Index	SPT "N"	CPT Cone Resistance
Very loose	<15%	0 – 5	0 – 2MPa
Loose	15 – 35%	5 – 10	2 – 5MPa
Medium dense	35 – 65%	10 – 30	5 – 15MPa
Dense	65 – 85%	30 – 50	15 – 25MPa
Very dense	>85%	>50	>25MPa

COLOUR

The colour of a soil will generally be described in a 'moist' condition using simple colour terms (e.g. black, grey, red, brown etc.) modified as necessary by "pale", "dark", "light" or "mottled". Borderline colours will be described as a combination of colours (e.g. grey-brown).

EXAMPLE

e.g. CLAYEY SAND (SC) – medium dense, grey-brown, fine to medium grained with silt.

Indicates a medium dense, grey-brown, fine to medium grained clayey sand with silt.