REPORT

Nelson City Council

Cable Bay Road, Nelson
Geotechnical assessment of proposed landslip remedial works to accompany Resource Consent Application

Report prepared for:

NELSON CITY COUNCIL

Report prepared by:

Tonkin & Taylor Ltd

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October 2012

T&T Ref: 870982.1000

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1 Introduction

This report presents the results of a geotechnical assessment of the proposed landslip remedial works at Cable Bay Road, Nelson, to accompany the Resource Consent application.

Authority to proceed with this assessment was provided in writing by Nelson City Council (NCC) on 27 September 2012. Tonkin & Taylor Ltd's (T&T) proposal dated 02 May 2012 sets out the scope of work and conditions of engagement.

Following the December 2011 storm event Cable Bay was impacted by a large number of landslips, surface flooding and erosion. It is proposed to carry out repairs to damaged culverts and stormwater courses adjacent to the Cable Bay road and to reinstate the downslope edge of the road caused by the landslips in the December 2011 storm. These works are intended to restore the road to its condition prior to the storm event and to provide a greater stormwater capacity to culverts and selected water table drains. The following geotechnical and civil works have been designed by T&T.

1. Design of remedial works at 22 sites, including retaining walls up to 4 m retained height and between 12 m and 80 m long on the downslope edge of Cable Bay Road.
2. Design improvements to the road culverts and road stormwater drainage, including:
    - enlarging the inlet structures and improving the water table drains at 12 sites,
    - replacing the culvert pipes with larger diameter pipes at 5 sites,
    - upgrading of the water table drains along sections of the road.
3. Earthworks design, including:
    - temporary excavations to allow construction of the retaining walls and stormwater drainage works,
    - permanent cuts upslope of selected culverts to increase sediment capture capacity,
    - fill to be placed behind the retaining walls and culverts.

The location and the extent of the proposed works are shown on the attached T&T drawings 870982.1000-01 to -05 Rev 1 (Appendix A). The Nelson Resource Management Plan shows the proposed extent of the works to be located within the Land Management Overlay. There are no fault hazard zones within the vicinity of the proposed works. The area is zoned rural and within the Coastal Environment Overlay.

2 Geotechnical investigation

Geotechnical investigations for this assessment comprised:

- A review of our file database for information pertaining to the site,
- A walk-over survey by an experienced Engineering Geologist,
- A subsurface investigation comprising 180 Scala penetrometer tests, four (4) machine augered holes and twelve (12) cored drillholes,
- Twenty one (21) pot holes that were excavated by Chorus to locate the fibre optic cable which runs along the road.

Investigation locations are shown on T&T Drawing 870982.1001-01 to .1028-01 Rev 1 titled 'Existing Site & Site Investigation Plan' (attached in Appendix A). The logs for the drillholes, auger holes, fibre optic pot holes and Scala tests are attached in Appendix B.

3 Site conditions

The mapped geology of the site (Ref Dun Mountain Sheet 027 A C, Johnston MR,1981) indicates that the site is underlain by the Marybank Formation. This is described as a poorly bedded breccia, sandstone, siltstone and mudstone with thin finely bedded, tuffaceous sequences. Around Cable Bay the deposit has been subject to widespread metasomatic alteration. Our investigations encountered rock generally consistent with that previously mapped. We also identified colluvium and landslip deposits derived from the Marybank Formation which overlie bedrock and mantles the slopes.

In general, our investigations encountered the following ground conditions:

Upslope of Road

Variably weathered Rock, generally weak to moderately strong, moderately to highly weathered siltstone/sandstone, highly fractured (Marybank Formation). The formation does vary along the road from a strong unweathered rock to a completely weathered rock that displays the properties of a soil. Strong rock was encountered in the stream gullies at Sites 5 and 14 (refer site plans 870982.1000-01 to -05 in Appendix A).

Downslope of Road

An upper soil zone of loose gravelly silt, assumed to be either landslip debris or road fill.

A lower soil layer of medium dense to dense gravelly silt and sand with some coarse gravel and rare boulders assumed to be colluvium, completely weathered rock, or landslip debris.

Highly weathered to moderately weathered rock, underlies the soils at variable depths along the road. In the four machine augered holes the highly weathered rock was fragmented with a rock auger, operated from an 8 tonne excavator.

The highly weathered rock encountered in the drillholes was generally very weak to weak and moderately weathered rock was generally moderately strong to strong. However, strong rock was encountered in some drillholes, e.g. in DH10 (Site 5) and DH5 (Site 11) below 5 m, and DH2 (Site 14) below 7.5 m.

Table 1 below presents the depth to highly weathered rock as encountered in the drill holes along the road. The drillholes were all drilled from the road and along the downslope edge of the road.

Table 1 - Rock depth, weathering and strength relationships in drillholes

Site Number	Investigations	Drill hole No.	Depth to Highly Weathered rock (m) (Marybank Formation Sandstone)	Rock strength
5	Scala penetrometers & 2 Drillholes	9 & 10	DH9 3m DH10 - 1.5m	DH9 mod strong at 4m DH10 strong at 1.5m
6	Scala penetrometers & 1 drillhole	11	4m	@4m weak to v weak, below 5.5m becomes moderately strong to strong
7	Scala penetrometers & 1 drillhole	8	7.3m	@7.3m v weak to weak @8.5m mod strong
10	Scala penetrometers & 1 drillhole	7	4.6m	@4.6m extremely weak @6m weak to mod strong

11	Scala penetrometers & 3 drillholes	4, 5 6	DH4 - 4m DH5 - 3m DH6 - 4m	DH4 -4m mod strong DH5- 3m v weak @ 4m becomes mod strong DH6 – 4m v weak @ 6.75m becomes mod strong
12	Scala penetrometers & 1 drillhole	3	2.75m	@ 2.75m v weak @ 6.2m becomes mod strong
14	Scala penetrometers & 1 drillhole	2	4.5m	@ 4.5m weak strength becomes variable with depth below 5m generally mod strong to strong
20	Scala penetrometers & 1 drillhole	1	4.8m	@4.8m weak to mod strong @ 5.7m mod strong
22	Scala penetrometers & 1 drillhole	12	3m	@3m ex weak to v weak @ 5m becomes mod strong

The ground conditions appear to show a similar ground profile along the route. However, there will be local variations and the thickness and strength of the soils and rock will vary from site to site.

3.1 Fibre optic cable

A fibre optic cable runs down the length of Cable Bay Road. The cable links the South Island of New Zealand to the North Island and is a highly sensitive piece of infrastructure.

The cable is located in a trench generally on the upslope side of the road centre-line, (refer site drawings 870982.1001 to 1028-01 Rev 1 attached in Appendix A. Pot holes were dug along the length of the road to locate the cable, (refer table in Appendix B). The investigations showed that the depth of the cable varies between 0.8 m and 1.2 m below existing road level. Located approx 200 mm above the fibre optic cable is a copper locator cable.

4 Conclusions and recommendations

Recommendations and opinions in this report are based on subsurface investigations comprising 180 Scala penetrometer tests, twelve (12) cored drill holes, and four (4) machine auger holes. The nature and continuity of subsurface conditions away from the test locations are inferred and it must be appreciated that actual conditions could vary from the assumed model.

5 Stability assessment and proposed remedial works

During the December 2011 rainstorm event approx 350 mm of rain fell on the area over 48 hours on 13, 14 and 15 December 2011. The landslips started to move and inundate the road during the evening of the 14 December, approximately 24 hours after the start of the rainstorm. The landslips were generally earthflows, i.e. a fluidised material mostly containing fine grained materials, topsoil, clay, and colluvium together with slope vegetation and boulders of variably weathered rock.

In the 10 months following the December rainstorm event there have been some localised slope failures following rainstorm events but nothing on the scale of the December 2011 event. The majority of the sites have remained in a similar condition to how they were following the general clean up after the December event. We assess the slopes to be marginally stable under normal rainfall events but are likely to experience localised reactivation of instability during high intensity rainfall events, although of lower intensity than the December 2011 event.

Using the information obtained from our site walkovers and ground investigations we have prepared engineering geological ground models at each of the remedial sites. Soil strength parameters were estimated for the materials encountered using standard correlations. To verify these parameters a slope stability assessment was carried out using the industry standard SlopeW computer program. Based on back analyses of slopes and simplified two dimensional engineering geological slope models the following geotechnical units in Table 2 and material parameters have been derived.

Table 2 - Geotechnical summary of material properties

Geotechnical Unit	Description	Characteristic Scala Penetrometer blows	Design Effective Strength Properties
Type 1	Recent very loose colluvium/landslip debris	<2 blow per 50mm	C'= 2 kPa Phi=32 degrees
Type 2	Medium dense colluvium/landslip debris	>2 blows per 50mm	C'= 4 kPa Phi=34 degrees
Completely weathered rock/ residual soil	Dense colluvium/ completely weathered rock	>4 blows per 50mm	C'= 6 kPa Phi=34 degrees
Highly Weathered rock	Very dense material assumed highly weathered rock	>8 blows per 50mm	C'= 18 kPa Phi=38 degrees

The depth, thickness and inclination of these materials has been assessed at each site. Remedial works designs have been carried out using these soil strength parameters.

5.1 Design philosophy

Following discussions with Nelson City Council, and in accordance with their instructions, our designs for the remediation of the landslip areas generally followed the following principles:

- Only instability on the downslope edge of the road is to be remediated. The upslope areas on NCC land are to be planted to reduce surface erosion and aid slope stability,
- The fibre optic cable which runs down the length of Cable Bay Road is to be protected at all times and excavations kept clear of the cable,
- The road is to be reinstated to its pre-December 2011 width and alignment, with a standard road width of 5.5 m or 5.8 m on bends, and a 0.5 m wide unsealed road shoulder,
- The road is to be kept open at all times, with a single lane of traffic for residents, except for short periods where necessary for working,
- All work is to be kept within the road reserve area,
- The designs have generally followed NZTA standards and seismic load cases have been assessed,
- To provide designs solutions that are similar for many sites to allow standardised construction methodologies to be applied during the remediation work,
- Damaged stormwater culverts to be repaired or replaced,
- Stormwater control measures are designed to reduce the impact of another major storm event at Cable Bay Road, this includes improving the intakes to existing culverts and increasing capacity to Q15 where practicable,

- Designing enhanced secondary flow paths at selected higher flow sites to cater for Q50 flows.

6 Proposed retaining works

The proposed retaining walls along the road are either gravity walls or cantiliver pole walls. Unreinforced earthfills and geotextile reinforced soil retaining structures were considered but these remedial options were rejected as the edge of the excavations would be very close to the fibre optic cable, and due to slope angles there is insufficient land within the road reserve to construct such works.

Ground anchors have been added to higher the walls. For the cantilever walls they reduce the depth of pole embedment and allow wall construction where the effective retained heights (i.e. depth from top of wall to highly weathered rock) exceed 2 m. Anchors have also been added to the gabion walls to reduce sliding and overturning in a seismic event. Provision for further anchoring of walls can be made during construction if site conditions locally are such that full embedment cannot be achieved due to strong rock being locally encountered at depth.

Cantilever walls vary with increasing effective retained height as follows:

- In-ground timber palisade walls,
- Timber pole walls (1 m to 2 m high),
- Timber pole walls with ground anchors (2 m to 4 m high),
- Concrete pile walls with ground anchors, (4 m to 8 m high).

Gravity walls vary with increased height as follows:

- Gabion walls 1 m to 2 m high,
- Anchored gabion walls 2 m to 4 m high.

The proposed retaining works are summarised in Table 3 below.

Table 3 -Summary of proposed works and adjacent properties

Site Number	Wall Type	Length(m)	Max Retained height (m)	Downslope property
1A	Timber pole wall- anchored	13	1.8	Reserve Land
1B	Gabion wall	18	4	Reserve Land
2A, 2B, 2C	Stormwater works culvert inlet upgrade			574 Cable Bay Road
3	Palisade timber in-ground wall	18	1.8	574 Cable Bay Road and Driveway to 580 Cable Bay Road
4	Timber pole wall- anchored	11	1.8	Driveway to 580 Cable Bay Road
5	Timber pole wall- anchored	47	2.8	Dwelling at 580 Cable Bay Road
6	Timber pole wall- anchored	18	2.6	Land belonging to 580 Cable Bay Road
7	Timber and concrete pole wall- anchored	45	2.0	Land belonging to 580 Cable Bay Road
8	Timber pole wall - anchored	14	2.0	Land belonging to 580 Cable Bay Road

9	Palisade timber in-ground wall	14	0	Land belonging to 580 Cable Bay Road
10	Gabion wall	29	3.0	Land belonging to 580 Cable Bay Road
11	Timber and concrete pole wall- anchored	76	2.0	Land belonging to 580 Cable Bay Road
12	Timber pole wall- anchored	15	2.3	636 Cable Bay Road
13	Timber pole wall- anchored	16	2.6	636 Cable Bay Road
14	Stormwater pipe upgrade			638 Cable Bay Road
15	Gabion wall	21	3.0	638 Cable Bay Road
16	Stormwater pipe upgrade			Land belonging to 676 Cable Bay Road
17	Gabion wall	16	2.0	Land belonging to 676 Cable Bay Road
18	Palisade timber in-ground wall	47	0	Land belonging to 676 Cable Bay Road
19	Timber pole retaining wall	20	1.5	Land belonging to 676 Cable Bay Road
20	Stormwater pipe upgrade			676 Cable Bay Road
21	Stormwater pipe upgrade			682 Cable Bay Road
22	Gabion wall anchored	40	4.0	Land belonging to 682 and 698 Cable Bay Road
23	Timber pole retaining wall anchored and palisade in-ground wall	45	1.5	Land belonging to 698 Cable Bay Road
24	Timber pole retaining wall anchored	18	2.0	718 Cable Bay Road
25	Stormwater pipe upgrade			748 Cable Bay Road
26	Gabion wall anchored and palisade in-ground wall	74	4.0	Land belonging to 778 Cable Bay Road
27	Stormwater pipe upgrade			780 Cable Bay Road
28	Palisade timber pole retaining wall and Stormwater pipe upgrade	20	0	Land belonging to 780 & 796 Cable Bay Road

7 Proposed earthworks

Earthworks will be required to construct the proposed retaining walls. The earthworks will involve excavation below the road level to form a working platform to install the retaining walls. The size and extent of the platform will vary along the road with the amount of available road width, the steepness of the downslope land and the Contractors equipment. The proposed extent of the Contractors working areas are shown on Drawings 870982.1001-01 to 1028-02. However, the final construction working areas will in part depend on the Contractors methods of working the sites.

To construct the timber pole walls the working platform will be about 2 m below the road level. It is anticipated that much of the material excavated will be a topsoil contaminated soil. The majority of this material will be unsuitable for re-use as fill behind the retaining wall and will be taken off site, although some will be retained for re-profiling the benches at the completion of construction.

Where possible it is proposed to re-use material excavated on site. Suitable excavated material will be stored on site. Granular material will be used to backfill the temporary excavation behind the retaining walls.

The Contractor will be required to prepare an excavation staging plan for the Engineer's approval to ensure temporary stability is maintained and to ensure off site effects from sediment or erosion are no more than minor (refer Section 8).

To prevent rocks and debris accidently rolling down the slope during the works temporary fences will be constructed and maintained. Areas of bare soil left after completion of the retaining works are to be topsoiled and grass seeded.

Stormwater will be collected in the existing table drains and culverts and discharged to slopes through the existing network of culverts. Culverts will be extended through the site works areas.

8 Erosion and sediment control

All earthworks will be carried out in accordance with an Environmental Management Plan (EMP). T&T have prepared an EMP (Report ref. 870982.1000 dated 30 October 2012). The EMP will be updated by the Contractor to meet the requirements of his specific proposed construction methodology and the Nelson City Council Land Development Manual 2010. The EMP will be maintained by the Contractor and will consider:

- Dust created during site works,
- Sediment Transport,
- Erosion risk for the duration of the construction period,
- Protection of the environment,
- Traffic management.

9 Monitoring of works

The proposed works will be undertaken under contract to NCC, and will be subject to regular inspections by the Engineer and his representatives to check that the works are carried out in accordance with the contract drawings and specifications. The contractors will be required to comply with all necessary Resource and Building Consents and to ensure the works are completed in a timely manner in accordance with the drawings and specifications.

Monitoring should be carried out in accordance with the inspection schedules for each site.

10 Applicability

This report has been prepared for the benefit of Nelson City Council with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

Tonkin & Taylor LTD

Environmental and Engineering Consultants

Report prepared by:	Authorised for Tonkin & Taylor Ltd by:
Mark Dawson	Mark Foley
Senior Engineering Geologist	Project Director

mpd

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Appendix A: Tonkin & Taylor drawings

- **870982.1000-01 to -05 Rev 1 – Site Plans**
- **870982.1001-A-01 to .1028-01 Rev 1 – Existing Site & Site Investigation Plans (see separate folder)**

Topomap sourced from Land Information New Zealand data (Crown Copyright Reserved).

SITE LOCATION PLAN
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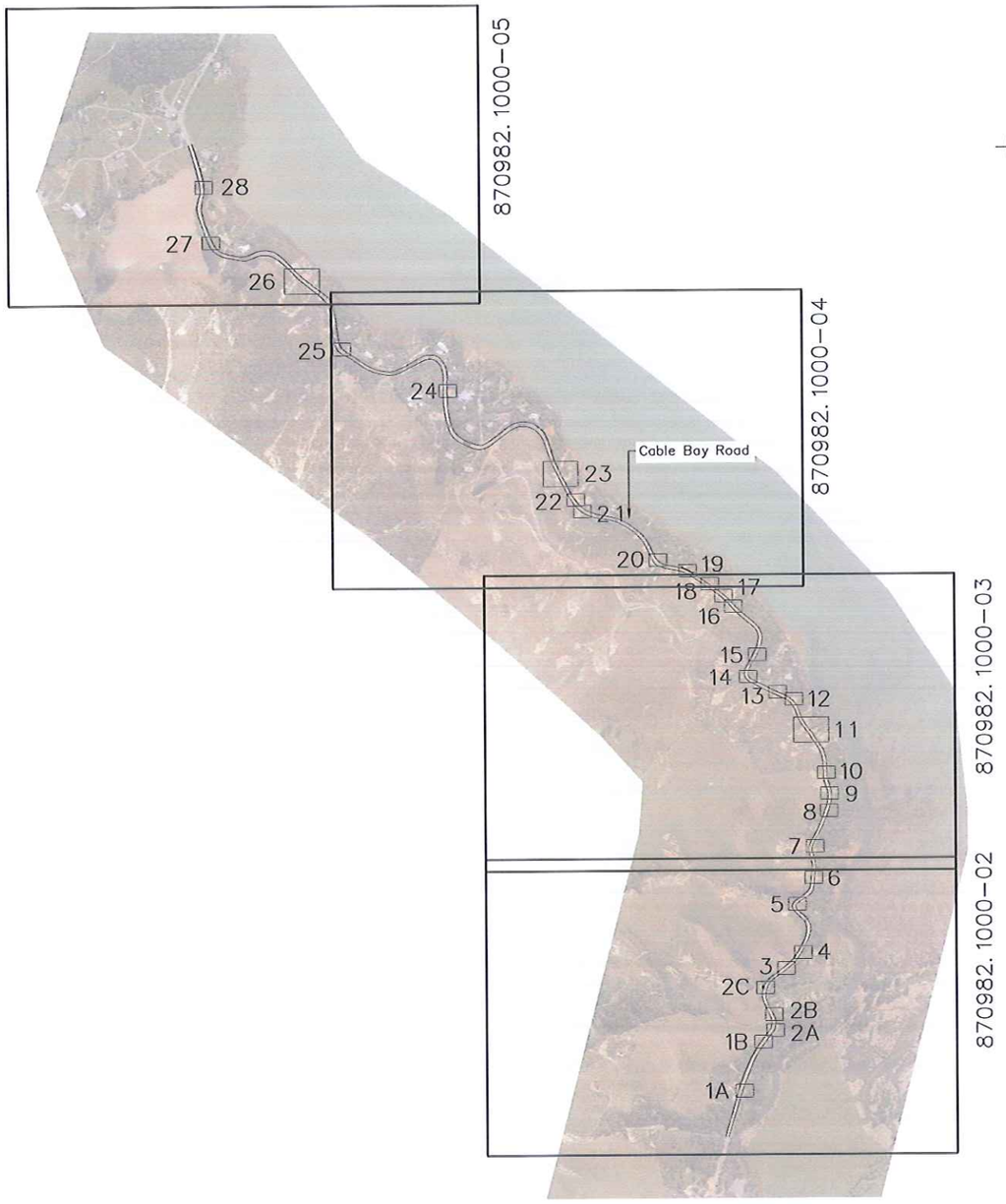

LEGEND

1A □ Work Site Number

A3 SCALE 1: 10000
A1 SCALE 1: 5000
0 100 200 300 400 500 (m)

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NETWORK SERVICES DEPARTMENT	EXECUTIVE MANAGER NETWORK SERVICES DATE
NCC Plan No.	

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CABLE BAY ROAD REMEDIATION

TITLE
GENERAL INFORMATION
Overall Site Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
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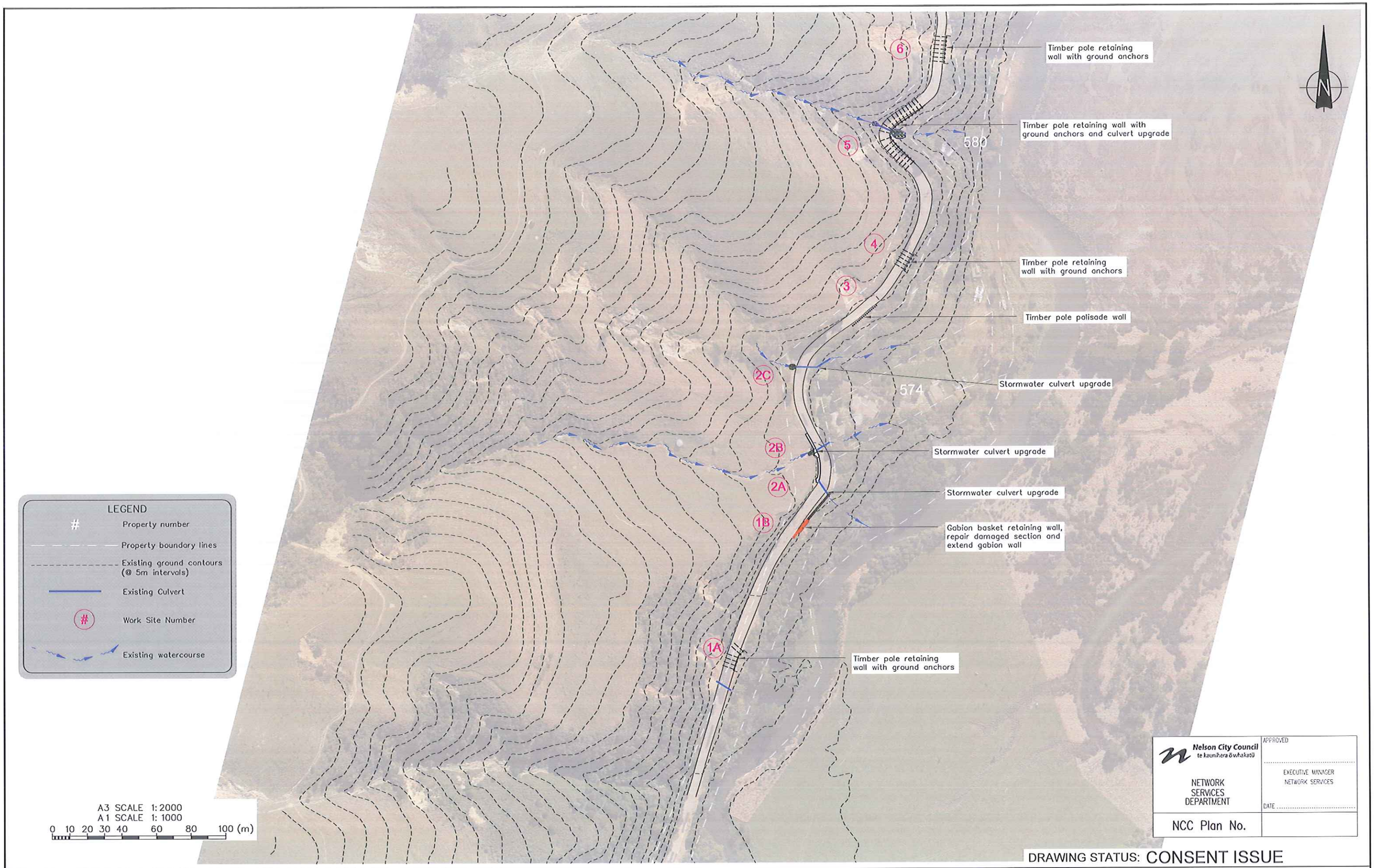

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GENERAL INFORMATION
Site Plan (Sheet 1 of 4)

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 1000	870982.1000-02	1

Timber pole palisade wall

Gabion basket retaining wall

Stormwater culvert upgrade

Gabion basket retaining wall

Road reinstatement and culvert upgrade

638

Timber pole retaining wall with ground anchors

Timber pole retaining wall with ground anchors

Reinforced concrete & timber pole retaining wall with ground anchors and culvert upgrade

Gabion basket retaining wall with ground anchors and culvert upgrade

Timber pole palisade wall

Remove existing Gabion basket retaining wall and re-build with timber pole retaining wall with ground anchors

Reinforced concrete & timber pole retaining wall with ground anchors & culvert upgrade

19 18 17 16 15 14 13 12 11 10 9 8 7

N

LEGEND

- # — Property number
- Property boundary lines
- Existing ground contours (@ 5m intervals)
- Existing Culvert
- (#) — Work Site Number
- Existing watercourse

A3 SCALE 1: 2000
A1 SCALE 1: 1000

0 10 20 30 40 60 80 100 (m)

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TITLE
GENERAL INFORMATION
Site Plan (Sheet 2 of 4)

SCALES (AT A1 SIZE)	DWG. No.	REV.
AS SHOWN	870982.1000-03	1

Stormwater culvert upgrade

748

25

Timber pole retaining wall with ground anchors

718

24

Heritage Tree

698

11

44

Timber pole retaining wall with ground anchors & palisade timber poles and culvert upgrade

23

Gabion basket retaining wall with ground anchors

682

Stormwater culvert upgrade

22

21

Stormwater culvert upgrade

676

Timber pole retaining wall and culvert upgrade

20

Timber pole palisade wall

19

LEGEND

- # Property number
- Property boundary lines
- Existing ground contours (@ 5m intervals)
- Existing Culvert
- (#) Work Site Number
- Existing watercourse

A3 SCALE 1: 2000
A1 SCALE 1: 1000

0 10 20 30 40 60 80 100 (m)

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GENERAL INFORMATION
Site Plan (Sheet 3 of 4)

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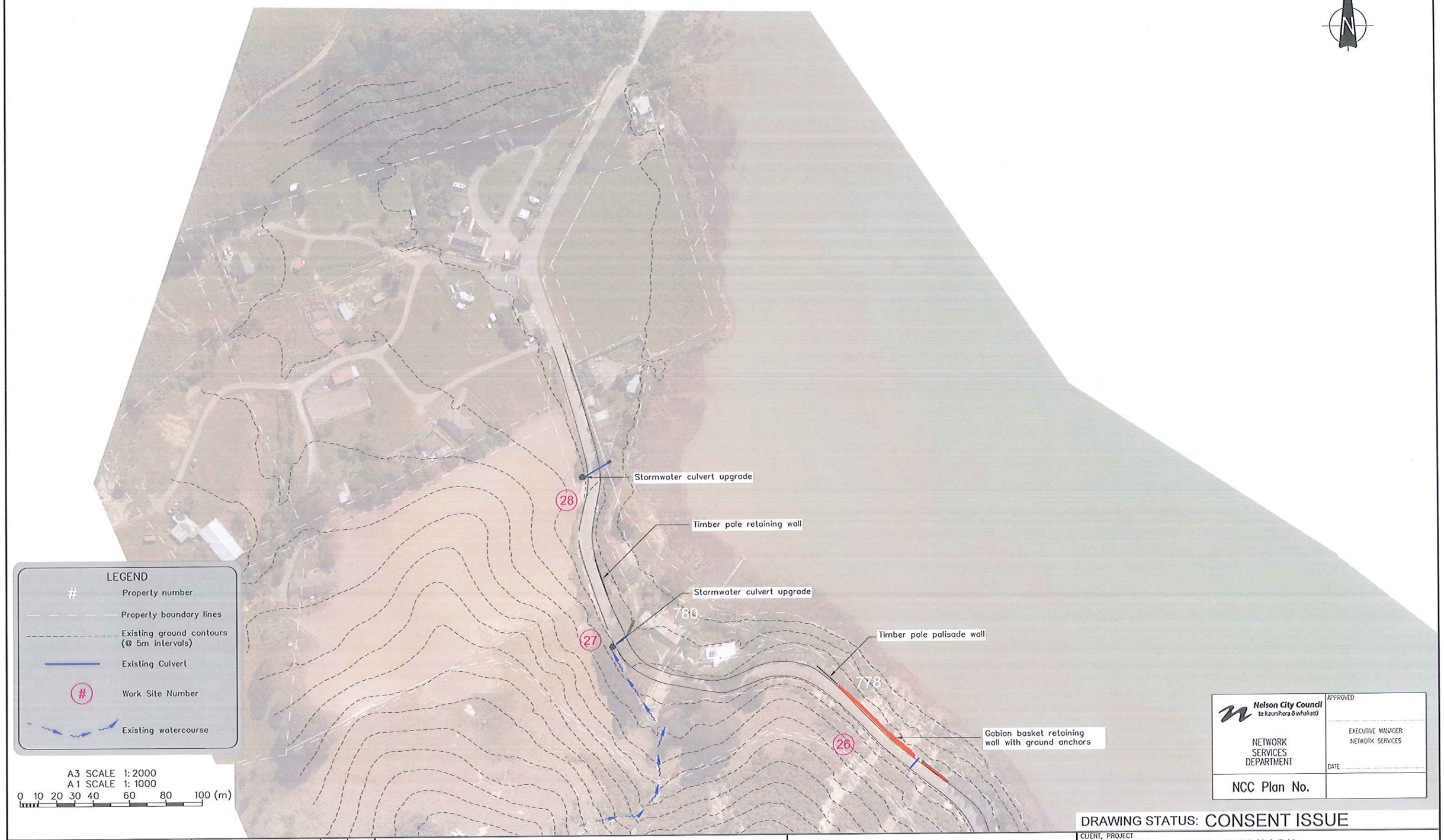

LEGEND

- # Property number
- Property boundary lines
- Existing ground contours (@ 5m intervals)
- Existing Culvert
- (#) Work Site Number
- Existing watercourse

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A1 SCALE 1: 1000
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Site Plan (Sheet 4 of 4)

SCALES (AT A1 SIZE)	DWG. No.	REV.
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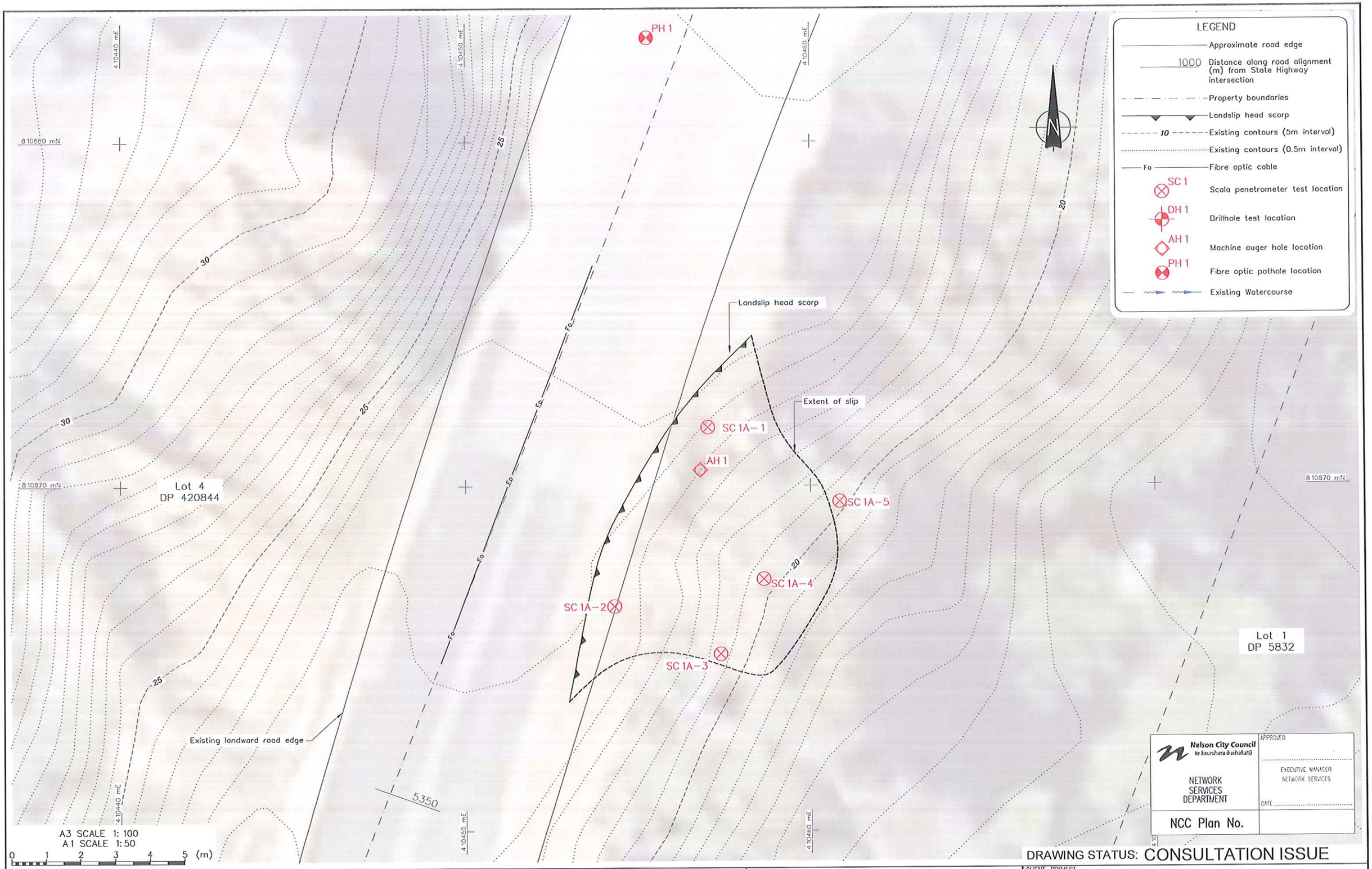

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DRAWN :	JATG	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12

CADFILE : \\870982.1001A-01.dwg

APPROVED :
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NOTES :
1. All dimensions are in metres unless noted otherwise.
2. Coordinates are in terms of : Nelson 2000 Circuit (NZGD 2000 Datum) Lidar contours and aerial photos sourced from : Nelson City Council.
3. Parcel boundaries, services location and culvert location sourced from : Davis Ogilvie & Partners Ltd.
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REFERENCE :

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Environmental and Engineering Consultants
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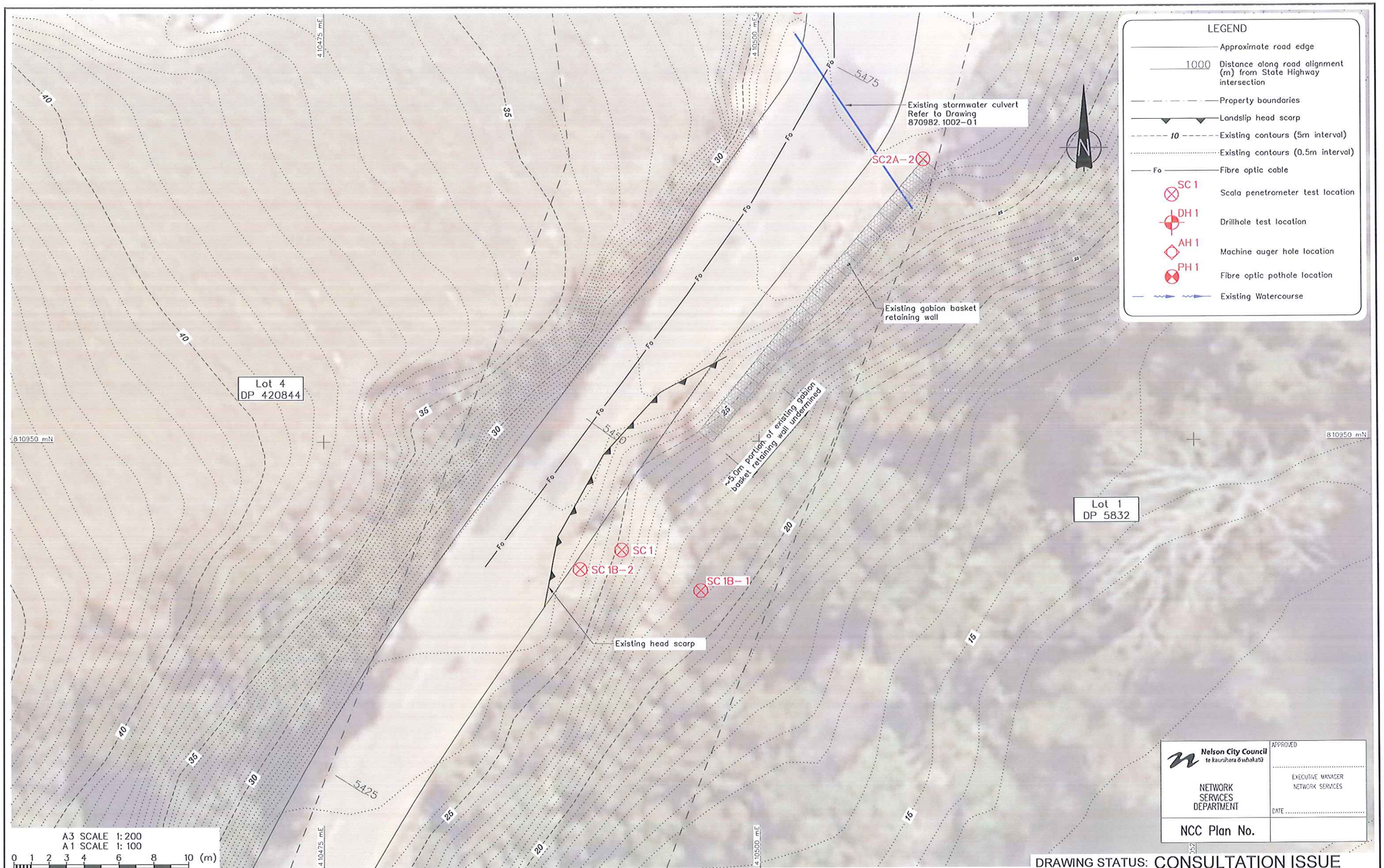
NELSON CITY COUNCIL
CABLE BAY ROAD REMEDIATION

TITLE
GENERAL INFORMATION – SITE 1A
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1:50	870982.1001–A–01	1



Nelson City Council te kaunihera ō whakatū
NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue	MPD	10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12

CADFILE : \\870982.1001B-01.dwg

APPROVED :
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NOTES :
1. All dimensions are in metres unless noted otherwise.
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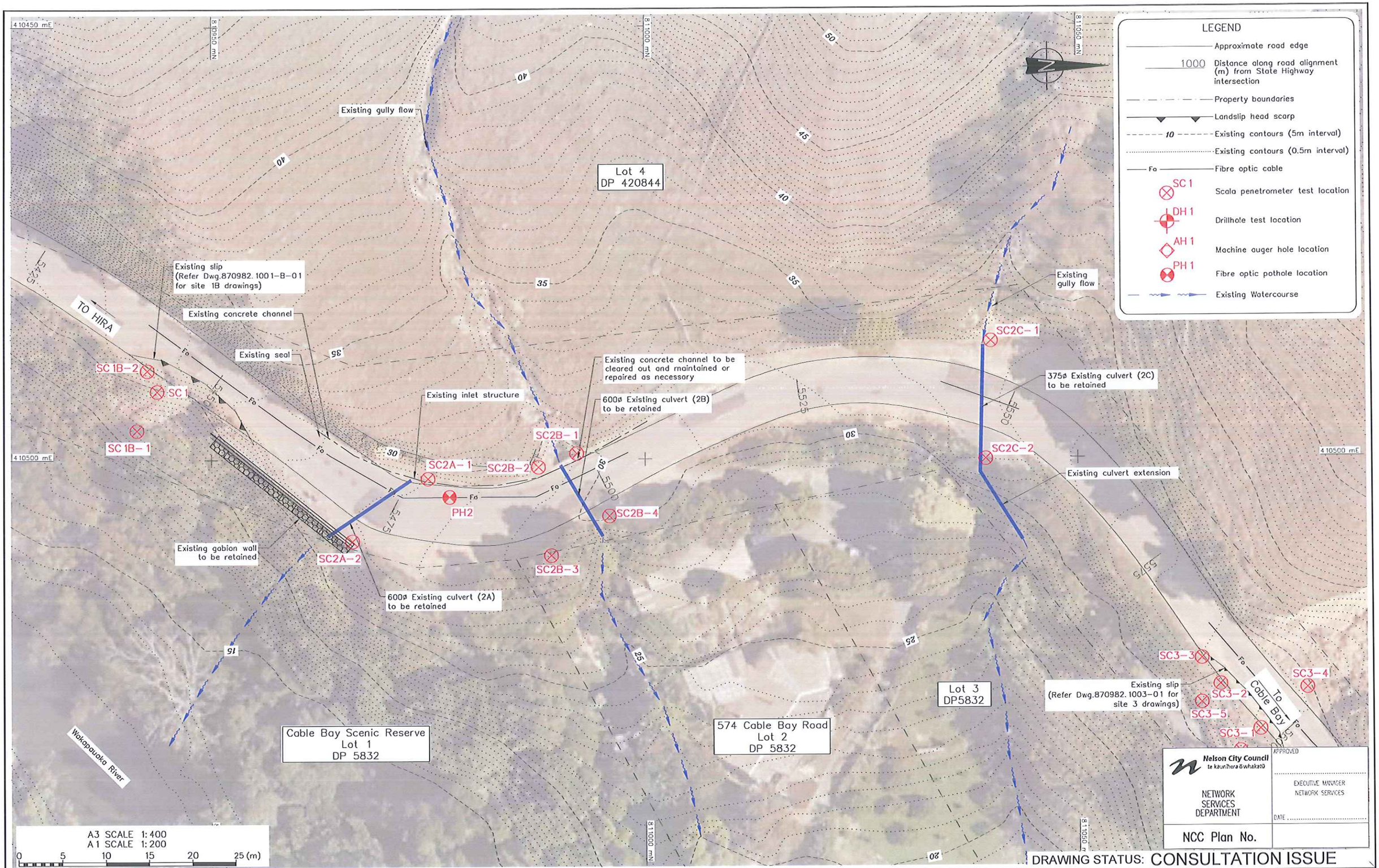
CLIENT, PROJECT
NELSON CITY COUNCIL
CABLE BAY ROAD REMEDIATION

TITLE
GENERAL INFORMATION – SITE 1B
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1001-B-01	1



Nelson City Council te kaunihera ō whakatū
NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	JATG	Oct. 12
DESIGN CHECKED :	NRD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982. 1002-01.dwg		

APPROVED : NOT FOR CONSTRUCTION
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NOTES :
1. All dimensions are in metres unless noted otherwise.
2. Coordinates are in terms of : Nelson NZGD2000.
3. Lidar contours and aerial photos sourced from : Nelson City Council.
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TITLE
GENERAL INFORMATION – SITE 2
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 200	870982. 1002-01	1

P:\870982\870982.1002\WorkingMaterial\CAD\870982.1002-01.dwg, 01, 31/10/2012 8:01:30 p.m., dja, 1:2

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NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

DESIGNED :	MPD	Oct. 12
DRAWN :	AMC	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982.1003-01.dwg		
APPROVED : NOT FOR CONSTRUCTION		

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REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

NOTES :
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TITLE
GENERAL INFORMATION – SITE 3
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1003-01	1

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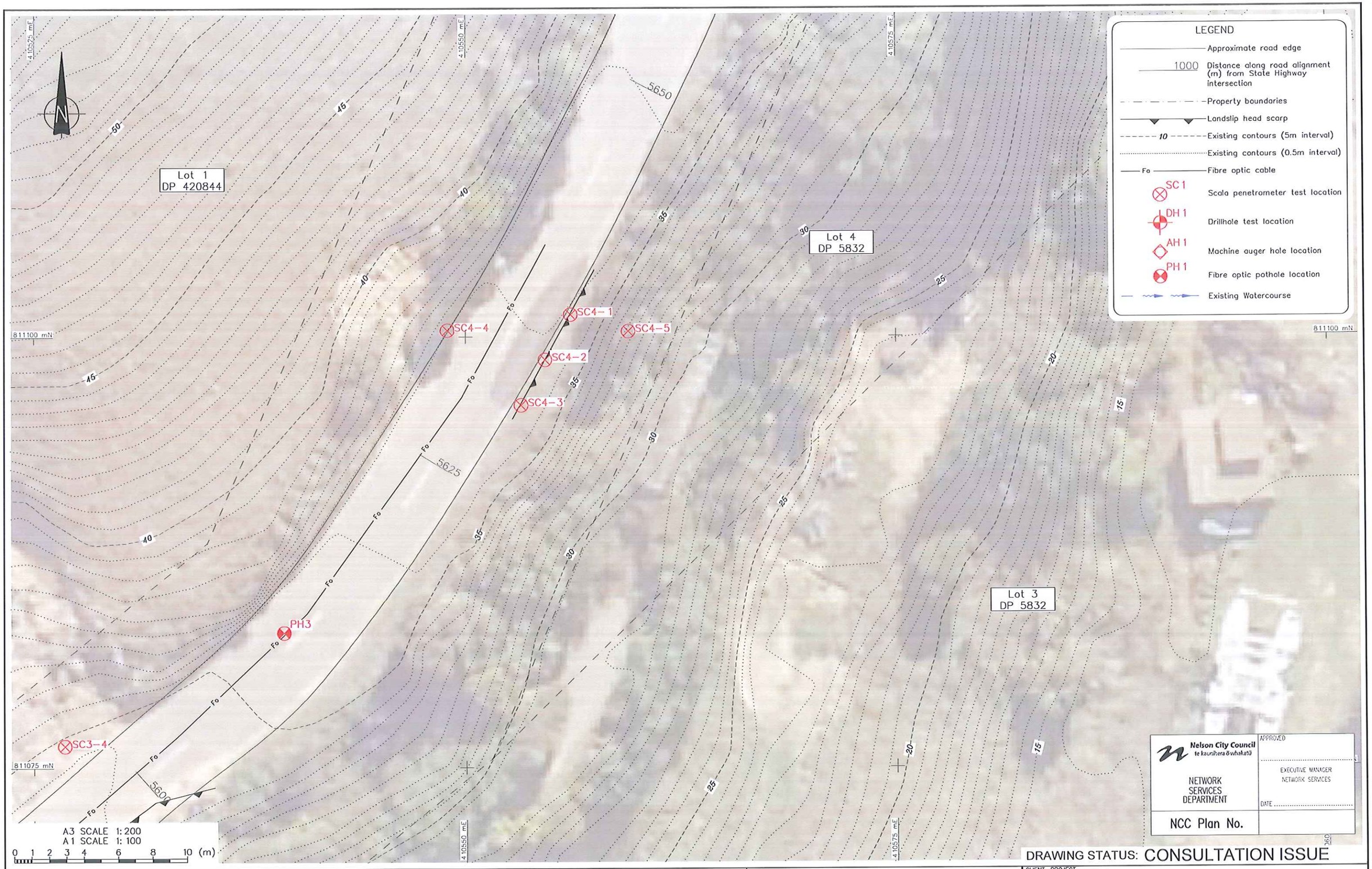

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NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	AMC	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	BA	10/12

CADFILE : \\870982.1004-01.dwg

APPROVED : NOT FOR CONSTRUCTION

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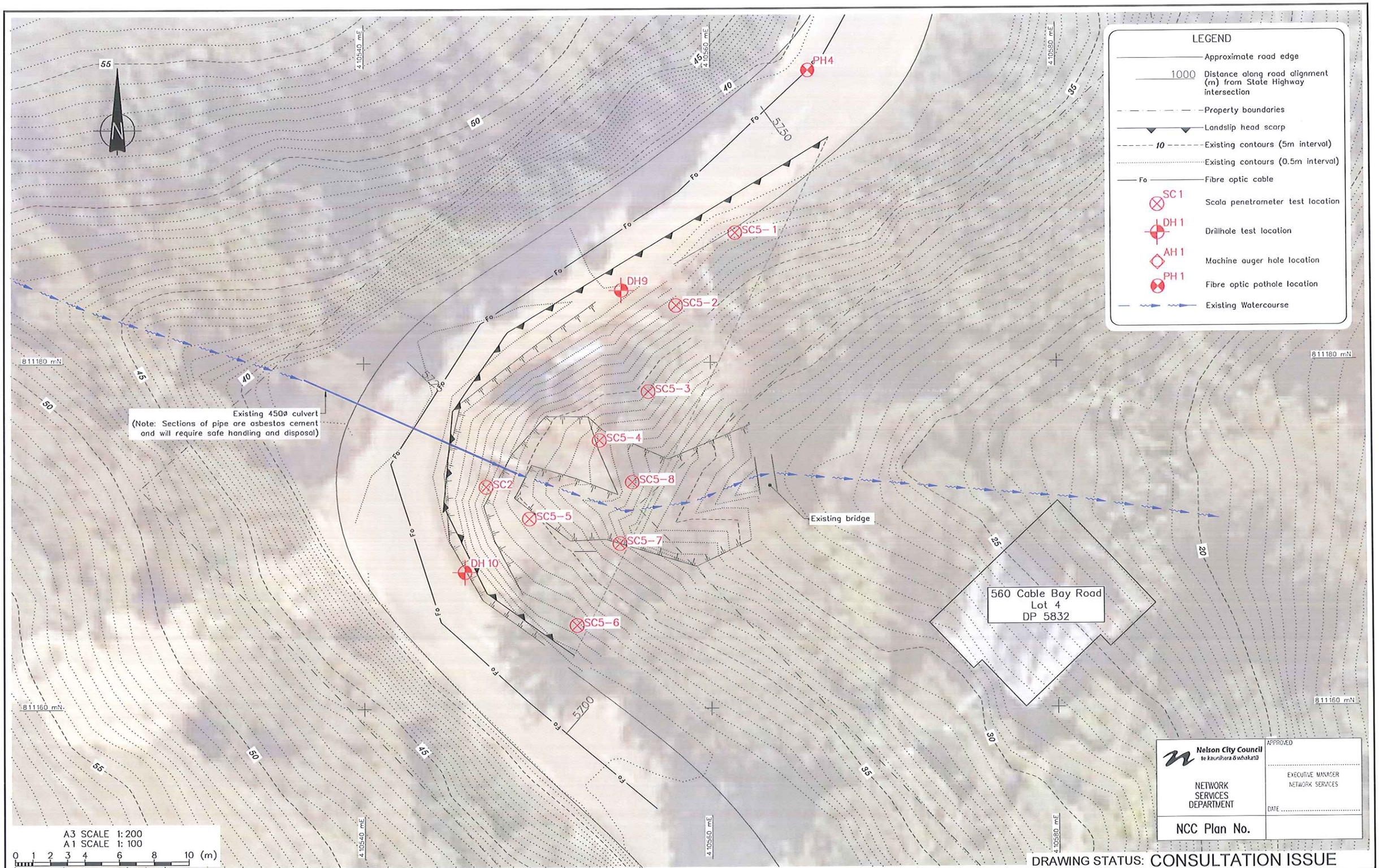
TITLE
GENERAL INFORMATION – SITE 4
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1004-01	1

P:\870982\870982.1004\WorkingMaterial\CAD\870982.1004-01.dwg, 01, 31/10/2012 8:04:51 p.m., dja, 1:2



DRAWING STATUS: CONSULTATION ISSUE

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982. 1005–01.dwg		
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1	Consultation Issue		10/12

NOTES :
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TITLE
GENERAL INFORMATION – SITE 5
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982. 1005–01	1

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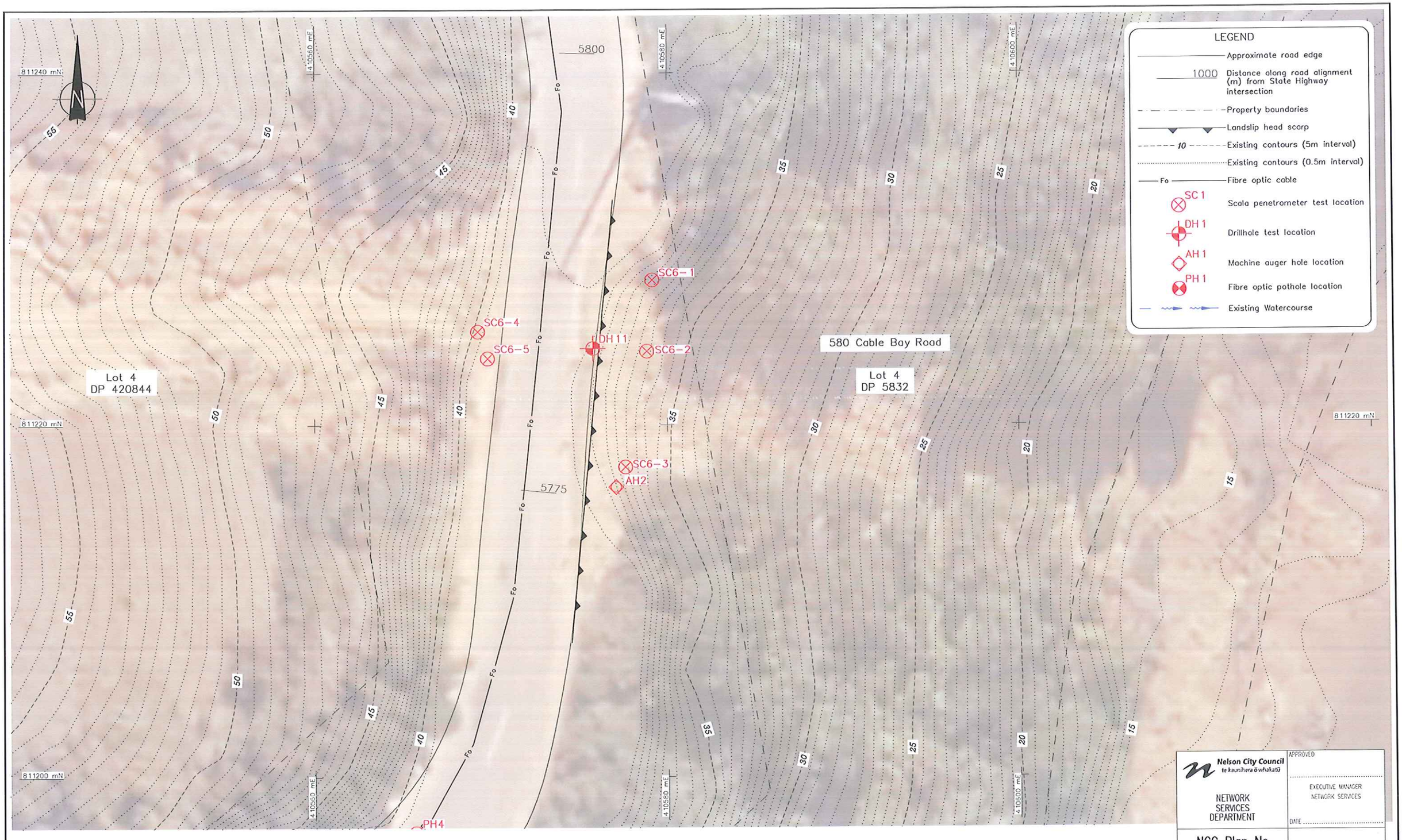

A3 SCALE 1: 200
A1 SCALE 1: 100
0 1 2 3 4 6 8 10 (m)

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NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

DESIGNED :	MPD	Oct. 12
DRAWN :	AMC	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982.1006-01.dwg		
APPROVED : NOT FOR CONSTRUCTION		
1 Consultation Issue		10/12
REVISION DESCRIPTION	BY	DATE

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TITLE
GENERAL INFORMATION – SITE 6
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1006-01	1

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NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

DESIGNED :	MPD	Oct. 12
DRAWN :	JATG	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982. 1007-0 1.dwg		
APPROVED : NOT FOR CONSTRUCTION		

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REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

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NELSON CITY COUNCIL
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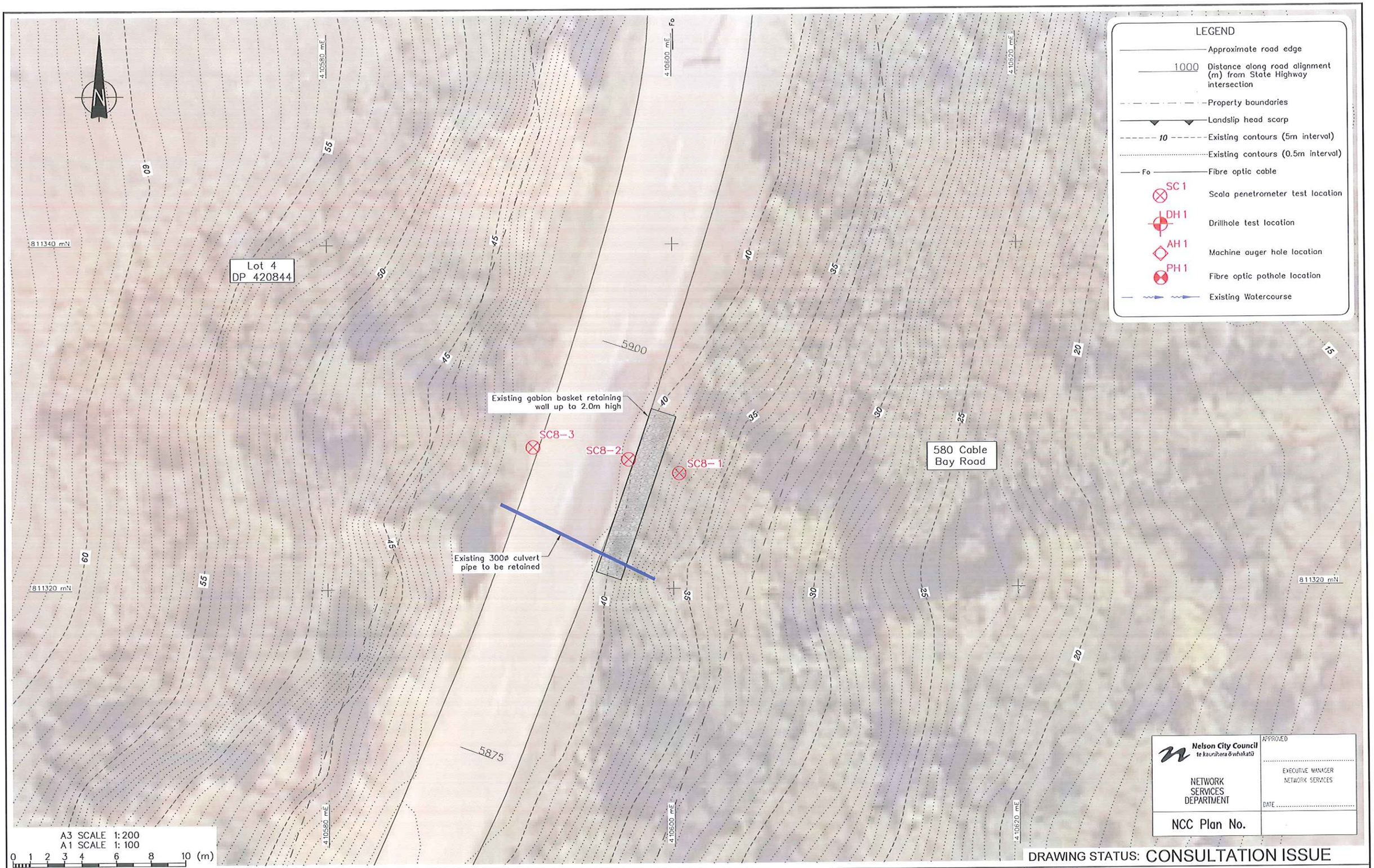
TITLE
GENERAL INFORMATION – SITE 7
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982. 1007-01	1



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NETWORK SERVICES DEPARTMENT

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EXECUTIVE MANAGER
NETWORK SERVICES

DATE

NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :		10/12
DRAFTING CHECKED :		10/12
CADFILE : \\870982.1008-01.dwg		

APPROVED :
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NOTES :
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2. Coordinates are in terms of : Nelson 2000 Circuit (NZGD 2000 Datum)
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NELSON CITY COUNCIL
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TITLE
GENERAL INFORMATION – SITE 8
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
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A3 SCALE 1: 200
A1 SCALE 1: 100
0 1 2 3 4 6 8 10 (m)

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EXECUTIVE MANAGER NETWORK SERVICES
DATE

NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DM	10/12
CADFILE : \\870982. 1009–0 1.dwg		

APPROVED :
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NOTES :
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TITLE
GENERAL INFORMATION – SITE 9
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982. 1009–01	1

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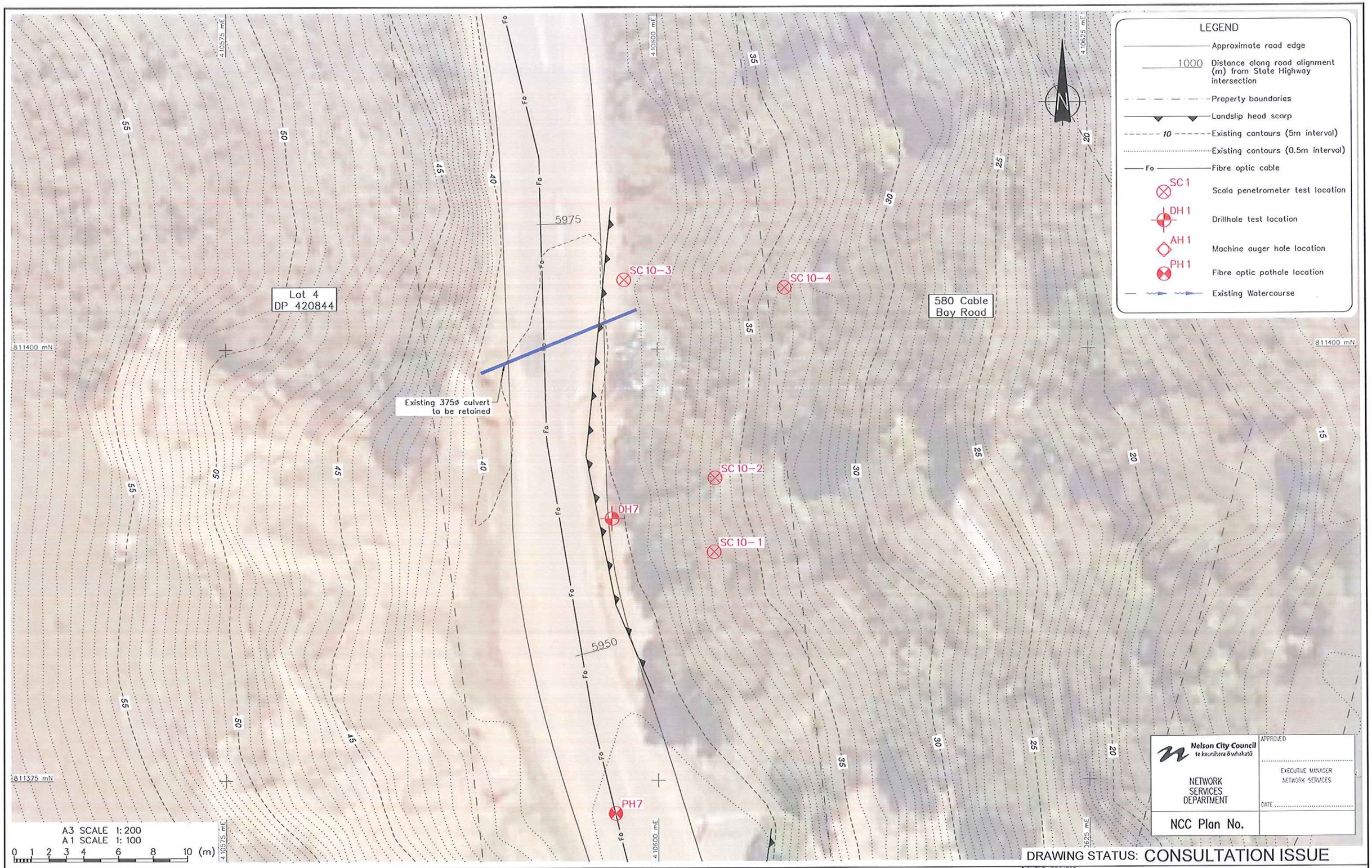

A3 SCALE 1: 200
A1 SCALE 1: 100
0 1 2 3 4 6 8 10 (m)

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NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE .....
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12

CADFILE : \\870982.1010–01.dwg
APPROVED : NOT FOR CONSTRUCTION
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NOTES :
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NELSON CITY COUNCIL
CABLE BAY ROAD REMEDIATION
TITLE
GENERAL INFORMATION – SITE 10
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1010–01	1

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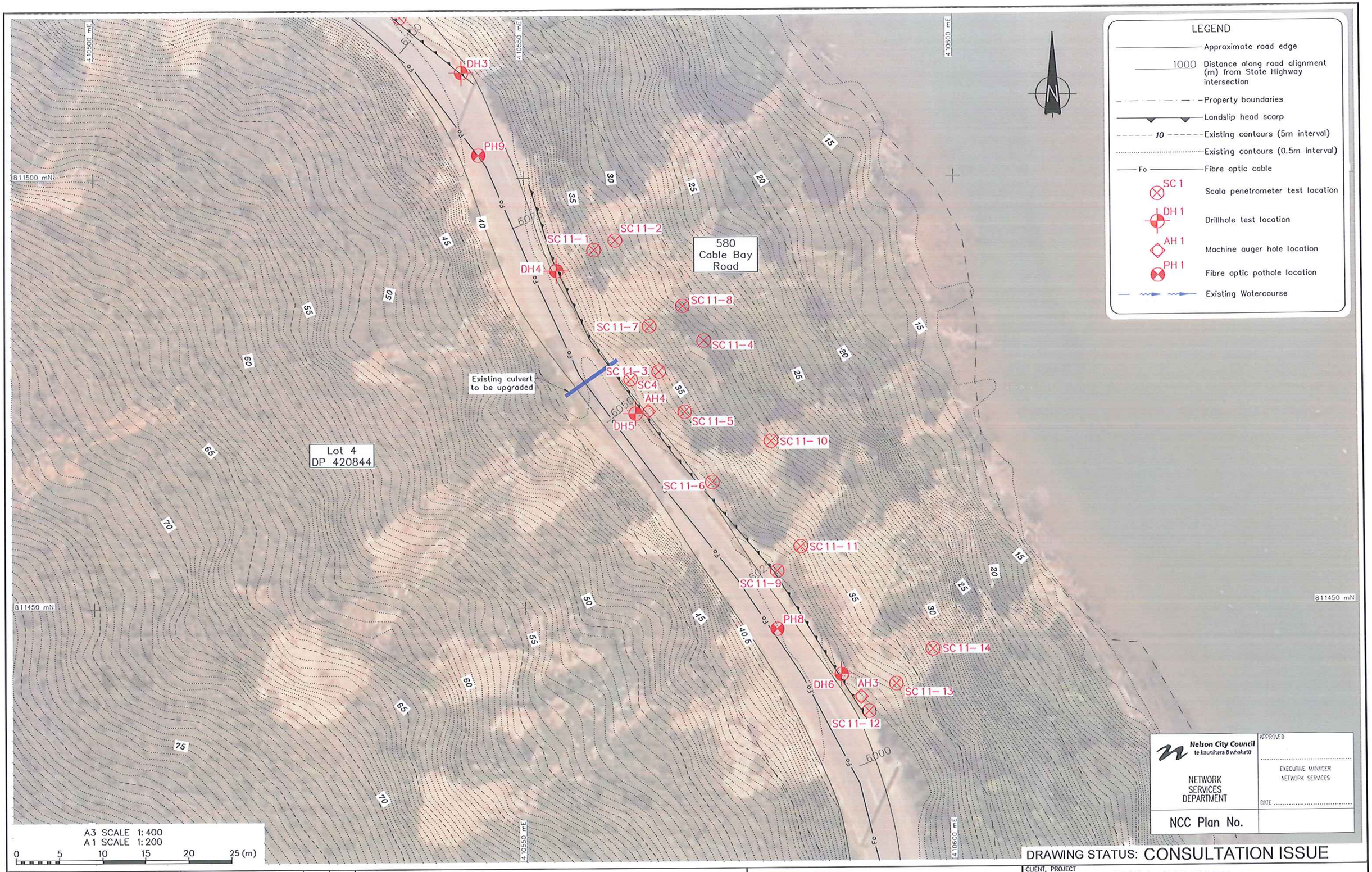

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DM	10/12
CADFILE : \\870982.1011-01.dwg		
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1	Consultation Issue	MPD	10/12

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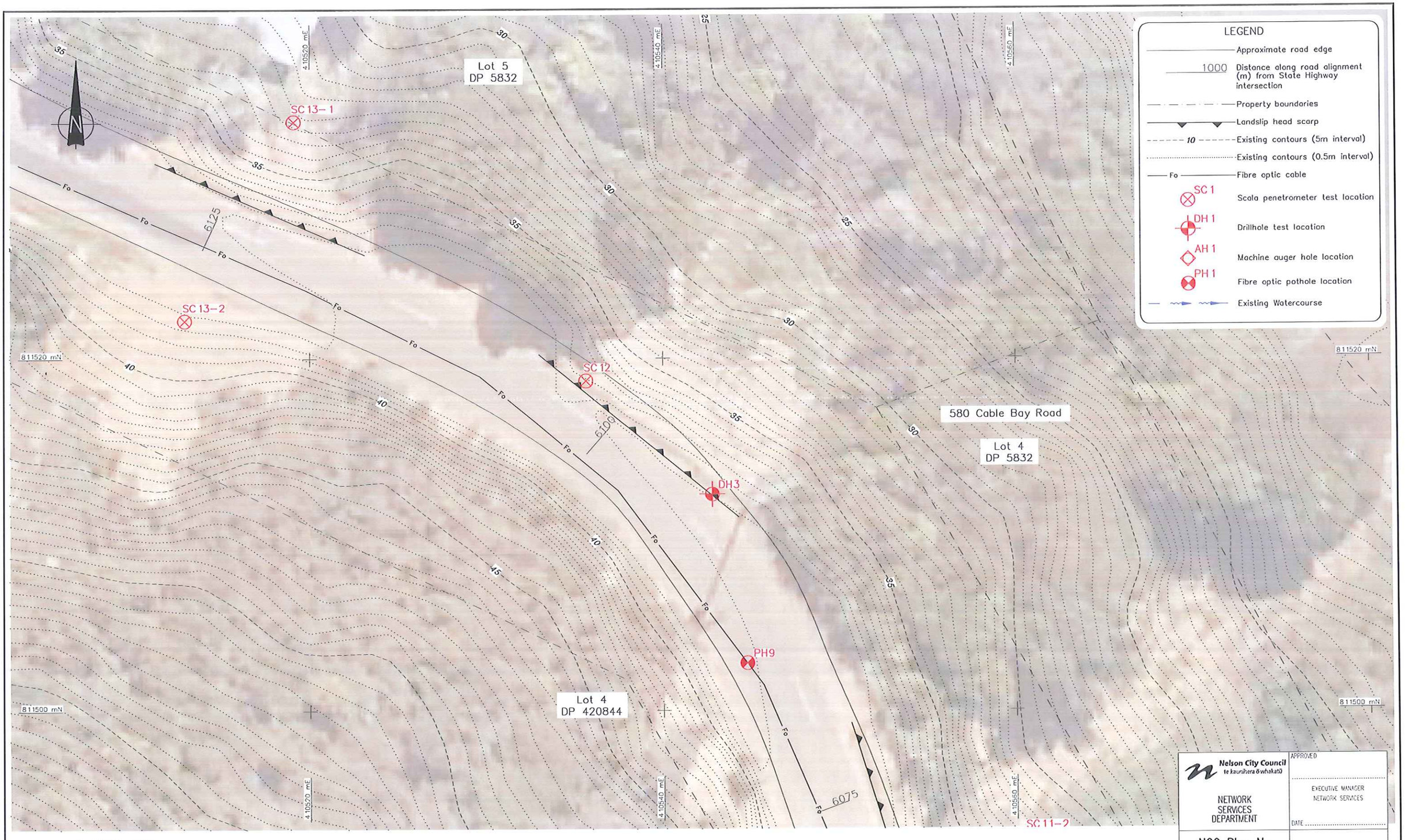
TITLE
GENERAL INFORMATION – SITE 11
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1:200	870982.1011-01	1



A3 SCALE 1:200
A1 SCALE 1:100
0 1 2 3 4 6 8 10 (m)

DESIGNED :	MPD	Oct. 12
DRAWN :	AMC	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982.1012–01.dwg		
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1	Consultation Issue		10/12

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APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

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NELSON CITY COUNCIL
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TITLE
GENERAL INFORMATION – SITE 12
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1012–01	1

P:\870982\870982.1012\WorkingMaterial\CAD\870982.1012-01.dwg, 01, 31/10/2012 8:18:54 p.m., dja, 1:2

A3 SCALE 1:200
A1 SCALE 1:100
0 1 2 3 4 6 8 10 (m)

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NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

DESIGNED :	MPD	Oct. 12
DRAWN :	AMC	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982.1013-01.dwg		
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REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

NOTES :
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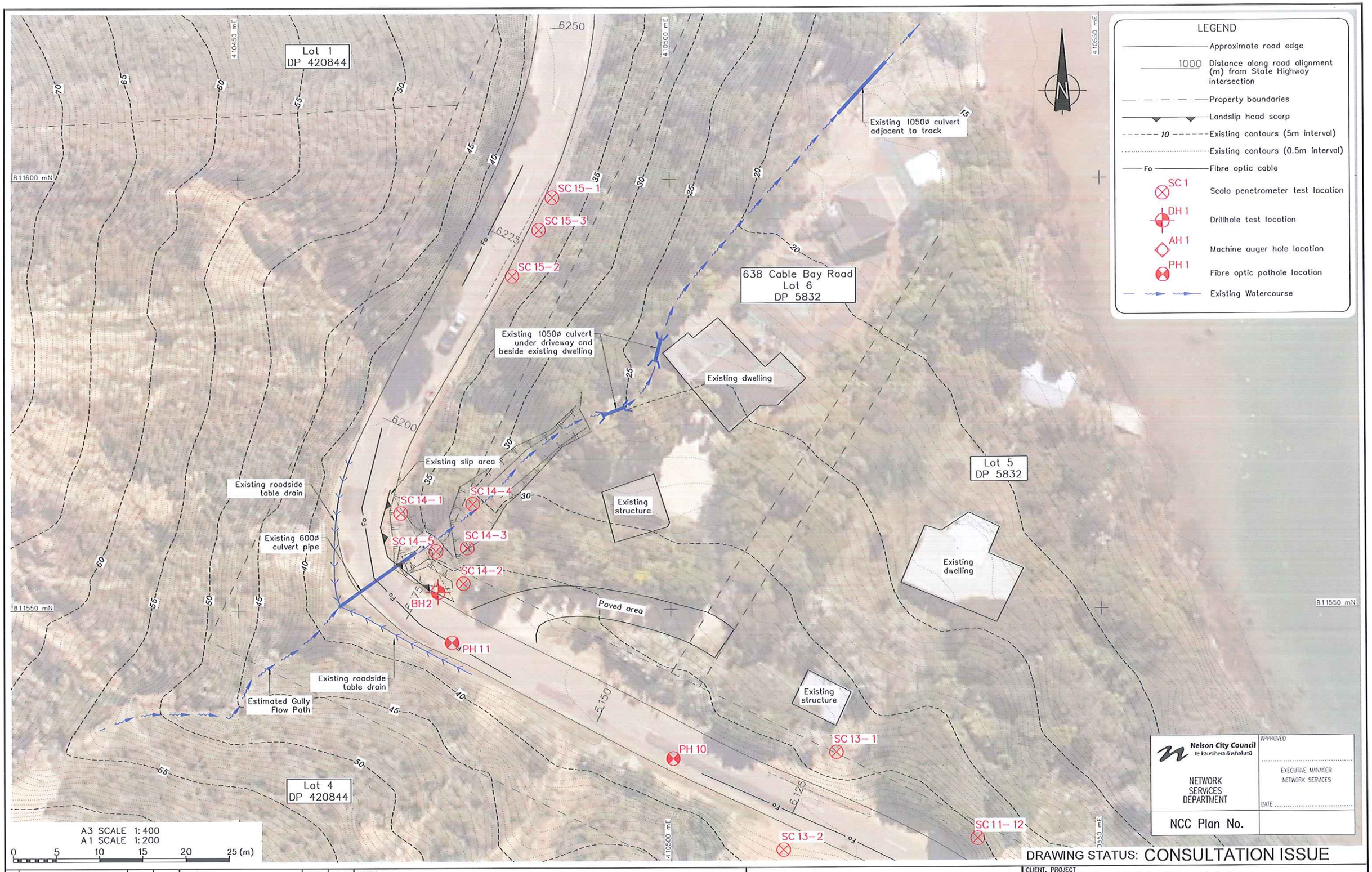
TITLE
GENERAL INFORMATION – SITE 13
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1013-01	1

P:\870982\870982.1013\WorkingMaterial\CAD\870982.1013-01.dwg, 01, 31/10/2012 8:20:25 p.m., dja, 1:2



Nelson City Council te kaunihera ō whakatū
NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

DESIGNED :	MPD	Oct. 12
DRAWN :	JATG	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982.1014–01.dwg		
APPROVED : NOT FOR CONSTRUCTION		
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REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

NOTES :
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REFERENCE :

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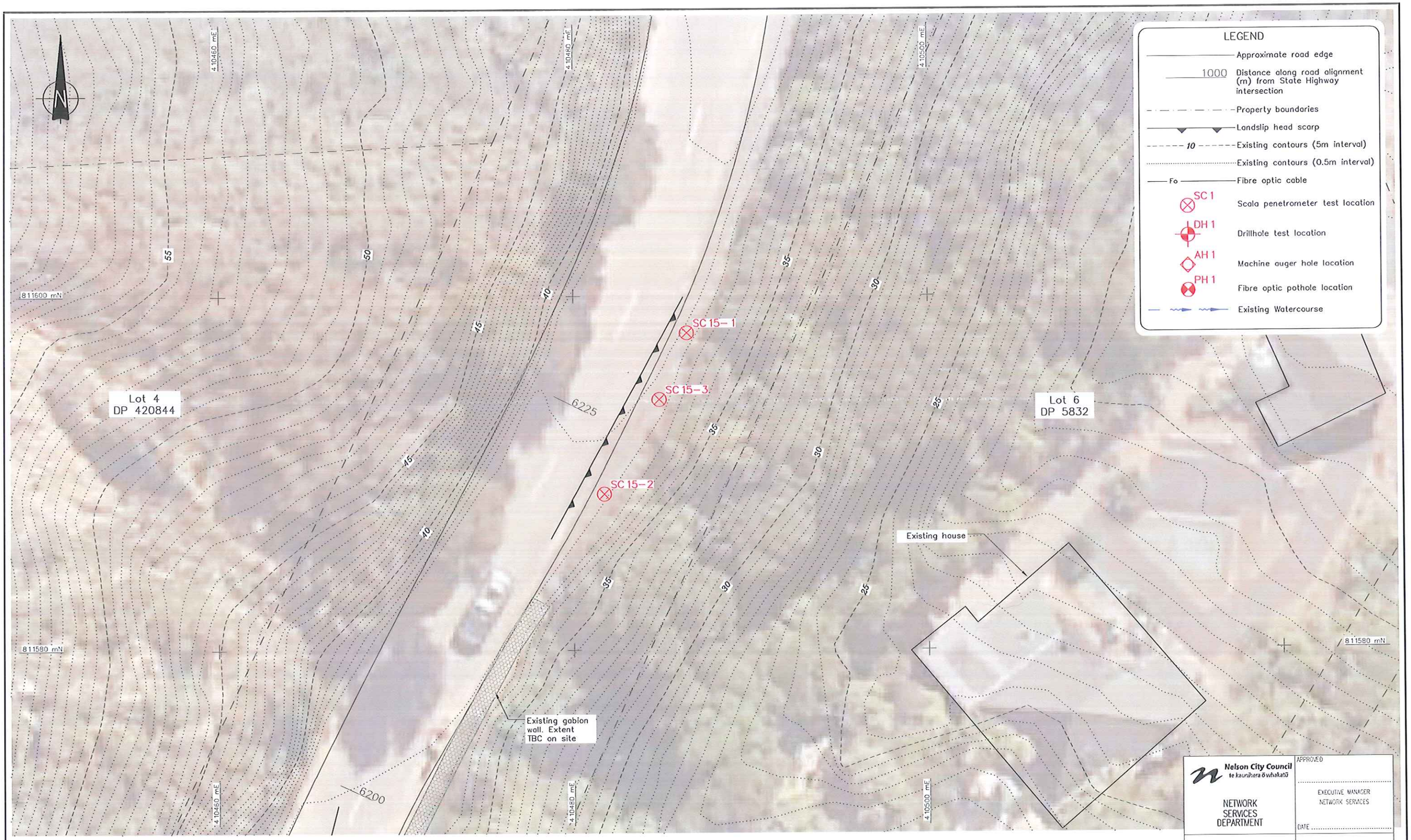
NELSON CITY COUNCIL
CABLE BAY ROAD REMEDIATION

TITLE
GENERAL INFORMATION – SITE 14
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1:200	870982.1014–01	1



A3 SCALE 1:200
A1 SCALE 1:100
0 1 2 3 4 6 8 10 (m)

Nelson City Council te kaunihera o whakatū
NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DT	10/12
CADFILE : \\870982.1015-01.dwg		
APPROVED : NOT FOR CONSTRUCTION		

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NOTES :
1. All dimensions are in metres unless noted otherwise.
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NELSON CITY COUNCIL
CABLE BAY ROAD REMEDIATION

TITLE
GENERAL INFORMATION – SITE 15
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1015–01	1

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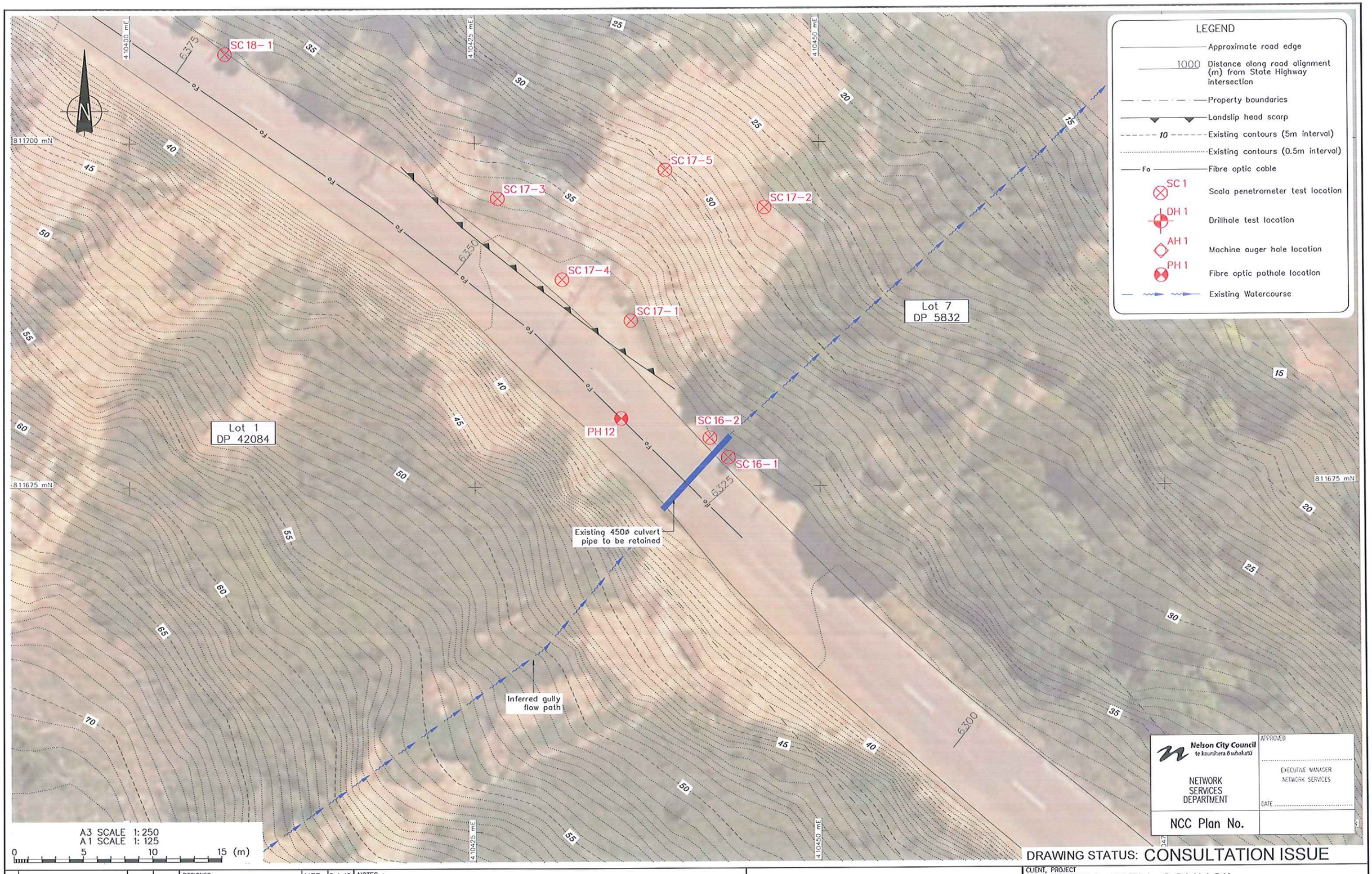

Nelson City Council te kaunihera ō whakatū
NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	JATG	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12

CADFILE : \\870982.1016–01.dwg

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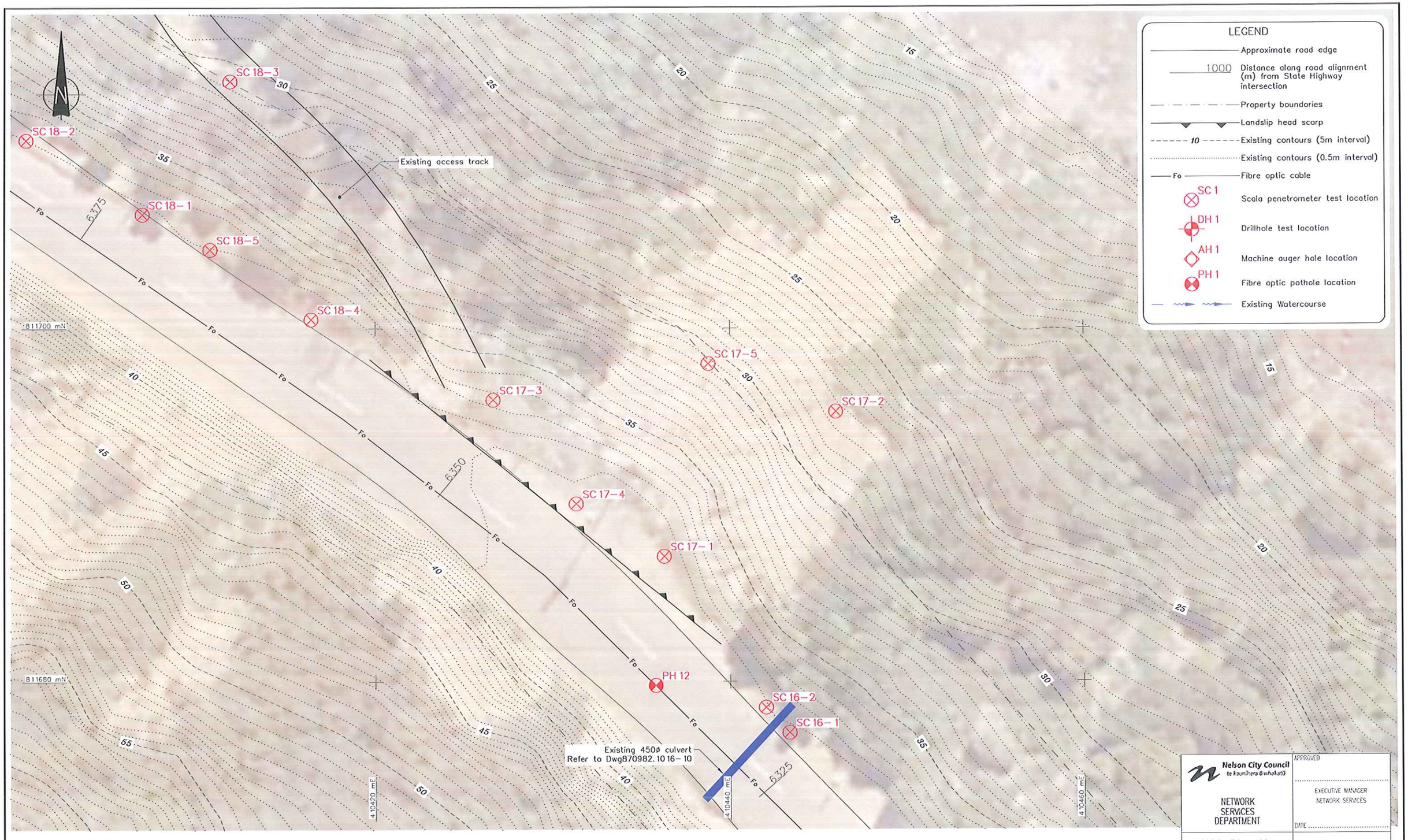
TITLE
GENERAL INFORMATION – SITE 16
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 125	870982.1016–01	1



A3 SCALE 1:200
A1 SCALE 1:100
0 1 2 3 4 6 8 10 (m)

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te kaunihera o whakatū
NETWORK SERVICES DEPARTMENT
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DATE .....
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		6/12

DESIGNED :	MPD	Jul. 12
DRAWN :	DWM	Jul. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :		10/12

CADFILE : \\870982.1017–01.dwg
APPROVED : NOT FOR CONSTRUCTION
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NOTES :
1. All dimensions are in metres unless noted otherwise.
2. Coordinates are in terms of : Nelson 2000 Circuit (NZGD 2000 Datum)
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TITLE
GENERAL INFORMATION – SITE 17
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1017–01	1

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A3 SCALE 1:200
A1 SCALE 1:100
0 1 2 3 4 6 8 10 (m)

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NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DJA	10/12
CADFILE : \\870982.1018–01.dwg		
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REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

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TITLE
GENERAL INFORMATION – SITE 18
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1018–01	1

P:\870982\870982.1018\WorkingMaterial\CAD\870982.1018-01.dwg, 01, 31/10/2012 8:29:47 p.m., dja, 1:2

A3 SCALE 1:200
A1 SCALE 1:100

0 1 2 3 4 6 8 10 (m)

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APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DM	10/12

CADFILE : \\870982.1019–01.dwg

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TITLE
GENERAL INFORMATION – SITE 19
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1019–01	1

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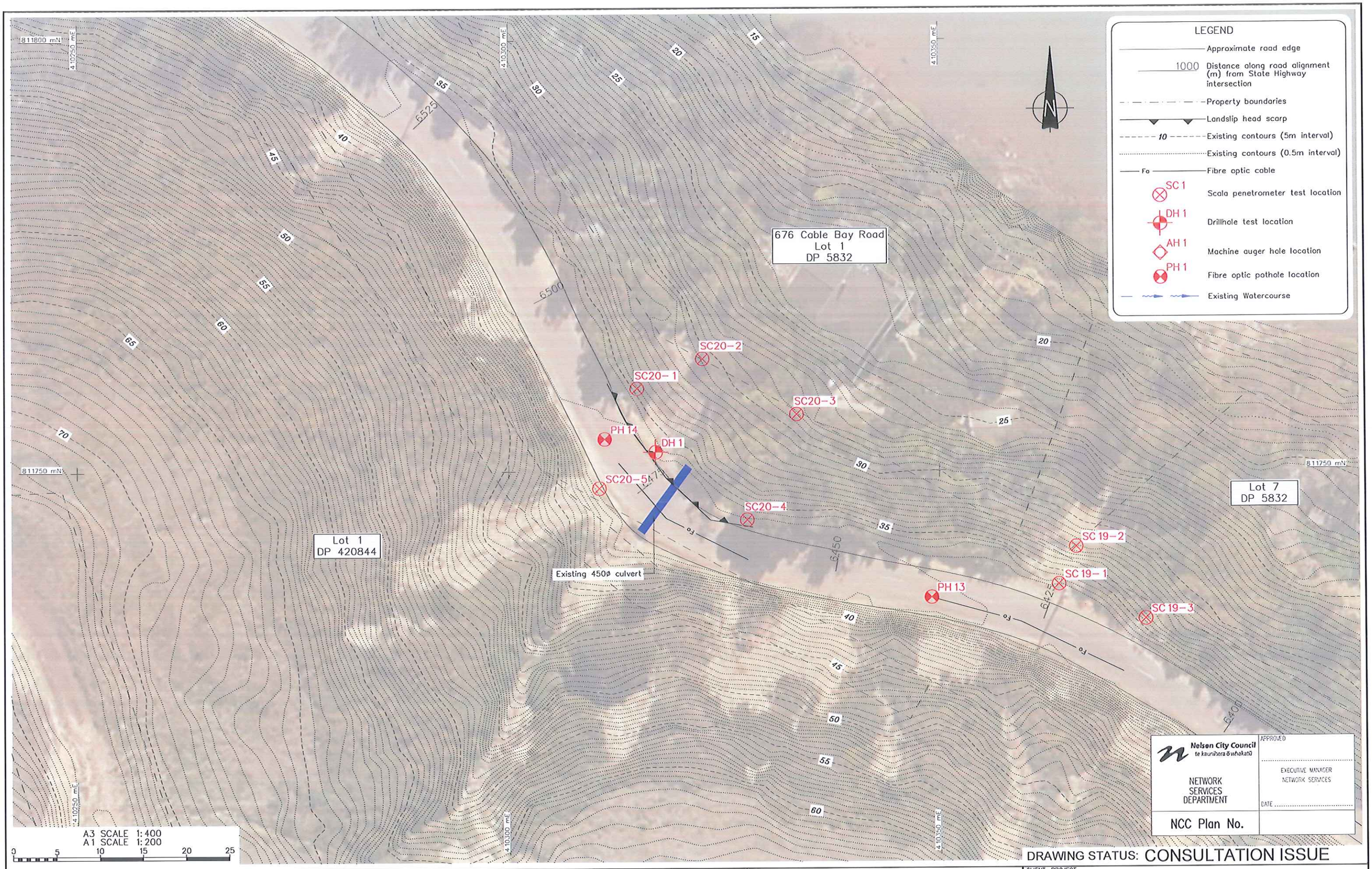

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	JATG	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12

CADFILE : \\870982.1020-01.dwg

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2. Coordinates are in terms of : Nelson 2000 Circuit (NZGD 2000 Datum)
   Lidar contours and aerial photos sourced from : Nelson City Council.
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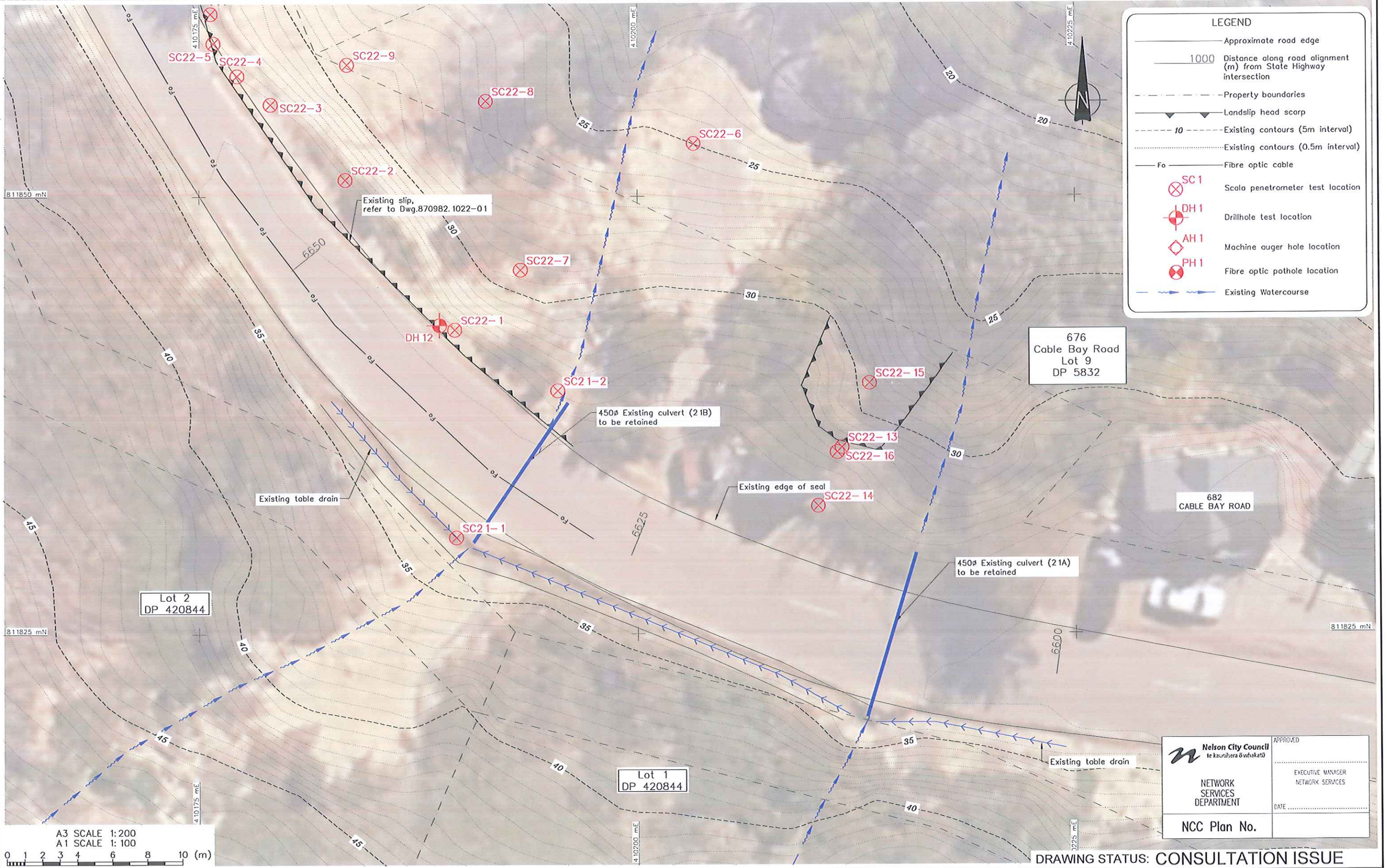
CABLE BAY ROAD REMEDIATION

TITLE
GENERAL INFORMATION – SITE 20
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1:200	870982.1020-01	1



Nelson City Council te kaunihera ō whakatū
NETWORK SERVICES DEPARTMENT
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EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	JATG	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	OA	10/12

CADFILE : \\870982.1021-01.dwg

APPROVED : NOT FOR CONSTRUCTION

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Tonkin & Taylor
Environmental and Engineering Consultants
105 Carlton Gore Road, Newmarket, Auckland
Tel. (09) 355 6000 Fax. (09) 307 0265
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TITLE
GENERAL INFORMATION – SITE 21
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1021-01	1

LEGEND

- Approximate road edge
- 1000 — Distance along road alignment (m) from State Highway intersection
- Property boundaries
- Landslip head scarp
- 10 — Existing contours (5m interval)
- Existing contours (0.5m interval)
- Fo — Fibre optic cable
- SC 1 — Scala penetrometer test location
- DH 1 — Drillhole test location
- AH 1 — Machine auger hole location
- PH 1 — Fibre optic pothole location
- Existing Watercourse

PH 15
SC22–12
SC22–11
SC22–10
SC6
SC22–5
SC22–4
SC22–9
SC22–8
SC22–3
SC22–6
SC22–2
SC22–7
SC22–1
DH 12
SC21–2
SC22–15
SC22–13
SC22–16
SC22–14
SC21–1
Existing water tank
Existing house
Existing 450ø culvert
See Dwg 870982.1021–10

4.10.175 mE
4.10200 mE
811850 mN
6650
6625

A3 SCALE 1:200
A1 SCALE 1:100
0 1 2 3 4 6 8 10 (m)

Nelson City Council te kaunihera ō whakatū
NETWORK SERVICES DEPARTMENT
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DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DM	10/12
CADFILE : \\870982.1022–01.dwg		
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1	Consultation Issue	Y	10/12

NOTES :
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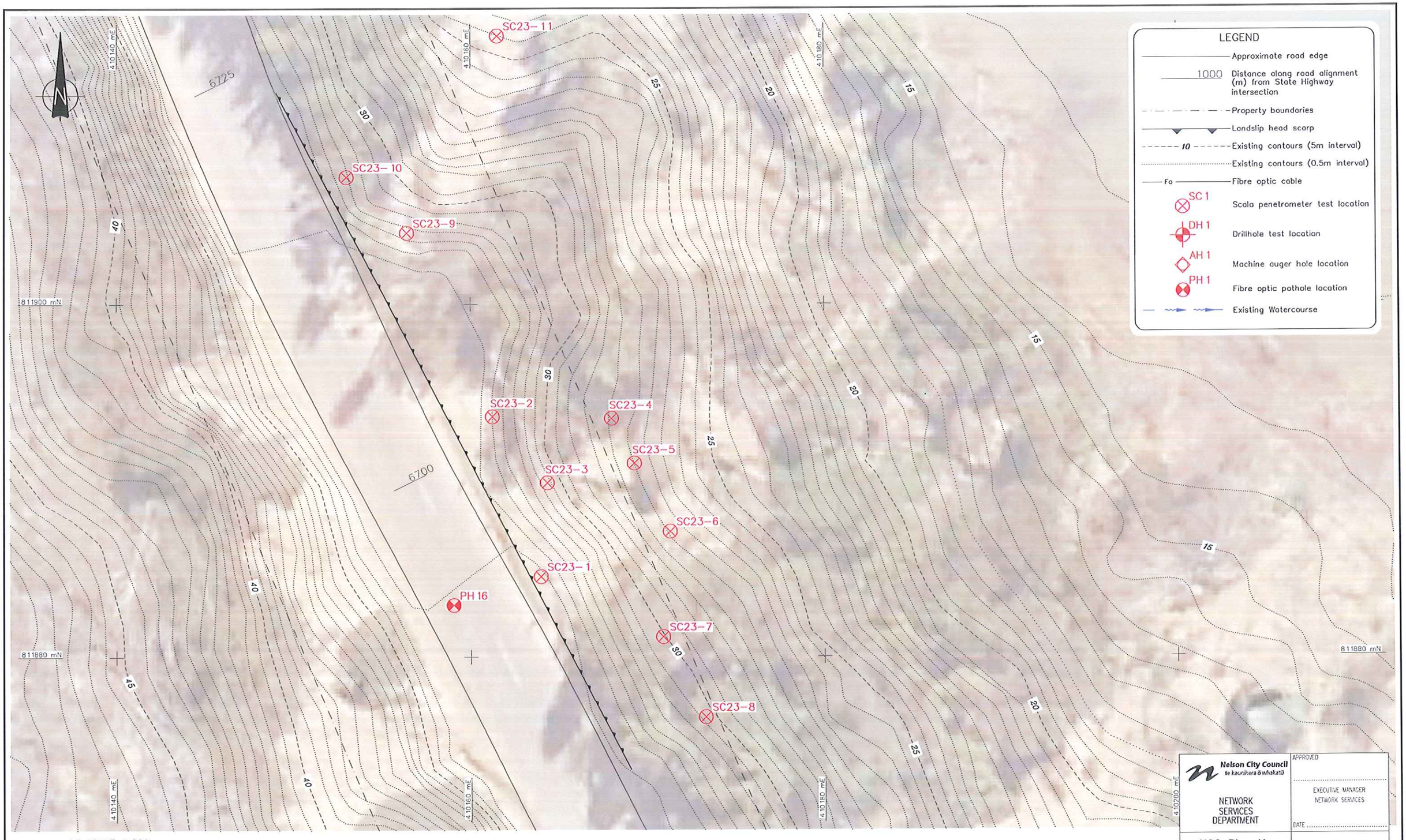
TITLE
GENERAL INFORMATION – SITE 22
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1022–01	1

P:\870982\870982.1022\WorkingMaterial\CAD\870982.1022-01.dwg, 01, 31/10/2012 8:41:47 p.m., dja, 1:2



A3 SCALE 1: 200
A1 SCALE 1: 100

0 1 2 3 4 6 8 10 (m)

Nelson City Council te kaunihera ō whakatū
NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :		10/12
DRAFTING CHECKED :		10/12
CADFILE : \\870982.1023-01.dwg		
APPROVED : NOT FOR CONSTRUCTION		

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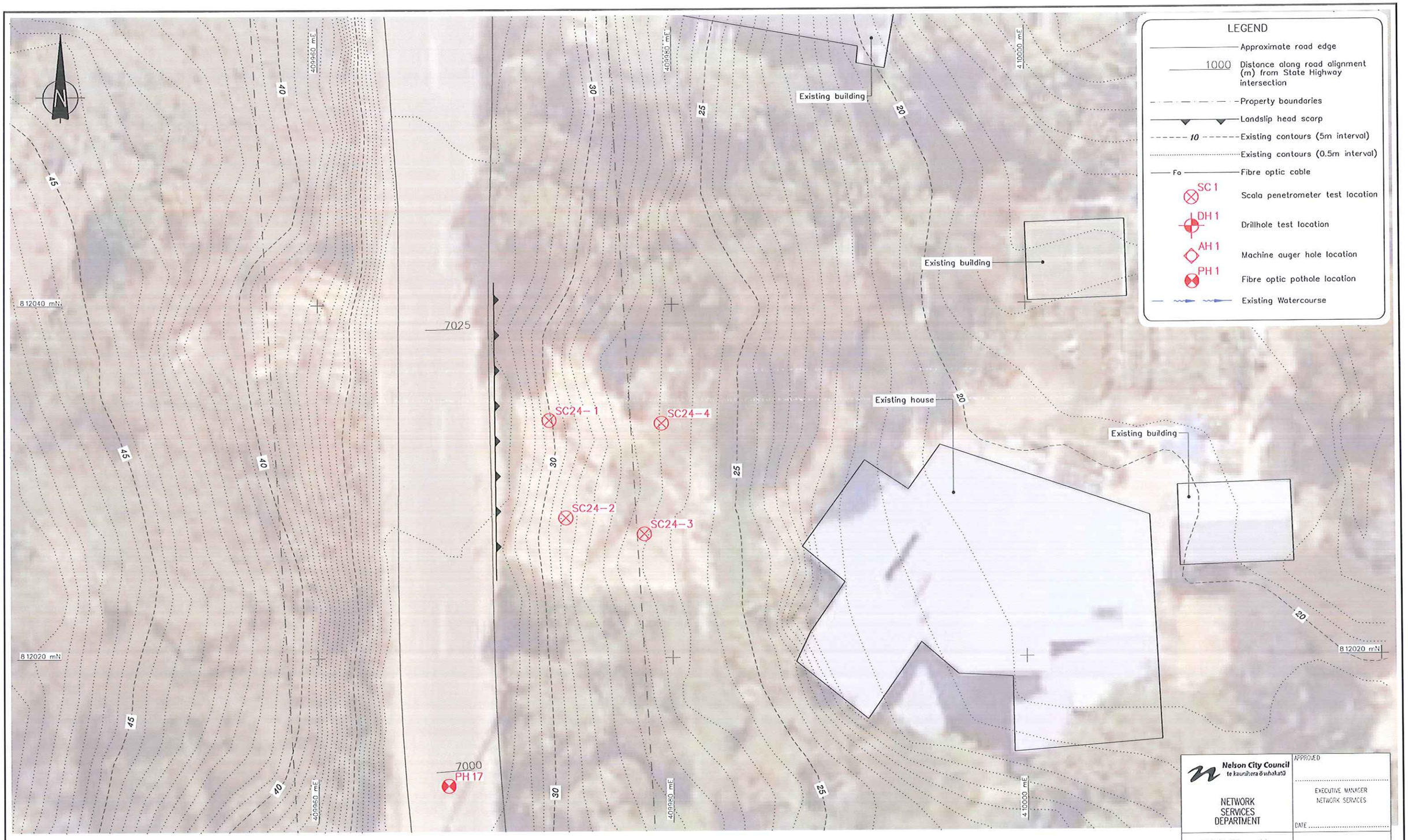
TITLE
GENERAL INFORMATION – SITE 23
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1023-01	1

P:\870982\870982.1023\WorkingMaterial\CAD\870982.1023-01.dwg, 01, 31/10/2012 8:43:03 p.m., dja, 1:2



A3 SCALE 1: 200
A1 SCALE 1: 100
0 1 2 3 4 6 8 10 (m)

Nelson City Council te kaunihera o whakatū
NETWORK SERVICES DEPARTMENT
APPROVED
EXECUTIVE MANAGER NETWORK SERVICES
DATE
NCC Plan No.

DRAWING STATUS: CONSULTATION ISSUE

DESIGNED :	MPD	Oct. 12
DRAWN :	AMC	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982.1024-01.dwg		
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REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

NOTES :
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CABLE BAY ROAD REMEDIATION

TITLE
GENERAL INFORMATION – SITE 24
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 100	870982.1024-01	1

P:\870982\870982.1024\WorkingMaterial\CAD\870982.1024-01.dwg, 01, 31/10/2012 8:44:21 p.m., dja, 1:2

LEGEND

- Approximate road edge
- 1000 Distance along road alignment (m) from State Highway intersection
- Property boundaries
- Landslip head scarp
- 10 Existing contours (5m interval)
- Existing contours (0.5m interval)
- Fo Fibre optic cable
- SC 1 Scala penetrometer test location
- DH 1 Drillhole test location
- AH 1 Machine auger hole location
- PH 1 Fibre optic pothole location
- Existing Watercourse

752 Cable Bay Road
Lot 2
DP 15850

748 Cable Bay Road
Lot 2
DP 15850

744 Cable Bay Road
Lot 1
DP 15850

Lot 1
DP 322959

Lot 4
DP 420844

Lot 1
DP 16654

Existing 450ø culvert (25B)

Existing 450ø culvert (25A)

PH 18

SC25-3

SC25-2

SC25-1

Indicative gully flow path

409800 mE

409850 mE

409900 mE

812100 mN

812050 mN

A3 SCALE 1:400
A1 SCALE 1:200
0 5 10 15 20 25 (m)

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	JATG	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982.1025-01.dwg		
APPROVED : NOT FOR CONSTRUCTION		

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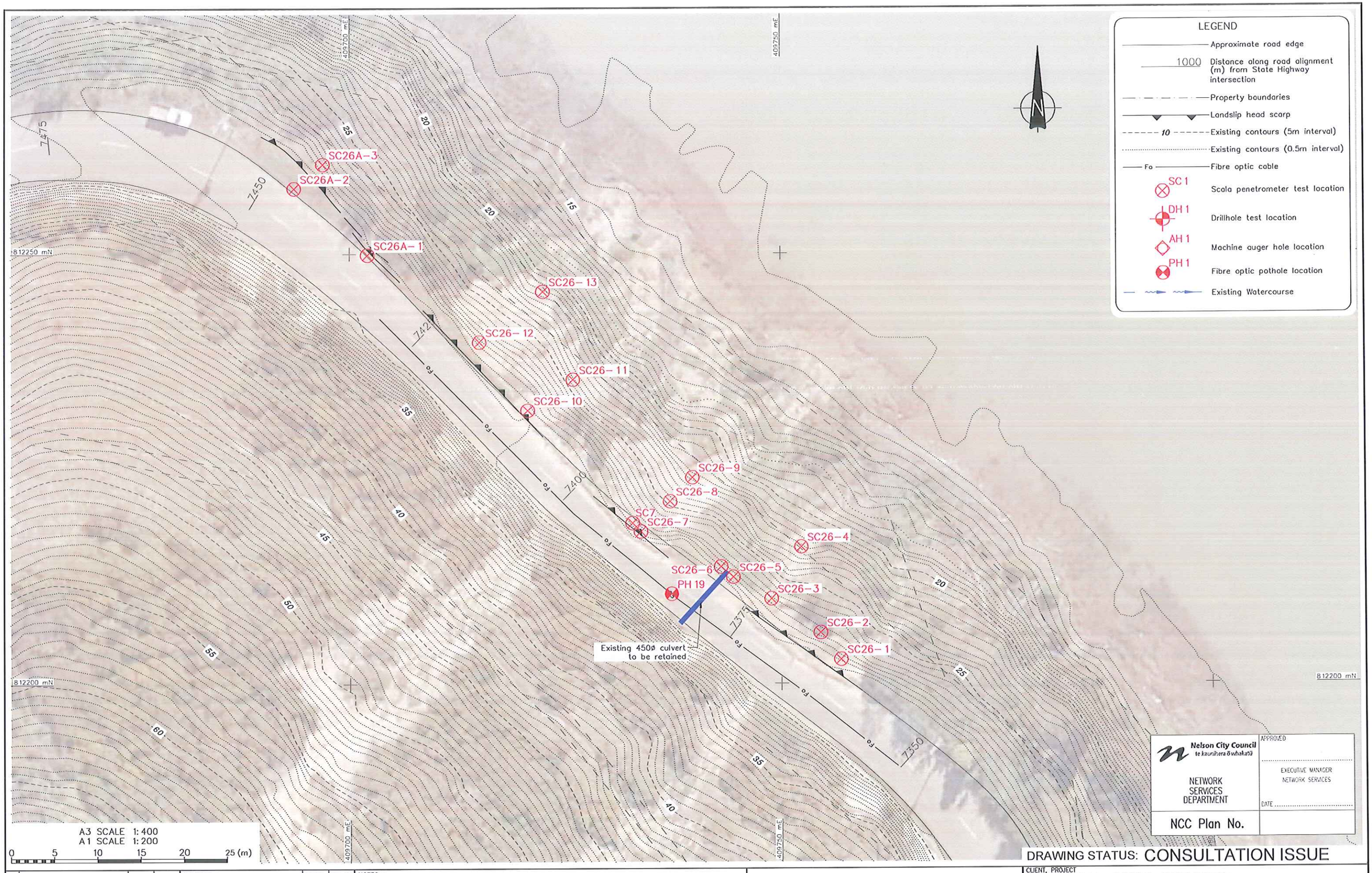
TITLE
GENERAL INFORMATION – SITE 25
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1:200	870982.1025-01	1



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DATE
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DRAWING STATUS: CONSULTATION ISSUE

DESIGNED :	MPD	Oct. 12
DRAWN :	DWM	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12
CADFILE : \\870982.1026-01.dwg		
APPROVED : NOT FOR CONSTRUCTION		
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REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

NOTES :
1. All dimensions are in metres unless noted otherwise.
2. Coordinates are in terms of : Nelson 2000 Circuit (NZGD 2000 Datum) Lidar contours and aerial photos sourced from : Nelson City Council.
3. Parcel boundaries, services location and culvert location sourced from : Davis Ogilvie & Partners Ltd.
4. Services and service locations shown on this plan are indicative only. Other services may be present but not shown on this plan. The Contractor shall be responsible for notifying, locating, protecting and relocating all services on the site.

REFERENCE :

Tonkin & Taylor
Environmental and Engineering Consultants
43 Halifax St, Nelson
Tel. (03) 546 6339 Fax. (03) 546 7619
www.tonkin.co.nz

CLIENT, PROJECT
NELSON CITY COUNCIL
CABLE BAY ROAD REMEDIATION

TITLE
GENERAL INFORMATION – SITE 26
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1:200	870982.1026-01	1

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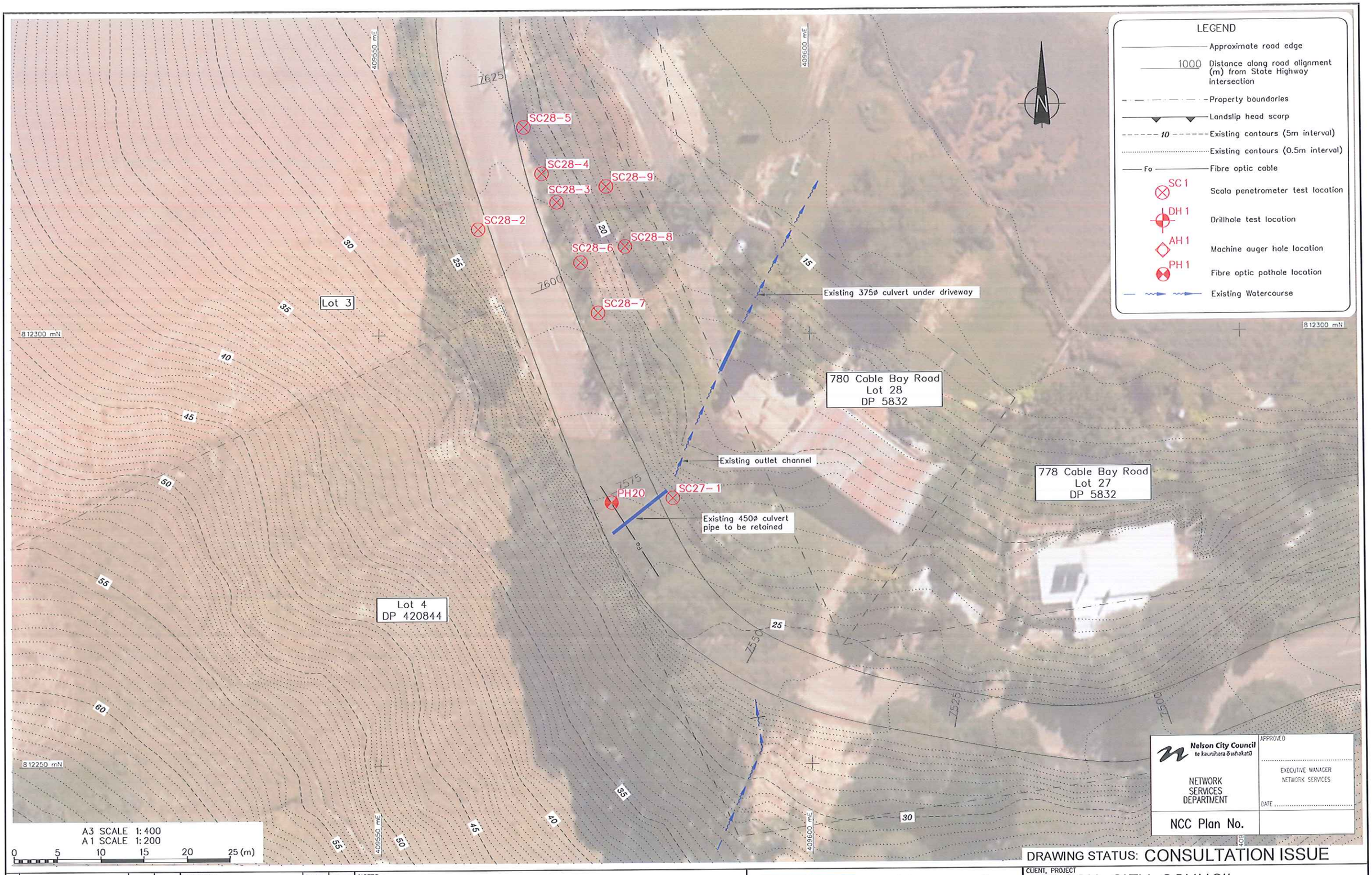

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue	JT	10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	JATG	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DA	10/12

CADFILE : \\870982.1027-01.dwg

APPROVED :
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NOTES :
1. All dimensions are in metres unless noted otherwise.
2. Coordinates are in terms of : Nelson NZGD2000.
3. Lidar contours and aerial photos sourced from : Nelson City Council.
4. Parcel boundaries, services location and culvert location sourced from : Davis Ogilvie Surveyors Ltd.

REFERENCE :

Tonkin & Taylor
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Tel. (03) 546 6339 Fax. (03) 546 7619
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CLIENT, PROJECT
NELSON CITY COUNCIL
CABLE BAY ROAD REMEDIATION

TITLE
GENERAL INFORMATION – SITE 27
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
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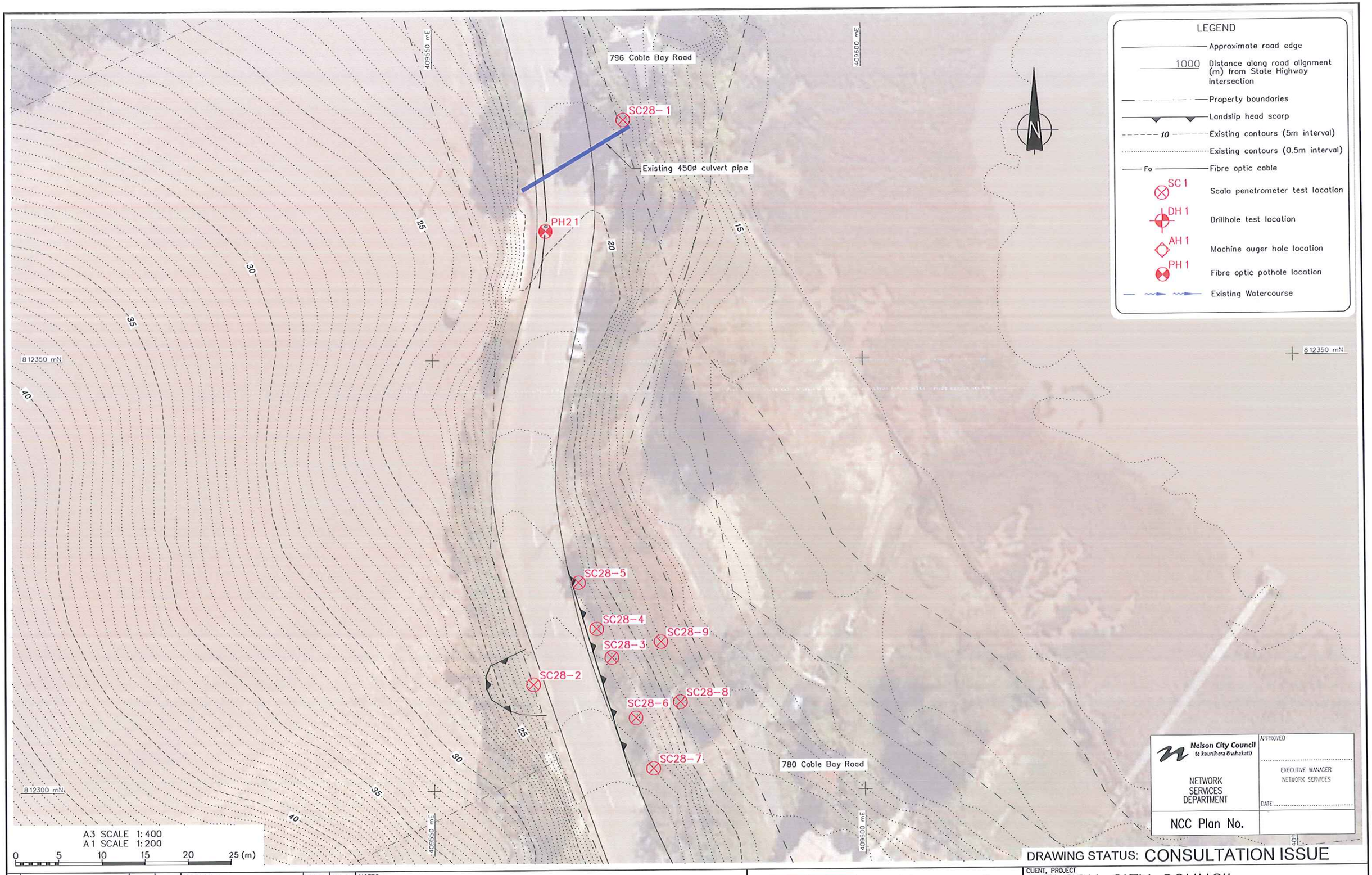

DRAWING STATUS: CONSULTATION ISSUE

REVISION	DESCRIPTION	BY	DATE
1	Consultation Issue		10/12

DESIGNED :	MPD	Oct. 12
DRAWN :	DJAA	Oct. 12
DESIGN CHECKED :	MPD	10/12
DRAFTING CHECKED :	DJA	10/12

CADFILE : \\870982.1028–01.dwg

APPROVED : NOT FOR CONSTRUCTION

This drawing is not to be used for construction purposes unless signed as approved

NOTES :

1. All dimensions are in metres unless noted otherwise.
2. Coordinates are in terms of : Nelson 2000 Circuit (NZGD 2000 Datum) Lidar contours and aerial photos sourced from : Nelson City Council.
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REFERENCE :

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Tel. (03) 546 6339 Fax. (03) 546 7619
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CLIENT, PROJECT
NELSON CITY COUNCIL
CABLE BAY ROAD REMEDIATION

TITLE
GENERAL INFORMATION – SITE 28
Existing Site and Site Investigation Plan

SCALES (AT A1 SIZE)	DWG. No.	REV.
1: 200	870982.1028–01	1

P:\870982\870982.1028\WorkingMaterial\CAD\870982.1028-01.dwg, 01, 31/10/2012 8:49:47 p.m., dja, 1:2

Appendix B: Investigation data

- **Scala penetrometer logs – SC1-SC28**
- **Drillhole logs – BH1-BH12**
- **Auger hole logs – Test Auger 1-4**
- **Pot holes for Fibre Optic Cable**
- **Engineering Terminology log sheet**

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P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

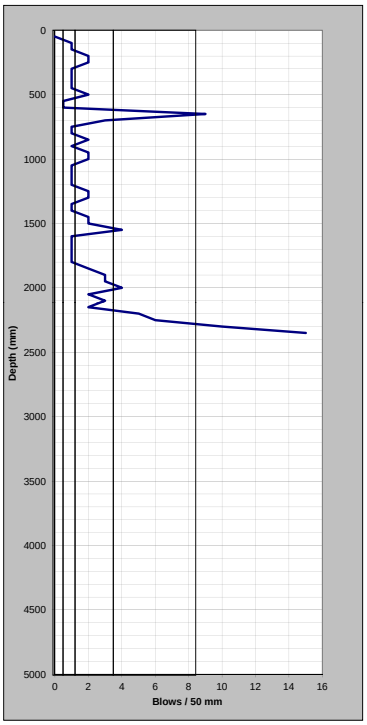
SCALA PENETROMETER LOG

Job No: 870982.1000
Project: Cable Bay Road Remediation
Location: Cable Bay Road
Position: Section 1 (568m)

Date: 7/03/2012
Operated by: TL
Logged by: MPD
Checked by: MPD

Test No. SC1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	1	2600	
150	1	2650	
200	2	2700	
250	2	2750	
300	1	2800	
350	1	2850	
400	1	2900	
450	1	2950	
500	2	3000	
550	0.5	3050	
600	0.5	3100	
650	9	3150	
700	3	3200	
750	1	3250	
800	1	3300	
850	2	3350	
900	1	3400	
950	2	3450	
1000	2	3500	
1050	1	3550	
1100	1	3600	
1150	1	3650	
1200	1	3700	
1250	2	3750	
1300	2	3800	
1350	1	3850	
1400	1	3900	
1450	2	3950	
1500	2	4000	
1550	4	4050	
1600	1	4100	
1650	1	4150	
1700	1	4200	
1750	1	4250	
1800	1	4300	
1850	2	4350	
1900	3	4400	
1950	3	4450	
2000	4	4500	
2050	2	4550	
2100	3	4600	
2150	2	4650	
2200	5	4700	
2250	6	4750	
2300	10	4800	
2350	15	4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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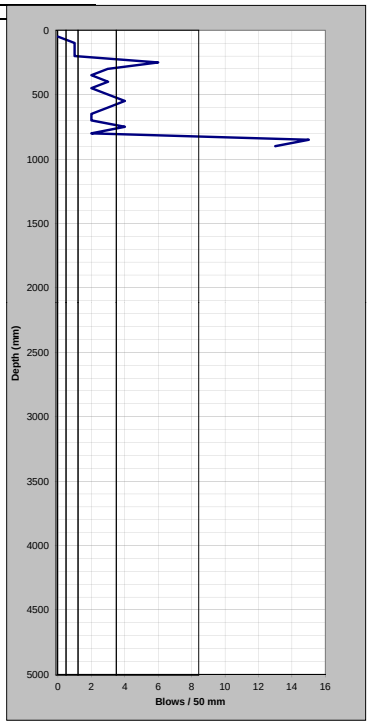
SCALA PENETROMETER LOG

Job No: 870982.1000
Project: Cable Bay Road Remediation
Location: Cable Bay Road
Position: Section 2 (591m)

Date: 7/03/2012
Operated by: TL
Logged by: MPD
Checked by: MPD

Test No. SC2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	1	2600	
150	1	2650	
200	1	2700	
250	6	2750	
300	3	2800	
350	2	2850	
400	3	2900	
450	2	2950	
500	3	3000	
550	4	3050	
600	3	3100	
650	2	3150	
700	2	3200	
750	4	3250	
800	2	3300	
850	15	3350	
900	13	3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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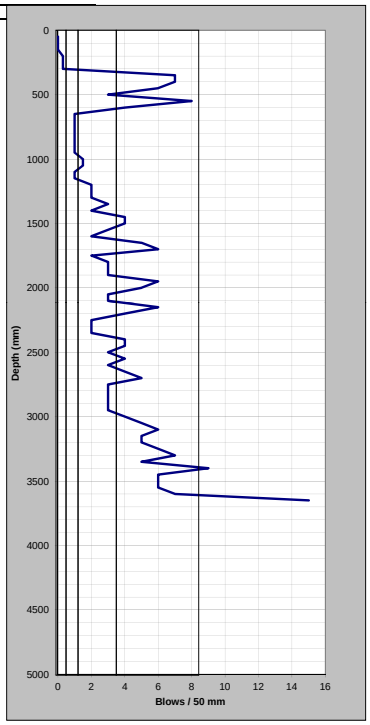
SCALA PENETROMETER LOG

Job No: 870982.1000
Project: Cable Bay Road Remediation
Location: Cable Bay Road
Position: Section 3 (601m)

Date: 7/03/2012
Operated by: TL
Logged by: MPD
Checked by: MPD

Test No. SC3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	4
100	0	2600	3
150	0	2650	4
200	0.3	2700	5
250	0.3	2750	3
300	0.3	2800	3
350	7	2850	3
400	7	2900	3
450	6	2950	3
500	3	3000	4
550	8	3050	5
600	4	3100	6
650	1	3150	5
700	1	3200	5
750	1	3250	6
800	1	3300	7
850	1	3350	5
900	1	3400	9
950	1	3450	6
1000	1.5	3500	6
1050	1.5	3550	6
1100	1	3600	7
1150	1	3650	15
1200	2	3700	Bouncing
1250	2	3750	
1300	2	3800	
1350	3	3850	
1400	2	3900	
1450	4	3950	
1500	4	4000	
1550	3	4050	
1600	2	4100	
1650	5	4150	
1700	6	4200	
1750	2	4250	
1800	3	4300	
1850	3	4350	
1900	3	4400	
1950	6	4450	
2000	5	4500	
2050	3	4550	
2100	3	4600	
2150	6	4650	
2200	4	4700	
2250	2	4750	
2300	2	4800	
2350	2	4850	
2400	4	4900	
2450	4	4950	
2500	3	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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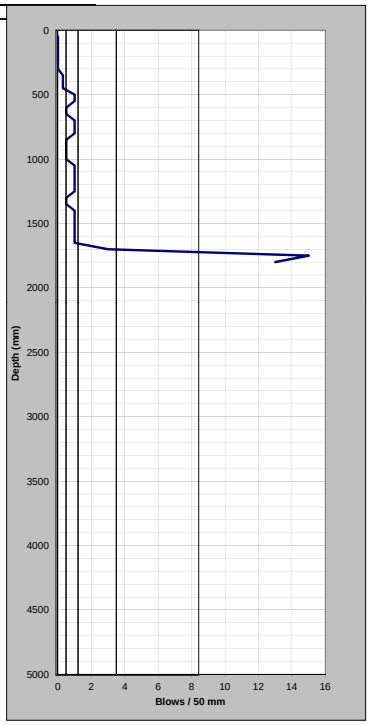
SCALA PENETROMETER LOG

Job No: 870982.1000
Project: Cable Bay Road Remediation
Location: Cable Bay Road
Position: Section 4 (628m)

Date: 7/03/2012
Operated by: TL
Logged by: MPD
Checked by: MPD

Test No. SC4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0	2650	
200	0	2700	
250	0	2750	
300	0	2800	
350	0.3	2850	
400	0.3	2900	
450	0.3	2950	
500	1	3000	
550	1	3050	
600	0.5	3100	
650	0.5	3150	
700	1	3200	
750	1	3250	
800	1	3300	
850	0.5	3350	
900	0.5	3400	
950	0.5	3450	
1000	0.5	3500	
1050	1	3550	
1100	1	3600	
1150	1	3650	
1200	1	3700	
1250	1	3750	
1300	0.5	3800	
1350	0.5	3850	
1400	1	3900	
1450	1	3950	
1500	1	4000	
1550	1	4050	
1600	1	4100	
1650	1	4150	
1700	3	4200	
1750	15	4250	
1800	13	4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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SCALA PENETROMETER LOG

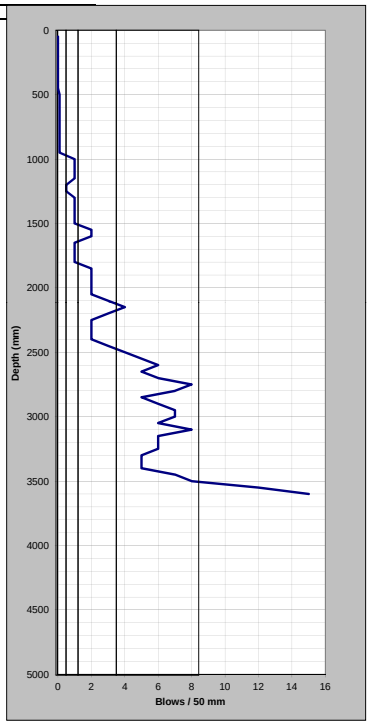
Job No: 870982.1000
Project: Cable Bay Road Remediation
Location: Cable Bay Road
Position: Section 5 (655m)

Date: 7/03/2012
Operated by: TL
Logged by: MPD
Checked by: MPD

Test No. SC5
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	5
100	0	2600	6
150	0	2650	5
200	0	2700	6
250	0	2750	8
300	0	2800	7
350	0	2850	5
400	0	2900	6
450	0	2950	7
500	0.1	3000	7
550	0.1	3050	6
600	0.1	3100	8
650	0.1	3150	6
700	0.1	3200	6
750	0.1	3250	6
800	0.1	3300	5
850	0.1	3350	5
900	0.1	3400	5
950	0.1	3450	7
1000	1	3500	8
1050	1	3550	12
1100	1	3600	15
1150	1	3650	
1200	0.5	3700	
1250	0.5	3750	
1300	1	3800	
1350	1	3850	
1400	1	3900	
1450	1	3950	
1500	1	4000	
1550	2	4050	
1600	2	4100	
1650	1	4150	
1700	1	4200	
1750	1	4250	
1800	1	4300	
1850	2	4350	
1900	2	4400	
1950	2	4450	
2000	2	4500	
2050	2	4550	
2100	3	4600	
2150	4	4650	
2200	3	4700	
2250	2	4750	
2300	2	4800	
2350	2	4850	
2400	2	4900	
2450	3	4950	
2500	4	5000	

Bouncing



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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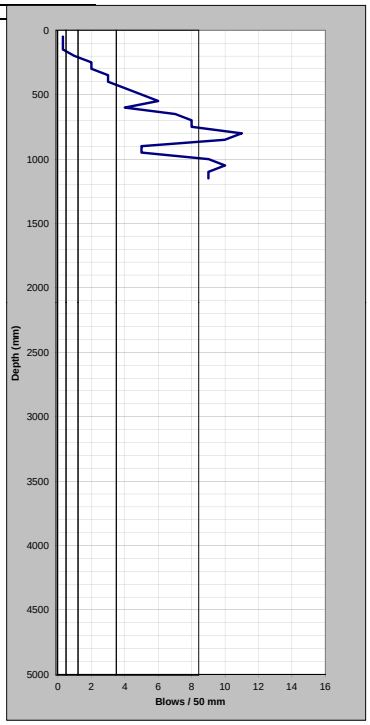
SCALA PENETROMETER LOG

Job No: 870982.1000
Project: Cable Bay Road Remediation
Location: Cable Bay Road
Position: Section 6 (691m)

Date: 7/03/2012
Operated by: TL
Logged by: MPD
Checked by: MPD

Test No. SC6
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.3	2550	
100	0.3	2600	
150	0.3	2650	
200	1	2700	
250	2	2750	
300	2	2800	
350	3	2850	
400	3	2900	
450	4	2950	
500	5	3000	
550	6	3050	
600	4	3100	
650	7	3150	
700	8	3200	
750	8	3250	
800	11	3300	
850	10	3350	
900	5	3400	
950	5	3450	
1000	9	3500	
1050	10	3550	
1100	9	3600	
1150	9	3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

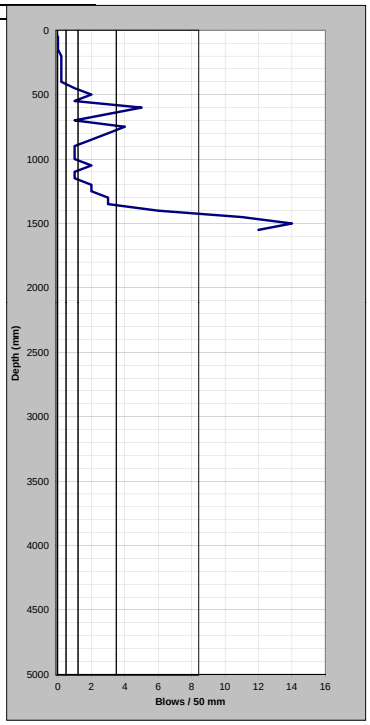
SCALA PENETROMETER LOG

Job No: 870982.1000
Project: Cable Bay Road Remediation
Location: Cable Bay Road
Position: Section 7 (765m)

Date: 7/03/2012
Operated by: TL
Logged by: MPD
Checked by: MPD

Test No. SC7
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0	2650	
200	0.2	2700	
250	0.2	2750	
300	0.2	2800	
350	0.2	2850	
400	0.2	2900	
450	1	2950	
500	2	3000	
550	1	3050	
600	5	3100	
650	3	3150	
700	1	3200	
750	4	3250	
800	3	3300	
850	2	3350	
900	1	3400	
950	1	3450	
1000	1	3500	
1050	2	3550	
1100	1	3600	
1150	1	3650	
1200	2	3700	
1250	2	3750	
1300	3	3800	
1350	3	3850	
1400	6	3900	
1450	11	3950	
1500	14	4000	
1550	12	4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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NELSON
Tel: (03) 546 6339
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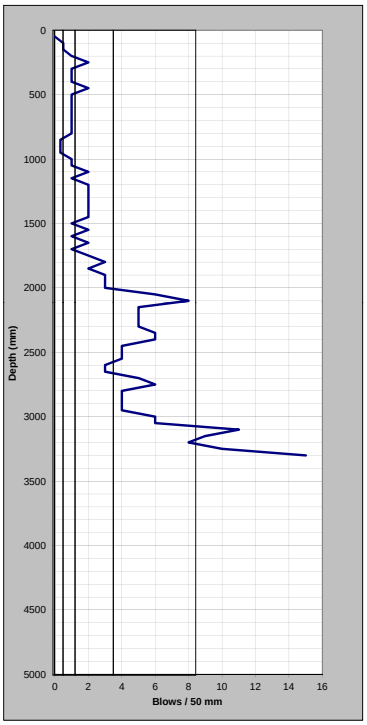
SCALA PENETROMETER LOG

Job No: 870982.1001
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC1A-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	4
100	0.5	2600	3
150	0.5	2650	3
200	1	2700	5
250	2	2750	6
300	1	2800	4
350	1	2850	4
400	1	2900	4
450	2	2950	4
500	1	3000	6
550	1	3050	6
600	1	3100	11
650	1	3150	9
700	1	3200	8
750	1	3250	10
800	1	3300	15 R
850	0.33	3350	
900	0.33	3400	
950	0.33	3450	
1000	1	3500	
1050	1	3550	
1100	2	3600	
1150	1	3650	
1200	2	3700	
1250	2	3750	
1300	2	3800	
1350	2	3850	
1400	2	3900	
1450	2	3950	
1500	1	4000	
1550	2	4050	
1600	1	4100	
1650	2	4150	
1700	1	4200	
1750	2	4250	
1800	3	4300	
1850	2	4350	
1900	3	4400	
1950	3	4450	
2000	3	4500	
2050	6	4550	
2100	8	4600	
2150	5	4650	
2200	5	4700	
2250	5	4750	
2300	5	4800	
2350	6	4850	
2400	6	4900	
2450	4	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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P O Box 1009
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Fax: (03) 546 7619

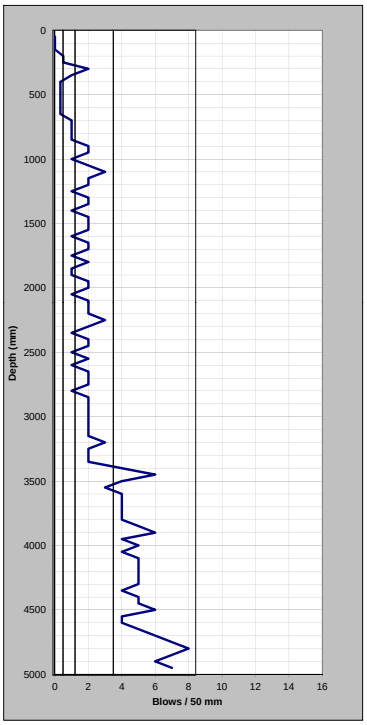
SCALA PENETROMETER LOG

Job No: 870982.1001
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC1A-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	2
100	0	2600	1
150	0	2650	2
200	0.5	2700	2
250	0.5	2750	2
300	2	2800	1
350	1	2850	2
400	0.33	2900	2
450	0.33	2950	2
500	0.33	3000	2
550	0.33	3050	2
600	0.33	3100	2
650	0.33	3150	2
700	1	3200	3
750	1	3250	2
800	1	3300	2
850	1	3350	2
900	2	3400	4
950	2	3450	6
1000	1	3500	4
1050	2	3550	3
1100	3	3600	4
1150	2	3650	4
1200	2	3700	4
1250	1	3750	4
1300	2	3800	4
1350	2	3850	5
1400	1	3900	6
1450	2	3950	4
1500	2	4000	5
1550	2	4050	4
1600	1	4100	5
1650	2	4150	5
1700	2	4200	5
1750	1	4250	5
1800	2	4300	5
1850	1	4350	4
1900	1	4400	5
1950	2	4450	5
2000	2	4500	6
2050	1	4550	4
2100	2	4600	4
2150	2	4650	5
2200	2	4700	6
2250	3	4750	7
2300	2	4800	8
2350	1	4850	7
2400	2	4900	6
2450	2	4950	7
2500	1	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

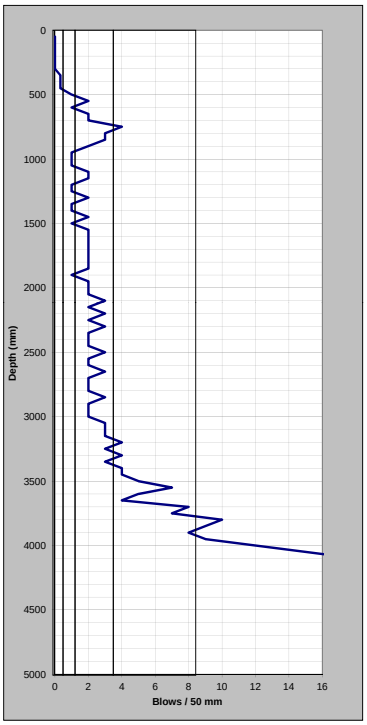
SCALA PENETROMETER LOG

Job No: 870982.1001
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC1A-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	2
100	0	2600	2
150	0	2650	3
200	0	2700	2
250	0	2750	2
300	0	2800	2
350	0.33	2850	3
400	0.33	2900	2
450	0.33	2950	2
500	1	3000	2
550	2	3050	3
600	1	3100	3
650	2	3150	3
700	2	3200	4
750	4	3250	3
800	3	3300	4
850	3	3350	3
900	2	3400	4
950	1	3450	4
1000	1	3500	5
1050	1	3550	7
1100	2	3600	5
1150	2	3650	4
1200	1	3700	8
1250	1	3750	7
1300	2	3800	10
1350	1	3850	9
1400	1	3900	8
1450	2	3950	9
1500	1	4000	12
1550	2	4050	15
1600	2	4100	18
1650	2	4150	
1700	2	4200	
1750	2	4250	
1800	2	4300	
1850	2	4350	
1900	1	4400	
1950	2	4450	
2000	2	4500	
2050	2	4550	
2100	3	4600	
2150	2	4650	
2200	3	4700	
2250	2	4750	
2300	3	4800	
2350	2	4850	
2400	2	4900	
2450	2	4950	
2500	3	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

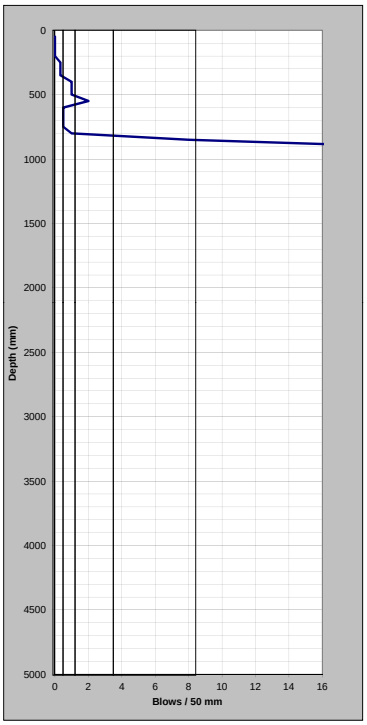
SCALA PENETROMETER LOG

Job No: 870982.1001
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC1A-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0	2650	
200	0	2700	
250	0.33	2750	
300	0.33	2800	
350	0.33	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	2	3050	
600	0.5	3100	
650	0.5	3150	
700	0.5	3200	
750	0.5	3250	
800	1	3300	
850	8	3350	
900	20 R	3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

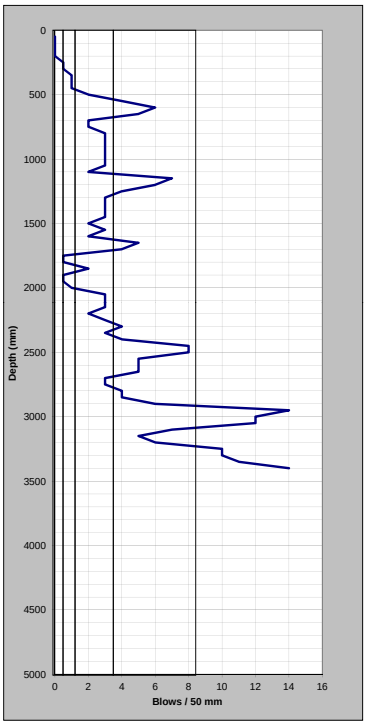
SCALA PENETROMETER LOG

Job No: 870982.1001
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC1A-5
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	5
100	0	2600	5
150	0	2650	5
200	0	2700	3
250	0.5	2750	3
300	0.5	2800	4
350	1	2850	4
400	1	2900	6
450	1	2950	14
500	2	3000	12
550	4	3050	12
600	6	3100	7
650	5	3150	5
700	2	3200	6
750	2	3250	10
800	3	3300	10
850	3	3350	11
900	3	3400	14
950	3	3450	
1000	3	3500	
1050	3	3550	
1100	2	3600	
1150	7	3650	
1200	6	3700	
1250	4	3750	
1300	3	3800	
1350	3	3850	
1400	3	3900	
1450	3	3950	
1500	2	4000	
1550	3	4050	
1600	2	4100	
1650	5	4150	
1700	4	4200	
1750	0.5	4250	
1800	0.5	4300	
1850	2	4350	
1900	0.5	4400	
1950	0.5	4450	
2000	1	4500	
2050	3	4550	
2100	3	4600	
2150	3	4650	
2200	2	4700	
2250	3	4750	
2300	4	4800	
2350	3	4850	
2400	4	4900	
2450	8	4950	
2500	8	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

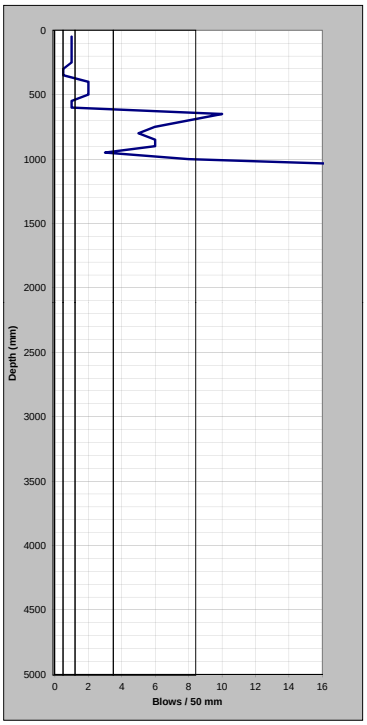
SCALA PENETROMETER LOG

Job No: 870982.1001
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 31/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC1B-1
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	1	2650	
200	1	2700	
250	1	2750	
300	0.5	2800	
350	0.5	2850	
400	2	2900	
450	2	2950	
500	2	3000	
550	1	3050	
600	1	3100	
650	10	3150	
700	8	3200	
750	6	3250	
800	5	3300	
850	6	3350	
900	6	3400	
950	3	3450	
1000	8	3500	
1050	20	3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

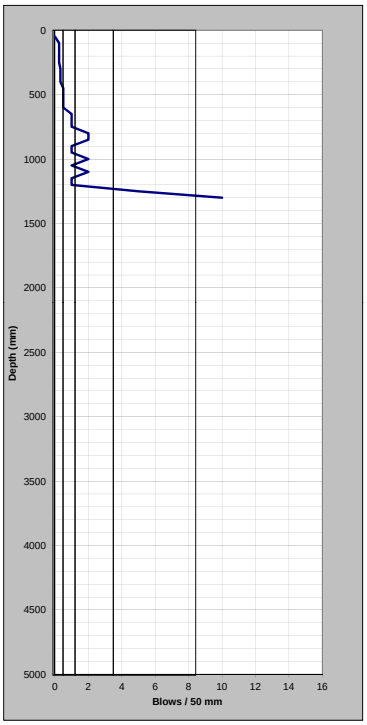
SCALA PENETROMETER LOG

Job No: 870982.1001
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 4/07/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC1B-2
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	0.25		2600	
150	0.25		2650	
200	0.25		2700	
250	0.25		2750	
300	0.33		2800	
350	0.33		2850	
400	0.33		2900	
450	0.5		2950	
500	0.5		3000	
550	0.5		3050	
600	0.5		3100	
650	1		3150	
700	1		3200	
750	1		3250	
800	2		3300	
850	2		3350	
900	1		3400	
950	1		3450	
1000	2		3500	
1050	1		3550	
1100	2		3600	
1150	1		3650	
1200	1		3700	
1250	5		3750	
1300	10	R	3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Tel: (03) 546 6339
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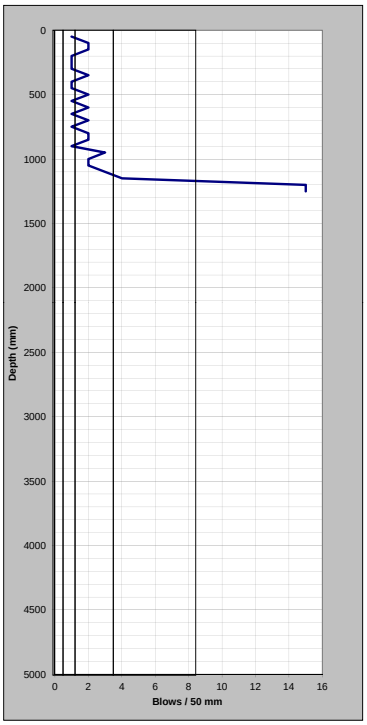
SCALA PENETROMETER LOG

Job No: 870982.1002
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC2A-1
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	1		2550	
100	2		2600	
150	2		2650	
200	1		2700	
250	1		2750	
300	1		2800	
350	2		2850	
400	1		2900	
450	1		2950	
500	2		3000	
550	1		3050	
600	2		3100	
650	1		3150	
700	2		3200	
750	1		3250	
800	2		3300	
850	2		3350	
900	1		3400	
950	3		3450	
1000	2		3500	
1050	2		3550	
1100	3		3600	
1150	4		3650	
1200	15		3700	
1250	15	R	3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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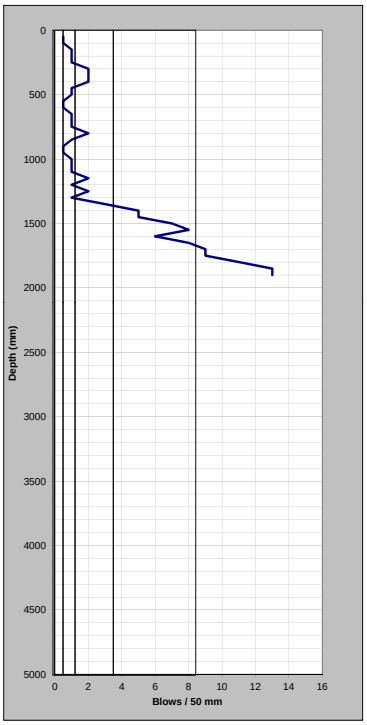
SCALA PENETROMETER LOG

Job No: 870982.1002
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC2A-2
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	1		2650	
200	1		2700	
250	1		2750	
300	2		2800	
350	2		2850	
400	2		2900	
450	1		2950	
500	1		3000	
550	0.5		3050	
600	0.5		3100	
650	1		3150	
700	1		3200	
750	1		3250	
800	2		3300	
850	1		3350	
900	0.5		3400	
950	0.5		3450	
1000	1		3500	
1050	1		3550	
1100	1		3600	
1150	2		3650	
1200	1		3700	
1250	2		3750	
1300	1		3800	
1350	3		3850	
1400	5		3900	
1450	5		3950	
1500	7		4000	
1550	8		4050	
1600	6		4100	
1650	8		4150	
1700	9		4200	
1750	9		4250	
1800	11		4300	
1850	13		4350	
1900	13		4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

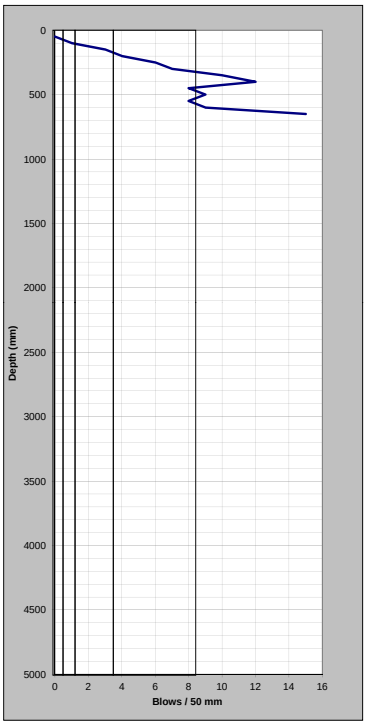
SCALA PENETROMETER LOG

Job No: 870982.1002
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC2B-1
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	1		2600	
150	3		2650	
200	4		2700	
250	6		2750	
300	7		2800	
350	10		2850	
400	12		2900	
450	8		2950	
500	9		3000	
550	8		3050	
600	9		3100	
650	15	R	3150	
700			3200	
750			3250	
800			3300	
850			3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

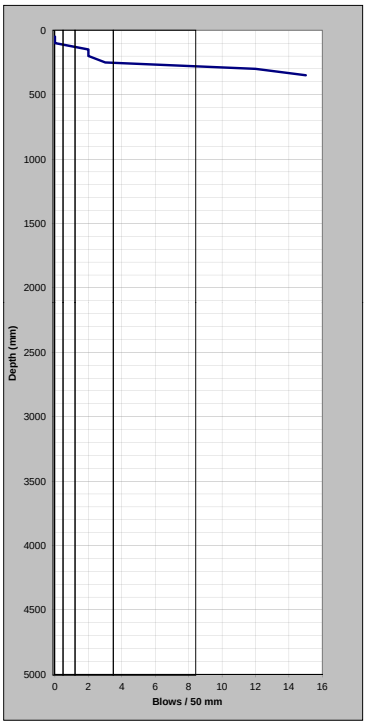
SCALA PENETROMETER LOG

Job No: 870982.1002
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC2B-2
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	0		2600	
150	2		2650	
200	2		2700	
250	3		2750	
300	12		2800	
350	15	R	2850	
400			2900	
450			2950	
500			3000	
550			3050	
600			3100	
650			3150	
700			3200	
750			3250	
800			3300	
850			3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

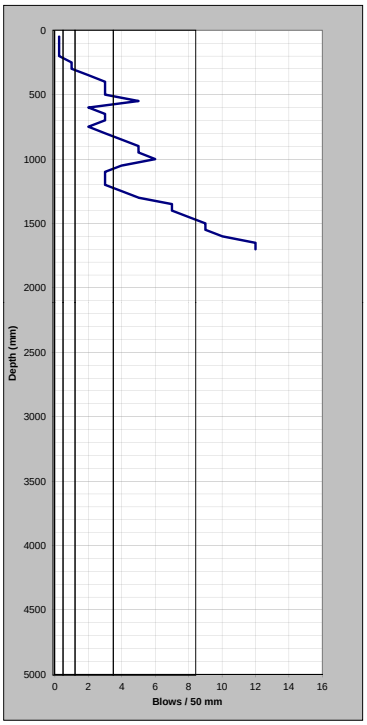
SCALA PENETROMETER LOG

Job No: 870982.1002
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC2B-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.25	2550	
100	0.25	2600	
150	0.25	2650	
200	0.25	2700	
250	1	2750	
300	1	2800	
350	2	2850	
400	3	2900	
450	3	2950	
500	3	3000	
550	5	3050	
600	2	3100	
650	3	3150	
700	3	3200	
750	2	3250	
800	3	3300	
850	4	3350	
900	5	3400	
950	5	3450	
1000	6	3500	
1050	4	3550	
1100	3	3600	
1150	3	3650	
1200	3	3700	
1250	4	3750	
1300	5	3800	
1350	7	3850	
1400	7	3900	
1450	8	3950	
1500	9	4000	
1550	9	4050	
1600	10	4100	
1650	12	4150	
1700	12	4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
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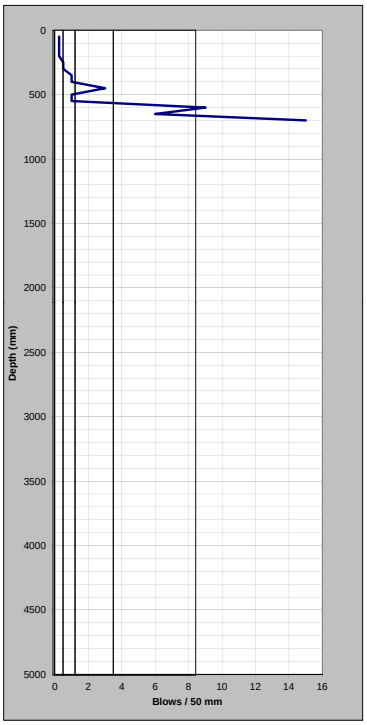
SCALA PENETROMETER LOG

Job No: 870982.1002
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC2B-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.25	2550	
100	0.25	2600	
150	0.25	2650	
200	0.25	2700	
250	0.5	2750	
300	0.5	2800	
350	1	2850	
400	1	2900	
450	3	2950	
500	1	3000	
550	1	3050	
600	9	3100	
650	6	3150	
700	15 R	3200	
750		3250	
800		3300	
850		3350	
900		3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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Tel: (03) 546 6339
Fax: (03) 546 7619

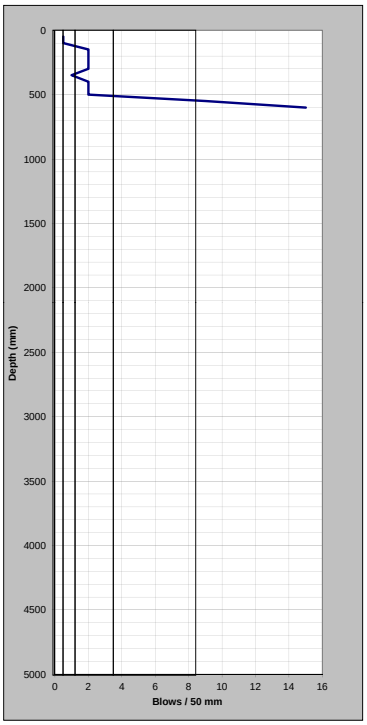
SCALA PENETROMETER LOG

Job No: 870982.1002
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 9/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC2C-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	2	2650	
200	2	2700	
250	2	2750	
300	2	2800	
350	1	2850	
400	2	2900	
450	2	2950	
500	2	3000	
550	9	3050	
600	15 R	3100	
650		3150	
700		3200	
750		3250	
800		3300	
850		3350	
900		3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Tel: (03) 546 6339
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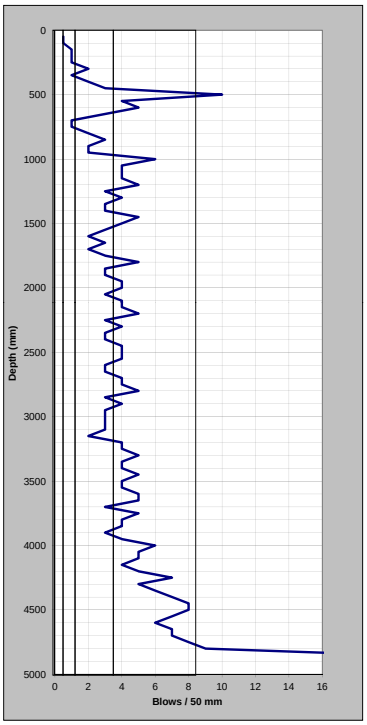
SCALA PENETROMETER LOG

Job No: 870982.1002
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 9/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPO

Test No. SC2C-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	4
100	0.5	2600	3
150	1	2650	3
200	1	2700	4
250	1	2750	4
300	2	2800	5
350	1	2850	3
400	2	2900	4
450	3	2950	3
500	10	3000	3
550	4	3050	3
600	5	3100	3
650	3	3150	2
700	1	3200	4
750	1	3250	4
800	2	3300	5
850	3	3350	4
900	2	3400	4
950	2	3450	5
1000	6	3500	4
1050	4	3550	4
1100	4	3600	5
1150	4	3650	5
1200	5	3700	3
1250	3	3750	5
1300	4	3800	4
1350	3	3850	4
1400	3	3900	3
1450	5	3950	4
1500	4	4000	6
1550	3	4050	5
1600	2	4100	5
1650	3	4150	4
1700	2	4200	5
1750	3	4250	7
1800	5	4300	5
1850	3	4350	6
1900	3	4400	7
1950	4	4450	8
2000	4	4500	8
2050	3	4550	7
2100	4	4600	6
2150	4	4650	7
2200	5	4700	7
2250	3	4750	8
2300	4	4800	9
2350	3	4850	20 R
2400	3	4900	
2450	4	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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SCALA PENETROMETER LOG

Job No: 870982.1003
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC3-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	3
100	0	2600	3
150	0.333	2650	3
200	0.333	2700	3
250	0.333	2750	3
300	1	2800	3
350	1	2850	3
400	1	2900	3
450	1	2950	3
500	1	3000	3
550	1	3050	3
600	0.5	3100	4
650	0.5	3150	4
700	1	3200	4
750	1	3250	5
800	1	3300	7
850	1	3350	7
900	1	3400	10
950	2	3450	8
1000	2	3500	6
1050	1	3550	6
1100	1	3600	7
1150	1	3650	6
1200	2	3700	6
1250	1	3750	6
1300	1	3800	6
1350	2	3850	6
1400	1	3900	4
1450	2	3950	4
1500	2	4000	5
1550	2	4050	7
1600	2	4100	9
1650	1	4150	7
1700	2	4200	6
1750	2	4250	7
1800	1	4300	7
1850	2	4350	5
1900	2	4400	7
1950	2	4450	10
2000	2	4500	10
2050	2	4550	11
2100	4	4600	8
2150	4	4650	10
2200	3	4700	15
2250	1	4750	
2300	3	4800	
2350	2	4850	
2400	3	4900	
2450	3	4950	
2500	3	5000	

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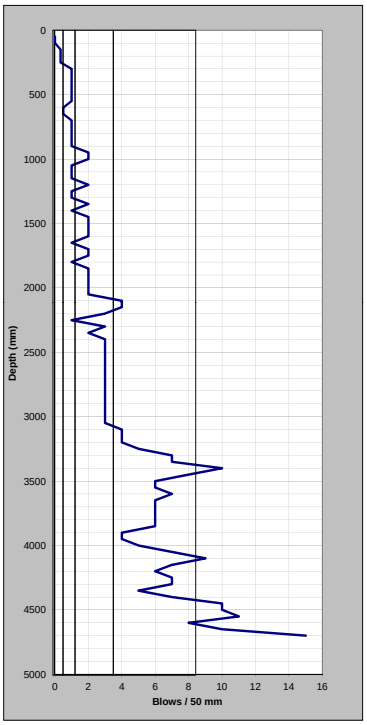

Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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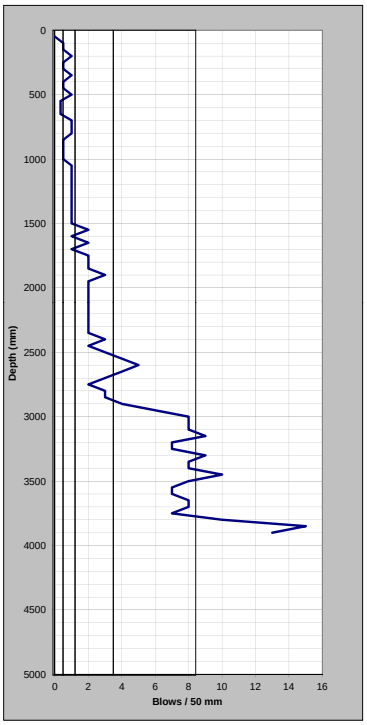
SCALA PENETROMETER LOG

Job No: 870982.1003
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC3-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	4
100	0.5	2600	5
150	0.5	2650	4
200	1	2700	3
250	0.5	2750	2
300	0.5	2800	3
350	1	2850	3
400	0.5	2900	4
450	0.5	2950	6
500	1	3000	8
550	0.333	3050	8
600	0.333	3100	8
650	0.333	3150	9
700	1	3200	7
750	1	3250	7
800	1	3300	9
850	0.5	3350	8
900	0.5	3400	8
950	0.5	3450	10
1000	0.5	3500	8
1050	1	3550	7
1100	1	3600	7
1150	1	3650	8
1200	1	3700	8
1250	1	3750	7
1300	1	3800	10
1350	1	3850	15
1400	1	3900	13
1450	1	3950	
1500	1	4000	
1550	2	4050	
1600	1	4100	
1650	2	4150	
1700	1	4200	
1750	2	4250	
1800	2	4300	
1850	2	4350	
1900	3	4400	
1950	2	4450	
2000	2	4500	
2050	2	4550	
2100	2	4600	
2150	2	4650	
2200	2	4700	
2250	2	4750	
2300	2	4800	
2350	2	4850	
2400	3	4900	
2450	2	4950	
2500	3	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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SCALA PENETROMETER LOG

Job No: 870982.1003
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC3-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0.5	2600	
150	0.5	2650	
200	1	2700	
250	1	2750	
300	1	2800	
350	1	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	0.5	3100	
650	0.5	3150	
700	1	3200	
750	1	3250	
800	0.5	3300	
850	0.5	3350	
900	1	3400	
950	1	3450	
1000	1	3500	
1050	1	3550	
1100	1	3600	
1150	2	3650	
1200	1	3700	
1250	2	3750	
1300	3	3800	
1350	2	3850	
1400	2	3900	
1450	3	3950	
1500	3	4000	
1550	4	4050	
1600	3	4100	
1650	2	4150	
1700	4	4200	
1750	4	4250	
1800	3	4300	
1850	8	4350	
1900	6	4400	
1950	4	4450	
2000	3	4500	
2050	4	4550	
2100	7	4600	
2150	12	4650	
2200	15	4700	
2250	15	4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

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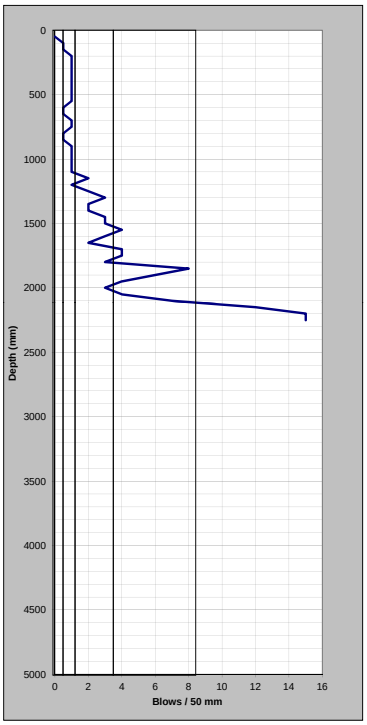


Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

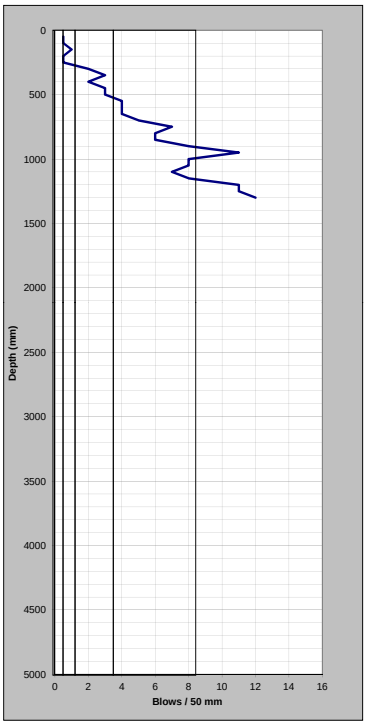
SCALA PENETROMETER LOG

Job No: 870982.1003
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC3-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	1	2650	
200	0.5	2700	
250	0.5	2750	
300	2	2800	
350	3	2850	
400	2	2900	
450	3	2950	
500	3	3000	
550	4	3050	
600	4	3100	
650	4	3150	
700	5	3200	
750	7	3250	
800	6	3300	
850	6	3350	
900	8	3400	
950	11	3450	
1000	8	3500	
1050	8	3550	
1100	7	3600	
1150	8	3650	
1200	11	3700	
1250	11	3750	
1300	12	3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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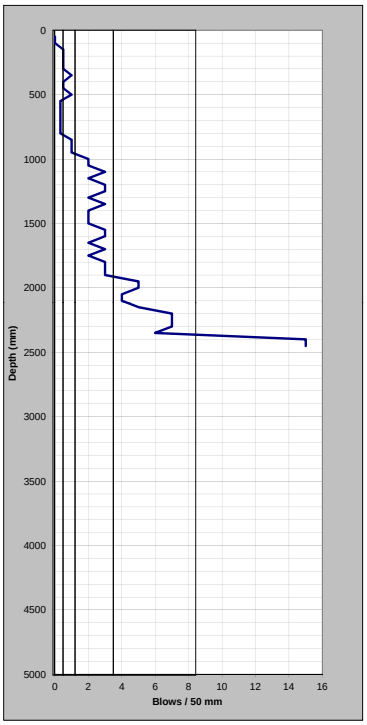
SCALA PENETROMETER LOG

Job No: 870982.1003
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 7/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC3-5
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0.5	2650	
200	0.5	2700	
250	0.5	2750	
300	0.5	2800	
350	1	2850	
400	0.5	2900	
450	0.5	2950	
500	1	3000	
550	0.33	3050	
600	0.33	3100	
650	0.33	3150	
700	0.33	3200	
750	0.33	3250	
800	0.33	3300	
850	1	3350	
900	1	3400	
950	1	3450	
1000	2	3500	
1050	2	3550	
1100	3	3600	
1150	2	3650	
1200	3	3700	
1250	3	3750	
1300	2	3800	
1350	3	3850	
1400	2	3900	
1450	2	3950	
1500	2	4000	
1550	3	4050	
1600	3	4100	
1650	2	4150	
1700	3	4200	
1750	2	4250	
1800	3	4300	
1850	3	4350	
1900	3	4400	
1950	5	4450	
2000	5	4500	
2050	4	4550	
2100	4	4600	
2150	5	4650	
2200	7	4700	
2250	7	4750	
2300	7	4800	
2350	6	4850	
2400	15	4900	
2450	15	4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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Tel: (03) 546 6339
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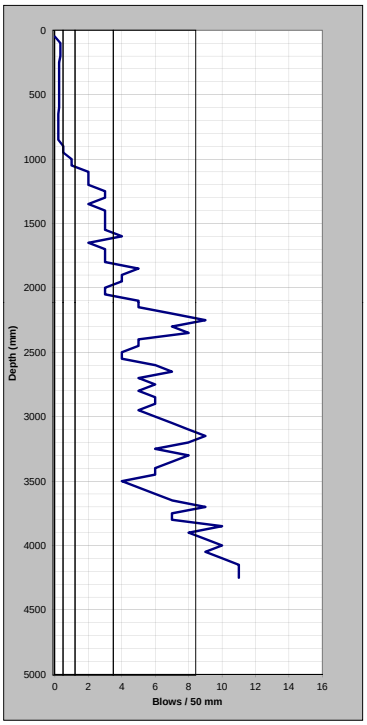
SCALA PENETROMETER LOG

Job No: 870982.1003
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 7/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC3-6
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	4
100	0.33	2600	6
150	0.33	2650	7
200	0.33	2700	5
250	0.25	2750	6
300	0.25	2800	5
350	0.25	2850	6
400	0.25	2900	6
450	0.25	2950	5
500	0.25	3000	6
550	0.25	3050	7
600	0.25	3100	8
650	0.2	3150	9
700	0.2	3200	8
750	0.2	3250	6
800	0.2	3300	8
850	0.2	3350	7
900	0.5	3400	6
950	0.5	3450	6
1000	1	3500	4
1050	1	3550	5
1100	2	3600	6
1150	2	3650	7
1200	2	3700	9
1250	3	3750	7
1300	3	3800	7
1350	2	3850	10
1400	3	3900	8
1450	3	3950	9
1500	3	4000	10
1550	3	4050	9
1600	4	4100	10
1650	2	4150	11
1700	3	4200	11
1750	3	4250	11
1800	3	4300	
1850	5	4350	
1900	4	4400	
1950	4	4450	
2000	3	4500	
2050	3	4550	
2100	5	4600	
2150	5	4650	
2200	7	4700	
2250	9	4750	
2300	7	4800	
2350	8	4850	
2400	5	4900	
2450	5	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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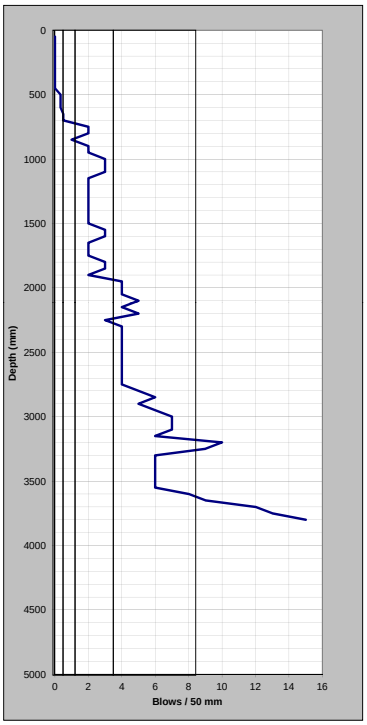
SCALA PENETROMETER LOG

Job No: 870982.1004
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC4-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	4
100	0	2600	4
150	0	2650	4
200	0	2700	4
250	0	2750	4
300	0	2800	5
350	0	2850	6
400	0	2900	5
450	0	2950	6
500	0.333	3000	7
550	0.333	3050	7
600	0.333	3100	7
650	0.5	3150	6
700	0.5	3200	10
750	2	3250	9
800	2	3300	6
850	1	3350	6
900	2	3400	6
950	2	3450	6
1000	3	3500	6
1050	3	3550	6
1100	3	3600	8
1150	2	3650	9
1200	2	3700	12
1250	2	3750	13
1300	2	3800	15 R
1350	2	3850	
1400	2	3900	
1450	2	3950	
1500	2	4000	
1550	3	4050	
1600	3	4100	
1650	2	4150	
1700	2	4200	
1750	2	4250	
1800	3	4300	
1850	3	4350	
1900	2	4400	
1950	4	4450	
2000	4	4500	
2050	4	4550	
2100	5	4600	
2150	4	4650	
2200	5	4700	
2250	3	4750	
2300	4	4800	
2350	4	4850	
2400	4	4900	
2450	4	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

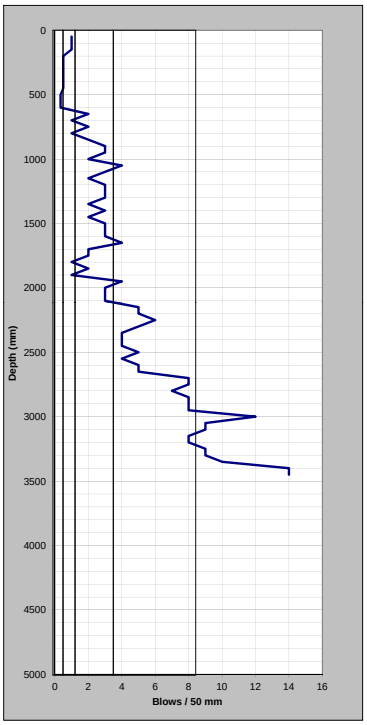
SCALA PENETROMETER LOG

Job No: 870982.1004
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC4-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	4
100	1	2600	5
150	1	2650	5
200	0.5	2700	8
250	0.5	2750	8
300	0.5	2800	7
350	0.5	2850	8
400	0.5	2900	8
450	0.5	2950	8
500	0.333	3000	12
550	0.333	3050	9
600	0.333	3100	9
650	2	3150	8
700	1	3200	8
750	2	3250	9
800	1	3300	9
850	2	3350	10
900	3	3400	14
950	3	3450	14
1000	2	3500	
1050	4	3550	
1100	3	3600	
1150	2	3650	
1200	3	3700	
1250	3	3750	
1300	3	3800	
1350	2	3850	
1400	3	3900	
1450	2	3950	
1500	3	4000	
1550	3	4050	
1600	3	4100	
1650	4	4150	
1700	2	4200	
1750	2	4250	
1800	1	4300	
1850	2	4350	
1900	1	4400	
1950	4	4450	
2000	3	4500	
2050	3	4550	
2100	3	4600	
2150	5	4650	
2200	5	4700	
2250	6	4750	
2300	5	4800	
2350	4	4850	
2400	4	4900	
2450	4	4950	
2500	5	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

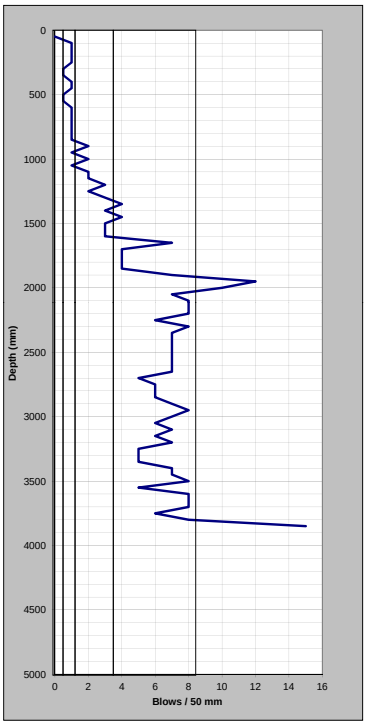
SCALA PENETROMETER LOG

Job No: 870982.1004
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC4-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	7
100	1	2600	7
150	1	2650	7
200	1	2700	5
250	1	2750	6
300	0.5	2800	6
350	0.5	2850	6
400	1	2900	7
450	1	2950	8
500	0.5	3000	7
550	0.5	3050	6
600	1	3100	7
650	1	3150	6
700	1	3200	7
750	1	3250	5
800	1	3300	5
850	1	3350	5
900	2	3400	7
950	1	3450	7
1000	2	3500	8
1050	1	3550	5
1100	2	3600	8
1150	2	3650	8
1200	3	3700	8
1250	2	3750	6
1300	3	3800	8
1350	4	3850	15 R
1400	3	3900	
1450	4	3950	
1500	3	4000	
1550	3	4050	
1600	3	4100	
1650	7	4150	
1700	4	4200	
1750	4	4250	
1800	4	4300	
1850	4	4350	
1900	7	4400	
1950	12	4450	
2000	10	4500	
2050	7	4550	
2100	8	4600	
2150	8	4650	
2200	8	4700	
2250	6	4750	
2300	8	4800	
2350	7	4850	
2400	7	4900	
2450	7	4950	
2500	7	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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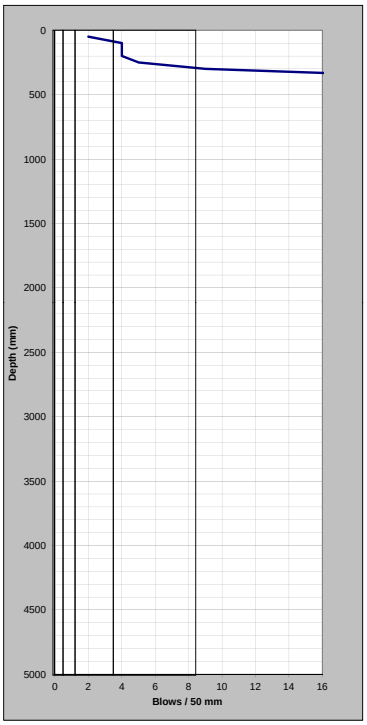
SCALA PENETROMETER LOG

Job No: 870982.1004
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 8/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC4-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	2	2550	
100	4	2600	
150	4	2650	
200	4	2700	
250	5	2750	
300	9	2800	
350	20	2850 R	
400		2900	
450		2950	
500		3000	
550		3050	
600		3100	
650		3150	
700		3200	
750		3250	
800		3300	
850		3350	
900		3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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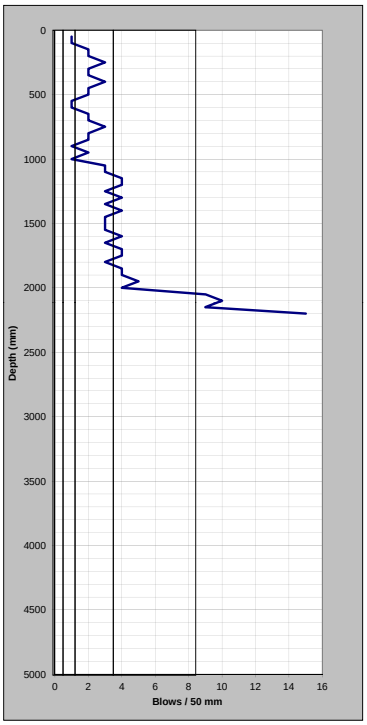
SCALA PENETROMETER LOG

Job No:	870982.1004	Date:	8/05/2012	Test No.	SC4-5
Project:	Cable Bay Rd Remedial	Operated by:	DJAA		
Location:	Cable Bay Road	Logged by:	DJAA	Sheet	1
Position:	See Site Plan	Checked by:	MPD	of	1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	2	2650	
200	2	2700	
250	3	2750	
300	2	2800	
350	2	2850	
400	3	2900	
450	2	2950	
500	2	3000	
550	1	3050	
600	1	3100	
650	2	3150	
700	2	3200	
750	3	3250	
800	2	3300	
850	2	3350	
900	1	3400	
950	2	3450	
1000	1	3500	
1050	3	3550	
1100	3	3600	
1150	4	3650	
1200	4	3700	
1250	3	3750	
1300	4	3800	
1350	3	3850	
1400	4	3900	
1450	3	3950	
1500	3	4000	
1550	3	4050	
1600	4	4100	
1650	3	4150	
1700	4	4200	
1750	4	4250	
1800	3	4300	
1850	4	4350	
1900	4	4400	
1950	5	4450	
2000	4	4500	
2050	9	4550	
2100	10	4600	
2150	9	4650	
2200	15	4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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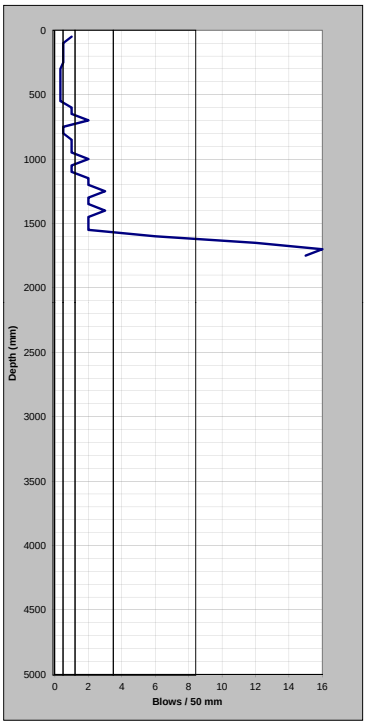
SCALA PENETROMETER LOG

Job No: 870982.1005
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC5-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	0.5	2600	
150	0.5	2650	
200	0.5	2700	
250	0.5	2750	
300	0.33	2800	
350	0.33	2850	
400	0.33	2900	
450	0.33	2950	
500	0.33	3000	
550	0.33	3050	
600	1	3100	
650	1	3150	
700	2	3200	
750	0.5	3250	
800	0.5	3300	
850	1	3350	
900	1	3400	
950	1	3450	
1000	2	3500	
1050	1	3550	
1100	1	3600	
1150	2	3650	
1200	2	3700	
1250	3	3750	
1300	2	3800	
1350	2	3850	
1400	3	3900	
1450	2	3950	
1500	2	4000	
1550	2	4050	
1600	6	4100	
1650	12	4150	
1700	16	4200	
1750	15	4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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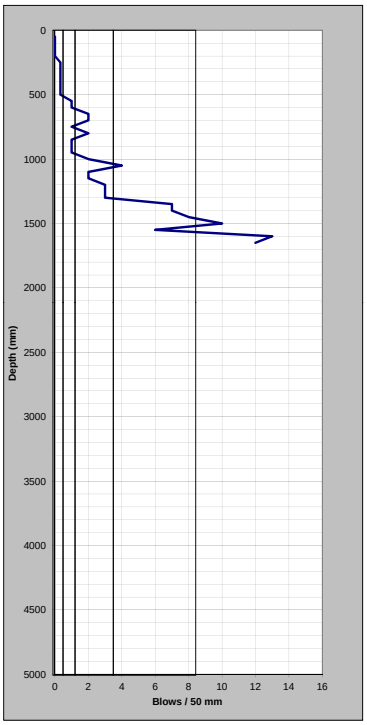
SCALA PENETROMETER LOG

Job No: 870982.1005
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC5-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0	2650	
200	0	2700	
250	0.33	2750	
300	0.33	2800	
350	0.33	2850	
400	0.33	2900	
450	0.33	2950	
500	0.33	3000	
550	1	3050	
600	1	3100	
650	2	3150	
700	2	3200	
750	1	3250	
800	2	3300	
850	1	3350	
900	1	3400	
950	1	3450	
1000	2	3500	
1050	4	3550	
1100	2	3600	
1150	2	3650	
1200	3	3700	
1250	3	3750	
1300	3	3800	
1350	7	3850	
1400	7	3900	
1450	8	3950	
1500	10	4000	
1550	6	4050	
1600	13	4100	
1650	12	R 4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Tel: (03) 546 6339
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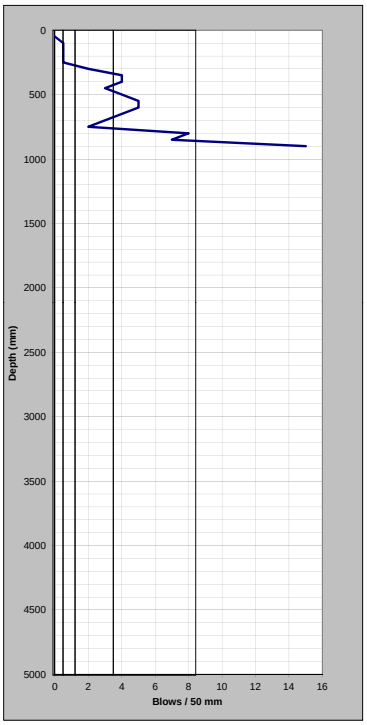
SCALA PENETROMETER LOG

Job No: 870982.1005
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC5-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0.5	2600	
150	0.5	2650	
200	0.5	2700	
250	0.5	2750	
300	2	2800	
350	4	2850	
400	4	2900	
450	3	2950	
500	4	3000	
550	5	3050	
600	5	3100	
650	4	3150	
700	3	3200	
750	2	3250	
800	8	3300	
850	7	3350	
900	15	R 3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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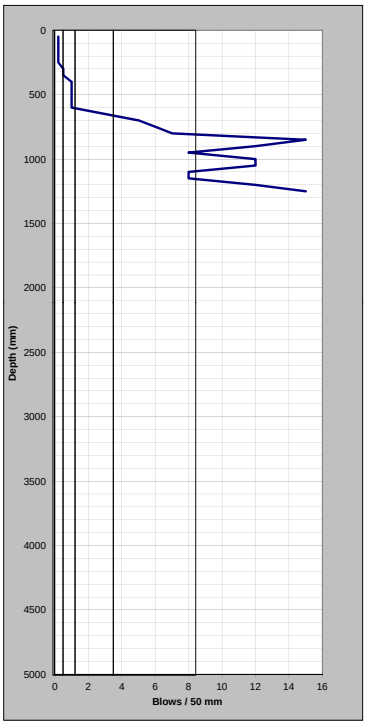
SCALA PENETROMETER LOG

Job No: 870982.1005
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC5-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.2	2550	
100	0.2	2600	
150	0.2	2650	
200	0.2	2700	
250	0.2	2750	
300	0.5	2800	
350	0.5	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	1	3100	
650	3	3150	
700	5	3200	
750	6	3250	
800	7	3300	
850	15	3350	
900	12	3400	
950	8	3450	
1000	12	3500	
1050	12	3550	
1100	8	3600	
1150	8	3650	
1200	12	3700	
1250	15	R 3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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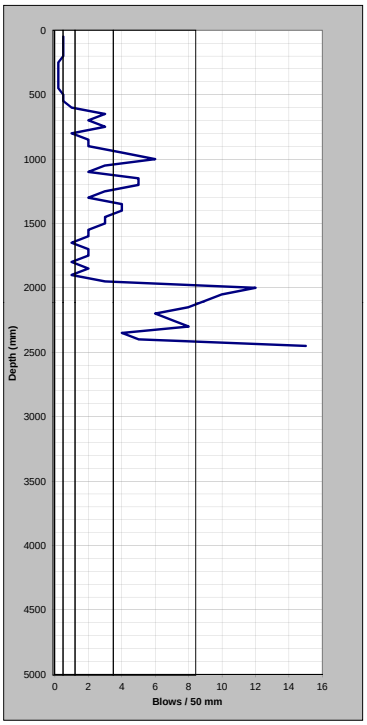
SCALA PENETROMETER LOG

Job No: 870982.1005
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC5-5
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	0.5	2650	
200	0.5	2700	
250	0.2	2750	
300	0.2	2800	
350	0.2	2850	
400	0.2	2900	
450	0.2	2950	
500	0.5	3000	
550	0.5	3050	
600	1	3100	
650	3	3150	
700	2	3200	
750	3	3250	
800	1	3300	
850	2	3350	
900	2	3400	
950	4	3450	
1000	6	3500	
1050	3	3550	
1100	2	3600	
1150	5	3650	
1200	5	3700	
1250	3	3750	
1300	2	3800	
1350	4	3850	
1400	4	3900	
1450	3	3950	
1500	3	4000	
1550	2	4050	
1600	2	4100	
1650	1	4150	
1700	2	4200	
1750	2	4250	
1800	1	4300	
1850	2	4350	
1900	1	4400	
1950	3	4450	
2000	12	4500	
2050	10	4550	
2100	9	4600	
2150	8	4650	
2200	6	4700	
2250	7	4750	
2300	8	4800	
2350	4	4850	
2400	5	4900	
2450	15 R	4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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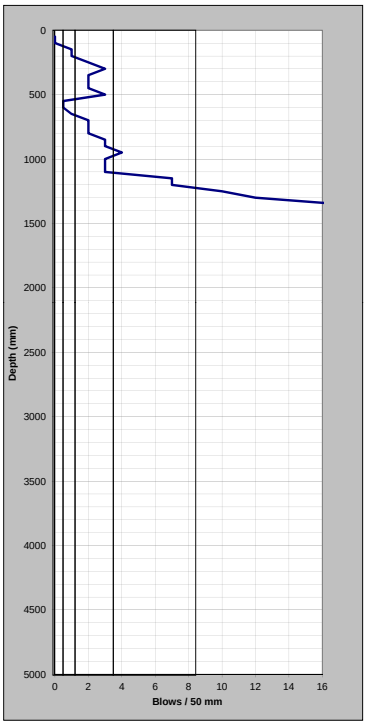
SCALA PENETROMETER LOG

Job No: 870982.1005
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC5-6
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	1	2650	
200	1	2700	
250	2	2750	
300	3	2800	
350	2	2850	
400	2	2900	
450	2	2950	
500	3	3000	
550	0.5	3050	
600	0.5	3100	
650	1	3150	
700	2	3200	
750	2	3250	
800	2	3300	
850	3	3350	
900	3	3400	
950	4	3450	
1000	3	3500	
1050	3	3550	
1100	3	3600	
1150	7	3650	
1200	7	3700	
1250	10	3750	
1300	12	3800	
1350	17	3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

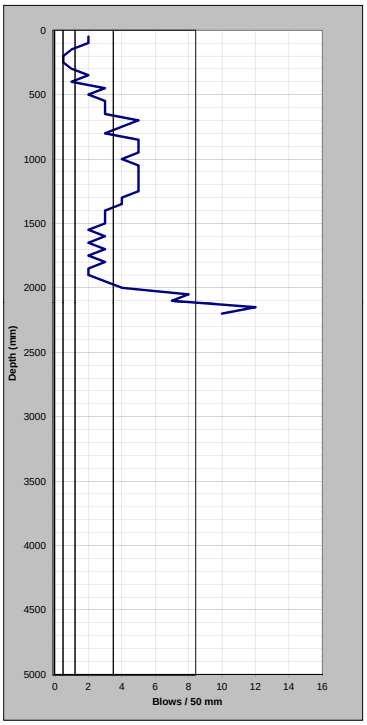
SCALA PENETROMETER LOG

Job No: 870982.1005
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC5-7
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	2	2550	
100	2	2600	
150	1	2650	
200	0.5	2700	
250	0.5	2750	
300	1	2800	
350	2	2850	
400	1	2900	
450	3	2950	
500	2	3000	
550	3	3050	
600	3	3100	
650	3	3150	
700	5	3200	
750	4	3250	
800	3	3300	
850	5	3350	
900	5	3400	
950	5	3450	
1000	4	3500	
1050	5	3550	
1100	5	3600	
1150	5	3650	
1200	5	3700	
1250	5	3750	
1300	4	3800	
1350	4	3850	
1400	3	3900	
1450	3	3950	
1500	3	4000	
1550	2	4050	
1600	3	4100	
1650	2	4150	
1700	3	4200	
1750	2	4250	
1800	3	4300	
1850	2	4350	
1900	2	4400	
1950	3	4450	
2000	4	4500	
2050	8	4550	
2100	7	4600	
2150	12	4650	
2200	10	4700	
2250	refusal	4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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P O Box 1009
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Tel: (03) 546 6339
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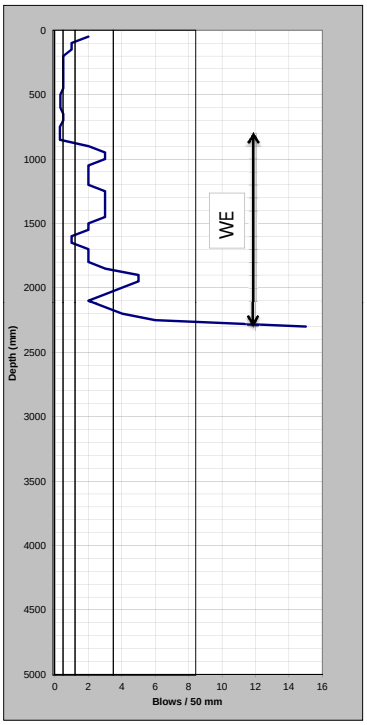
SCALA PENETROMETER LOG

Job No: 870982.1005
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC5-8
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	2	2550	
100	1	2600	
150	1	2650	
200	0.5	2700	
250	0.5	2750	
300	0.5	2800	
350	0.5	2850	
400	0.5	2900	
450	0.5	2950	
500	0.33	3000	
550	0.33	3050	
600	0.33	3100	
650	0.5	3150	
700	0.5	3200	
750	0.3	3250	
800	0.3	3300	
850	0.3	3350	
900	2	3400	
950	3	3450	
1000	3	3500	
1050	2	3550	
1100	2	3600	
1150	2	3650	
1200	2	3700	
1250	3	3750	
1300	3	3800	
1350	3	3850	
1400	3	3900	
1450	3	3950	
1500	2	4000	
1550	2	4050	
1600	1	4100	
1650	1	4150	
1700	2	4200	
1750	2	4250	
1800	2	4300	
1850	3	4350	
1900	5	4400	
1950	5	4450	
2000	4	4500	
2050	3	4550	
2100	2	4600	
2150	3	4650	
2200	4	4700	
2250	6	4750	
2300	15	4800	
2350	refusal	4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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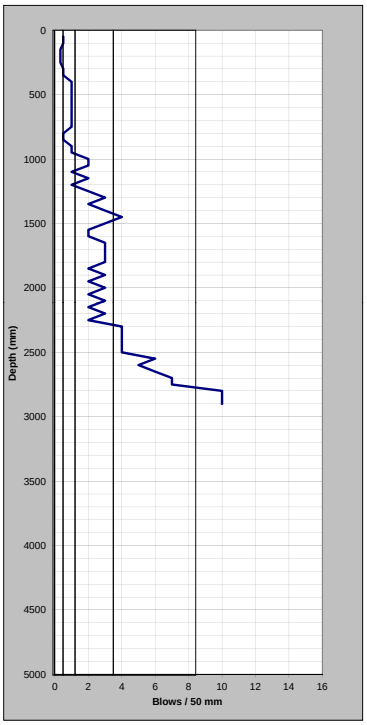
SCALA PENETROMETER LOG

Job No: 870982.1006
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC6-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	6
100	0.5	2600	5
150	0.33	2650	6
200	0.33	2700	7
250	0.33	2750	7
300	0.5	2800	10
350	0.5	2850	10
400	1	2900	10
450	1	2950	
500	1	3000	
550	1	3050	
600	1	3100	
650	1	3150	
700	1	3200	
750	1	3250	
800	0.5	3300	
850	0.5	3350	
900	1	3400	
950	1	3450	
1000	2	3500	
1050	2	3550	
1100	1	3600	
1150	2	3650	
1200	1	3700	
1250	2	3750	
1300	3	3800	
1350	2	3850	
1400	3	3900	
1450	4	3950	
1500	3	4000	
1550	2	4050	
1600	2	4100	
1650	3	4150	
1700	3	4200	
1750	3	4250	
1800	3	4300	
1850	2	4350	
1900	3	4400	
1950	2	4450	
2000	3	4500	
2050	2	4550	
2100	3	4600	
2150	2	4650	
2200	3	4700	
2250	2	4750	
2300	4	4800	
2350	4	4850	
2400	4	4900	
2450	4	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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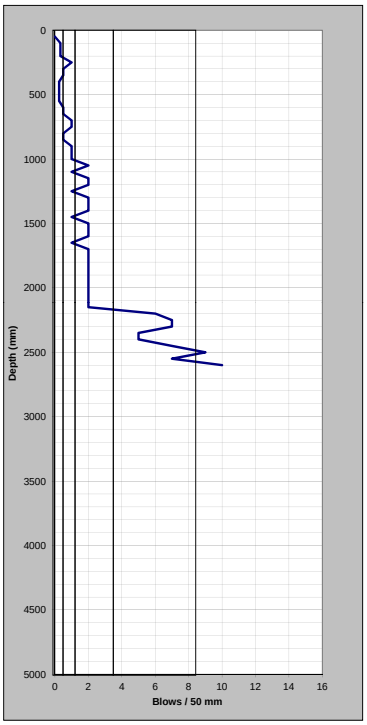
SCALA PENETROMETER LOG

Job No: 870982.1006
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC6-2
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	7
100	0.33	R	2600	10
150	0.33		2650	
200	0.33		2700	
250	1		2750	
300	0.5		2800	
350	0.5		2850	
400	0.25		2900	
450	0.25		2950	
500	0.25		3000	
550	0.25		3050	
600	0.5		3100	
650	0.5		3150	
700	1		3200	
750	1		3250	
800	0.5		3300	
850	0.5		3350	
900	1		3400	
950	1		3450	
1000	1		3500	
1050	2		3550	
1100	1		3600	
1150	2		3650	
1200	2		3700	
1250	1		3750	
1300	2		3800	
1350	2		3850	
1400	2		3900	
1450	1		3950	
1500	2		4000	
1550	2		4050	
1600	2		4100	
1650	1		4150	
1700	2		4200	
1750	2		4250	
1800	2		4300	
1850	2		4350	
1900	2		4400	
1950	2		4450	
2000	2		4500	
2050	2		4550	
2100	2		4600	
2150	2		4650	
2200	6		4700	
2250	7		4750	
2300	7		4800	
2350	5		4850	
2400	5		4900	
2450	7		4950	
2500	9		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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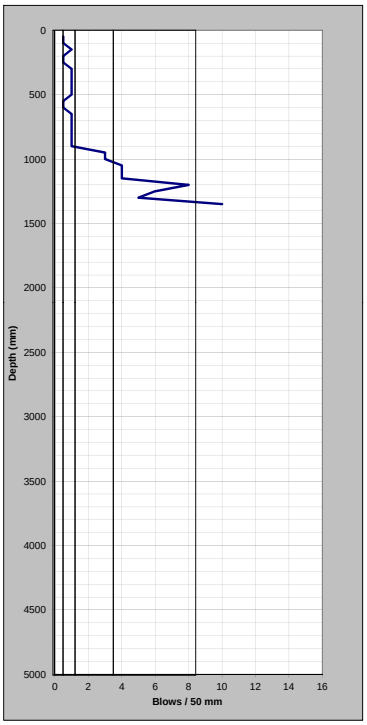
SCALA PENETROMETER LOG

Job No: 870982.1006
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC6-3
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	1		2650	
200	0.5		2700	
250	0.5		2750	
300	1		2800	
350	1		2850	
400	1		2900	
450	1		2950	
500	1		3000	
550	0.5		3050	
600	0.5		3100	
650	1		3150	
700	1		3200	
750	1		3250	
800	1		3300	
850	1		3350	
900	1		3400	
950	3		3450	
1000	3		3500	
1050	4		3550	
1100	4		3600	
1150	4		3650	
1200	8		3700	
1250	6		3750	
1300	5		3800	
1350	10	R	3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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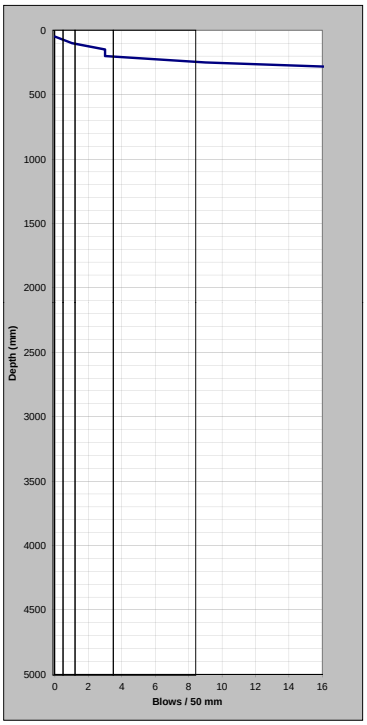
SCALA PENETROMETER LOG

Job No: 870982.1006
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 9/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC6-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	1	2600	
150	3	2650	
200	3	2700	
250	9	2750	
300	20	2800	
350		2850	
400		2900	
450		2950	
500		3000	
550		3050	
600		3100	
650		3150	
700		3200	
750		3250	
800		3300	
850		3350	
900		3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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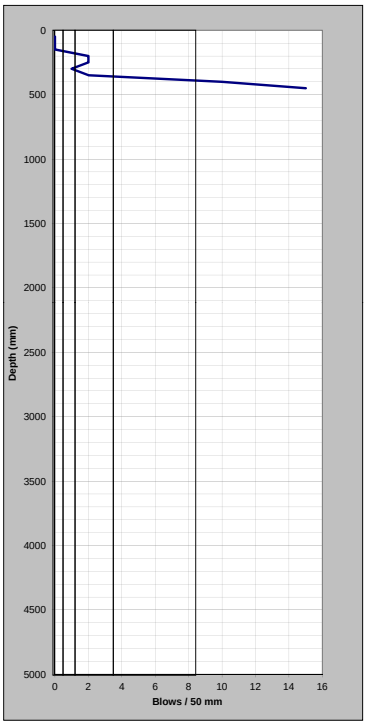
SCALA PENETROMETER LOG

Job No:	*870982.1006*	Date:	*31/05/2012*	**Test No.**	***SC6-5***
Project:	***Cable Bay Rd Remedial***	Operated by:	***DJAA***		
Location:	***Cable Bay Road***	Logged by:	***DJAA***	**Sheet**	***1***
Position:	***See Site Plan***	Checked by:	MPD	**of**	***1***

mm Driven	No. of Blows		mm Driven	No. of Blows
50	*0*		2550	
100	*0*		2600	
150	*0*		2650	
200	*2*		2700	
250	*2*		2750	
300	*1*		2800	
350	*2*		2850	
400	*10*		2900	
450	*15*	R	2950	
500			3000	
550			3050	
600			3100	
650			3150	
700			3200	
750			3250	
800			3300	
850			3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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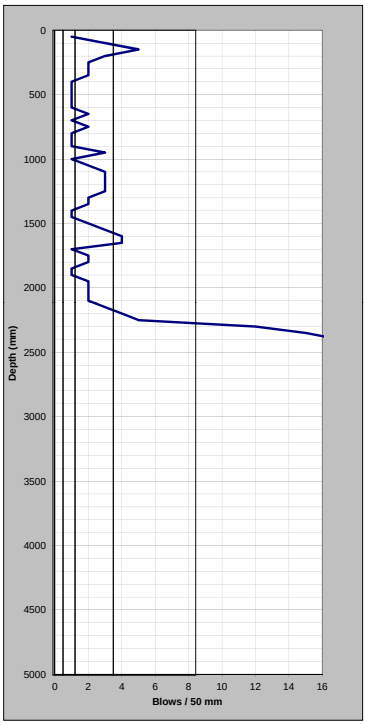
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 19/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-1
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	3	2600	
150	5	2650	
200	3	2700	
250	2	2750	
300	2	2800	
350	2	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	1	3100	
650	2	3150	
700	1	3200	
750	2	3250	
800	1	3300	
850	1	3350	
900	1	3400	
950	3	3450	
1000	1	3500	
1050	2	3550	
1100	3	3600	
1150	3	3650	
1200	3	3700	
1250	3	3750	
1300	2	3800	
1350	2	3850	
1400	1	3900	
1450	1	3950	
1500	2	4000	
1550	3	4050	
1600	4	4100	
1650	4	4150	
1700	1	4200	
1750	2	4250	
1800	2	4300	
1850	1	4350	
1900	1	4400	
1950	2	4450	
2000	2	4500	
2050	2	4550	
2100	2	4600	
2150	3	4650	
2200	4	4700	
2250	5	4750	
2300	12	4800	
2350	15	4850	
2400	17	4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
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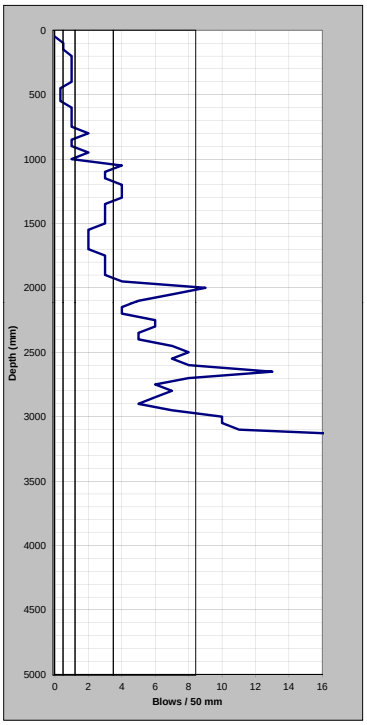
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 19/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-2
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	7
100	0.5	2600	8
150	0.5	2650	13
200	1	2700	8
250	1	2750	6
300	1	2800	7
350	1	2850	6
400	1	2900	5
450	0.33	2950	7
500	0.33	3000	10
550	0.33	3050	10
600	1	3100	11
650	1	3150	20 R
700	1	3200	
750	1	3250	
800	2	3300	
850	1	3350	
900	1	3400	
950	2	3450	
1000	1	3500	
1050	4	3550	
1100	3	3600	
1150	3	3650	
1200	4	3700	
1250	4	3750	
1300	4	3800	
1350	3	3850	
1400	3	3900	
1450	3	3950	
1500	3	4000	
1550	2	4050	
1600	2	4100	
1650	2	4150	
1700	2	4200	
1750	3	4250	
1800	3	4300	
1850	3	4350	
1900	3	4400	
1950	4	4450	
2000	9	4500	
2050	7	4550	
2100	5	4600	
2150	4	4650	
2200	4	4700	
2250	6	4750	
2300	6	4800	
2350	5	4850	
2400	5	4900	
2450	7	4950	
2500	8	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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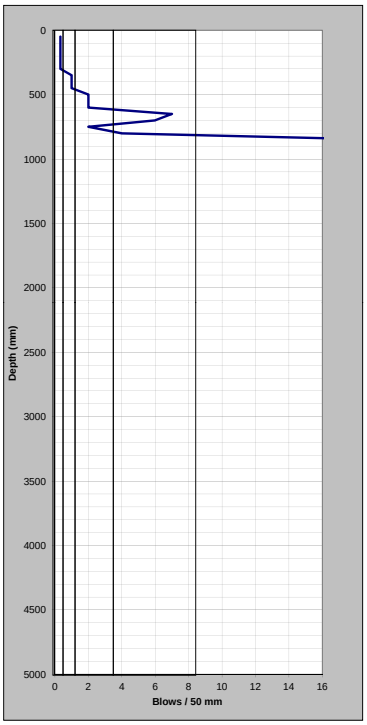
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 19/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-3
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.33	2550	
100	0.33	2600	
150	0.33	2650	
200	0.33	2700	
250	0.33	2750	
300	0.33	2800	
350	1	2850	
400	1	2900	
450	1	2950	
500	2	3000	
550	2	3050	
600	2	3100	
650	7	3150	
700	6	3200	
750	2	3250	
800	4	3300	
850	20 R	3350	
900		3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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P O Box 1009
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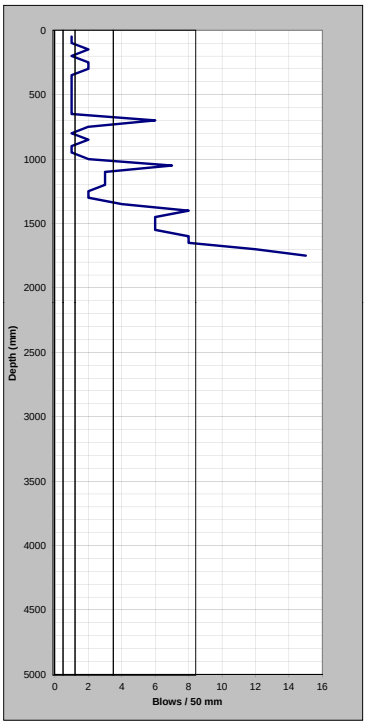
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 19/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-4
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	2	2650	
200	1	2700	
250	2	2750	
300	2	2800	
350	1	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	1	3100	
650	1	3150	
700	6	3200	
750	2	3250	
800	1	3300	
850	2	3350	
900	1	3400	
950	1	3450	
1000	2	3500	
1050	7	3550	
1100	3	3600	
1150	3	3650	
1200	3	3700	
1250	2	3750	
1300	2	3800	
1350	4	3850	
1400	8	3900	
1450	6	3950	
1500	6	4000	
1550	6	4050	
1600	8	4100	
1650	8	4150	
1700	12	4200	
1750	15 R	4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Tel: (03) 546 6339
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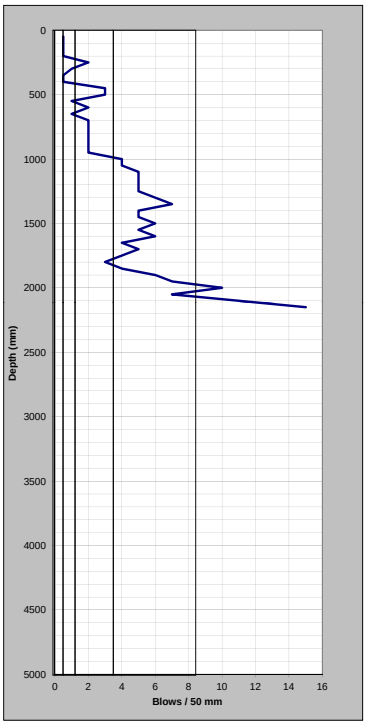
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 19/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-5
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	0.5		2650	
200	0.5		2700	
250	2		2750	
300	1		2800	
350	0.5		2850	
400	0.5		2900	
450	3		2950	
500	3		3000	
550	1		3050	
600	2		3100	
650	1		3150	
700	2		3200	
750	2		3250	
800	2		3300	
850	2		3350	
900	2		3400	
950	2		3450	
1000	4		3500	
1050	4		3550	
1100	5		3600	
1150	5		3650	
1200	5		3700	
1250	5		3750	
1300	6		3800	
1350	7		3850	
1400	5		3900	
1450	5		3950	
1500	6		4000	
1550	5		4050	
1600	6		4100	
1650	4		4150	
1700	5		4200	
1750	4		4250	
1800	3		4300	
1850	4		4350	
1900	6		4400	
1950	7		4450	
2000	10		4500	
2050	7		4550	
2100	11		4600	
2150	15	R	4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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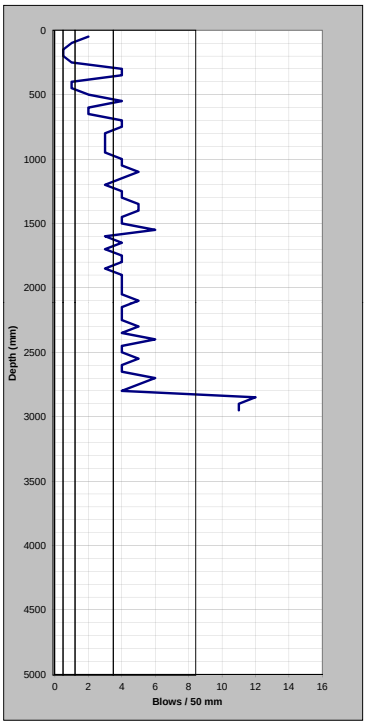
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 20/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-6
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	2	2550	5
100	1	2600	4
150	0.5	2650	4
200	0.5	2700	6
250	1	2750	5
300	4	2800	4
350	4	2850	12
400	1	2900	11
450	1	2950	11
500	2	3000	
550	4	3050	
600	2	3100	
650	2	3150	
700	4	3200	
750	4	3250	
800	3	3300	
850	3	3350	
900	3	3400	
950	3	3450	
1000	4	3500	
1050	4	3550	
1100	5	3600	
1150	4	3650	
1200	3	3700	
1250	4	3750	
1300	4	3800	
1350	5	3850	
1400	5	3900	
1450	4	3950	
1500	4	4000	
1550	6	4050	
1600	3	4100	
1650	4	4150	
1700	3	4200	
1750	4	4250	
1800	4	4300	
1850	3	4350	
1900	4	4400	
1950	4	4450	
2000	4	4500	
2050	4	4550	
2100	5	4600	
2150	4	4650	
2200	4	4700	
2250	4	4750	
2300	5	4800	
2350	4	4850	
2400	6	4900	
2450	4	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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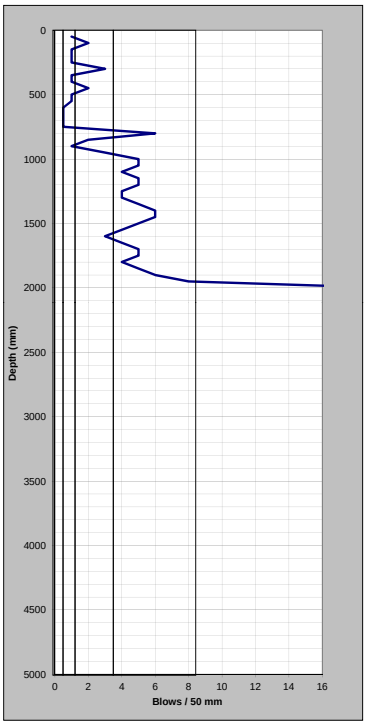
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 20/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-7
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	1		2550	
100	2		2600	
150	1		2650	
200	1		2700	
250	1		2750	
300	3		2800	
350	1		2850	
400	1		2900	
450	2		2950	
500	1		3000	
550	1		3050	
600	0.5		3100	
650	0.5		3150	
700	0.5		3200	
750	0.5		3250	
800	6		3300	
850	2		3350	
900	1		3400	
950	3		3450	
1000	5		3500	
1050	5		3550	
1100	4		3600	
1150	5		3650	
1200	5		3700	
1250	4		3750	
1300	4		3800	
1350	5		3850	
1400	6		3900	
1450	6		3950	
1500	5		4000	
1550	4		4050	
1600	3		4100	
1650	4		4150	
1700	5		4200	
1750	5		4250	
1800	4		4300	
1850	5		4350	
1900	6		4400	
1950	8		4450	
2000	20	R	4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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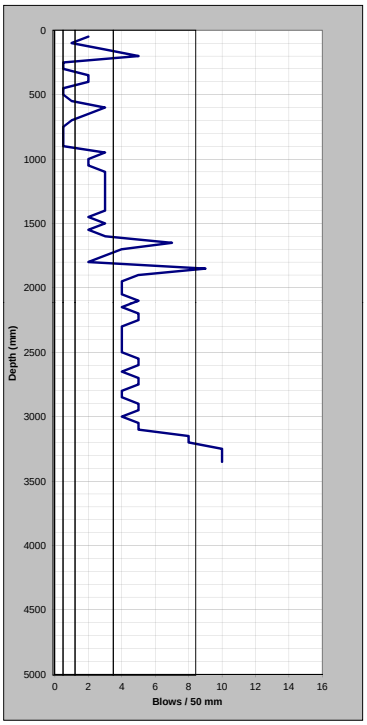
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 20/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-8
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	2	2550	5
100	1	2600	5
150	3	2650	4
200	5	2700	5
250	0.5	2750	5
300	0.5	2800	4
350	2	2850	4
400	2	2900	5
450	0.5	2950	5
500	0.5	3000	4
550	1	3050	5
600	3	3100	5
650	2	3150	8
700	1	3200	8
750	0.5	3250	10
800	0.5	3300	10
850	0.5	3350	10
900	0.5	3400	
950	3	3450	
1000	2	3500	
1050	2	3550	
1100	3	3600	
1150	3	3650	
1200	3	3700	
1250	3	3750	
1300	3	3800	
1350	3	3850	
1400	3	3900	
1450	2	3950	
1500	3	4000	
1550	2	4050	
1600	3	4100	
1650	7	4150	
1700	4	4200	
1750	3	4250	
1800	2	4300	
1850	9	4350	
1900	5	4400	
1950	4	4450	
2000	4	4500	
2050	4	4550	
2100	5	4600	
2150	4	4650	
2200	5	4700	
2250	5	4750	
2300	4	4800	
2350	4	4850	
2400	4	4900	
2450	4	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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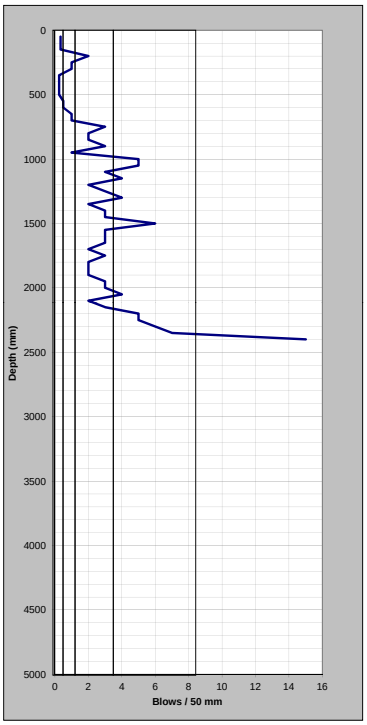
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-9
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.333		2550	
100	0.333		2600	
150	0.333		2650	
200	2		2700	
250	1		2750	
300	1		2800	
350	0.25		2850	
400	0.25		2900	
450	0.25		2950	
500	0.25		3000	
550	0.5		3050	
600	0.5		3100	
650	1		3150	
700	1		3200	
750	3		3250	
800	2		3300	
850	2		3350	
900	3		3400	
950	1		3450	
1000	5		3500	
1050	5		3550	
1100	3		3600	
1150	4		3650	
1200	2		3700	
1250	3		3750	
1300	4		3800	
1350	2		3850	
1400	3		3900	
1450	3		3950	
1500	6		4000	
1550	3		4050	
1600	3		4100	
1650	3		4150	
1700	2		4200	
1750	3		4250	
1800	2		4300	
1850	2		4350	
1900	2		4400	
1950	3		4450	
2000	3		4500	
2050	4		4550	
2100	2		4600	
2150	3		4650	
2200	5		4700	
2250	5		4750	
2300	6		4800	
2350	7		4850	
2400	15	R	4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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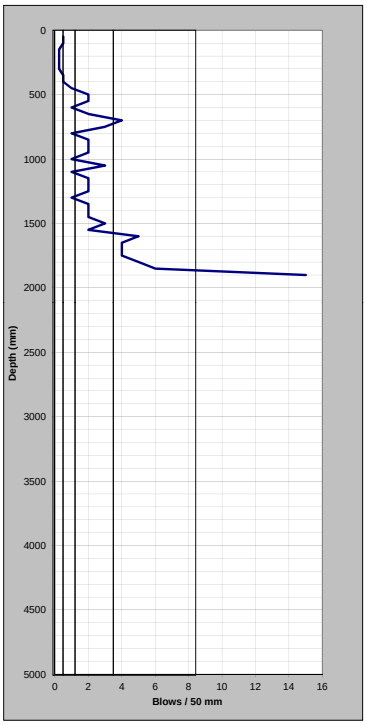
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-10
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	0.25		2650	
200	0.25		2700	
250	0.25		2750	
300	0.25		2800	
350	0.5		2850	
400	0.5		2900	
450	1		2950	
500	2		3000	
550	2		3050	
600	1		3100	
650	2		3150	
700	4		3200	
750	3		3250	
800	1		3300	
850	2		3350	
900	2		3400	
950	2		3450	
1000	1		3500	
1050	3		3550	
1100	1		3600	
1150	2		3650	
1200	2		3700	
1250	2		3750	
1300	1		3800	
1350	2		3850	
1400	2		3900	
1450	2		3950	
1500	3		4000	
1550	2		4050	
1600	5		4100	
1650	4		4150	
1700	4		4200	
1750	4		4250	
1800	5		4300	
1850	6		4350	
1900	15	R	4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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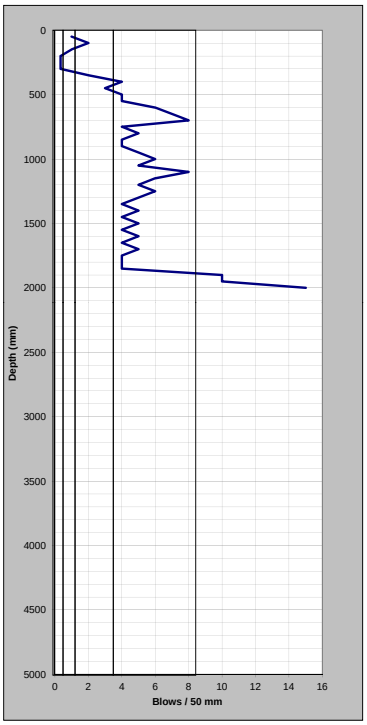
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-11
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	1		2550	
100	2		2600	
150	1		2650	
200	0.333		2700	
250	0.333		2750	
300	0.333		2800	
350	2		2850	
400	4		2900	
450	3		2950	
500	4		3000	
550	4		3050	
600	6		3100	
650	7		3150	
700	8		3200	
750	4		3250	
800	5		3300	
850	4		3350	
900	4		3400	
950	5		3450	
1000	6		3500	
1050	5		3550	
1100	8		3600	
1150	6		3650	
1200	5		3700	
1250	6		3750	
1300	5		3800	
1350	4		3850	
1400	5		3900	
1450	4		3950	
1500	5		4000	
1550	4		4050	
1600	5		4100	
1650	4		4150	
1700	5		4200	
1750	4		4250	
1800	4		4300	
1850	4		4350	
1900	10		4400	
1950	10		4450	
2000	15	R	4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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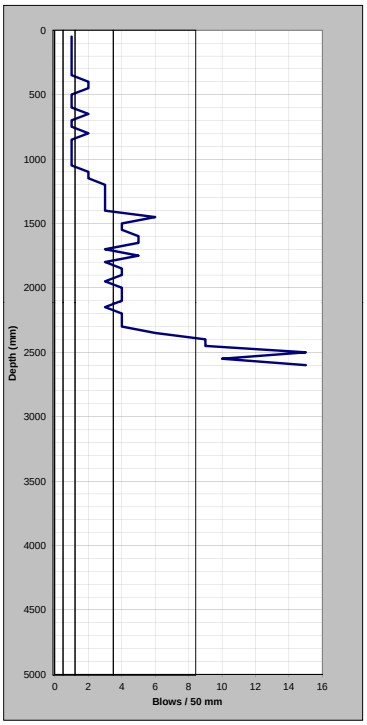
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC7-12
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	1		2550	10
100	1		2600	15
150	1	R	2650	
200	1		2700	
250	1		2750	
300	1		2800	
350	1		2850	
400	2		2900	
450	2		2950	
500	1		3000	
550	1		3050	
600	1		3100	
650	2		3150	
700	1		3200	
750	1		3250	
800	2		3300	
850	1		3350	
900	1		3400	
950	1		3450	
1000	1		3500	
1050	1		3550	
1100	2		3600	
1150	2		3650	
1200	3		3700	
1250	3		3750	
1300	3		3800	
1350	3		3850	
1400	3		3900	
1450	6		3950	
1500	4		4000	
1550	4		4050	
1600	5		4100	
1650	5		4150	
1700	3		4200	
1750	5		4250	
1800	3		4300	
1850	4		4350	
1900	4		4400	
1950	3		4450	
2000	4		4500	
2050	4		4550	
2100	4		4600	
2150	3		4650	
2200	4		4700	
2250	4		4750	
2300	4		4800	
2350	6		4850	
2400	9		4900	
2450	9		4950	
2500	15		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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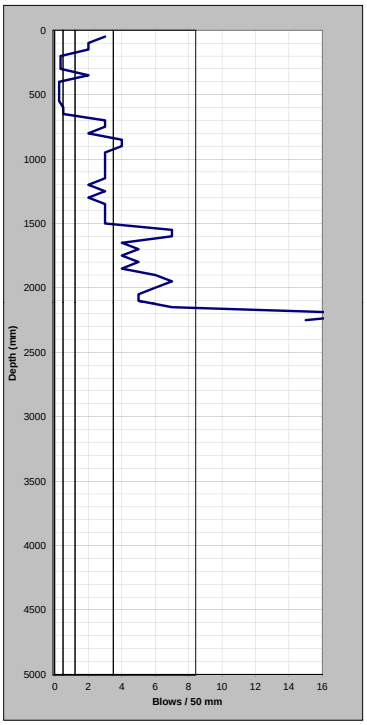
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC7-13
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	3		2550	
100	2		2600	
150	2		2650	
200	0.333		2700	
250	0.333		2750	
300	0.333		2800	
350	2		2850	
400	0.25		2900	
450	0.25		2950	
500	0.25		3000	
550	0.25		3050	
600	0.5		3100	
650	0.5		3150	
700	3		3200	
750	3		3250	
800	2		3300	
850	4		3350	
900	4		3400	
950	3		3450	
1000	3		3500	
1050	3		3550	
1100	3		3600	
1150	3		3650	
1200	2		3700	
1250	3		3750	
1300	2		3800	
1350	3		3850	
1400	3		3900	
1450	3		3950	
1500	3		4000	
1550	7		4050	
1600	7		4100	
1650	4		4150	
1700	5		4200	
1750	4		4250	
1800	5		4300	
1850	4		4350	
1900	6		4400	
1950	7		4450	
2000	6		4500	
2050	5		4550	
2100	5		4600	
2150	7		4650	
2200	19		4700	
2250	15	R	4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

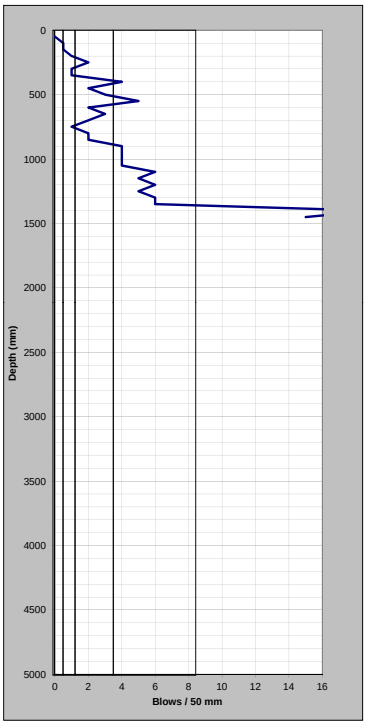
SCALA PENETROMETER LOG

Job No: 870982.1007
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 30/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC7-14
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	0.5		2600	
150	0.5		2650	
200	1		2700	
250	2		2750	
300	1		2800	
350	1		2850	
400	4		2900	
450	2		2950	
500	3		3000	
550	5		3050	
600	2		3100	
650	3		3150	
700	2		3200	
750	1		3250	
800	2		3300	
850	2		3350	
900	4		3400	
950	4		3450	
1000	4		3500	
1050	4		3550	
1100	6		3600	
1150	5		3650	
1200	6		3700	
1250	5		3750	
1300	6		3800	
1350	6		3850	
1400	19		3900	
1450	15	R	3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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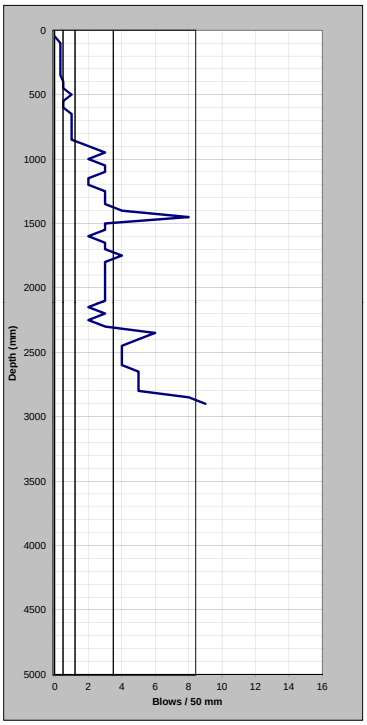
SCALA PENETROMETER LOG

Job No: 870982.1008
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 4/07/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC8-1
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	4
100	0.33		2600	4
150	0.33		2650	5
200	0.33		2700	5
250	0.33		2750	5
300	0.33		2800	5
350	0.33		2850	8
400	0.5		2900	9
450	0.5		2950	
500	1		3000	
550	0.5		3050	
600	0.5		3100	
650	1		3150	
700	1		3200	
750	1		3250	
800	1		3300	
850	1		3350	
900	2		3400	
950	3		3450	
1000	2		3500	
1050	3		3550	
1100	3		3600	
1150	2		3650	
1200	2		3700	
1250	3		3750	
1300	3		3800	
1350	3		3850	
1400	4		3900	
1450	8		3950	
1500	3		4000	
1550	3		4050	
1600	2		4100	
1650	3		4150	
1700	3		4200	
1750	4		4250	
1800	3		4300	
1850	3		4350	
1900	3		4400	
1950	3		4450	
2000	3		4500	
2050	3		4550	
2100	3		4600	
2150	2		4650	
2200	3		4700	
2250	2		4750	
2300	3		4800	
2350	6		4850	
2400	5		4900	
2450	4		4950	
2500	4		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

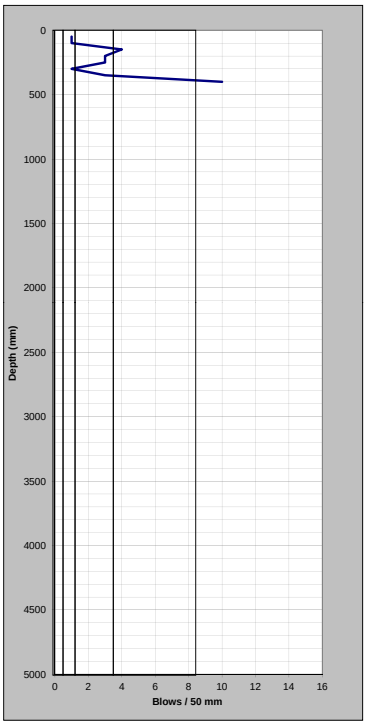
SCALA PENETROMETER LOG

Job No: 870982.1008
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/07/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC8-2
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	1		2550	
100	1		2600	
150	4		2650	
200	3		2700	
250	3		2750	
300	1		2800	
350	3		2850	
400	10	R	2900	
450			2950	
500			3000	
550			3050	
600			3100	
650			3150	
700			3200	
750			3250	
800			3300	
850			3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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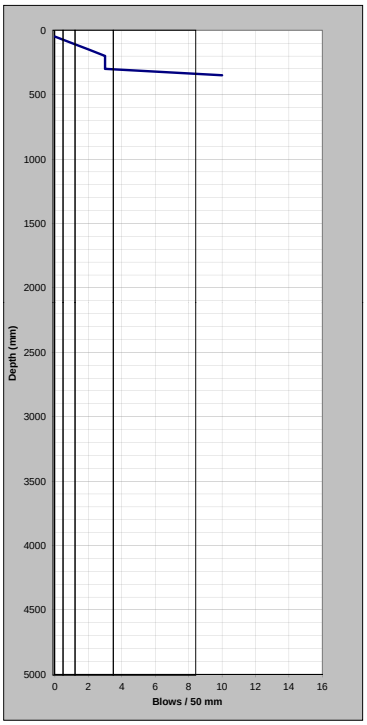
SCALA PENETROMETER LOG

Job No: 870982.1008
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/07/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC8-3
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	1		2600	
150	2		2650	
200	3		2700	
250	3		2750	
300	3		2800	
350	10	R	2850	
400			2900	
450			2950	
500			3000	
550			3050	
600			3100	
650			3150	
700			3200	
750			3250	
800			3300	
850			3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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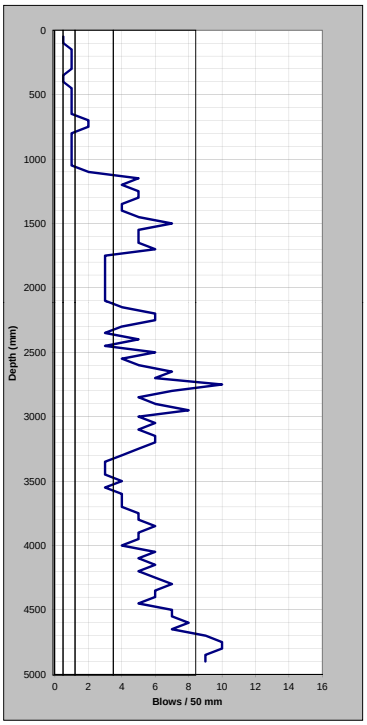
SCALA PENETROMETER LOG

Job No: 870982.1009
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 1/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC9-1
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	4
100	0.5	2600	5
150	1	2650	7
200	1	2700	6
250	1	2750	10
300	1	2800	7
350	0.5	2850	5
400	0.5	2900	6
450	1	2950	8
500	1	3000	5
550	1	3050	6
600	1	3100	5
650	1	3150	6
700	2	3200	6
750	2	3250	5
800	1	3300	4
850	1	3350	3
900	1	3400	3
950	1	3450	3
1000	1	3500	4
1050	1	3550	3
1100	2	3600	4
1150	5	3650	4
1200	4	3700	4
1250	5	3750	5
1300	5	3800	5
1350	4	3850	6
1400	4	3900	5
1450	5	3950	5
1500	7	4000	4
1550	5	4050	6
1600	5	4100	5
1650	5	4150	6
1700	6	4200	5
1750	3	4250	6
1800	3	4300	7
1850	3	4350	6
1900	3	4400	6
1950	3	4450	5
2000	3	4500	7
2050	3	4550	7
2100	3	4600	8
2150	4	4650	7
2200	6	4700	9
2250	6	4750	10
2300	4	4800	10
2350	3	4850	9
2400	5	4900	9
2450	3	4950	
2500	6	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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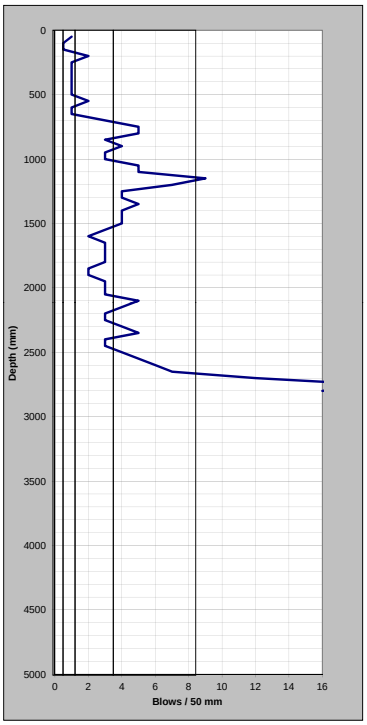
SCALA PENETROMETER LOG

Job No: 870982.1009
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 7/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC9-2
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	5
100	0.5	2600	6
150	0.5	2650	7
200	2	2700	12
250	1	2750	19
300	1	2800	16
350	1	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	2	3050	
600	1	3100	
650	1	3150	
700	3	3200	
750	5	3250	
800	5	3300	
850	3	3350	
900	4	3400	
950	3	3450	
1000	3	3500	
1050	5	3550	
1100	5	3600	
1150	9	3650	
1200	7	3700	
1250	4	3750	
1300	4	3800	
1350	5	3850	
1400	4	3900	
1450	4	3950	
1500	4	4000	
1550	3	4050	
1600	2	4100	
1650	3	4150	
1700	3	4200	
1750	3	4250	
1800	3	4300	
1850	2	4350	
1900	2	4400	
1950	3	4450	
2000	3	4500	
2050	3	4550	
2100	5	4600	
2150	4	4650	
2200	3	4700	
2250	3	4750	
2300	4	4800	
2350	5	4850	
2400	3	4900	
2450	3	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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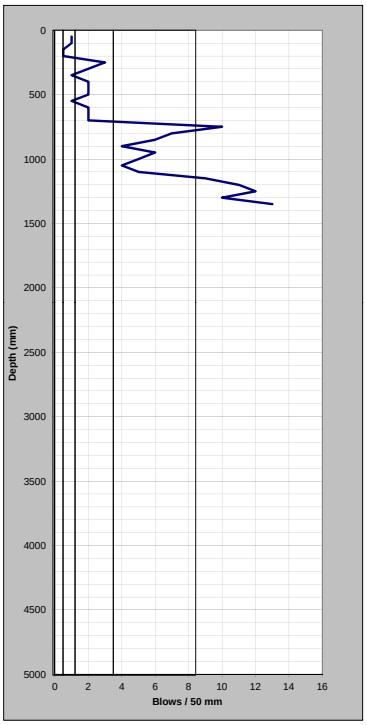
SCALA PENETROMETER LOG

Job No: 870982.1009
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 7/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC9-3
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	0.5	2650	
200	0.5	2700	
250	3	2750	
300	2	2800	
350	1	2850	
400	2	2900	
450	2	2950	
500	2	3000	
550	1	3050	
600	2	3100	
650	2	3150	
700	2	3200	
750	10	3250	
800	7	3300	
850	6	3350	
900	4	3400	
950	6	3450	
1000	5	3500	
1050	4	3550	
1100	5	3600	
1150	9	3650	
1200	11	3700	
1250	12	3750	
1300	10	3800	
1350	13	3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

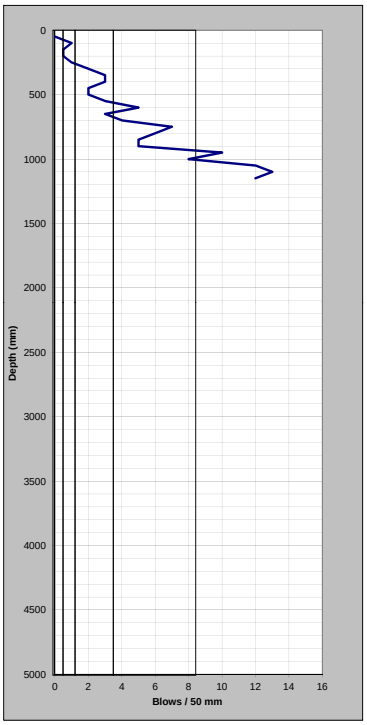
SCALA PENETROMETER LOG

Job No: 870982.1009
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC9-4
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	1	2600	
150	0.5	2650	
200	0.5	2700	
250	1	2750	
300	2	2800	
350	3	2850	
400	3	2900	
450	2	2950	
500	2	3000	
550	3	3050	
600	5	3100	
650	3	3150	
700	4	3200	
750	7	3250	
800	6	3300	
850	5	3350	
900	5	3400	
950	10	3450	
1000	8	3500	
1050	12	3550	
1100	13	3600	
1150	12	3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



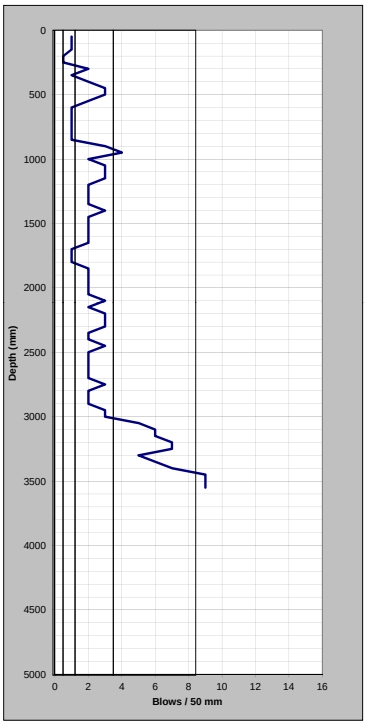
Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

SCALA PENETROMETER LOG

Job No:	870982.1009	Date:	31/05/2012	Test No.	SC9-5
Project:	Cable Bay Rd Remedial	Operated by:	DJAA		
Location:	Cable Bay Road	Logged by:	DJAA	Sheet	1
Position:	See Site Plan	Checked by:	MPD	of	1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	2
100	1	2600	2
150	1	2650	2
200	0.5	2700	2
250	0.5	2750	3
300	2	2800	2
350	1	2850	2
400	2	2900	2
450	3	2950	3
500	3	3000	3
550	2	3050	5
600	1	3100	6
650	1	3150	6
700	1	3200	7
750	1	3250	7
800	1	3300	5
850	1	3350	6
900	3	3400	7
950	4	3450	9
1000	2	3500	9
1050	3	3550	9
1100	3	3600	
1150	3	3650	
1200	2	3700	
1250	2	3750	
1300	2	3800	
1350	2	3850	
1400	3	3900	
1450	2	3950	
1500	2	4000	
1550	2	4050	
1600	2	4100	
1650	2	4150	
1700	1	4200	
1750	1	4250	
1800	1	4300	
1850	2	4350	
1900	2	4400	
1950	2	4450	
2000	2	4500	
2050	2	4550	
2100	3	4600	
2150	2	4650	
2200	3	4700	
2250	3	4750	
2300	3	4800	
2350	2	4850	
2400	2	4900	
2450	3	4950	
2500	2	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

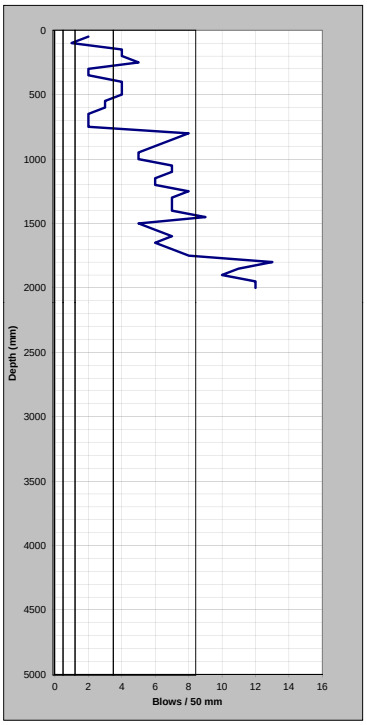
SCALA PENETROMETER LOG

Job No: 870982.1010
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 7/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC10-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	2	2550	
100	1	2600	
150	4	2650	
200	4	2700	
250	5	2750	
300	2	2800	
350	2	2850	
400	4	2900	
450	4	2950	
500	4	3000	
550	3	3050	
600	3	3100	
650	2	3150	
700	2	3200	
750	2	3250	
800	8	3300	
850	7	3350	
900	6	3400	
950	5	3450	
1000	5	3500	
1050	7	3550	
1100	7	3600	
1150	6	3650	
1200	6	3700	
1250	8	3750	
1300	7	3800	
1350	7	3850	
1400	7	3900	
1450	9	3950	
1500	5	4000	
1550	6	4050	
1600	7	4100	
1650	6	4150	
1700	7	4200	
1750	8	4250	
1800	13	4300	
1850	11	4350	
1900	10	4400	
1950	12	4450	
2000	12	4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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Fax: (03) 546 7619

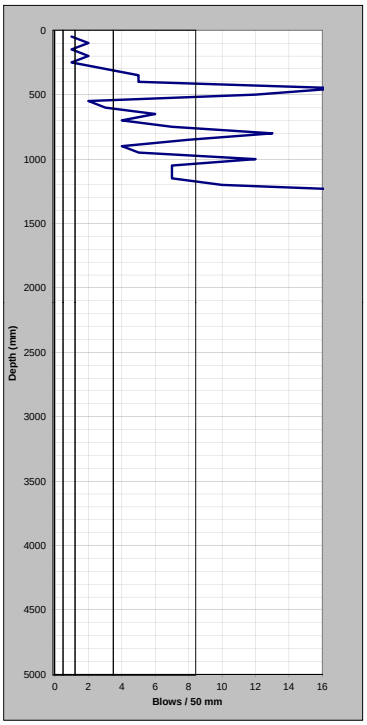
SCALA PENETROMETER LOG

Job No: 870982.1010
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 7/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC10-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	2	2600	
150	1	2650	
200	2	2700	
250	1	2750	
300	3	2800	
350	5	2850	
400	5	2900	
450	17	2950	
500	12	3000	
550	2	3050	
600	3	3100	
650	6	3150	
700	4	3200	
750	7	3250	
800	13	3300	
850	8	3350	
900	4	3400	
950	5	3450	
1000	12	3500	
1050	7	3550	
1100	7	3600	
1150	7	3650	
1200	10	3700	
1250	20	3750	
1300	26	3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

SCALA PENETROMETER LOG

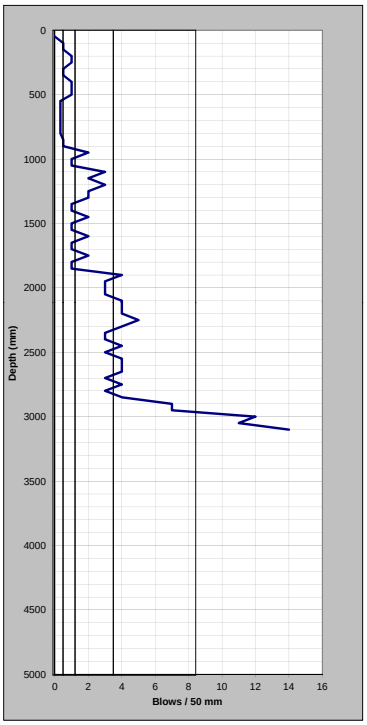
Job No: 870982.1010
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC10-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	4
100	0.5	2600	4
150	0.5	2650	4
200	1	2700	3
250	1	2750	4
300	0.5	2800	3
350	0.5	2850	4
400	1	2900	7
450	1	2950	7
500	1	3000	12
550	0.33	3050	11
600	0.33	3100	14
650	0.33	3150	
700	0.33	3200	
750	0.33	3250	
800	0.33	3300	
850	0.5	3350	
900	0.5	3400	
950	2	3450	
1000	1	3500	
1050	1	3550	
1100	3	3600	
1150	2	3650	
1200	3	3700	
1250	2	3750	
1300	2	3800	
1350	1	3850	
1400	1	3900	
1450	2	3950	
1500	1	4000	
1550	1	4050	
1600	2	4100	
1650	1	4150	
1700	1	4200	
1750	2	4250	
1800	1	4300	
1850	1	4350	
1900	4	4400	
1950	3	4450	
2000	3	4500	
2050	3	4550	
2100	4	4600	
2150	4	4650	
2200	4	4700	
2250	5	4750	
2300	4	4800	
2350	3	4850	
2400	3	4900	
2450	4	4950	
2500	3	5000	

Dry Rods



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43 Halifax Street
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Tel: (03) 546 6339
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SCALA PENETROMETER LOG

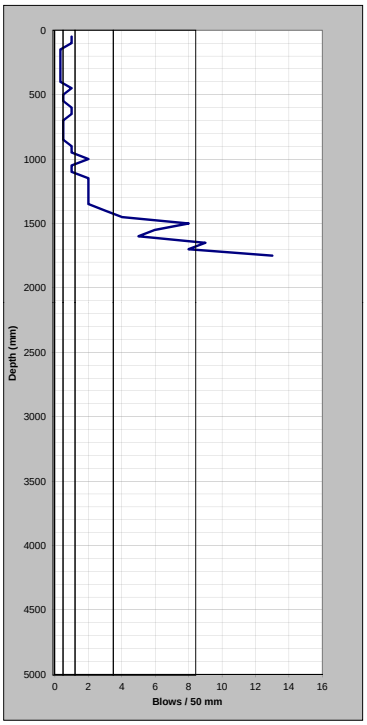
Job No: 870982.1010
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC10-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	0.33	2650	
200	0.33	2700	
250	0.33	2750	
300	0.33	2800	
350	0.33	2850	
400	0.33	2900	
450	1	2950	
500	0.5	3000	
550	0.5	3050	
600	1	3100	
650	1	3150	
700	0.5	3200	
750	0.5	3250	
800	0.5	3300	
850	0.5	3350	
900	1	3400	
950	1	3450	
1000	2	3500	
1050	1	3550	
1100	1	3600	
1150	2	3650	
1200	2	3700	
1250	2	3750	
1300	2	3800	
1350	2	3850	
1400	3	3900	
1450	4	3950	
1500	8	4000	
1550	6	4050	
1600	5	4100	
1650	9	4150	
1700	8	4200	
1750	13	4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Wet Rods
0.8m below
surface



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

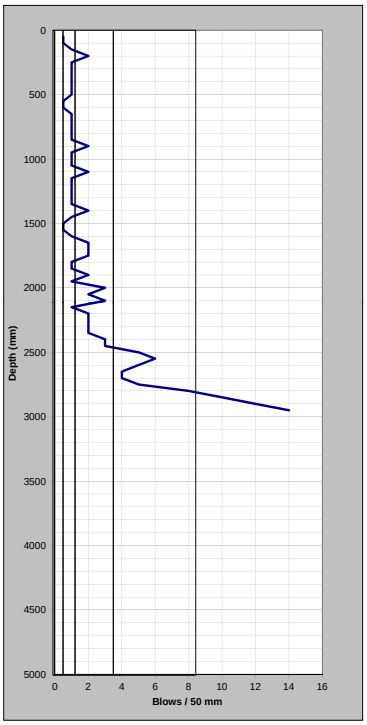
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	6
100	0.5	2600	5
150	1	2650	4
200	2	2700	4
250	1	2750	5
300	1	2800	8
350	1	2850	10
400	1	2900	12
450	1	2950	14
500	1	3000	
550	0.5	3050	
600	0.5	3100	
650	1	3150	
700	1	3200	
750	1	3250	
800	1	3300	
850	1	3350	
900	2	3400	
950	1	3450	
1000	1	3500	
1050	1	3550	
1100	2	3600	
1150	1	3650	
1200	1	3700	
1250	1	3750	
1300	1	3800	
1350	1	3850	
1400	2	3900	
1450	1	3950	
1500	0.5	4000	
1550	0.5	4050	
1600	1	4100	
1650	2	4150	
1700	2	4200	
1750	2	4250	
1800	1	4300	
1850	1	4350	
1900	2	4400	
1950	1	4450	
2000	3	4500	
2050	2	4550	
2100	3	4600	
2150	1	4650	
2200	2	4700	
2250	2	4750	
2300	2	4800	
2350	2	4850	
2400	3	4900	
2450	3	4950	
2500	5	5000	



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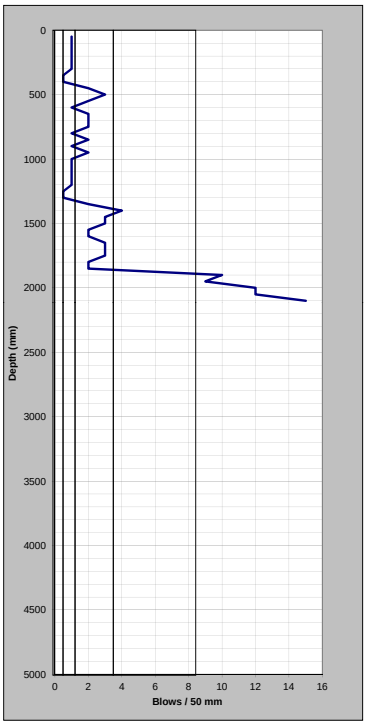
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	1	2650	
200	1	2700	
250	1	2750	
300	1	2800	
350	0.5	2850	
400	0.5	2900	
450	2	2950	
500	3	3000	
550	2	3050	
600	1	3100	
650	2	3150	
700	2	3200	
750	2	3250	
800	1	3300	
850	2	3350	
900	1	3400	
950	2	3450	
1000	1	3500	
1050	1	3550	
1100	1	3600	
1150	1	3650	
1200	1	3700	
1250	0.5	3750	
1300	0.5	3800	
1350	2	3850	
1400	4	3900	
1450	3	3950	
1500	3	4000	
1550	2	4050	
1600	2	4100	
1650	3	4150	
1700	3	4200	
1750	3	4250	
1800	2	4300	
1850	2	4350	
1900	10	4400	
1950	9	4450	
2000	12	4500	
2050	12	4550	
2100	15 R	4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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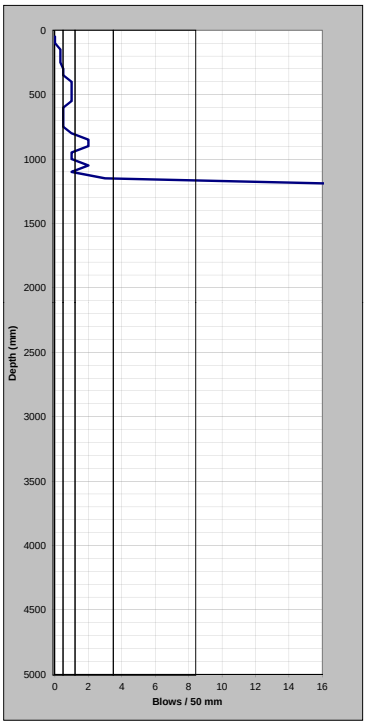
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 17/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0.33	2650	
200	0.33	2700	
250	0.33	2750	
300	0.5	2800	
350	0.5	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	0.5	3100	
650	0.5	3150	
700	0.5	3200	
750	0.5	3250	
800	1	3300	
850	2	3350	
900	2	3400	
950	1	3450	
1000	1	3500	
1050	2	3550	
1100	1	3600	
1150	3	3650	
1200	20 R	3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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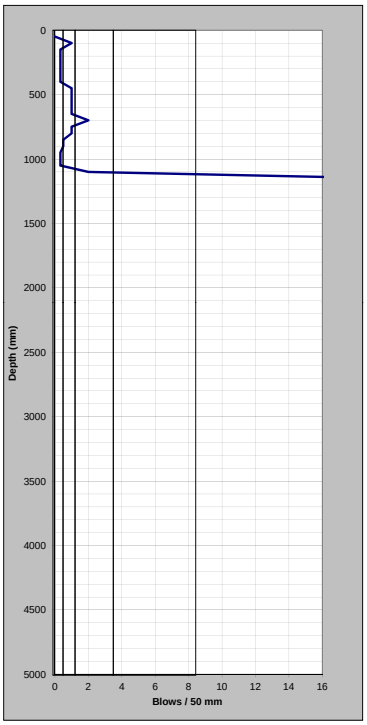
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 17/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	1	2600	
150	0.33	2650	
200	0.33	2700	
250	0.33	2750	
300	0.33	2800	
350	0.33	2850	
400	0.33	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	1	3100	
650	1	3150	
700	2	3200	
750	1	3250	
800	1	3300	
850	0.5	3350	
900	0.5	3400	
950	0.33	3450	
1000	0.33	3500	
1050	0.33	3550	
1100	2	3600	
1150	20 R	3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

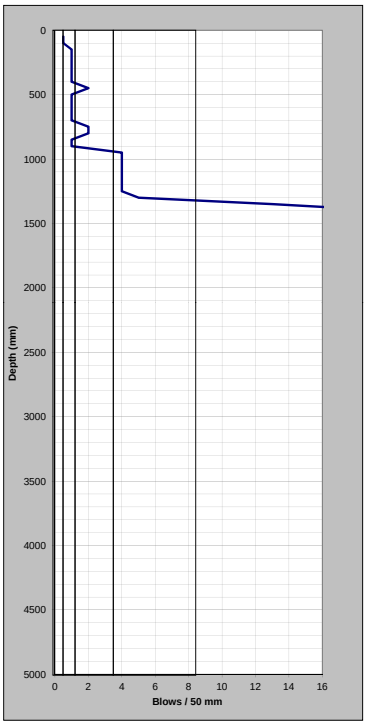
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 17/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-5
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	1		2650	
200	1		2700	
250	1		2750	
300	1		2800	
350	1		2850	
400	1		2900	
450	2		2950	
500	1		3000	
550	1		3050	
600	1		3100	
650	1		3150	
700	1		3200	
750	2		3250	
800	2		3300	
850	1		3350	
900	1		3400	
950	4		3450	
1000	4		3500	
1050	4		3550	
1100	4		3600	
1150	4		3650	
1200	4		3700	
1250	4		3750	
1300	5		3800	
1350	13		3850	
1400	20	R	3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Tel: (03) 546 6339
Fax: (03) 546 7619

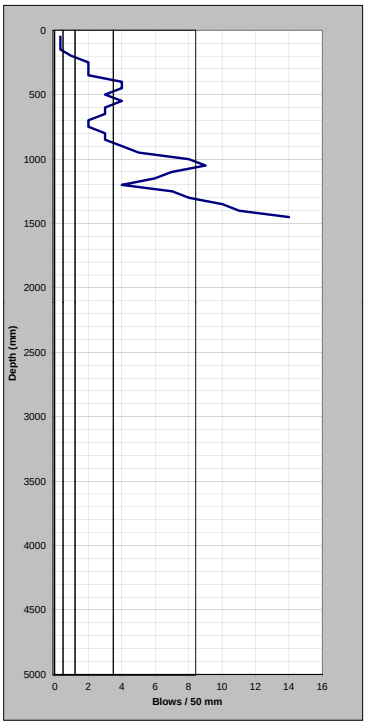
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 17/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-6
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.33		2550	
100	0.33		2600	
150	0.33		2650	
200	1		2700	
250	2		2750	
300	2		2800	
350	2		2850	
400	4		2900	
450	4		2950	
500	3		3000	
550	4		3050	
600	3		3100	
650	3		3150	
700	2		3200	
750	2		3250	
800	3		3300	
850	3		3350	
900	4		3400	
950	5		3450	
1000	8		3500	
1050	9		3550	
1100	7		3600	
1150	6		3650	
1200	4		3700	
1250	7		3750	
1300	8		3800	
1350	10		3850	
1400	11		3900	
1450	14		3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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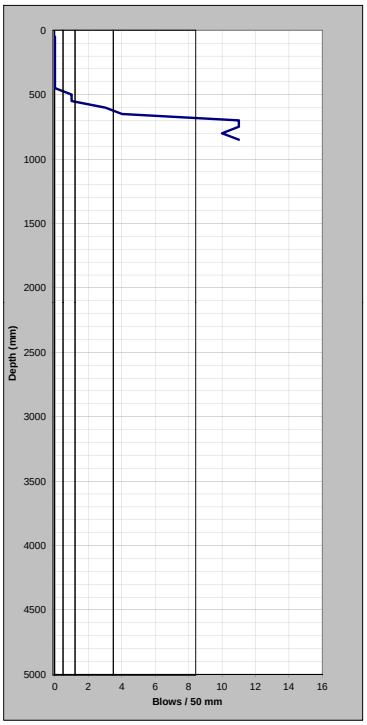
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 17/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-7
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	0		2600	
150	0		2650	
200	0		2700	
250	0		2750	
300	0		2800	
350	0		2850	
400	0		2900	
450	0		2950	
500	1		3000	
550	1		3050	
600	3		3100	
650	4		3150	
700	11		3200	
750	11		3250	
800	10		3300	
850	11		3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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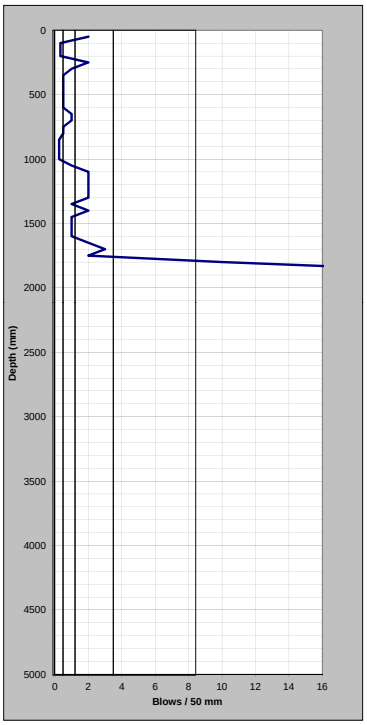
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 17/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-8
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	2		2550	
100	0.33		2600	
150	0.33		2650	
200	0.33		2700	
250	2		2750	
300	1		2800	
350	0.5		2850	
400	0.5		2900	
450	0.5		2950	
500	0.5		3000	
550	0.5		3050	
600	0.5		3100	
650	1		3150	
700	1		3200	
750	0.5		3250	
800	0.5		3300	
850	0.25		3350	
900	0.25		3400	
950	0.25		3450	
1000	0.25		3500	
1050	1		3550	
1100	2		3600	
1150	2		3650	
1200	2		3700	
1250	2		3750	
1300	2		3800	
1350	1		3850	
1400	2		3900	
1450	1		3950	
1500	1		4000	
1550	1		4050	
1600	1		4100	
1650	2		4150	
1700	3		4200	
1750	2		4250	
1800	10		4300	
1850	20	R	4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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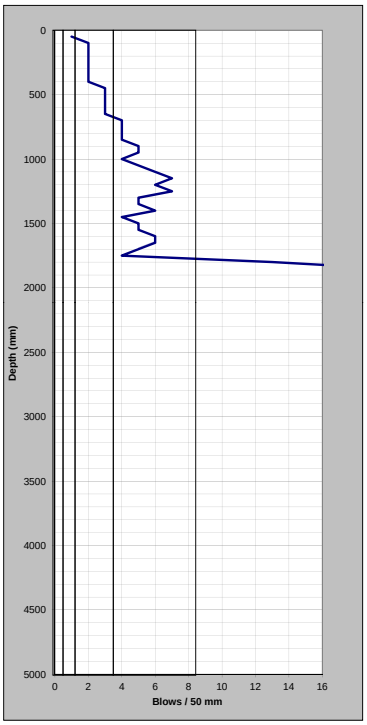
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 17/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-9
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	1		2550	
100	2		2600	
150	2		2650	
200	2		2700	
250	2		2750	
300	2		2800	
350	2		2850	
400	2		2900	
450	3		2950	
500	3		3000	
550	3		3050	
600	3		3100	
650	3		3150	
700	4		3200	
750	4		3250	
800	4		3300	
850	4		3350	
900	5		3400	
950	5		3450	
1000	4		3500	
1050	5		3550	
1100	6		3600	
1150	7		3650	
1200	6		3700	
1250	7		3750	
1300	5		3800	
1350	5		3850	
1400	6		3900	
1450	4		3950	
1500	5		4000	
1550	5		4050	
1600	6		4100	
1650	6		4150	
1700	5		4200	
1750	4		4250	
1800	13		4300	
1850	20	R	4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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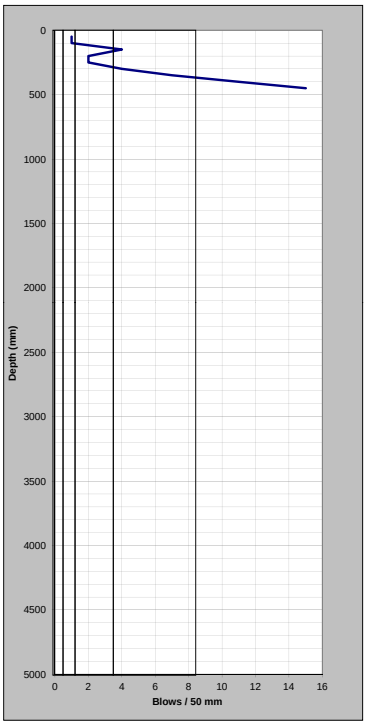
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-10
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	1		2550	
100	1		2600	
150	4		2650	
200	2		2700	
250	2		2750	
300	4		2800	
350	7		2850	
400	11		2900	
450	15	R	2950	
500			3000	
550			3050	
600			3100	
650			3150	
700			3200	
750			3250	
800			3300	
850			3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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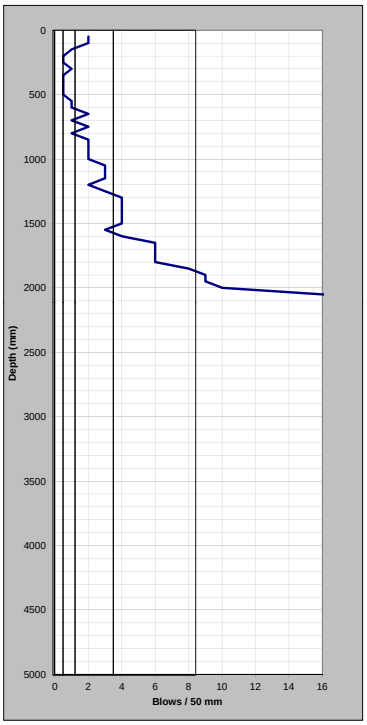
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-11
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	2		2550	
100	2		2600	
150	1		2650	
200	0.5		2700	
250	0.5		2750	
300	1		2800	
350	0.5		2850	
400	0.5		2900	
450	0.5		2950	
500	0.5		3000	
550	1		3050	
600	1		3100	
650	2		3150	
700	1		3200	
750	2		3250	
800	1		3300	
850	2		3350	
900	2		3400	
950	2		3450	
1000	2		3500	
1050	3		3550	
1100	3		3600	
1150	3		3650	
1200	2		3700	
1250	3		3750	
1300	4		3800	
1350	4		3850	
1400	4		3900	
1450	4		3950	
1500	4		4000	
1550	3		4050	
1600	4		4100	
1650	6		4150	
1700	6		4200	
1750	6		4250	
1800	6		4300	
1850	8		4350	
1900	9		4400	
1950	9		4450	
2000	10		4500	
2050	16		4550	
2100	20	R	4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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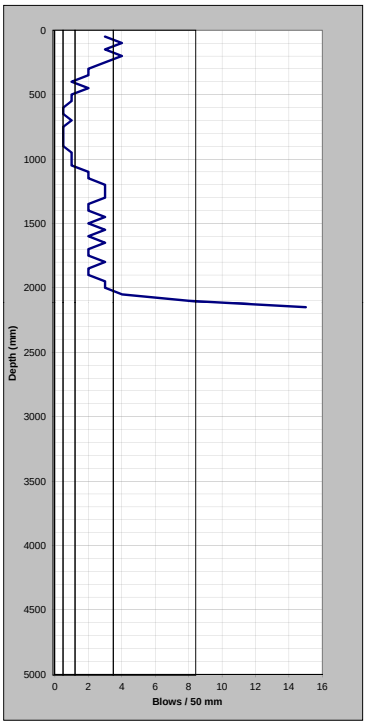
SCALA PENETROMETER LOG

Job No: 870982.1011
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC11-12
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	3		2550	
100	4		2600	
150	3		2650	
200	4		2700	
250	3		2750	
300	2		2800	
350	2		2850	
400	1		2900	
450	2		2950	
500	1		3000	
550	1		3050	
600	0.5		3100	
650	0.5		3150	
700	1		3200	
750	0.5		3250	
800	0.5		3300	
850	0.5		3350	
900	0.5		3400	
950	1		3450	
1000	1		3500	
1050	1		3550	
1100	2		3600	
1150	2		3650	
1200	3		3700	
1250	3		3750	
1300	3		3800	
1350	2		3850	
1400	2		3900	
1450	3		3950	
1500	2		4000	
1550	3		4050	
1600	2		4100	
1650	3		4150	
1700	2		4200	
1750	2		4250	
1800	3		4300	
1850	2		4350	
1900	2		4400	
1950	3		4450	
2000	3		4500	
2050	4		4550	
2100	8		4600	
2150	15	R	4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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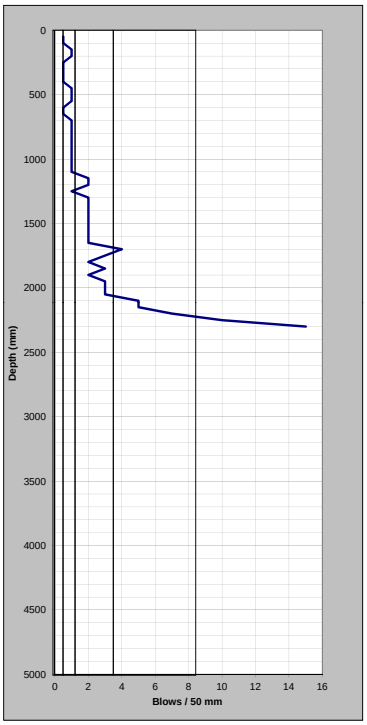
SCALA PENETROMETER LOG

Job No: **870982.1011**
Project: **Cable Bay Rd Remedial**
Location: **Cable Bay Road**
Position: **See Site Plan**

Date: **18/04/2012**
Operated by: **DJAA**
Logged by: **DJAA**
Checked by: MP

Test No. SC11-13
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	1		2650	
200	1		2700	
250	0.5		2750	
300	0.5		2800	
350	0.5		2850	
400	0.5		2900	
450	1		2950	
500	1		3000	
550	1		3050	
600	0.5		3100	
650	0.5		3150	
700	1		3200	
750	1		3250	
800	1		3300	
850	1		3350	
900	1		3400	
950	1		3450	
1000	1		3500	
1050	1		3550	
1100	1		3600	
1150	2		3650	
1200	2		3700	
1250	1		3750	
1300	2		3800	
1350	2		3850	
1400	2		3900	
1450	2		3950	
1500	2		4000	
1550	2		4050	
1600	2		4100	
1650	2		4150	
1700	4		4200	
1750	3		4250	
1800	2		4300	
1850	3		4350	
1900	2		4400	
1950	3		4450	
2000	3		4500	
2050	3		4550	
2100	5		4600	
2150	5		4650	
2200	7		4700	
2250	10		4750	
2300	15	R	4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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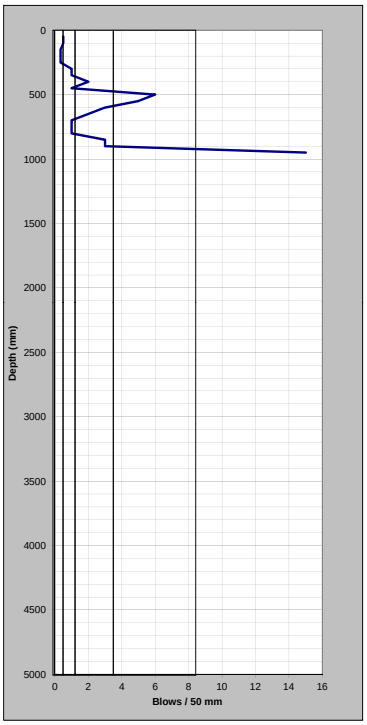
SCALA PENETROMETER LOG

Job No: **870982.1011**
Project: **Cable Bay Rd Remedial**
Location: **Cable Bay Road**
Position: **See Site Plan**

Date: **18/04/2012**
Operated by: **DJAA**
Logged by: **DJAA**
Checked by: MP

Test No. SC11-14
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	0.333		2650	
200	0.333		2700	
250	0.333		2750	
300	1		2800	
350	1		2850	
400	2		2900	
450	1		2950	
500	6		3000	
550	5		3050	
600	3		3100	
650	2		3150	
700	1		3200	
750	1		3250	
800	1		3300	
850	3		3350	
900	3		3400	
950	15	R	3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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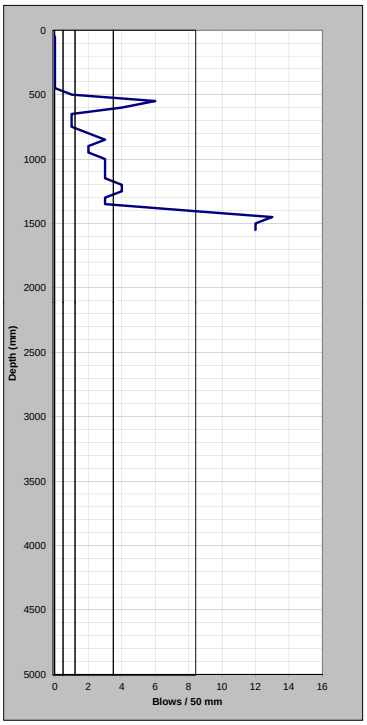
SCALA PENETROMETER LOG

Job No:	870982.1012	Date:	16/04/2012	Test No.	SC12
Project:	Cable Bay Rd Remedial	Operated by:	DJAA		
Location:	Cable Bay Road	Logged by:	DJAA	Sheet	1
Position:	See Site Plan	Checked by:		of	1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0	2650	
200	0	2700	
250	0	2750	
300	0	2800	
350	0	2850	
400	0	2900	
450	0	2950	
500	1	3000	
550	6	3050	
600	4	3100	
650	1	3150	
700	1	3200	
750	1	3250	
800	2	3300	
850	3	3350	
900	2	3400	
950	2	3450	
1000	3	3500	
1050	3	3550	
1100	3	3600	
1150	3	3650	
1200	4	3700	
1250	4	3750	
1300	3	3800	
1350	3	3850	
1400	8	3900	
1450	13	3950	
1500	12	4000	
1550	12	4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
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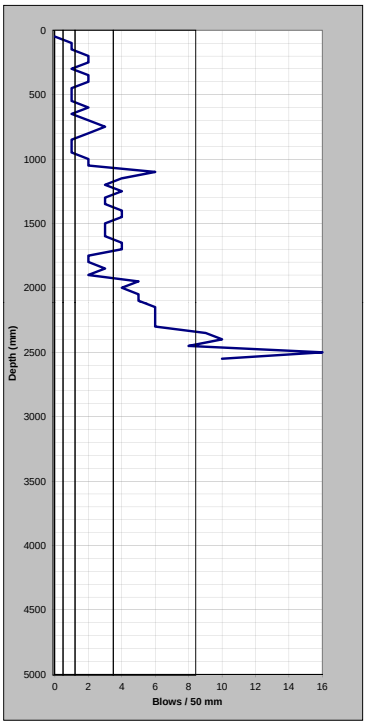
SCALA PENETROMETER LOG

Job No: **870982.1013**
Project: **Cable Bay Rd Remedial**
Location: **Cable Bay Road**
Position: **See Site Plan**

Date: **13/04/2012**
Operated by: **DJAA**
Logged by: **DJAA**
Checked by:

Test No. SC13-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	10 R
100	1	2600	
150	1	2650	
200	2	2700	
250	2	2750	
300	1	2800	
350	2	2850	
400	2	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	2	3100	
650	1	3150	
700	2	3200	
750	3	3250	
800	2	3300	
850	1	3350	
900	1	3400	
950	1	3450	
1000	2	3500	
1050	2	3550	
1100	6	3600	
1150	4	3650	
1200	3	3700	
1250	4	3750	
1300	3	3800	
1350	3	3850	
1400	4	3900	
1450	4	3950	
1500	3	4000	
1550	3	4050	
1600	3	4100	
1650	4	4150	
1700	4	4200	
1750	2	4250	
1800	2	4300	
1850	3	4350	
1900	2	4400	
1950	5	4450	
2000	4	4500	
2050	5	4550	
2100	5	4600	
2150	6	4650	
2200	6	4700	
2250	6	4750	
2300	6	4800	
2350	9	4850	
2400	10	4900	
2450	8	4950	
2500	16	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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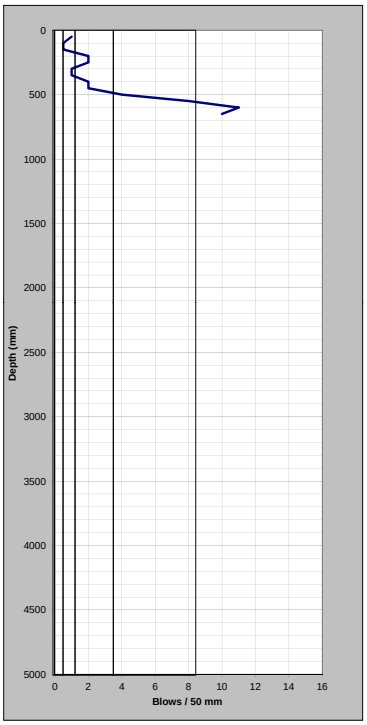
SCALA PENETROMETER LOG

Job No: **870982.1013**
Project: **Cable Bay Rd Remedial**
Location: **Cable Bay Road**
Position: **See Site Plan**

Date: **13/04/2012**
Operated by: **DJAA**
Logged by: **DJAA**
Checked by:

Test No. SC13-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	0.5	2600	
150	0.5	2650	
200	2	2700	
250	2	2750	
300	1	2800	
350	1	2850	
400	2	2900	
450	2	2950	
500	4	3000	
550	8	3050	
600	11	3100	
650	10	3150	
700		3200	
750		3250	
800		3300	
850		3350	
900		3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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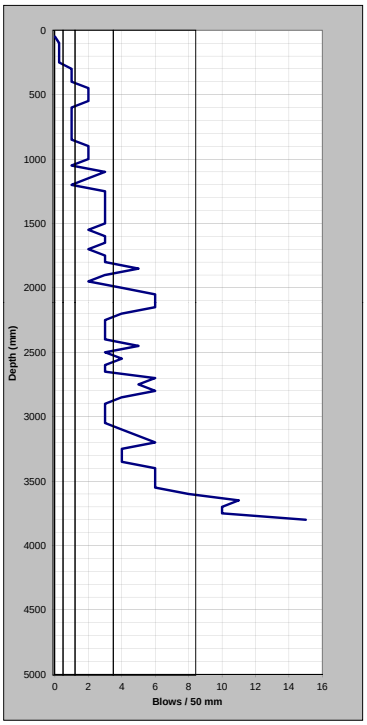
SCALA PENETROMETER LOG

Job No: 870982.1014
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 13/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC14-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	4
100	0.25	2600	3
150	0.25	2650	3
200	0.25	2700	6
250	0.25	2750	5
300	1	2800	6
350	1	2850	4
400	1	2900	3
450	2	2950	3
500	2	3000	3
550	2	3050	3
600	1	3100	4
650	1	3150	5
700	1	3200	6
750	1	3250	4
800	1	3300	4
850	1	3350	4
900	2	3400	6
950	2	3450	6
1000	2	3500	6
1050	1	3550	6
1100	3	3600	8
1150	2	3650	11
1200	1	3700	10
1250	3	3750	10
1300	3	3800	15 R
1350	3	3850	
1400	3	3900	
1450	3	3950	
1500	3	4000	
1550	2	4050	
1600	3	4100	
1650	3	4150	
1700	2	4200	
1750	3	4250	
1800	3	4300	
1850	5	4350	
1900	3	4400	
1950	2	4450	
2000	4	4500	
2050	6	4550	
2100	6	4600	
2150	6	4650	
2200	4	4700	
2250	3	4750	
2300	3	4800	
2350	3	4850	
2400	3	4900	
2450	5	4950	
2500	3	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
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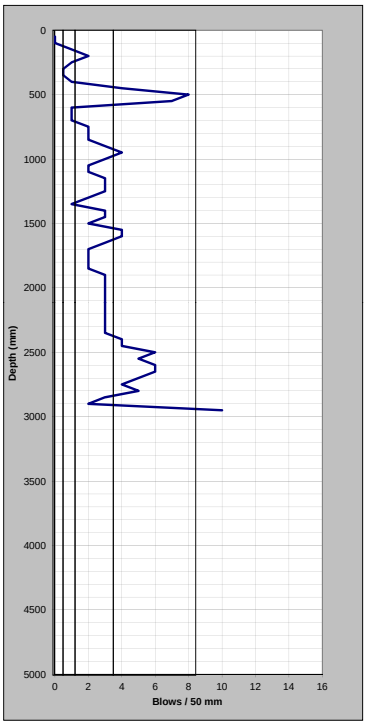
SCALA PENETROMETER LOG

Job No: 870982.1014
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 13/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC14-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	5
100	0	2600	6
150	1	2650	6
200	2	2700	5
250	1	2750	4
300	0.5	2800	5
350	0.5	2850	3
400	1	2900	2
450	4	2950	10 R
500	8	3000	
550	7	3050	
600	1	3100	
650	1	3150	
700	1	3200	
750	2	3250	
800	2	3300	
850	2	3350	
900	3	3400	
950	4	3450	
1000	3	3500	
1050	2	3550	
1100	2	3600	
1150	3	3650	
1200	3	3700	
1250	3	3750	
1300	2	3800	
1350	1	3850	
1400	3	3900	
1450	3	3950	
1500	2	4000	
1550	4	4050	
1600	4	4100	
1650	3	4150	
1700	2	4200	
1750	2	4250	
1800	2	4300	
1850	2	4350	
1900	3	4400	
1950	3	4450	
2000	3	4500	
2050	3	4550	
2100	3	4600	
2150	3	4650	
2200	3	4700	
2250	3	4750	
2300	3	4800	
2350	3	4850	
2400	4	4900	
2450	4	4950	
2500	6	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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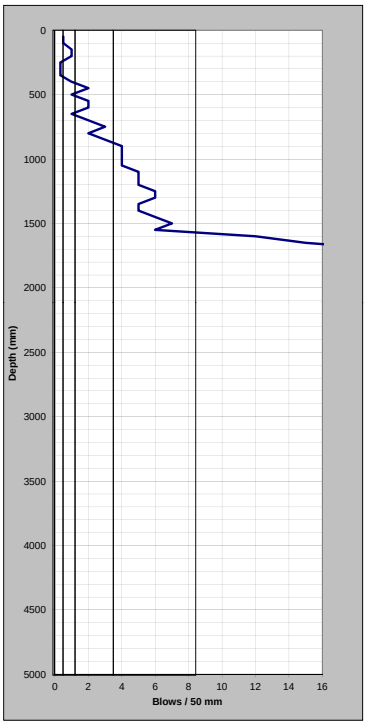
SCALA PENETROMETER LOG

Job No: 870982.1014
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 13/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC14-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	1	2650	
200	1	2700	
250	0.33	2750	
300	0.33	2800	
350	0.33	2850	
400	1	2900	
450	2	2950	
500	1	3000	
550	2	3050	
600	2	3100	
650	1	3150	
700	2	3200	
750	3	3250	
800	2	3300	
850	3	3350	
900	4	3400	
950	4	3450	
1000	4	3500	
1050	4	3550	
1100	5	3600	
1150	5	3650	
1200	5	3700	
1250	6	3750	
1300	6	3800	
1350	5	3850	
1400	5	3900	
1450	6	3950	
1500	7	4000	
1550	6	4050	
1600	12	4100	
1650	15	4150	
1700	20 R	4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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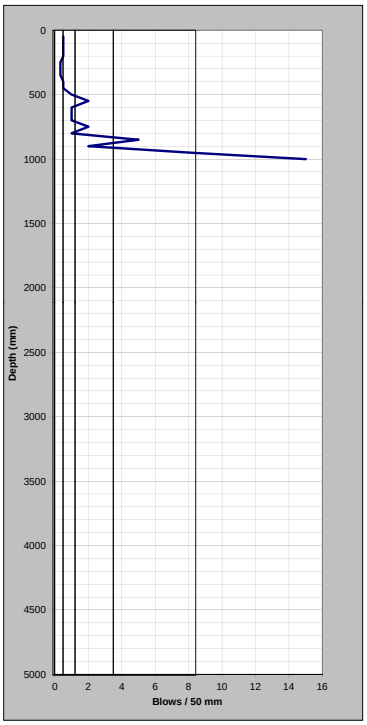
SCALA PENETROMETER LOG

Job No: 870982.1014
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 13/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC14-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	0.5	2650	
200	0.5	2700	
250	0.33	2750	
300	0.33	2800	
350	0.33	2850	
400	0.5	2900	
450	0.5	2950	
500	1	3000	
550	2	3050	
600	1	3100	
650	1	3150	
700	1	3200	
750	2	3250	
800	1	3300	
850	5	3350	
900	2	3400	
950	8	3450	
1000	15 R	3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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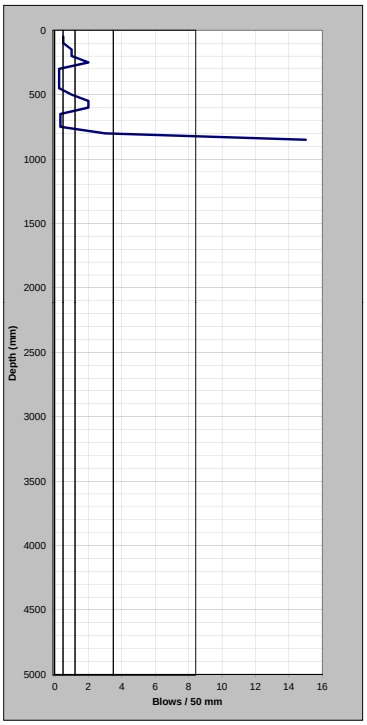
SCALA PENETROMETER LOG

Job No: 870982.1014
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC14-5
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	1		2650	
200	1		2700	
250	2		2750	
300	0.25		2800	
350	0.25		2850	
400	0.25		2900	
450	0.25		2950	
500	1		3000	
550	2		3050	
600	2		3100	
650	0.33		3150	
700	0.33		3200	
750	0.33		3250	
800	3		3300	
850	15	R	3350	
900		Wet Rods	400	
950			450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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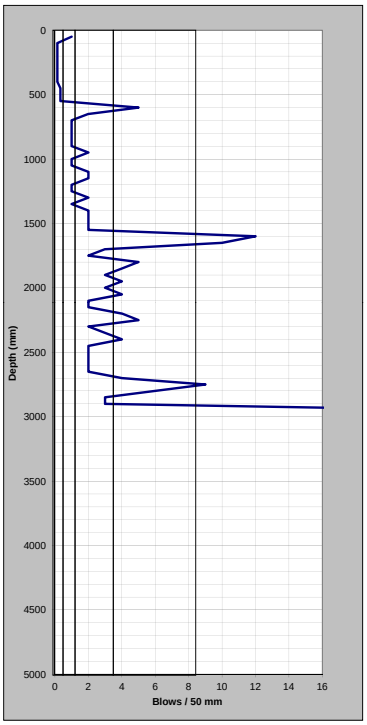
SCALA PENETROMETER LOG

Job No: 870982.1014
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC14-6
Sheet 1 of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	1		2550	2
100	0.142857		2600	2
150	0.142857		2650	2
200	0.142857		2700	4
250	0.142857		2750	9
300	0.142857		2800	6
350	0.142857		2850	3
400	0.142857		2900	3
450	0.33		2950	25 R
500	0.33		3000	Wet Rods
550	0.33		3050	
600	5		3100	
650	2		3150	
700	1		3200	
750	1		3250	
800	1		3300	
850	1		3350	
900	1		3400	
950	2		3450	
1000	1		3500	
1050	1		3550	
1100	2		3600	
1150	2		3650	
1200	1		3700	
1250	1		3750	
1300	2		3800	
1350	1		3850	
1400	2		3900	
1450	2		3950	
1500	2		4000	
1550	2		4050	
1600	12		4100	
1650	10		4150	
1700	3		4200	
1750	2		4250	
1800	5		4300	
1850	4		4350	
1900	3		4400	
1950	4		4450	
2000	3		4500	
2050	4		4550	
2100	2		4600	
2150	2		4650	
2200	4		4700	
2250	5		4750	
2300	2		4800	
2350	3		4850	
2400	4		4900	
2450	2		4950	
2500	2		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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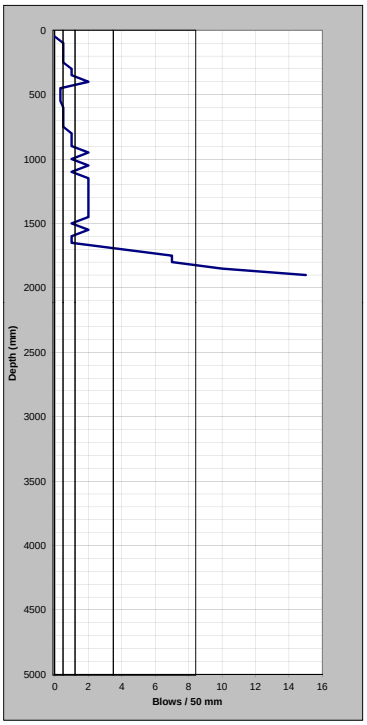
SCALA PENETROMETER LOG

Job No: 870982.1015
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 7/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC15-1
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	0.5		2600	
150	0.5		2650	
200	0.5		2700	
250	0.5		2750	
300	1		2800	
350	1		2850	
400	2		2900	
450	0.33		2950	
500	0.33		3000	
550	0.33		3050	
600	0.5		3100	
650	0.5		3150	
700	0.5		3200	
750	0.5		3250	
800	1		3300	
850	1		3350	
900	1		3400	
950	2		3450	
1000	1		3500	
1050	2		3550	
1100	1		3600	
1150	2		3650	
1200	2		3700	
1250	2		3750	
1300	2		3800	
1350	2		3850	
1400	2		3900	
1450	2		3950	
1500	1		4000	
1550	2		4050	
1600	1		4100	
1650	1		4150	
1700	4		4200	
1750	7		4250	
1800	7		4300	
1850	10		4350	
1900	15	R	4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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Tel: (03) 546 6339
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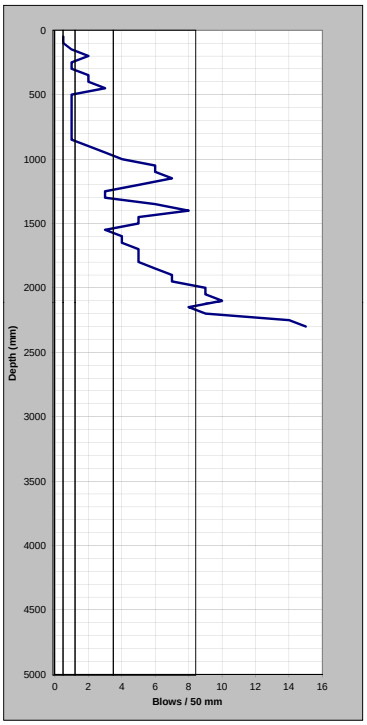
SCALA PENETROMETER LOG

Job No: 870982.1015
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 7/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC15-2
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	1		2650	
200	2		2700	
250	1		2750	
300	1		2800	
350	2		2850	
400	2		2900	
450	3		2950	
500	1		3000	
550	1		3050	
600	1		3100	
650	1		3150	
700	1		3200	
750	1		3250	
800	1		3300	
850	1		3350	
900	2		3400	
950	3		3450	
1000	4		3500	
1050	6		3550	
1100	6		3600	
1150	7		3650	
1200	5		3700	
1250	3		3750	
1300	3		3800	
1350	6		3850	
1400	8		3900	
1450	5		3950	
1500	5		4000	
1550	3		4050	
1600	4		4100	
1650	4		4150	
1700	5		4200	
1750	5		4250	
1800	5		4300	
1850	6		4350	
1900	7		4400	
1950	7		4450	
2000	9		4500	
2050	9		4550	
2100	10		4600	
2150	8		4650	
2200	9		4700	
2250	14		4750	
2300	15	R	4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Tel: (03) 546 6339
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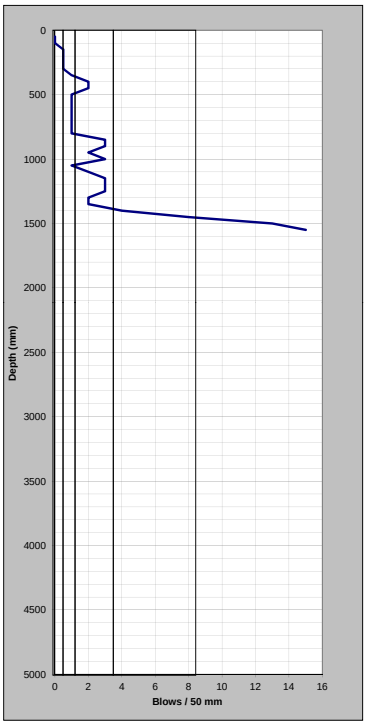
SCALA PENETROMETER LOG

Job No: 870982.1015
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 7/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC15-3
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	0		2600	
150	0.5		2650	
200	0.5		2700	
250	0.5		2750	
300	0.5		2800	
350	1		2850	
400	2		2900	
450	2		2950	
500	1		3000	
550	1		3050	
600	1		3100	
650	1		3150	
700	1		3200	
750	1		3250	
800	1		3300	
850	3		3350	
900	3		3400	
950	2		3450	
1000	3		3500	
1050	1		3550	
1100	2		3600	
1150	3		3650	
1200	3		3700	
1250	3		3750	
1300	2		3800	
1350	2		3850	
1400	4		3900	
1450	8		3950	
1500	13		4000	
1550	15	R	4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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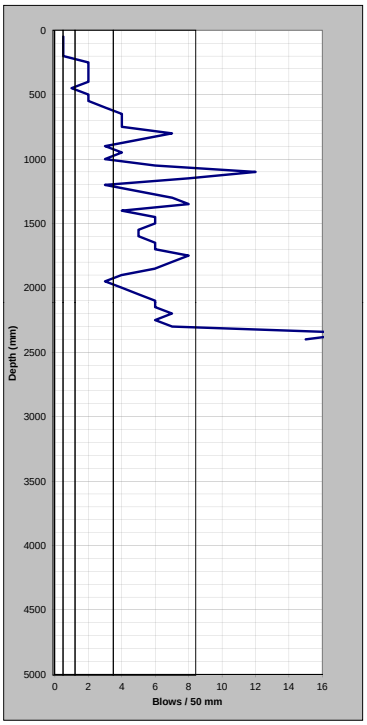
SCALA PENETROMETER LOG

Job No: **870982.1016**
Project: **Cable Bay Rd Remedial**
Location: **Cable Bay Road**
Position: **See Site Plan**

Date: **7/05/2012**
Operated by: **DJAA**
Logged by: **DJAA**
Checked by:

Test No. SC16-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	0.5	2650	
200	0.5	2700	
250	2	2750	
300	2	2800	
350	2	2850	
400	2	2900	
450	1	2950	
500	2	3000	
550	2	3050	
600	3	3100	
650	4	3150	
700	4	3200	
750	4	3250	
800	7	3300	
850	5	3350	
900	3	3400	
950	4	3450	
1000	3	3500	
1050	6	3550	
1100	12	3600	
1150	8	3650	
1200	3	3700	
1250	5	3750	
1300	7	3800	
1350	8	3850	
1400	4	3900	
1450	6	3950	
1500	6	4000	
1550	5	4050	
1600	5	4100	
1650	6	4150	
1700	6	4200	
1750	8	4250	
1800	7	4300	
1850	6	4350	
1900	4	4400	
1950	3	4450	
2000	4	4500	
2050	5	4550	
2100	6	4600	
2150	6	4650	
2200	7	4700	
2250	6	4750	
2300	7	4800	
2350	18	4850	
2400	15 R	4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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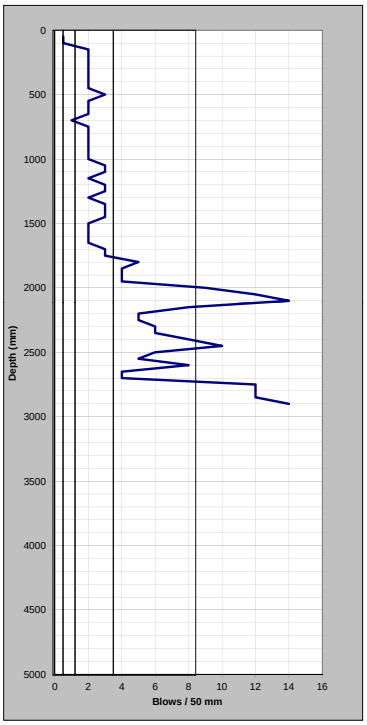
SCALA PENETROMETER LOG

Job No: **870982.1016**
Project: **Cable Bay Rd Remedial**
Location: **Cable Bay Road**
Position: **See Site Plan**

Date: **7/05/2012**
Operated by: **DJAA**
Logged by: **DJAA**
Checked by:

Test No. SC16-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	5
100	0.5	2600	8
150	2	2650	4
200	2	2700	4
250	2	2750	12
300	2	2800	12
350	2	2850	12
400	2	2900	14
450	2	2950	
500	3	3000	
550	2	3050	
600	2	3100	
650	2	3150	
700	1	3200	
750	2	3250	
800	2	3300	
850	2	3350	
900	2	3400	
950	2	3450	
1000	2	3500	
1050	3	3550	
1100	3	3600	
1150	2	3650	
1200	3	3700	
1250	3	3750	
1300	2	3800	
1350	3	3850	
1400	3	3900	
1450	3	3950	
1500	2	4000	
1550	2	4050	
1600	2	4100	
1650	2	4150	
1700	3	4200	
1750	3	4250	
1800	5	4300	
1850	4	4350	
1900	4	4400	
1950	4	4450	
2000	9	4500	
2050	12	4550	
2100	14	4600	
2150	8	4650	
2200	5	4700	
2250	5	4750	
2300	6	4800	
2350	6	4850	
2400	8	4900	
2450	10	4950	
2500	6	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

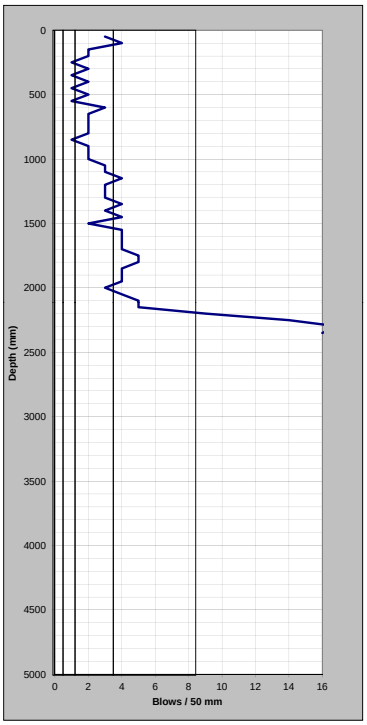
SCALA PENETROMETER LOG

Job No: 870982.1017
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 7/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC17-1
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	3	2550	
100	4	2600	
150	2	2650	
200	2	2700	
250	1	2750	
300	2	2800	
350	1	2850	
400	2	2900	
450	1	2950	
500	2	3000	
550	1	3050	
600	3	3100	
650	2	3150	
700	2	3200	
750	2	3250	
800	2	3300	
850	1	3350	
900	2	3400	
950	2	3450	
1000	2	3500	
1050	3	3550	
1100	3	3600	
1150	4	3650	
1200	3	3700	
1250	3	3750	
1300	3	3800	
1350	4	3850	
1400	3	3900	
1450	4	3950	
1500	2	4000	
1550	4	4050	
1600	4	4100	
1650	4	4150	
1700	4	4200	
1750	5	4250	
1800	5	4300	
1850	4	4350	
1900	4	4400	
1950	4	4450	
2000	3	4500	
2050	4	4550	
2100	5	4600	
2150	5	4650	
2200	9	4700	
2250	14	4750	
2300	17	4800	
2350	16	4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

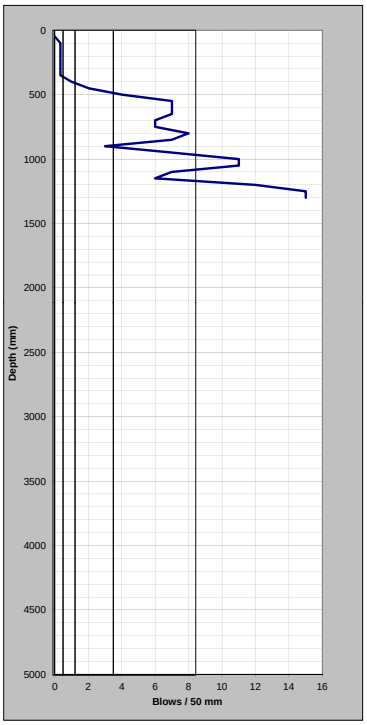
SCALA PENETROMETER LOG

Job No: 870982.1017
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC17-2
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0.33	2600	
150	0.33	2650	
200	0.33	2700	
250	0.33	2750	
300	0.33	2800	
350	0.33	2850	
400	1	2900	
450	2	2950	
500	4	3000	
550	7	3050	
600	7	3100	
650	7	3150	
700	6	3200	
750	6	3250	
800	8	3300	
850	7	3350	
900	3	3400	
950	7	3450	
1000	11	3500	
1050	11	3550	
1100	7	3600	
1150	6	3650	
1200	12	3700	
1250	15	3750	
1300	15	3800	R
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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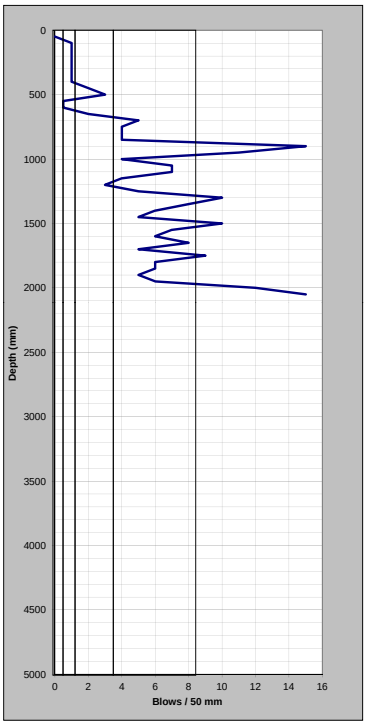
SCALA PENETROMETER LOG

Job No: 870982.1017
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC17-3
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	1	2600	
150	1	2650	
200	1	2700	
250	1	2750	
300	1	2800	
350	1	2850	
400	1	2900	
450	2	2950	
500	3	3000	
550	0.5	3050	
600	0.5	3100	
650	2	3150	
700	5	3200	
750	4	3250	
800	4	3300	
850	4	3350	
900	15	3400	
950	11	3450	
1000	4	3500	
1050	7	3550	
1100	7	3600	
1150	4	3650	
1200	3	3700	
1250	5	3750	
1300	10	3800	
1350	8	3850	
1400	6	3900	
1450	5	3950	
1500	10	4000	
1550	7	4050	
1600	6	4100	
1650	8	4150	
1700	5	4200	
1750	9	4250	
1800	6	4300	
1850	6	4350	
1900	5	4400	
1950	6	4450	
2000	12	4500	
2050	15	4550	R
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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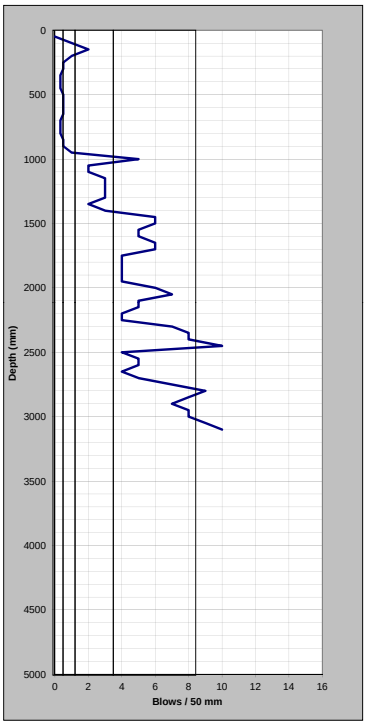
SCALA PENETROMETER LOG

Job No: 870982.1017
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC17-4
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	5
100	1	2600	5
150	2	2650	4
200	1	2700	5
250	0.5	2750	7
300	0.5	2800	9
350	0.33	2850	8
400	0.33	2900	7
450	0.33	2950	8
500	0.5	3000	8
550	0.5	3050	9
600	0.5	3100	10
650	0.5	3150	
700	0.33	3200	
750	0.33	3250	
800	0.33	3300	
850	0.5	3350	
900	0.5	3400	
950	1	3450	
1000	5	3500	
1050	2	3550	
1100	2	3600	
1150	3	3650	
1200	3	3700	
1250	3	3750	
1300	3	3800	
1350	2	3850	
1400	3	3900	
1450	6	3950	
1500	6	4000	
1550	5	4050	
1600	5	4100	
1650	6	4150	
1700	6	4200	
1750	4	4250	
1800	4	4300	
1850	4	4350	
1900	4	4400	
1950	4	4450	
2000	6	4500	
2050	7	4550	
2100	5	4600	
2150	5	4650	
2200	4	4700	
2250	4	4750	
2300	7	4800	
2350	8	4850	
2400	8	4900	
2450	10	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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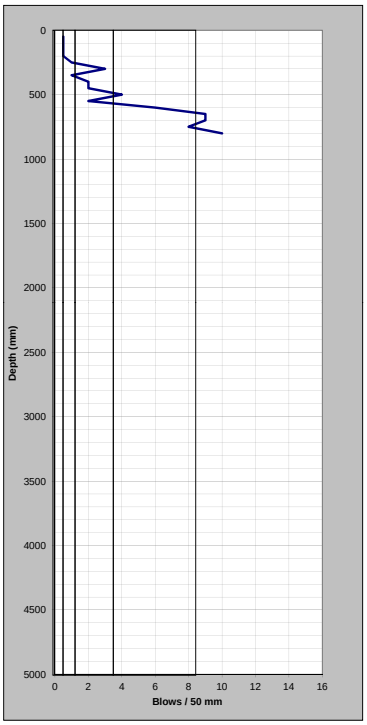
SCALA PENETROMETER LOG

Job No:	870982.1017	Date:	25/05/2012	Test No.	SC17-5
Project:	Cable Bay Rd Remedial	Operated by:	DJAA		
Location:	Cable Bay Road	Logged by:	DJAA	Sheet	1
Position:	See Site Plan	Checked by:	MPD	of	1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	0.5	2650	
200	0.5	2700	
250	1	2750	
300	3	2800	
350	1	2850	
400	2	2900	
450	2	2950	
500	4	3000	
550	2	3050	
600	6	3100	
650	9	3150	
700	9	3200	
750	8	3250	
800	10	3300	
850		3350	
900		3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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SCALA PENETROMETER LOG

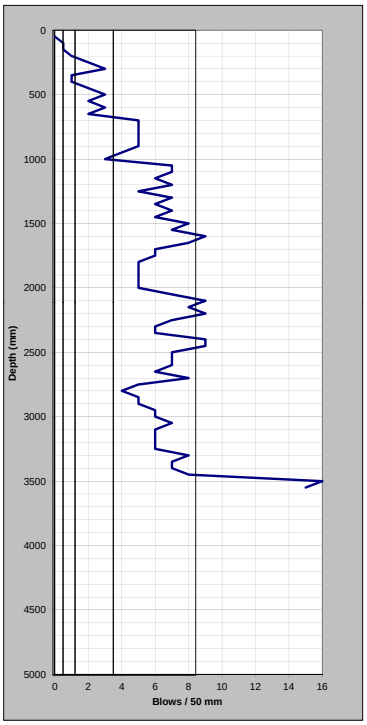
Job No: 870982.1018
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 8/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC18-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	7
100	0.5	2600	7
150	0.5	2650	6
200	1	2700	8
250	2	2750	5
300	3	2800	4
350	1	2850	5
400	1	2900	5
450	2	2950	6
500	3	3000	6
550	2	3050	7
600	3	3100	6
650	2	3150	6
700	5	3200	6
750	5	3250	6
800	5	3300	8
850	5	3350	7
900	5	3400	7
950	4	3450	8
1000	3	3500	16
1050	7	3550	15
1100	7	3600	
1150	6	3650	
1200	7	3700	
1250	5	3750	
1300	7	3800	
1350	6	3850	
1400	7	3900	
1450	6	3950	
1500	8	4000	
1550	7	4050	
1600	9	4100	
1650	8	4150	
1700	6	4200	
1750	6	4250	
1800	5	4300	
1850	5	4350	
1900	5	4400	
1950	5	4450	
2000	5	4500	
2050	7	4550	
2100	9	4600	
2150	8	4650	
2200	9	4700	
2250	7	4750	
2300	6	4800	
2350	6	4850	
2400	9	4900	
2450	9	4950	
2500	7	5000	

R



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Tel: (03) 546 6339
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SCALA PENETROMETER LOG

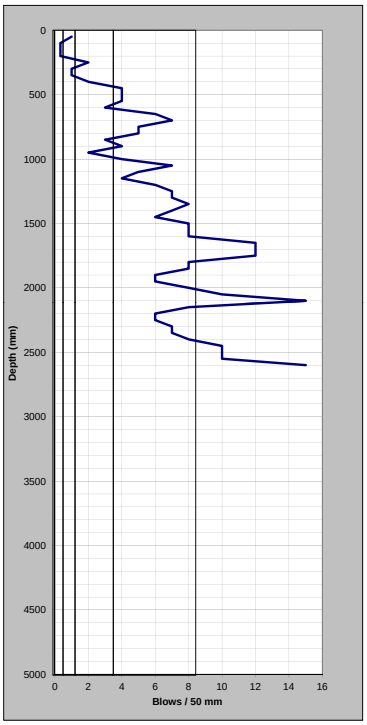
Job No: 870982.1018
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 8/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC18-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	10
100	0.33	2600	15
150	0.33	2650	
200	0.33	2700	
250	2	2750	
300	1	2800	
350	1	2850	
400	2	2900	
450	4	2950	
500	4	3000	
550	4	3050	
600	3	3100	
650	6	3150	
700	7	3200	
750	5	3250	
800	5	3300	
850	3	3350	
900	4	3400	
950	2	3450	
1000	4	3500	
1050	7	3550	
1100	5	3600	
1150	4	3650	
1200	6	3700	
1250	7	3750	
1300	7	3800	
1350	8	3850	
1400	7	3900	
1450	6	3950	
1500	8	4000	
1550	8	4050	
1600	8	4100	
1650	12	4150	
1700	12	4200	
1750	12	4250	
1800	8	4300	
1850	8	4350	
1900	6	4400	
1950	6	4450	
2000	8	4500	
2050	10	4550	
2100	15	4600	
2150	8	4650	
2200	6	4700	
2250	6	4750	
2300	7	4800	
2350	7	4850	
2400	8	4900	
2450	10	4950	
2500	10	5000	

R



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

SCALA PENETROMETER LOG

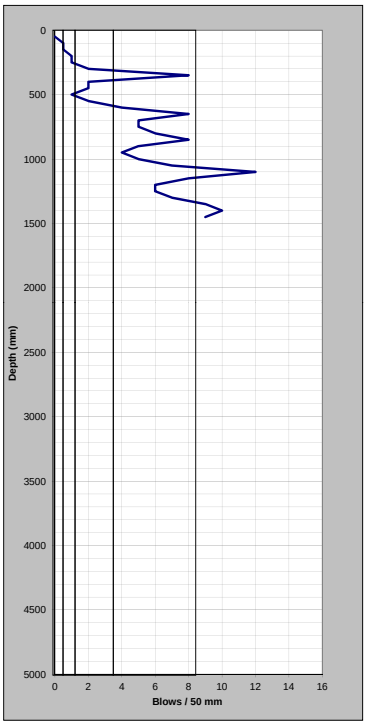
Job No: 870982.1018
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/07/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC18-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0.5	2600	
150	0.5	2650	
200	1	2700	
250	1	2750	
300	2	2800	
350	8	2850	
400	2	2900	
450	2	2950	
500	1	3000	
550	2	3050	
600	4	3100	
650	8	3150	
700	5	3200	
750	5	3250	
800	6	3300	
850	8	3350	
900	5	3400	
950	4	3450	
1000	5	3500	
1050	7	3550	
1100	12	3600	
1150	8	3650	
1200	6	3700	
1250	6	3750	
1300	7	3800	
1350	9	3850	
1400	10	3900	
1450	9	3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Wet Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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P O Box 1009
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SCALA PENETROMETER LOG

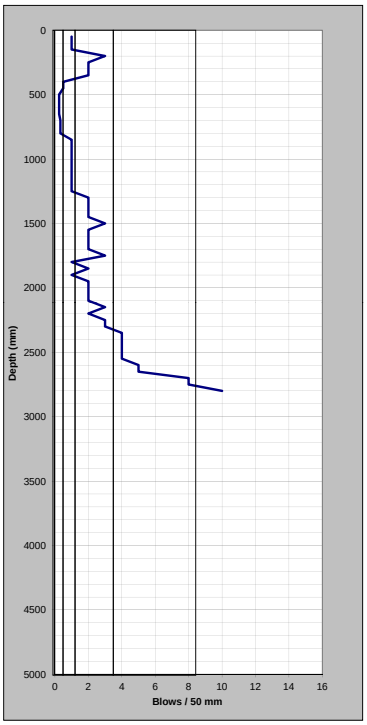
Job No: 870982.1018
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/07/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC18-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	4
100	1	2600	5
150	1	2650	5
200	3	2700	8
250	2	2750	8
300	2	2800	10
350	2	2850	
400	0.5	2900	
450	0.5	2950	
500	0.25	3000	
550	0.25	3050	
600	0.25	3100	
650	0.25	3150	
700	0.33	3200	
750	0.33	3250	
800	0.33	3300	
850	1	3350	
900	1	3400	
950	1	3450	
1000	1	3500	
1050	1	3550	
1100	1	3600	
1150	1	3650	
1200	1	3700	
1250	1	3750	
1300	2	3800	
1350	2	3850	
1400	2	3900	
1450	2	3950	
1500	3	4000	
1550	2	4050	
1600	2	4100	
1650	2	4150	
1700	2	4200	
1750	3	4250	
1800	1	4300	
1850	2	4350	
1900	1	4400	
1950	2	4450	
2000	2	4500	
2050	2	4550	
2100	2	4600	
2150	3	4650	
2200	2	4700	
2250	3	4750	
2300	3	4800	
2350	4	4850	
2400	4	4900	
2450	4	4950	
2500	4	5000	

Tip of Cone is Wet



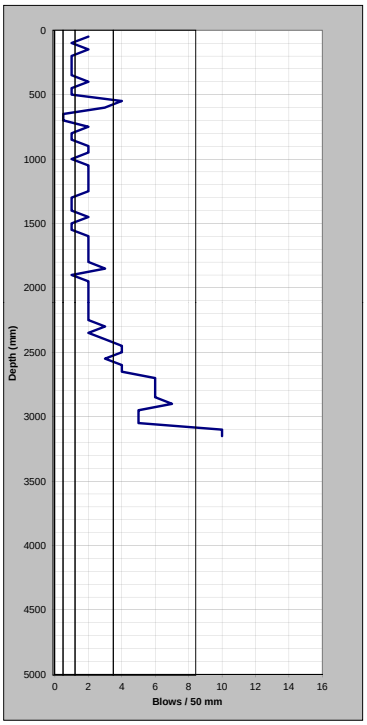
Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

SCALA PENETROMETER LOG

Job No:	*870982.1018*	Date:	*18/07/2012*	**Test No.**	***SC18-5***
Project:	***Cable Bay Rd Remedial***	Operated by:	***DJAA***		
Location:	***Cable Bay Road***	Logged by:	***DJAA***	**Sheet**	***1***
Position:	***See Site Plan***	Checked by:	MPD	**of**	***1***

mm Driven	No. of Blows	mm Driven	No. of Blows
50	2	2550	3
100	1	2600	4
150	2	2650	4
200	1	2700	6
250	1	2750	6
300	1	2800	6
350	1	2850	6
400	2	2900	7
450	1	2950	5
500	1	3000	5
550	4	3050	5
600	3	3100	10
650	0.5	3150	10 +
700	0.5	3200	Dry Rods
750	2	3250	
800	1	3300	
850	1	3350	
900	2	3400	
950	2	3450	
1000	1	3500	
1050	2	3550	
1100	2	3600	
1150	2	3650	
1200	2	3700	
1250	2	3750	
1300	1	3800	
1350	1	3850	
1400	1	3900	
1450	2	3950	
1500	1	4000	
1550	1	4050	
1600	2	4100	
1650	2	4150	
1700	2	4200	
1750	2	4250	
1800	2	4300	
1850	3	4350	
1900	1	4400	
1950	2	4450	
2000	2	4500	
2050	2	4550	
2100	2	4600	
2150	2	4650	
2200	2	4700	
2250	2	4750	
2300	3	4800	
2350	2	4850	
2400	3	4900	
2450	4	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

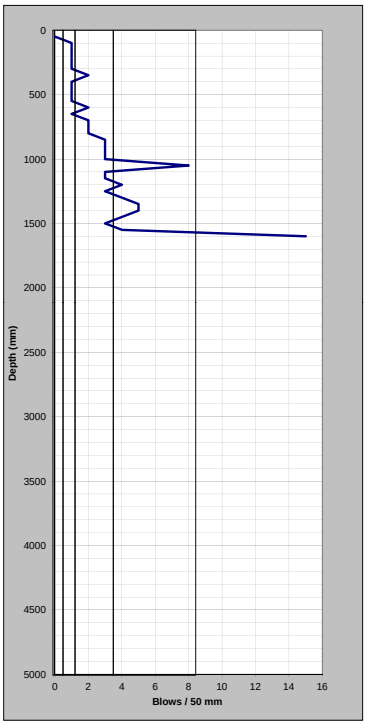
SCALA PENETROMETER LOG

Job No: 870982.1019
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC19-1
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	1		2600	
150	1		2650	
200	1		2700	
250	1		2750	
300	1		2800	
350	2		2850	
400	1		2900	
450	1		2950	
500	1		3000	
550	1		3050	
600	2		3100	
650	1		3150	
700	2		3200	
750	2		3250	
800	2		3300	
850	3		3350	
900	3		3400	
950	3		3450	
1000	3		3500	
1050	8		3550	
1100	3		3600	
1150	3		3650	
1200	4		3700	
1250	3		3750	
1300	4		3800	
1350	5		3850	
1400	5		3900	
1450	4		3950	
1500	3		4000	
1550	4		4050	
1600	15	R	4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

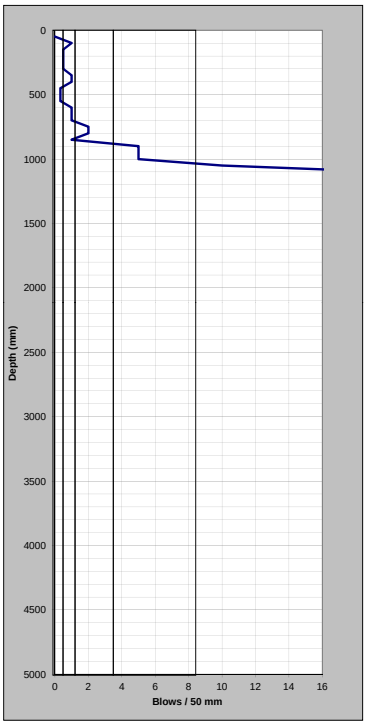
SCALA PENETROMETER LOG

Job No: 870982.1019
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC19-2
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	1		2600	
150	0.5		2650	
200	0.5		2700	
250	0.5		2750	
300	0.5		2800	
350	1		2850	
400	1		2900	
450	0.33		2950	
500	0.33		3000	
550	0.33		3050	
600	1		3100	
650	1		3150	
700	1		3200	
750	2		3250	
800	2		3300	
850	1		3350	
900	5		3400	
950	5		3450	
1000	5		3500	
1050	10		3550	
1100	20	R	3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Fax: (03) 546 7619

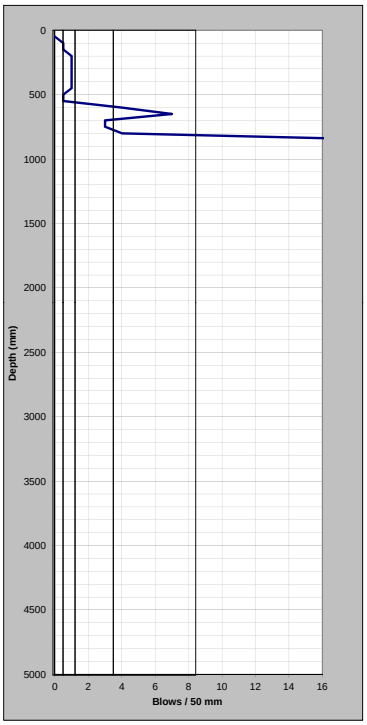
SCALA PENETROMETER LOG

Job No: 870982.1019
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC19-3
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	0.5		2600	
150	0.5		2650	
200	1		2700	
250	1		2750	
300	1		2800	
350	1		2850	
400	1		2900	
450	1		2950	
500	0.5		3000	
550	0.5		3050	
600	4		3100	
650	7		3150	
700	3		3200	
750	3		3250	
800	4		3300	
850	20	R	3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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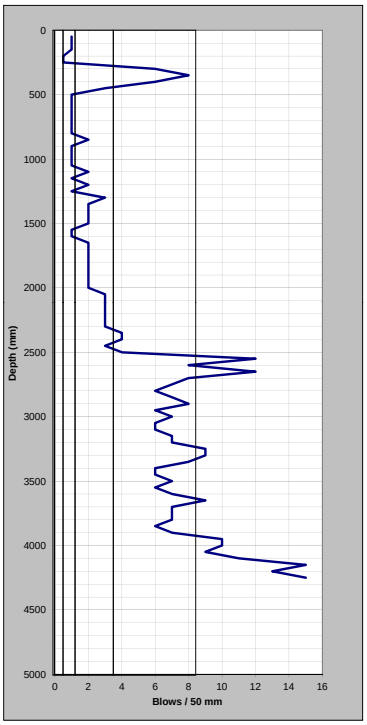
SCALA PENETROMETER LOG

Job No: 870982.1020
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 12/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC20-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	12
100	1	2600	8
150	1	2650	12
200	0.5	2700	8
250	0.5	2750	7
300	6	2800	6
350	8	2850	7
400	6	2900	8
450	3	2950	6
500	1	3000	7
550	1	3050	6
600	1	3100	6
650	1	3150	7
700	1	3200	7
750	1	3250	9
800	1	3300	9
850	2	3350	8
900	1	3400	6
950	1	3450	6
1000	1	3500	7
1050	1	3550	6
1100	2	3600	7
1150	1	3650	9
1200	2	3700	7
1250	1	3750	7
1300	3	3800	7
1350	2	3850	6
1400	2	3900	7
1450	2	3950	10
1500	2	4000	10
1550	1	4050	9
1600	1	4100	11
1650	2	4150	15
1700	2	4200	13
1750	2	4250	15
1800	2	4300	
1850	2	4350	
1900	2	4400	
1950	2	4450	
2000	2	4500	
2050	3	4550	
2100	3	4600	
2150	3	4650	
2200	3	4700	
2250	3	4750	
2300	3	4800	
2350	4	4850	
2400	4	4900	
2450	3	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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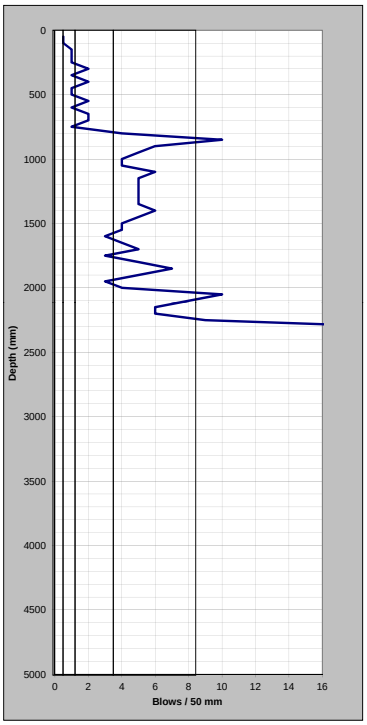
SCALA PENETROMETER LOG

Job No: 870982.1020
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 12/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC20-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	1	2650	
200	1	2700	
250	1	2750	
300	2	2800	
350	1	2850	
400	2	2900	
450	1	2950	
500	1	3000	
550	2	3050	
600	1	3100	
650	2	3150	
700	2	3200	
750	1	3250	
800	4	3300	
850	10	3350	
900	6	3400	
950	5	3450	
1000	4	3500	
1050	4	3550	
1100	6	3600	
1150	5	3650	
1200	5	3700	
1250	5	3750	
1300	5	3800	
1350	5	3850	
1400	6	3900	
1450	5	3950	
1500	4	4000	
1550	4	4050	
1600	3	4100	
1650	4	4150	
1700	5	4200	
1750	3	4250	
1800	5	4300	
1850	7	4350	
1900	5	4400	
1950	3	4450	
2000	4	4500	
2050	10	4550	
2100	8	4600	
2150	6	4650	
2200	6	4700	
2250	9	4750	
2300	20	R 4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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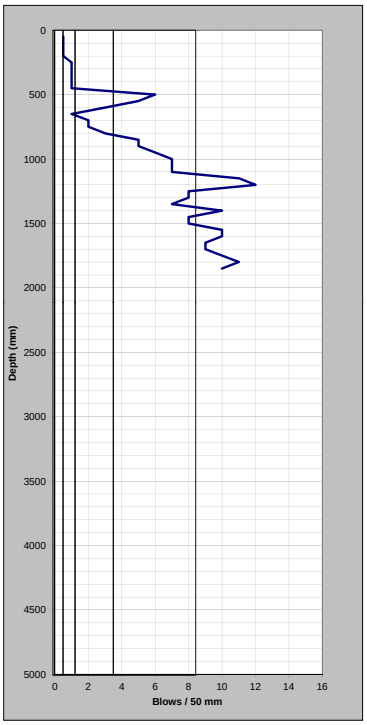
SCALA PENETROMETER LOG

Job No: 870982.1020
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 12/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC20-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	0.5	2650	
200	0.5	2700	
250	1	2750	
300	1	2800	
350	1	2850	
400	1	2900	
450	1	2950	
500	6	3000	
550	5	3050	
600	3	3100	
650	1	3150	
700	2	3200	
750	2	3250	
800	3	3300	
850	5	3350	
900	5	3400	
950	6	3450	
1000	7	3500	
1050	7	3550	
1100	7	3600	
1150	11	3650	
1200	12	3700	
1250	8	3750	
1300	8	3800	
1350	7	3850	
1400	10	3900	
1450	8	3950	
1500	8	4000	
1550	10	4050	
1600	10	4100	
1650	9	4150	
1700	9	4200	
1750	10	4250	
1800	11	4300	
1850	10	4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Fax: (03) 546 7619

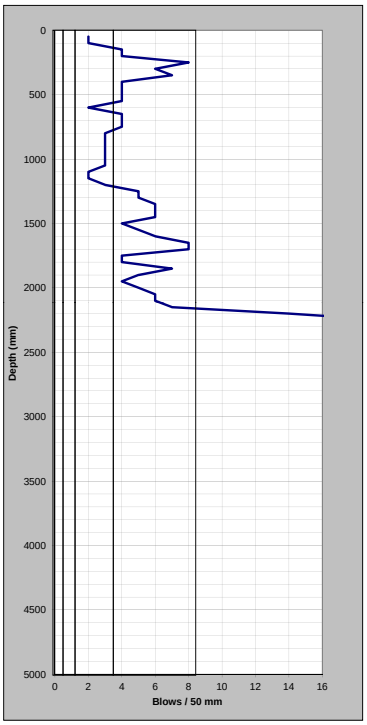
SCALA PENETROMETER LOG

Job No: 870982.1020
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 12/04/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC20-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	2	2550	
100	2	2600	
150	4	2650	
200	4	2700	
250	8	2750	
300	6	2800	
350	7	2850	
400	4	2900	
450	4	2950	
500	4	3000	
550	4	3050	
600	2	3100	
650	4	3150	
700	4	3200	
750	4	3250	
800	3	3300	
850	3	3350	
900	3	3400	
950	3	3450	
1000	3	3500	
1050	3	3550	
1100	2	3600	
1150	2	3650	
1200	3	3700	
1250	5	3750	
1300	5	3800	
1350	6	3850	
1400	6	3900	
1450	6	3950	
1500	4	4000	
1550	5	4050	
1600	6	4100	
1650	8	4150	
1700	8	4200	
1750	4	4250	
1800	4	4300	
1850	7	4350	
1900	5	4400	
1950	4	4450	
2000	5	4500	
2050	6	4550	
2100	6	4600	
2150	7	4650	
2200	14	4700	
2250	20	R 4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
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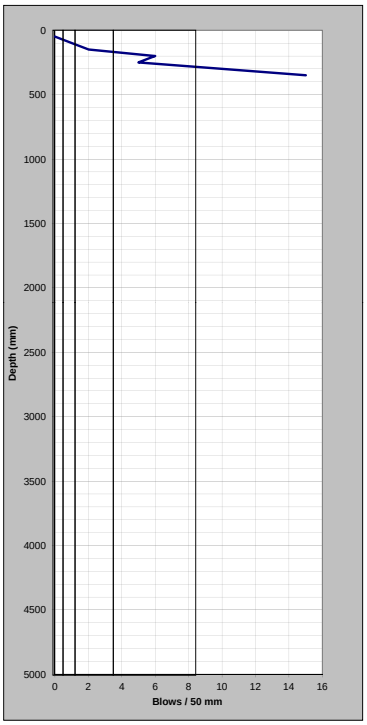
Fax: (03) 546 7619

SCALA PENETROMETER LOG

Job No:	*870982.1020*	Date:	*16/05/2012*	**Test No.**	***SC20-5***
Project:	***Cable Bay Rd Remedial***	Operated by:	***DJAA***		
Location:	***Cable Bay Road***	Logged by:	***DJAA***	**Sheet**	***1***
Position:	***See Site Plan***	Checked by:	MPD	**of**	***1***

mm Driven	No. of Blows		mm Driven	No. of Blows
50	*0*		2550	
100	*1*		2600	
150	*2*		2650	
200	*6*		2700	
250	*5*		2750	
300	*10*		2800	
350	*15*	R	2850	
400			2900	
450			2950	
500			3000	
550			3050	
600			3100	
650			3150	
700			3200	
750			3250	
800			3300	
850			3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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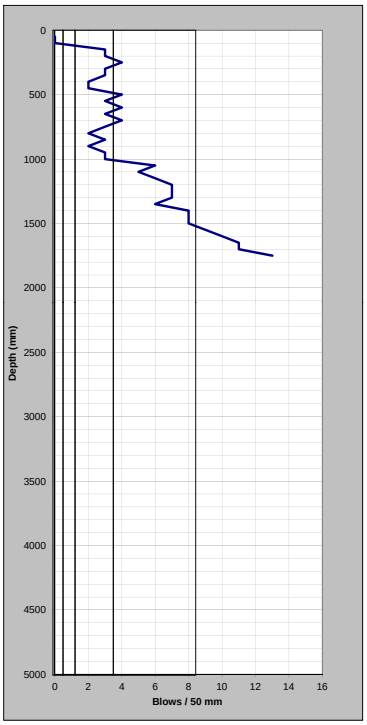
SCALA PENETROMETER LOG

Job No: **870982.1021**
Project: **Cable Bay Rd Remedial**
Location: **Cable Bay Road**
Position: **See Site Plan**

Date: **16/05/2012**
Operated by: **DJAA**
Logged by: **DJAA**
Checked by: MPD

Test No. SC21-1
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	3	2650	
200	3	2700	
250	4	2750	
300	3	2800	
350	3	2850	
400	2	2900	
450	2	2950	
500	4	3000	
550	3	3050	
600	4	3100	
650	3	3150	
700	4	3200	
750	3	3250	
800	2	3300	
850	3	3350	
900	2	3400	
950	3	3450	
1000	3	3500	
1050	6	3550	
1100	5	3600	
1150	6	3650	
1200	7	3700	
1250	7	3750	
1300	7	3800	
1350	6	3850	
1400	8	3900	
1450	8	3950	
1500	8	4000	
1550	9	4050	
1600	10	4100	
1650	11	4150	
1700	11	4200	
1750	13	4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

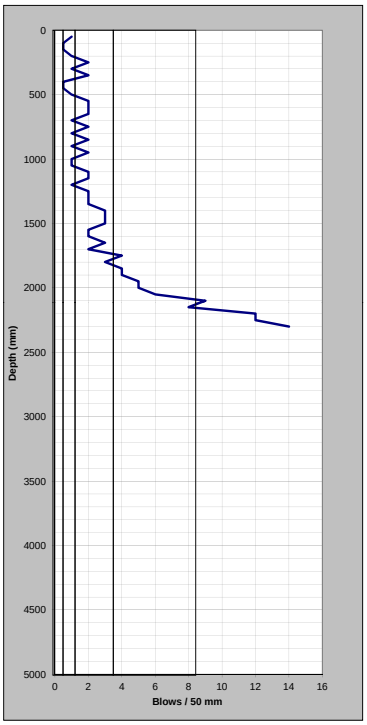
SCALA PENETROMETER LOG

Job No: **870982.1021**
Project: **Cable Bay Rd Remedial**
Location: **Cable Bay Road**
Position: **See Site Plan**

Date: **16/05/2012**
Operated by: **DJAA**
Logged by: **DJAA**
Checked by: MPD

Test No. SC21-2
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	0.5	2600	
150	0.5	2650	
200	1	2700	
250	2	2750	
300	1	2800	
350	2	2850	
400	0.5	2900	
450	0.5	2950	
500	1	3000	
550	2	3050	
600	2	3100	
650	2	3150	
700	1	3200	
750	2	3250	
800	1	3300	
850	2	3350	
900	1	3400	
950	2	3450	
1000	1	3500	
1050	1	3550	
1100	2	3600	
1150	2	3650	
1200	1	3700	
1250	2	3750	
1300	2	3800	
1350	2	3850	
1400	3	3900	
1450	3	3950	
1500	3	4000	
1550	2	4050	
1600	2	4100	
1650	3	4150	
1700	2	4200	
1750	4	4250	
1800	3	4300	
1850	4	4350	
1900	4	4400	
1950	5	4450	
2000	5	4500	
2050	6	4550	
2100	9	4600	
2150	8	4650	
2200	12	4700	
2250	12	4750	
2300	14	4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

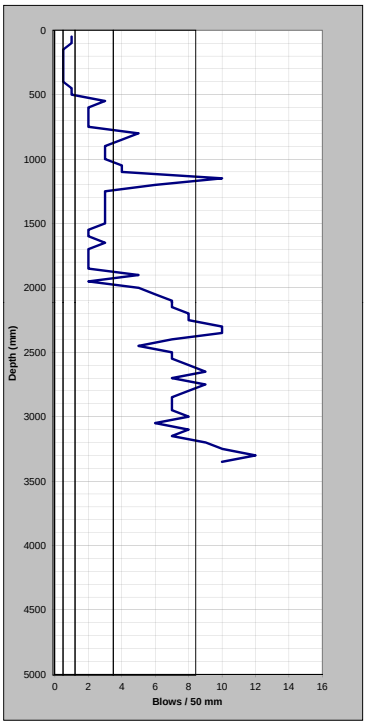
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	7
100	1	2600	8
150	0.5	2650	9
200	0.5	2700	7
250	0.5	2750	9
300	0.5	2800	8
350	0.5	2850	7
400	0.5	2900	7
450	1	2950	7
500	1	3000	8
550	3	3050	6
600	2	3100	8
650	2	3150	7
700	2	3200	9
750	2	3250	10
800	5	3300	12
850	4	3350	10
900	3	3400	
950	3	3450	
1000	3	3500	
1050	4	3550	
1100	4	3600	
1150	10	3650	
1200	6	3700	
1250	3	3750	
1300	3	3800	
1350	3	3850	
1400	3	3900	
1450	3	3950	
1500	3	4000	
1550	2	4050	
1600	2	4100	
1650	3	4150	
1700	2	4200	
1750	2	4250	
1800	2	4300	
1850	2	4350	
1900	5	4400	
1950	2	4450	
2000	5	4500	
2050	6	4550	
2100	7	4600	
2150	7	4650	
2200	8	4700	
2250	8	4750	
2300	10	4800	
2350	10	4850	
2400	7	4900	
2450	5	4950	
2500	7	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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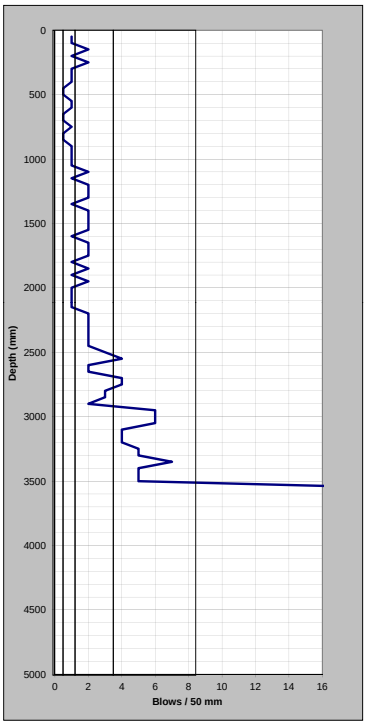
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	4
100	1	2600	2
150	2	2650	2
200	1	2700	4
250	2	2750	4
300	1	2800	3
350	1	2850	3
400	1	2900	2
450	0.5	2950	6
500	0.5	3000	6
550	1	3050	6
600	1	3100	4
650	0.5	3150	4
700	0.5	3200	4
750	1	3250	5
800	0.5	3300	5
850	0.5	3350	7
900	1	3400	5
950	1	3450	5
1000	1	3500	5
1050	1	3550	20
1100	2	3600	23
1150	1	3650	
1200	2	3700	
1250	2	3750	
1300	2	3800	
1350	1	3850	
1400	2	3900	
1450	2	3950	
1500	2	4000	
1550	2	4050	
1600	1	4100	
1650	2	4150	
1700	2	4200	
1750	2	4250	
1800	1	4300	
1850	2	4350	
1900	1	4400	
1950	2	4450	
2000	1	4500	
2050	1	4550	
2100	1	4600	
2150	1	4650	
2200	2	4700	
2250	2	4750	
2300	2	4800	
2350	2	4850	
2400	2	4900	
2450	2	4950	
2500	3	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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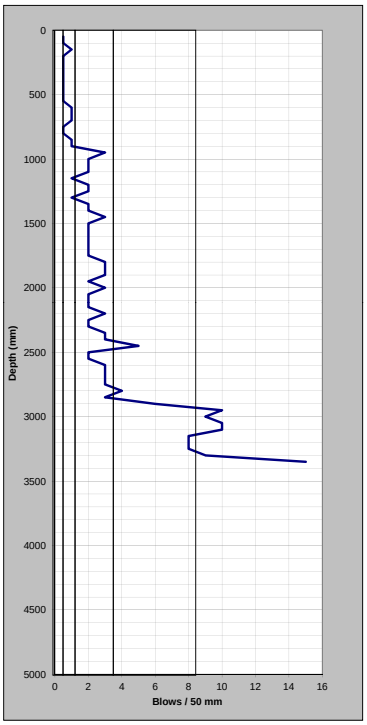
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	2
100	0.5	2600	3
150	1	2650	3
200	0.5	2700	3
250	0.5	2750	3
300	0.5	2800	4
350	0.5	2850	3
400	0.5	2900	6
450	0.5	2950	10
500	0.5	3000	9
550	0.5	3050	10
600	1	3100	10
650	1	3150	8
700	1	3200	8
750	0.5	3250	8
800	0.5	3300	9
850	1	3350	15 R
900	1	3400	
950	3	3450	
1000	2	3500	
1050	2	3550	
1100	2	3600	
1150	1	3650	
1200	2	3700	
1250	2	3750	
1300	1	3800	
1350	2	3850	
1400	2	3900	
1450	3	3950	
1500	2	4000	
1550	2	4050	
1600	2	4100	
1650	2	4150	
1700	2	4200	
1750	2	4250	
1800	3	4300	
1850	3	4350	
1900	3	4400	
1950	2	4450	
2000	3	4500	
2050	2	4550	
2100	2	4600	
2150	2	4650	
2200	3	4700	
2250	2	4750	
2300	2	4800	
2350	3	4850	
2400	3	4900	
2450	5	4950	
2500	2	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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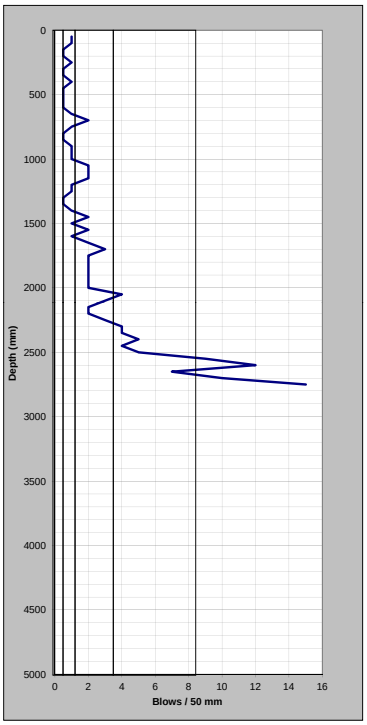
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	9
100	1	2600	12
150	0.5	2650	7
200	0.5	2700	10
250	1	2750	15 R
300	0.5	2800	
350	0.5	2850	
400	1	2900	
450	0.5	2950	
500	0.5	3000	
550	0.5	3050	
600	0.5	3100	
650	1	3150	
700	2	3200	
750	1	3250	
800	0.5	3300	
850	0.5	3350	
900	1	3400	
950	1	3450	
1000	1	3500	
1050	2	3550	
1100	2	3600	
1150	2	3650	
1200	1	3700	
1250	1	3750	
1300	0.5	3800	
1350	0.5	3850	
1400	1	3900	
1450	2	3950	
1500	1	4000	
1550	2	4050	
1600	1	4100	
1650	2	4150	
1700	3	4200	
1750	2	4250	
1800	2	4300	
1850	2	4350	
1900	2	4400	
1950	2	4450	
2000	2	4500	
2050	4	4550	
2100	3	4600	
2150	2	4650	
2200	2	4700	
2250	3	4750	
2300	4	4800	
2350	4	4850	
2400	5	4900	
2450	4	4950	
2500	5	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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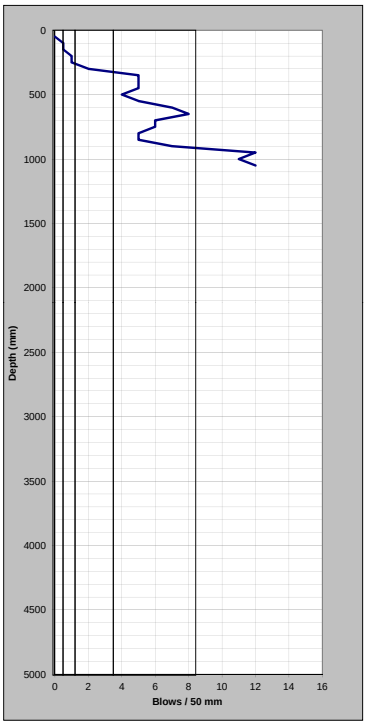
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-5
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0.5	2600	
150	0.5	2650	
200	1	2700	
250	1	2750	
300	2	2800	
350	5	2850	
400	5	2900	
450	5	2950	
500	4	3000	
550	5	3050	
600	7	3100	
650	8	3150	
700	6	3200	
750	6	3250	
800	5	3300	
850	5	3350	
900	7	3400	
950	12	3450	
1000	11	3500	
1050	12	3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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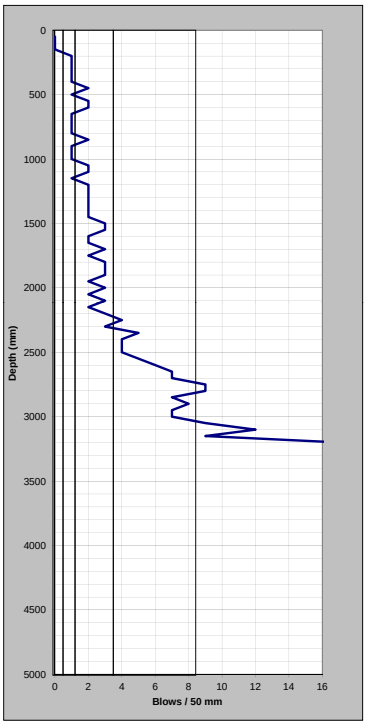
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-6
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	5
100	0	2600	6
150	0	2650	7
200	1	2700	7
250	1	2750	9
300	1	2800	9
350	1	2850	7
400	1	2900	8
450	2	2950	7
500	1	3000	7
550	2	3050	9
600	2	3100	12
650	1	3150	9
700	1	3200	17
750	1	3250	20 R
800	1	3300	
850	2	3350	
900	1	3400	
950	1	3450	
1000	1	3500	
1050	2	3550	
1100	2	3600	
1150	1	3650	
1200	2	3700	
1250	2	3750	
1300	2	3800	
1350	2	3850	
1400	2	3900	
1450	2	3950	
1500	3	4000	
1550	3	4050	
1600	2	4100	
1650	2	4150	
1700	3	4200	
1750	2	4250	
1800	3	4300	
1850	3	4350	
1900	3	4400	
1950	2	4450	
2000	3	4500	
2050	2	4550	
2100	3	4600	
2150	2	4650	
2200	3	4700	
2250	4	4750	
2300	3	4800	
2350	5	4850	
2400	4	4900	
2450	4	4950	
2500	4	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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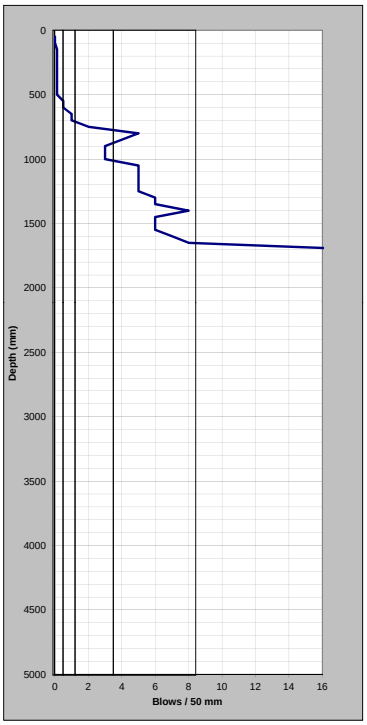
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 16/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-7
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0.125	2650	
200	0.125	2700	
250	0.125	2750	
300	0.125	2800	
350	0.125	2850	
400	0.125	2900	
450	0.125	2950	
500	0.125	3000	
550	0.5	3050	
600	0.5	3100	
650	1	3150	
700	1	3200	
750	2	3250	
800	5	3300	
850	4	3350	
900	3	3400	
950	3	3450	
1000	3	3500	
1050	5	3550	
1100	5	3600	
1150	5	3650	
1200	5	3700	
1250	5	3750	
1300	6	3800	
1350	6	3850	
1400	8	3900	
1450	6	3950	
1500	6	4000	
1550	6	4050	
1600	7	4100	
1650	8	4150	
1700	18 R	4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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SCALA PENETROMETER LOG

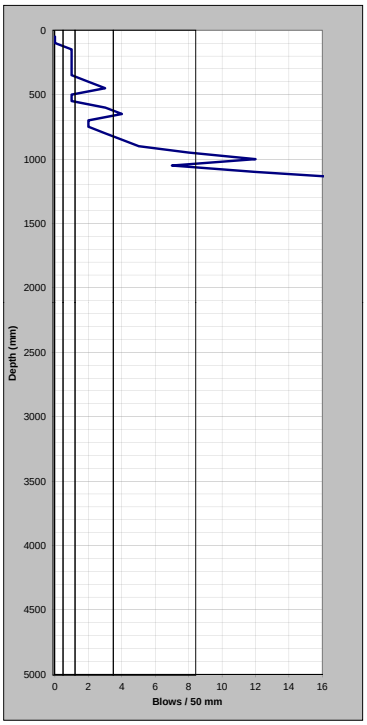
Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-8
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	1	2650	
200	1	2700	
250	1	2750	
300	1	2800	
350	1	2850	
400	2	2900	
450	3	2950	
500	1	3000	
550	1	3050	
600	3	3100	
650	4	3150	
700	2	3200	
750	2	3250	
800	3	3300	
850	4	3350	
900	5	3400	
950	8	3450	
1000	12	3500	
1050	7	3550	
1100	12	3600	
1150	18	3650	
1200	20	3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Moist Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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SCALA PENETROMETER LOG

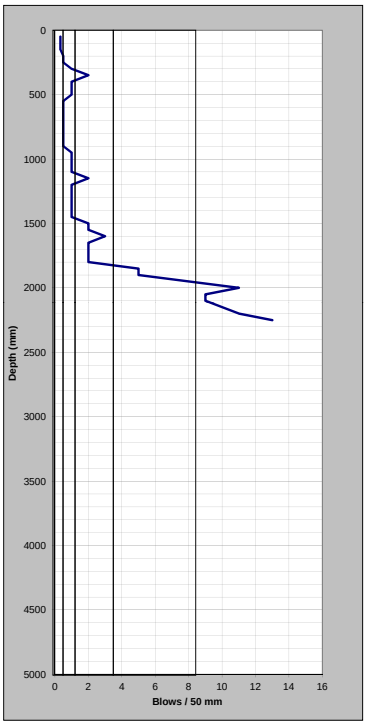
Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-9
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.33	2550	
100	0.33	2600	
150	0.33	2650	
200	0.5	2700	
250	0.5	2750	
300	1	2800	
350	2	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	0.5	3050	
600	0.5	3100	
650	0.5	3150	
700	0.5	3200	
750	0.5	3250	
800	0.5	3300	
850	0.5	3350	
900	0.5	3400	
950	1	3450	
1000	1	3500	
1050	1	3550	
1100	1	3600	
1150	2	3650	
1200	1	3700	
1250	1	3750	
1300	1	3800	
1350	1	3850	
1400	1	3900	
1450	1	3950	
1500	2	4000	
1550	2	4050	
1600	3	4100	
1650	2	4150	
1700	2	4200	
1750	2	4250	
1800	2	4300	
1850	5	4350	
1900	5	4400	
1950	8	4450	
2000	11	4500	
2050	9	4550	
2100	9	4600	
2150	10	4650	
2200	11	4700	
2250	13	4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Dry Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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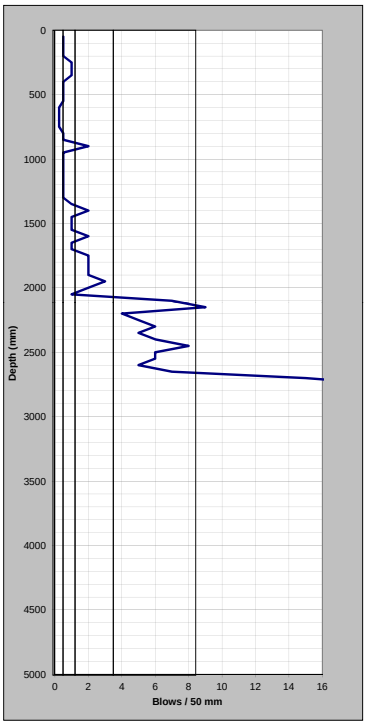
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-10
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	6
100	0.5	2600	5
150	0.5	2650	7
200	0.5	2700	15
250	1	2750	20 R
300	1	2800	
350	1	2850	
400	0.5	2900	
450	0.5	2950	
500	0.5	3000	
550	0.5	3050	
600	0.25	3100	
650	0.25	3150	
700	0.25	3200	
750	0.25	3250	
800	0.5	3300	
850	0.5	3350	
900	2	3400	
950	0.5	3450	
1000	0.5	3500	
1050	0.5	3550	
1100	0.5	3600	
1150	0.5	3650	
1200	0.5	3700	
1250	0.5	3750	
1300	0.5	3800	
1350	1	3850	
1400	2	3900	
1450	1	3950	
1500	1	4000	
1550	1	4050	
1600	2	4100	
1650	1	4150	
1700	1	4200	
1750	2	4250	
1800	2	4300	
1850	2	4350	
1900	2	4400	
1950	3	4450	
2000	2	4500	
2050	1	4550	
2100	7	4600	
2150	9	4650	
2200	4	4700	
2250	5	4750	
2300	6	4800	
2350	5	4850	
2400	6	4900	
2450	8	4950	
2500	6	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

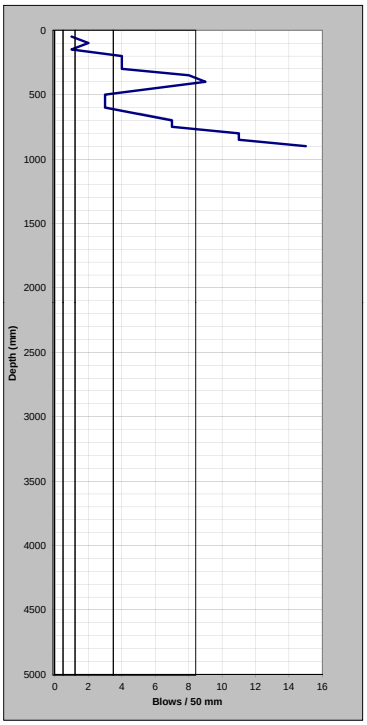
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-11
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	2	2600	
150	1	2650	
200	4	2700	
250	4	2750	
300	4	2800	
350	8	2850	
400	9	2900	
450	6	2950	
500	3	3000	
550	3	3050	
600	3	3100	
650	5	3150	
700	7	3200	
750	7	3250	
800	11	3300	
850	11	3350	
900	15	R 3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

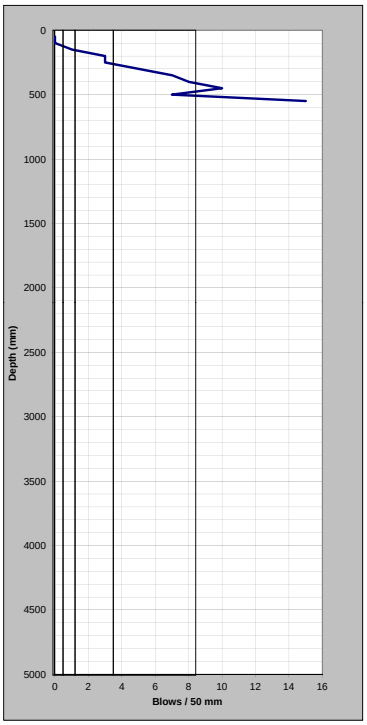
Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-12
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	1	2650	
200	3	2700	
250	3	2750	
300	5	2800	
350	7	2850	
400	8	2900	
450	10	2950	
500	7	3000	
550	15	R 3050	
600			
650			
700			
750			
800			
850			
900			
950			
1000			
1050			
1100			
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Moist Rods

Can see rock layer adjacent to SC22-12 in stormwater runoff channel ranging up to 6/7 metres upslope in channel.



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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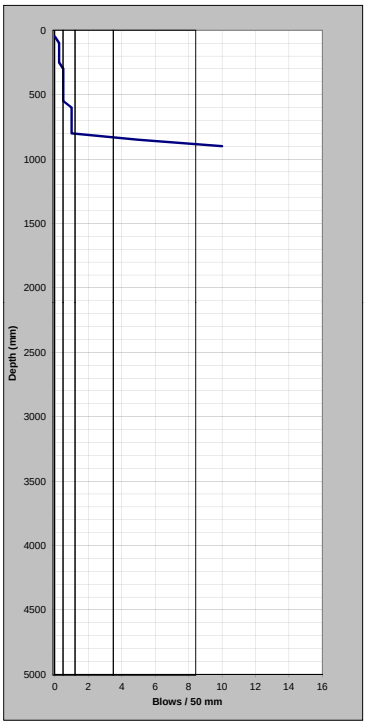
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 6/08/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-13
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0.25	2600	
150	0.25	2650	
200	0.25	2700	
250	0.25	2750	
300	0.5	2800	
350	0.5	2850	
400	0.5	2900	
450	0.5	2950	
500	0.5	3000	
550	0.5	3050	
600	1	3100	
650	1	3150	
700	1	3200	
750	1	3250	
800	1	3300	
850	5	3350	
900	10 R	3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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SCALA PENETROMETER LOG

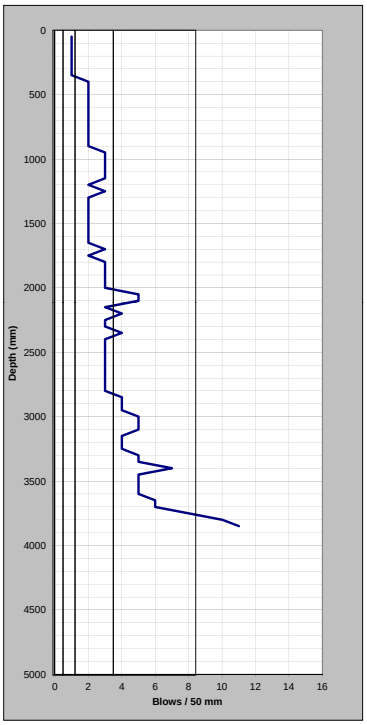
Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 6/08/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-14
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	3
100	1	2600	3
150	1	2650	3
200	1	2700	3
250	1	2750	3
300	1	2800	3
350	1	2850	4
400	2	2900	4
450	2	2950	4
500	2	3000	5
550	2	3050	5
600	2	3100	5
650	2	3150	4
700	2	3200	4
750	2	3250	4
800	2	3300	5
850	2	3350	5
900	2	3400	7
950	3	3450	5
1000	3	3500	5
1050	3	3550	5
1100	3	3600	5
1150	3	3650	6
1200	2	3700	6
1250	3	3750	8
1300	2	3800	10
1350	2	3850	11
1400	2	3900	
1450	2	3950	
1500	2	4000	
1550	2	4050	
1600	2	4100	
1650	2	4150	
1700	3	4200	
1750	2	4250	
1800	3	4300	
1850	3	4350	
1900	3	4400	
1950	3	4450	
2000	3	4500	
2050	5	4550	
2100	5	4600	
2150	3	4650	
2200	4	4700	
2250	3	4750	
2300	3	4800	
2350	4	4850	
2400	3	4900	
2450	3	4950	
2500	3	5000	

Dry Rods. Difficult to pull back out of ground



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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SCALA PENETROMETER LOG

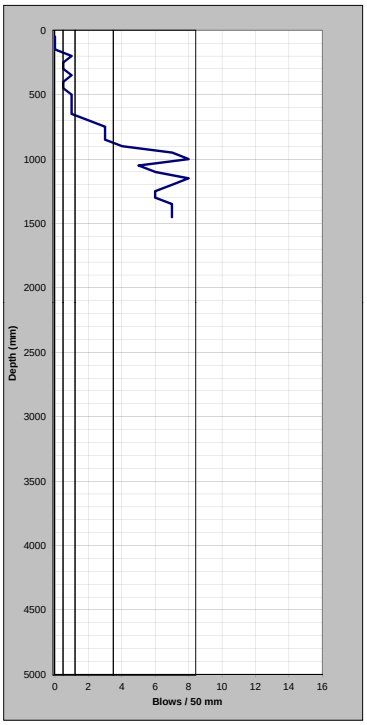
Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 6/08/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-15
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0	2650	
200	1	2700	
250	0.5	2750	
300	0.5	2800	
350	1	2850	
400	0.5	2900	
450	0.5	2950	
500	1	3000	
550	1	3050	
600	1	3100	
650	1	3150	
700	2	3200	
750	3	3250	
800	3	3300	
850	3	3350	
900	4	3400	
950	7	3450	
1000	8	3500	
1050	5	3550	
1100	6	3600	
1150	8	3650	
1200	7	3700	
1250	6	3750	
1300	6	3800	
1350	7	3850	
1400	7	3900	
1450	7	3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Stopping so that rods can be pulled out of ground



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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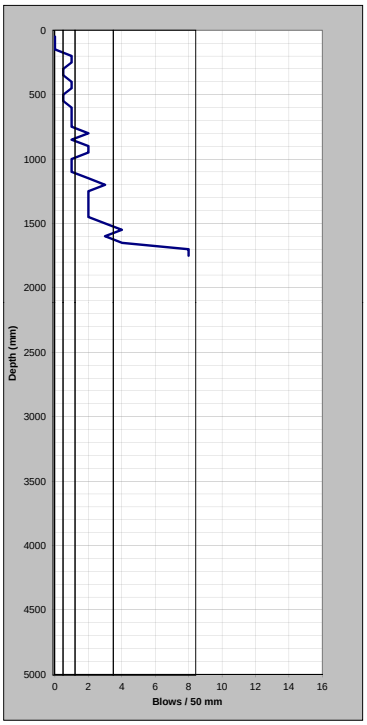
SCALA PENETROMETER LOG

Job No: 870982.1022
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 29/08/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC22-16
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0	2650	
200	1	2700	
250	1	2750	
300	0.5	2800	
350	0.5	2850	
400	1	2900	
450	1	2950	
500	0.5	3000	
550	0.5	3050	
600	1	3100	
650	1	3150	
700	1	3200	
750	1	3250	
800	2	3300	
850	1	3350	
900	2	3400	
950	2	3450	
1000	1	3500	
1050	1	3550	
1100	1	3600	
1150	2	3650	
1200	3	3700	
1250	2	3750	
1300	2	3800	
1350	2	3850	
1400	2	3900	
1450	2	3950	
1500	3	4000	
1550	4	4050	
1600	3	4100	
1650	4	4150	
1700	8	4200	
1750	8 +	4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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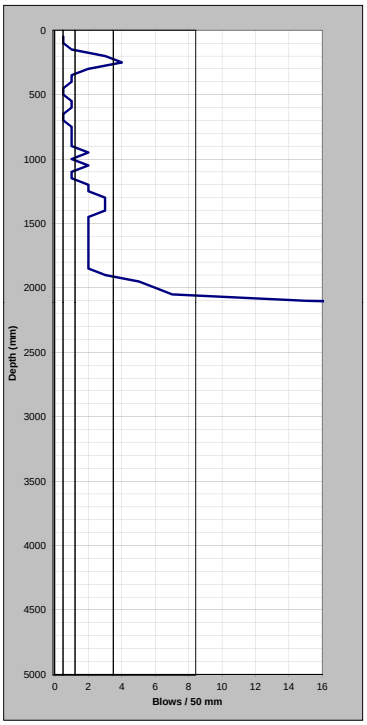
SCALA PENETROMETER LOG

Job No: 870982.1023
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC23-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	1	2650	
200	3	2700	
250	4	2750	
300	2	2800	
350	1	2850	
400	1	2900	
450	0.5	2950	
500	0.5	3000	
550	1	3050	
600	1	3100	
650	0.5	3150	
700	0.5	3200	
750	1	3250	
800	1	3300	
850	1	3350	
900	1	3400	
950	2	3450	
1000	1	3500	
1050	2	3550	
1100	1	3600	
1150	1	3650	
1200	2	3700	
1250	2	3750	
1300	3	3800	
1350	3	3850	
1400	3	3900	
1450	2	3950	
1500	2	4000	
1550	2	4050	
1600	2	4100	
1650	2	4150	
1700	2	4200	
1750	2	4250	
1800	2	4300	
1850	2	4350	
1900	3	4400	
1950	5	4450	
2000	6	4500	
2050	7	4550	
2100	15	4600	
2150	40	4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

SCALA PENETROMETER LOG

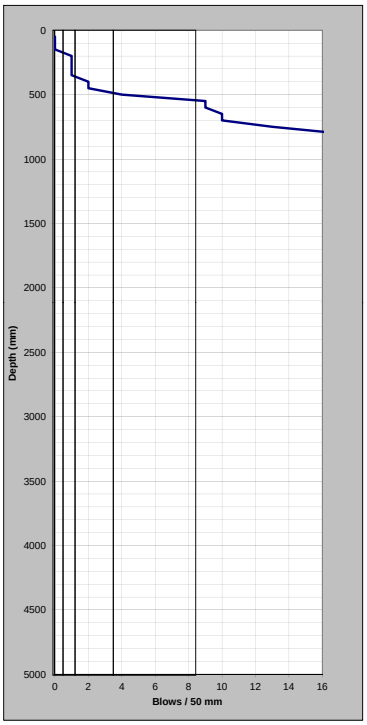
Job No: 870982.1023
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC23-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0	2650	
200	1	2700	
250	1	2750	
300	1	2800	
350	1	2850	
400	2	2900	
450	2	2950	
500	4	3000	
550	9	3050	
600	9	3100	
650	10	3150	
700	10	3200	
750	13	3250	
800	17	3300	
850		3350	
900		3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Moist Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

SCALA PENETROMETER LOG

Job No: 870982.1023
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

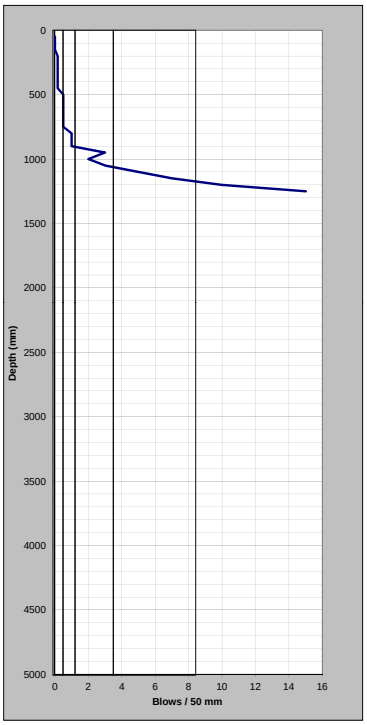
Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC23-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0	2650	
200	0.166667	2700	
250	0.166667	2750	
300	0.166667	2800	
350	0.166667	2850	
400	0.166667	2900	
450	0.166667	2950	
500	0.5	3000	
550	0.5	3050	
600	0.5	3100	
650	0.5	3150	
700	0.5	3200	
750	0.5	3250	
800	1	3300	
850	1	3350	
900	1	3400	
950	3	3450	
1000	2	3500	
1050	3	3550	
1100	5	3600	
1150	7	3650	
1200	10	3700	
1250	15	3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Moist Rods

Can clearly see rockface adj to scala location (HW rock).



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

SCALA PENETROMETER LOG

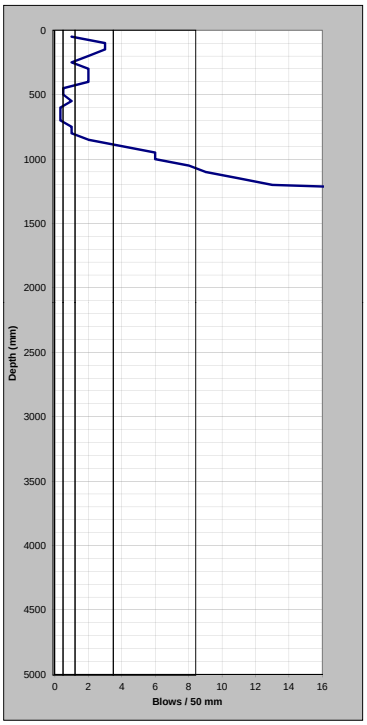
Job No: 870982.1023
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC23-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	3	2600	
150	3	2650	
200	2	2700	
250	1	2750	
300	2	2800	
350	2	2850	
400	2	2900	
450	0.5	2950	
500	0.5	3000	
550	1	3050	
600	0.33	3100	
650	0.33	3150	
700	0.33	3200	
750	1	3250	
800	1	3300	
850	2	3350	
900	4	3400	
950	6	3450	
1000	6	3500	
1050	8	3550	
1100	9	3600	
1150	11	3650	
1200	13	3700	
1250	25	3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Moist Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR

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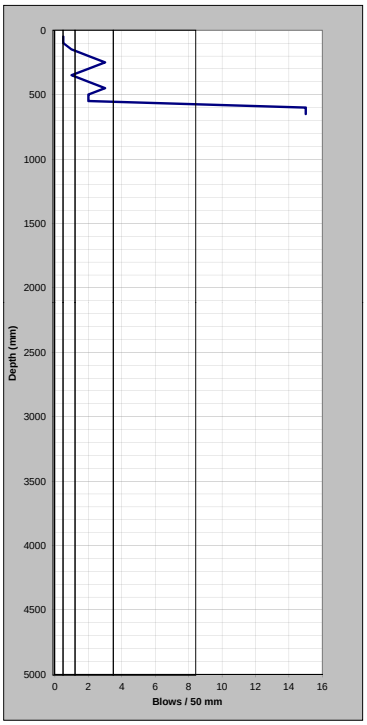
SCALA PENETROMETER LOG

Job No: *870982.1023*
Project: *Cable Bay Rd Remedial*
Location: *Cable Bay Road*
Position: *See Site Plan*

Date: *18/05/2012*
Operated by: *DJAA*
Logged by: *DJAA*
Checked by:

Test No. *SC23-5*
Sheet *1*
of *1*

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	1		2650	
200	2		2700	
250	3		2750	
300	2		2800	
350	1		2850	
400	2		2900	
450	3		2950	
500	2		3000	
550	2		3050	
600	15		3100	
650	15	R	3150	
700		Moist Rods	200	
750			250	
800			3300	
850			3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR

43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

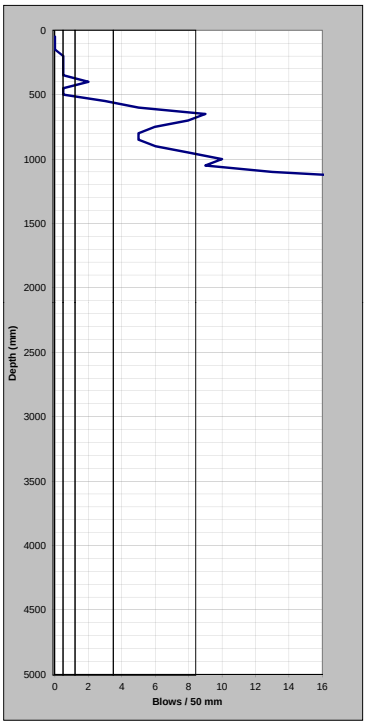
SCALA PENETROMETER LOG

Job No: *870982.1023*
Project: *Cable Bay Rd Remedial*
Location: *Cable Bay Road*
Position: *See Site Plan*

Date: *18/05/2012*
Operated by: *DJAA*
Logged by: *DJAA*
Checked by:

Test No. *SC23-6*
Sheet *1*
of *1*

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	0		2600	
150	0		2650	
200	0.5		2700	
250	0.5		2750	
300	0.5		2800	
350	0.5		2850	
400	2		2900	
450	0.5		2950	
500	0.5		3000	
550	3		3050	
600	5		3100	
650	9		3150	
700	8		3200	
750	6		3250	
800	5		3300	
850	5		3350	
900	6		3400	
950	8		3450	
1000	10		3500	
1050	9		3550	
1100	13		3600	
1150	20		3650	
1200		Moist Rods	700	
1250			750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR

43 Halifax Street
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Tel: (03) 546 6339
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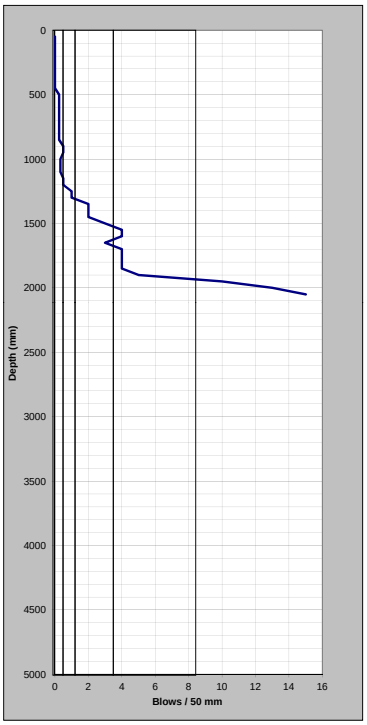
SCALA PENETROMETER LOG

Job No: *870982.1023*
Project: *Cable Bay Rd Remedial*
Location: *Cable Bay Road*
Position: *See Site Plan*

Date: *18/05/2012*
Operated by: *DJAA*
Logged by: *DJAA*
Checked by:

Test No. *SC23-7*
Sheet *1*
of *1*

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	
100	0		2600	
150	0		2650	
200	0		2700	
250	0		2750	
300	0		2800	
350	0		2850	
400	0		2900	
450	0		2950	
500	0.25		3000	
550	0.25		3050	
600	0.25		3100	
650	0.25		3150	
700	0.25		3200	
750	0.25		3250	
800	0.25		3300	
850	0.25		3350	
900	0.5		3400	
950	0.5		3450	
1000	0.33		3500	
1050	0.33		3550	
1100	0.33		3600	
1150	0.5		3650	
1200	0.5		3700	
1250	1		3750	
1300	1		3800	
1350	2		3850	
1400	2		3900	
1450	2		3950	
1500	3		4000	
1550	4		4050	
1600	4		4100	
1650	3		4150	
1700	4		4200	
1750	4		4250	
1800	4		4300	
1850	4		4350	
1900	5		4400	
1950	10		4450	
2000	13		4500	
2050	15	R	4550	
2100		Moist Rods	600	
2150			650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR

43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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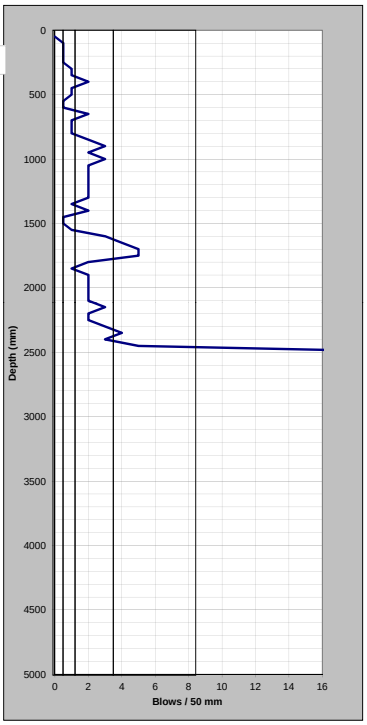
SCALA PENETROMETER LOG

Job No: *870982.1023*
Project: *Cable Bay Rd Remedial*
Location: *Cable Bay Road*
Position: *See Site Plan*

Date: *18/05/2012*
Operated by: *DJAA*
Logged by: *DJAA*
Checked by:

Test No. *SC23-8*
Sheet *1*
of *1*

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0		2550	20 R
100	0.5	Moist Rods	2600	
150	0.5		2650	
200	0.5		2700	
250	0.5		2750	
300	1		2800	
350	1		2850	
400	2		2900	
450	1		2950	
500	1		3000	
550	0.5		3050	
600	0.5		3100	
650	2		3150	
700	1		3200	
750	1		3250	
800	1		3300	
850	2		3350	
900	3		3400	
950	2		3450	
1000	3		3500	
1050	2		3550	
1100	2		3600	
1150	2		3650	
1200	2		3700	
1250	2		3750	
1300	2		3800	
1350	1		3850	
1400	2		3900	
1450	0.5		3950	
1500	0.5		4000	
1550	1		4050	
1600	3		4100	
1650	4		4150	
1700	5		4200	
1750	5		4250	
1800	2		4300	
1850	1		4350	
1900	2		4400	
1950	2		4450	
2000	2		4500	
2050	2		4550	
2100	2		4600	
2150	3		4650	
2200	2		4700	
2250	2		4750	
2300	3		4800	
2350	4		4850	
2400	3		4900	
2450	5		4950	
2500	23		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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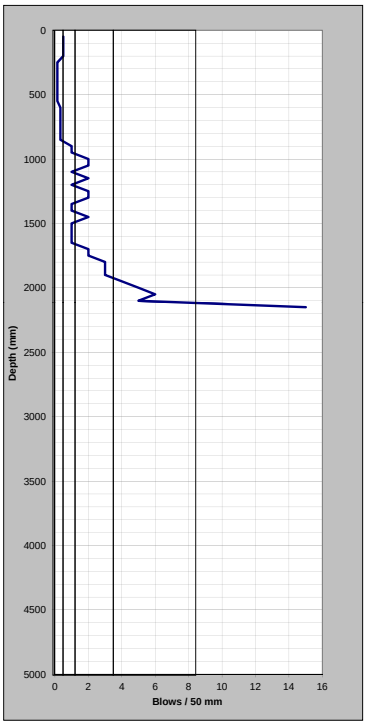
SCALA PENETROMETER LOG

Job No: 870982.1023
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC23-9
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	0.5	2650	
200	0.5	2700	
250	0.142857	2750	
300	0.142857	2800	
350	0.142857	2850	
400	0.142857	2900	
450	0.142857	2950	
500	0.142857	3000	
550	0.142857	3050	
600	0.33	3100	
650	0.33	3150	
700	0.33	3200	
750	0.33	3250	
800	0.33	3300	
850	0.33	3350	
900	1	3400	
950	1	3450	
1000	2	3500	
1050	2	3550	
1100	1	3600	
1150	2	3650	
1200	1	3700	
1250	2	3750	
1300	2	3800	
1350	1	3850	
1400	1	3900	
1450	2	3950	
1500	1	4000	
1550	1	4050	
1600	1	4100	
1650	1	4150	
1700	2	4200	
1750	2	4250	
1800	3	4300	
1850	3	4350	
1900	3	4400	
1950	4	4450	
2000	5	4500	
2050	6	4550	
2100	5	4600	
2150	15 R	4650	
2200	Moist Rods	700	
2250		750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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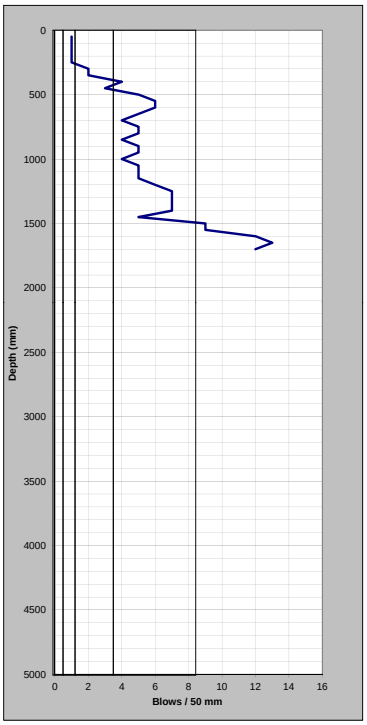
SCALA PENETROMETER LOG

Job No: 870982.1023
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC23-10
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	1	2650	
200	1	2700	
250	1	2750	
300	2	2800	
350	2	2850	
400	4	2900	
450	3	2950	
500	5	3000	
550	6	3050	
600	6	3100	
650	5	3150	
700	4	3200	
750	5	3250	
800	5	3300	
850	4	3350	
900	5	3400	
950	5	3450	
1000	4	3500	
1050	5	3550	
1100	5	3600	
1150	5	3650	
1200	6	3700	
1250	7	3750	
1300	7	3800	
1350	7	3850	
1400	7	3900	
1450	5	3950	
1500	9	4000	
1550	9	4050	
1600	12	4100	
1650	13	4150	
1700	12	4200	
1750	Moist Rods	250	
1800		300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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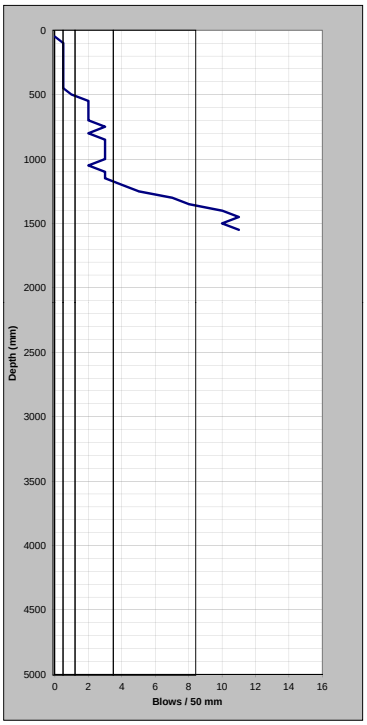
SCALA PENETROMETER LOG

Job No: 870982.1023
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by: MPD

Test No. SC23-11
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0.5	2600	
150	0.5	2650	
200	0.5	2700	
250	0.5	2750	
300	0.5	2800	
350	0.5	2850	
400	0.5	2900	
450	0.5	2950	
500	1	3000	
550	2	3050	
600	2	3100	
650	2	3150	
700	2	3200	
750	3	3250	
800	2	3300	
850	3	3350	
900	3	3400	
950	3	3450	
1000	3	3500	
1050	2	3550	
1100	3	3600	
1150	3	3650	
1200	4	3700	
1250	5	3750	
1300	7	3800	
1350	8	3850	
1400	10	3900	
1450	11	3950	
1500	10	4000	
1550	11	4050	
1600	Moist Rods	100	
1650		150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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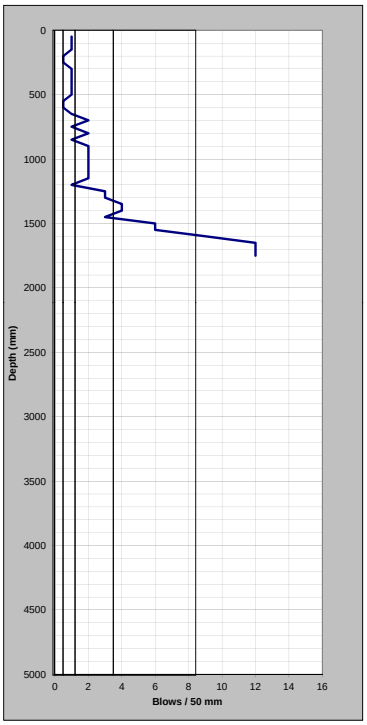
SCALA PENETROMETER LOG

Job No: 870982.1024
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 8/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC24-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	1	2650	
200	0.5	2700	
250	0.5	2750	
300	1	2800	
350	1	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	0.5	3050	
600	0.5	3100	
650	1	3150	
700	2	3200	
750	1	3250	
800	2	3300	
850	1	3350	
900	2	3400	
950	2	3450	
1000	2	3500	
1050	2	3550	
1100	2	3600	
1150	2	3650	
1200	1	3700	
1250	3	3750	
1300	3	3800	
1350	4	3850	
1400	4	3900	
1450	3	3950	
1500	6	4000	
1550	6	4050	
1600	9	4100	
1650	12	4150	
1700	12	4200	
1750	12	4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

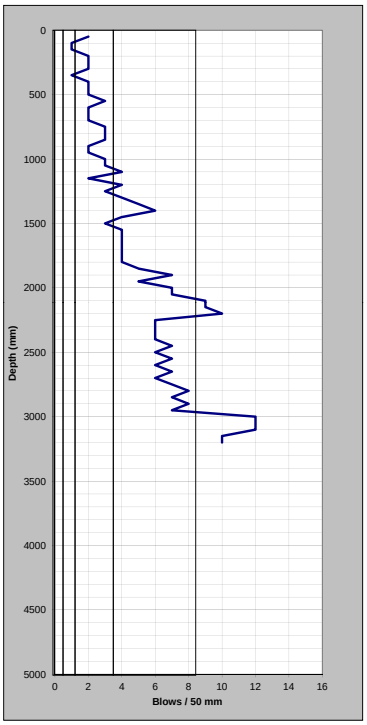
SCALA PENETROMETER LOG

Job No: 870982.1024
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 8/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC24-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	2	2550	7
100	1	2600	6
150	1	2650	7
200	2	2700	6
250	2	2750	7
300	2	2800	8
350	1	2850	7
400	2	2900	8
450	2	2950	7
500	2	3000	12
550	3	3050	12
600	2	3100	12
650	2	3150	10
700	2	3200	10
750	3	3250	
800	3	3300	
850	3	3350	
900	2	3400	
950	2	3450	
1000	3	3500	
1050	3	3550	
1100	4	3600	
1150	2	3650	
1200	4	3700	
1250	3	3750	
1300	4	3800	
1350	5	3850	
1400	6	3900	
1450	4	3950	
1500	3	4000	
1550	4	4050	
1600	4	4100	
1650	4	4150	
1700	4	4200	
1750	4	4250	
1800	4	4300	
1850	5	4350	
1900	7	4400	
1950	5	4450	
2000	7	4500	
2050	7	4550	
2100	9	4600	
2150	9	4650	
2200	10	4700	
2250	6	4750	
2300	6	4800	
2350	6	4850	
2400	6	4900	
2450	7	4950	
2500	6	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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NELSON
Tel: (03) 546 6339
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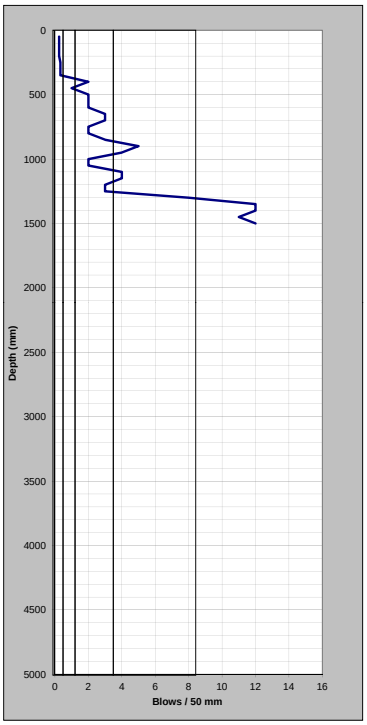
SCALA PENETROMETER LOG

Job No: 870982.1024
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 8/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC24-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.25	2550	
100	0.25	2600	
150	0.25	2650	
200	0.25	2700	
250	0.33	2750	
300	0.33	2800	
350	0.33	2850	
400	2	2900	
450	1	2950	
500	2	3000	
550	2	3050	
600	2	3100	
650	3	3150	
700	3	3200	
750	2	3250	
800	2	3300	
850	3	3350	
900	5	3400	
950	4	3450	
1000	2	3500	
1050	2	3550	
1100	4	3600	
1150	4	3650	
1200	3	3700	
1250	3	3750	
1300	8	3800	
1350	12	3850	
1400	12	3900	
1450	11	3950	
1500	12 R	4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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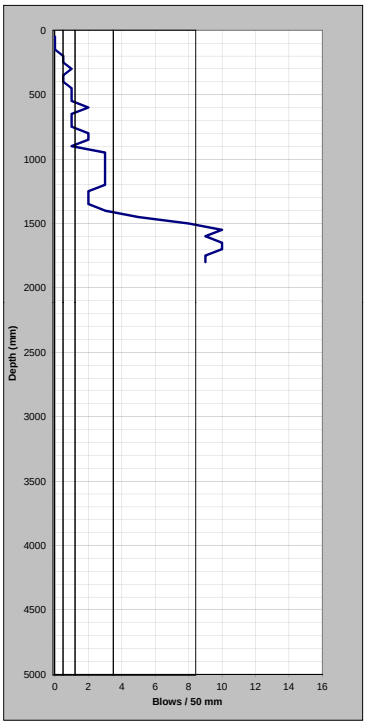
SCALA PENETROMETER LOG

Job No: 870982.1024
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 9/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC24-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0	2650	
200	0.5	2700	
250	0.5	2750	
300	1	2800	
350	0.5	2850	
400	0.5	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	2	3100	
650	1	3150	
700	1	3200	
750	1	3250	
800	2	3300	
850	2	3350	
900	1	3400	
950	3	3450	
1000	3	3500	
1050	3	3550	
1100	3	3600	
1150	3	3650	
1200	3	3700	
1250	2	3750	
1300	2	3800	
1350	2	3850	
1400	3	3900	
1450	5	3950	
1500	8	4000	
1550	10	4050	
1600	9	4100	
1650	10	4150	
1700	10	4200	
1750	9	4250	
1800	9	4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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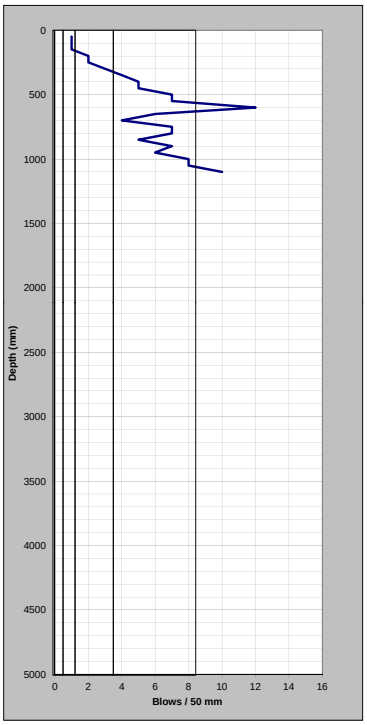
SCALA PENETROMETER LOG

Job No: 870982.1025
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC25-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	1	2650	
200	2	2700	
250	2	2750	
300	3	2800	
350	4	2850	
400	5	2900	
450	5	2950	
500	7	3000	
550	7	3050	
600	12	3100	
650	6	3150	
700	4	3200	
750	7	3250	
800	7	3300	
850	5	3350	
900	7	3400	
950	6	3450	
1000	8	3500	
1050	8	3550	
1100	10	3600	
1150		3650	
1200	Dry Rods	3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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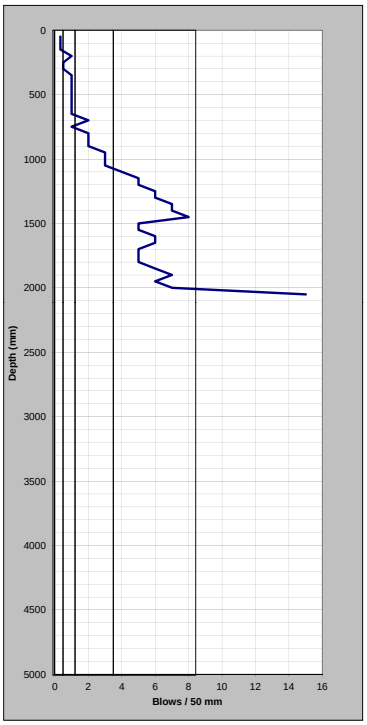
SCALA PENETROMETER LOG

Job No: 870982.1025
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC25-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.33	2550	
100	0.33	2600	
150	0.33	2650	
200	1	2700	
250	0.5	2750	
300	0.5	2800	
350	1	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	1	3100	
650	1	3150	
700	2	3200	
750	1	3250	
800	2	3300	
850	2	3350	
900	2	3400	
950	3	3450	
1000	3	3500	
1050	3	3550	
1100	4	3600	
1150	5	3650	
1200	5	3700	
1250	6	3750	
1300	6	3800	
1350	7	3850	
1400	7	3900	
1450	8	3950	
1500	5	4000	
1550	5	4050	
1600	6	4100	
1650	6	4150	
1700	5	4200	
1750	5	4250	
1800	5	4300	
1850	6	4350	
1900	7	4400	
1950	6	4450	
2000	7	4500	
2050	15 R	4550	
2100	Dry Rods	4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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Tel: (03) 546 6339
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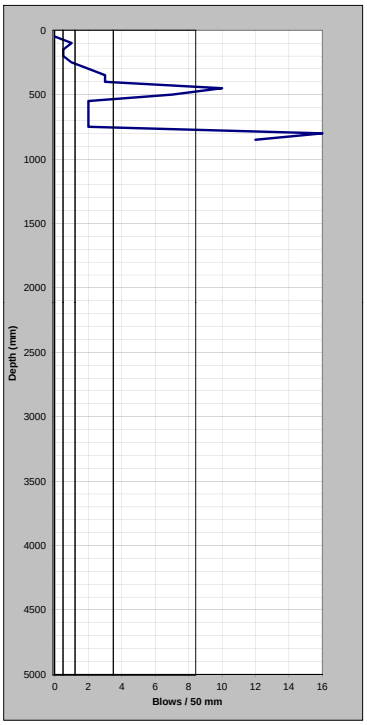
SCALA PENETROMETER LOG

Job No: 870982.1025
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC25-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	1	2600	
150	0.5	2650	
200	0.5	2700	
250	1	2750	
300	2	2800	
350	3	2850	
400	3	2900	
450	10	2950	
500	7	3000	
550	2	3050	
600	2	3100	
650	2	3150	
700	2	3200	
750	2	3250	
800	16	3300	
850	12	3350	
900	Dry Rods	3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Tel: (03) 546 6339
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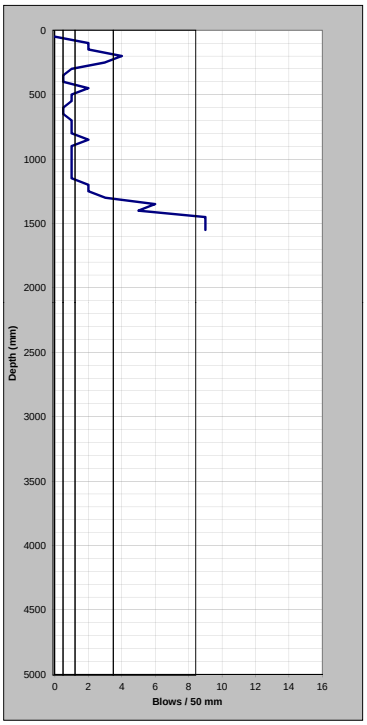
SCALA PENETROMETER LOG

Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	2	2600	
150	2	2650	
200	4	2700	
250	3	2750	
300	1	2800	
350	0.5	2850	
400	0.5	2900	
450	2	2950	
500	1	3000	
550	1	3050	
600	0.5	3100	
650	0.5	3150	
700	1	3200	
750	1	3250	
800	1	3300	
850	2	3350	
900	1	3400	
950	1	3450	
1000	1	3500	
1050	1	3550	
1100	1	3600	
1150	1	3650	
1200	2	3700	
1250	2	3750	
1300	3	3800	
1350	6	3850	
1400	5	3900	
1450	9	3950	
1500	9	4000	
1550	9	4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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SCALA PENETROMETER LOG

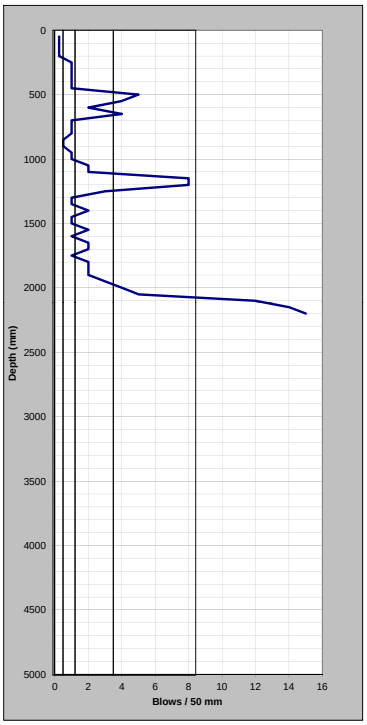
Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.25	2550	
100	0.25	2600	
150	0.25	2650	
200	0.25	2700	
250	1	2750	
300	1	2800	
350	1	2850	
400	1	2900	
450	1	2950	
500	5	3000	
550	4	3050	
600	2	3100	
650	4	3150	
700	1	3200	
750	1	3250	
800	1	3300	
850	0.5	3350	
900	0.5	3400	
950	1	3450	
1000	1	3500	
1050	2	3550	
1100	2	3600	
1150	8	3650	
1200	8	3700	
1250	3	3750	
1300	1	3800	
1350	1	3850	
1400	2	3900	
1450	1	3950	
1500	1	4000	
1550	2	4050	
1600	1	4100	
1650	2	4150	
1700	2	4200	
1750	1	4250	
1800	2	4300	
1850	2	4350	
1900	2	4400	
1950	3	4450	
2000	4	4500	
2050	5	4550	
2100	12	4600	
2150	14	4650	
2200	15	4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Wet Rods
WL @ 1.2m



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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SCALA PENETROMETER LOG

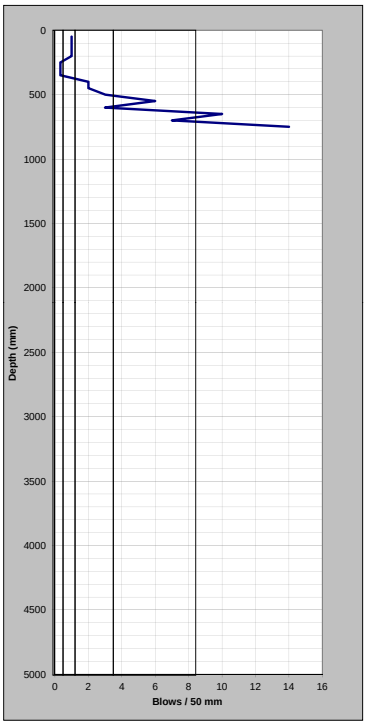
Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	1	2650	
200	1	2700	
250	0.33	2750	
300	0.33	2800	
350	0.33	2850	
400	2	2900	
450	2	2950	
500	3	3000	
550	6	3050	
600	3	3100	
650	10	3150	
700	7	3200	
750	14	3250	
800		3300	
850		3350	
900		3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Dry Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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SCALA PENETROMETER LOG

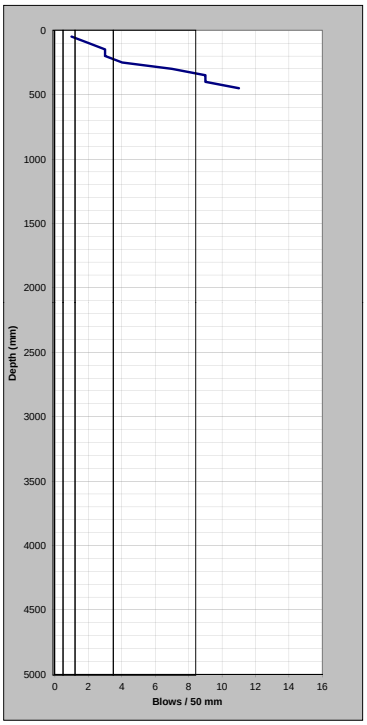
Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	2	2600	
150	3	2650	
200	3	2700	
250	4	2750	
300	7	2800	
350	9	2850	
400	9	2900	
450	11	2950	R
500		3000	
550		3050	
600		3100	
650		3150	
700		3200	
750		3250	
800		3300	
850		3350	
900		3400	
950		3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Dry Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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SCALA PENETROMETER LOG

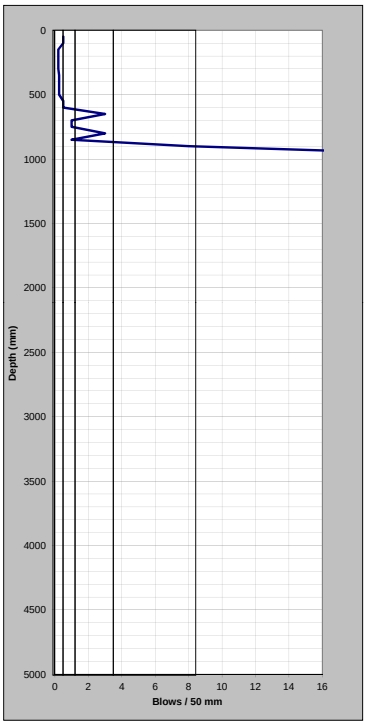
Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-5
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	0.2	2650	
200	0.2	2700	
250	0.2	2750	
300	0.2	2800	
350	0.25	2850	
400	0.25	2900	
450	0.25	2950	
500	0.25	3000	
550	0.5	3050	
600	0.5	3100	
650	3	3150	
700	1	3200	
750	1	3250	
800	3	3300	
850	1	3350	
900	8	3400	
950	20 R	3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Wet Rods
WL @ 0.65m



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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P O Box 1009
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SCALA PENETROMETER LOG

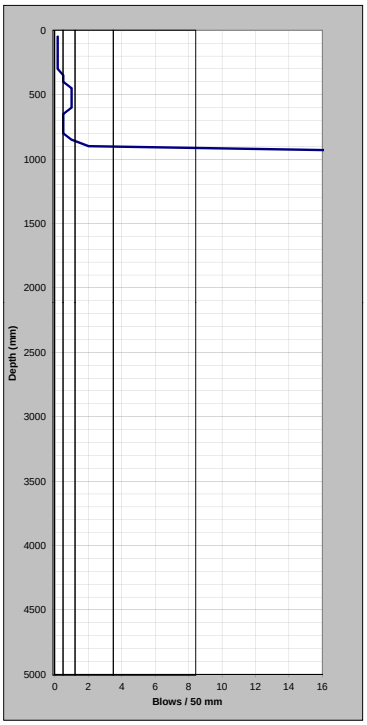
Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-6
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.166667	2550	
100	0.166667	2600	
150	0.166667	2650	
200	0.166667	2700	
250	0.166667	2750	
300	0.166667	2800	
350	0.5	2850	
400	0.5	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	1	3100	
650	0.5	3150	
700	0.5	3200	
750	0.5	3250	
800	0.5	3300	
850	1	3350	
900	2	3400	
950	25 R	3450	
1000		3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Wet Rods
WL @ 0.85m



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

SCALA PENETROMETER LOG

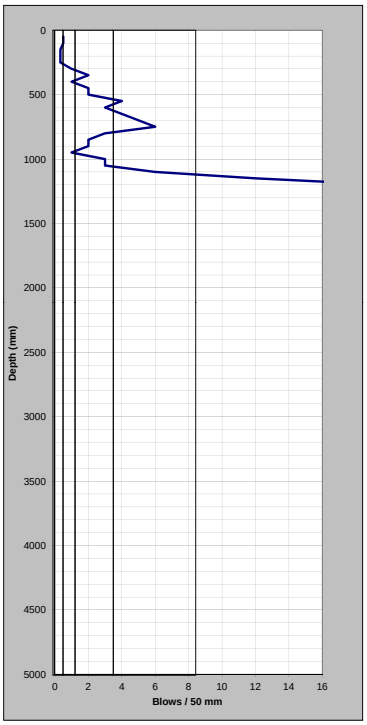
Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-7
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.5	2550	
100	0.5	2600	
150	0.33	2650	
200	0.33	2700	
250	0.33	2750	
300	1	2800	
350	2	2850	
400	1	2900	
450	2	2950	
500	2	3000	
550	4	3050	
600	3	3100	
650	4	3150	
700	5	3200	
750	6	3250	
800	3	3300	
850	2	3350	
900	2	3400	
950	1	3450	
1000	3	3500	
1050	3	3550	
1100	6	3600	
1150	12	3650	
1200	20	3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Dry Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

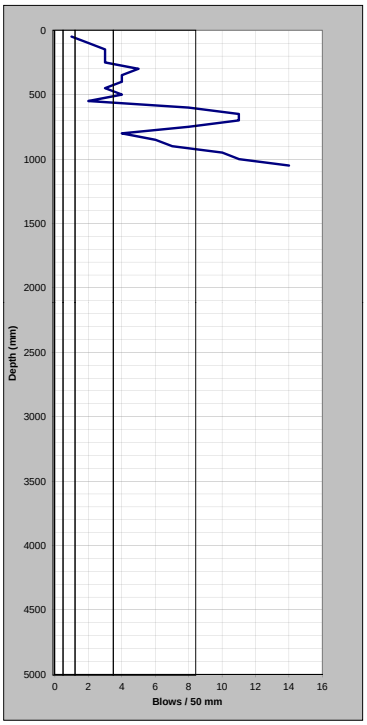
SCALA PENETROMETER LOG

Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-8
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	2	2600	
150	3	2650	
200	3	2700	
250	3	2750	
300	5	2800	
350	4	2850	
400	4	2900	
450	3	2950	
500	4	3000	
550	2	3050	
600	8	3100	
650	11	3150	
700	11	3200	
750	8	3250	
800	4	3300	
850	6	3350	
900	7	3400	
950	10	3450	
1000	11	3500	
1050	14	3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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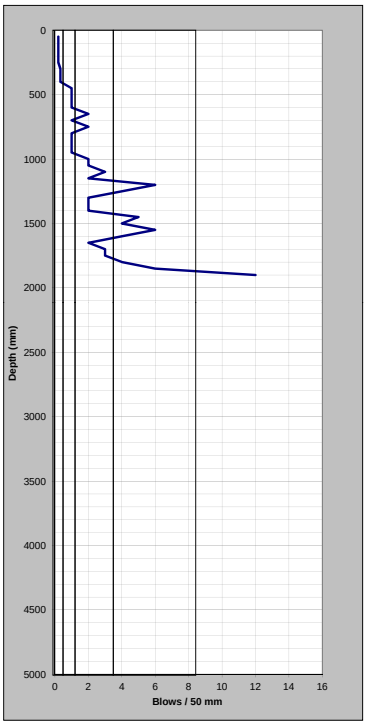
SCALA PENETROMETER LOG

Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-9
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.2		2550	
100	0.2		2600	
150	0.2		2650	
200	0.2		2700	
250	0.2		2750	
300	0.33		2800	
350	0.33		2850	
400	0.33		2900	
450	1		2950	
500	1		3000	
550	1		3050	
600	1		3100	
650	2		3150	
700	1		3200	
750	2		3250	
800	1		3300	
850	1		3350	
900	1		3400	
950	1		3450	
1000	2		3500	
1050	2		3550	
1100	3		3600	
1150	2		3650	
1200	6		3700	
1250	4		3750	
1300	2		3800	
1350	2		3850	
1400	2		3900	
1450	5		3950	
1500	4		4000	
1550	6		4050	
1600	4		4100	
1650	2		4150	
1700	3		4200	
1750	3		4250	
1800	4		4300	
1850	6		4350	
1900	12	R	4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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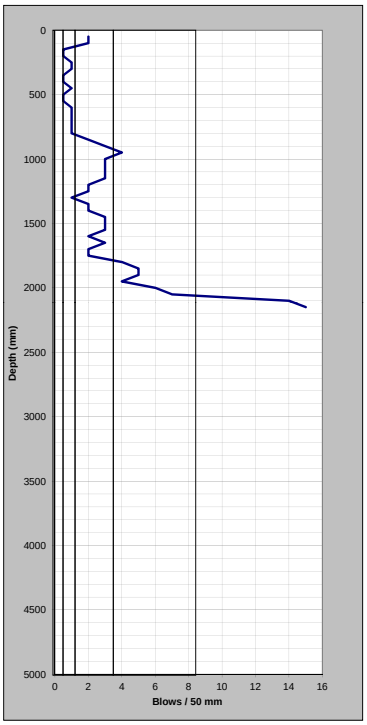
SCALA PENETROMETER LOG

Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-10
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	2		2550	
100	2		2600	
150	0.5		2650	
200	0.5		2700	
250	1		2750	
300	1		2800	
350	0.5		2850	
400	0.5		2900	
450	1		2950	
500	0.5		3000	
550	0.5		3050	
600	1		3100	
650	1		3150	
700	1		3200	
750	1		3250	
800	1		3300	
850	2		3350	
900	3		3400	
950	4		3450	
1000	3		3500	
1050	3		3550	
1100	3		3600	
1150	3		3650	
1200	2		3700	
1250	2		3750	
1300	1		3800	
1350	2		3850	
1400	2		3900	
1450	3		3950	
1500	3		4000	
1550	3		4050	
1600	2		4100	
1650	3		4150	
1700	2		4200	
1750	2		4250	
1800	4		4300	
1850	5		4350	
1900	5		4400	
1950	4		4450	
2000	6		4500	
2050	7		4550	
2100	14		4600	
2150	15	R	4650	
2200	Dry Rods		4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
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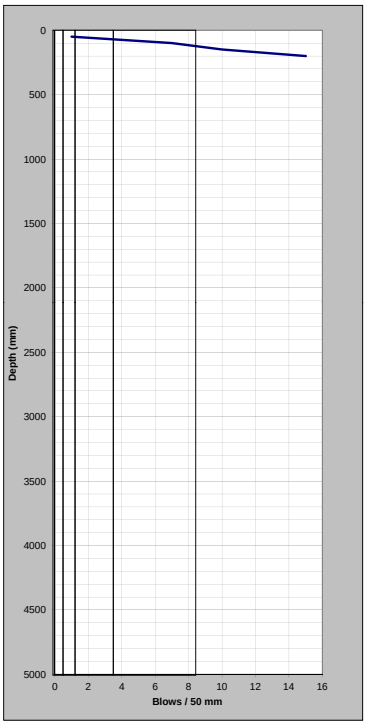
SCALA PENETROMETER LOG

Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-11
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	1		2550	
100	7		2600	
150	10		2650	
200	15	R	2700	
250	Rock face all around scala location		50	
300			00	
350			50	
400			00	
450			2950	
500			3000	
550			3050	
600			3100	
650			3150	
700			3200	
750			3250	
800			3300	
850			3350	
900			3400	
950			3450	
1000			3500	
1050			3550	
1100			3600	
1150			3650	
1200			3700	
1250			3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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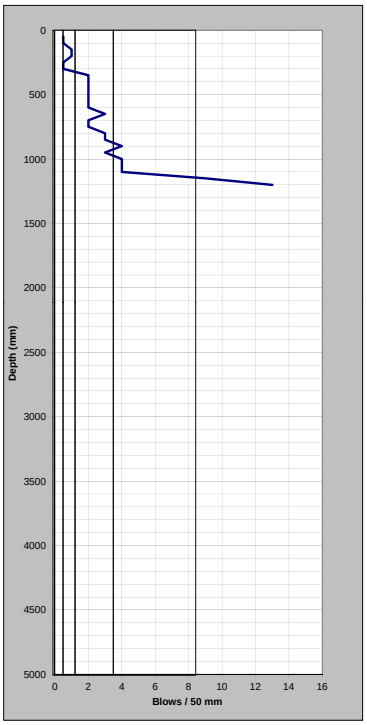
SCALA PENETROMETER LOG

Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-12
Sheet 1
of 1

mm Driven	No. of Blows		mm Driven	No. of Blows
50	0.5		2550	
100	0.5		2600	
150	1		2650	
200	1		2700	
250	0.5		2750	
300	0.5		2800	
350	2		2850	
400	2		2900	
450	2		2950	
500	2		3000	
550	2		3050	
600	2		3100	
650	3		3150	
700	2		3200	
750	2		3250	
800	3		3300	
850	3		3350	
900	4		3400	
950	3		3450	
1000	4		3500	
1050	4		3550	
1100	4		3600	
1150	9		3650	
1200	13	R	3700	
1250	Dry Rods		3750	
1300			3800	
1350			3850	
1400			3900	
1450			3950	
1500			4000	
1550			4050	
1600			4100	
1650			4150	
1700			4200	
1750			4250	
1800			4300	
1850			4350	
1900			4400	
1950			4450	
2000			4500	
2050			4550	
2100			4600	
2150			4650	
2200			4700	
2250			4750	
2300			4800	
2350			4850	
2400			4900	
2450			4950	
2500			5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
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SCALA PENETROMETER LOG

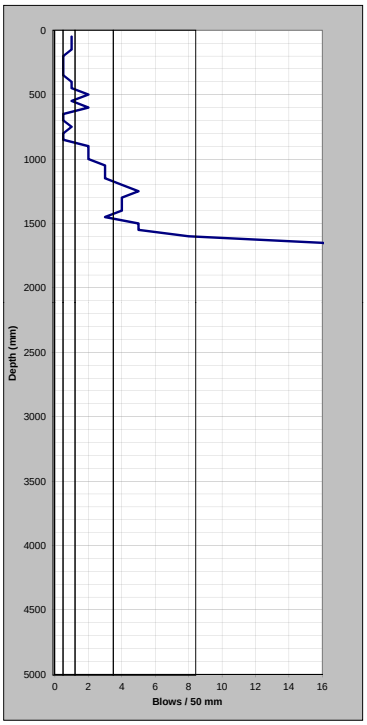
Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 24/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26-13
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	1	2600	
150	1	2650	
200	0.5	2700	
250	0.5	2750	
300	0.5	2800	
350	0.5	2850	
400	1	2900	
450	1	2950	
500	2	3000	
550	1	3050	
600	2	3100	
650	0.5	3150	
700	0.5	3200	
750	1	3250	
800	0.5	3300	
850	0.5	3350	
900	2	3400	
950	2	3450	
1000	2	3500	
1050	3	3550	
1100	3	3600	
1150	3	3650	
1200	4	3700	
1250	5	3750	
1300	4	3800	
1350	4	3850	
1400	4	3900	
1450	3	3950	
1500	5	4000	
1550	5	4050	
1600	8	4100	
1650	16	4150	
1700	18	4200	
1750	20 R	4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Dry Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
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SCALA PENETROMETER LOG

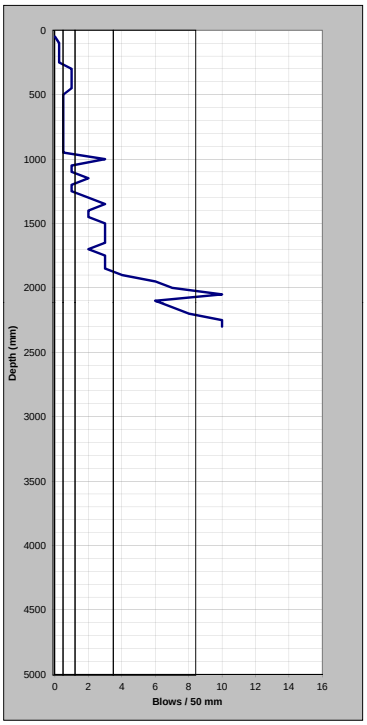
Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/07/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26A-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0.25	2600	
150	0.25	2650	
200	0.25	2700	
250	0.25	2750	
300	1	2800	
350	1	2850	
400	1	2900	
450	1	2950	
500	0.5	3000	
550	0.5	3050	
600	0.5	3100	
650	0.5	3150	
700	0.5	3200	
750	0.5	3250	
800	0.5	3300	
850	0.5	3350	
900	0.5	3400	
950	0.5	3450	
1000	3	3500	
1050	1	3550	
1100	1	3600	
1150	2	3650	
1200	1	3700	
1250	1	3750	
1300	2	3800	
1350	3	3850	
1400	2	3900	
1450	2	3950	
1500	3	4000	
1550	3	4050	
1600	3	4100	
1650	3	4150	
1700	2	4200	
1750	3	4250	
1800	3	4300	
1850	3	4350	
1900	4	4400	
1950	6	4450	
2000	7	4500	
2050	10	4550	
2100	6	4600	
2150	7	4650	
2200	8	4700	
2250	10	4750	
2300	10	4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Moist Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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SCALA PENETROMETER LOG

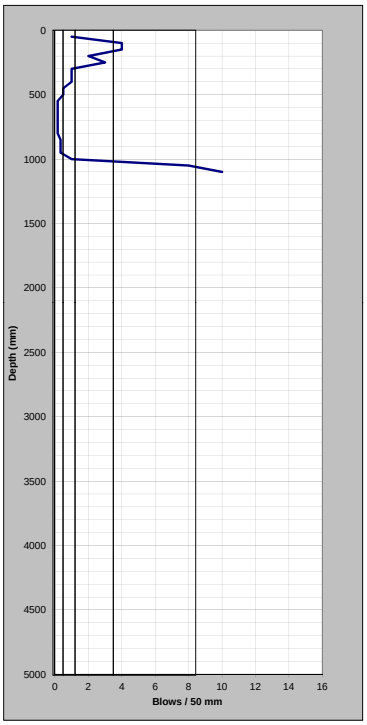
Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/07/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26A-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	4	2600	
150	4	2650	
200	2	2700	
250	3	2750	
300	1	2800	
350	1	2850	
400	1	2900	
450	0.5	2950	
500	0.5	3000	
550	0.166667	3050	
600	0.166667	3100	
650	0.166667	3150	
700	0.166667	3200	
750	0.166667	3250	
800	0.166667	3300	
850	0.333333	3350	
900	0.333333	3400	
950	0.333333	3450	
1000	1	3500	
1050	8	3550	
1100	10 +	3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Bouncing Rebound



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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SCALA PENETROMETER LOG

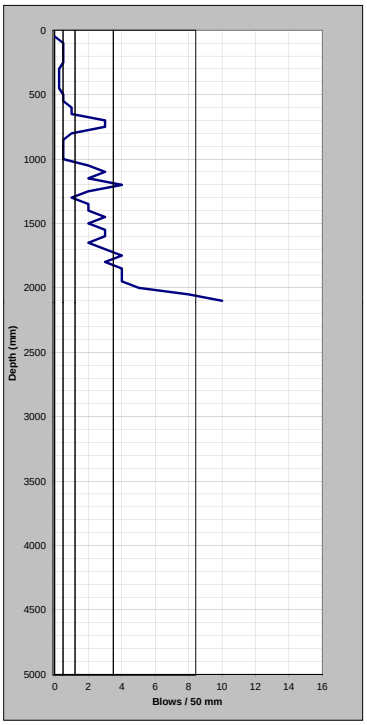
Job No: 870982.1026
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/07/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC26A-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0.5	2600	
150	0.5	2650	
200	0.5	2700	
250	0.5	2750	
300	0.25	2800	
350	0.25	2850	
400	0.25	2900	
450	0.25	2950	
500	0.5	3000	
550	0.5	3050	
600	1	3100	
650	1	3150	
700	3	3200	
750	3	3250	
800	1	3300	
850	0.5	3350	
900	0.5	3400	
950	0.5	3450	
1000	0.5	3500	
1050	2	3550	
1100	3	3600	
1150	2	3650	
1200	4	3700	
1250	2	3750	
1300	1	3800	
1350	2	3850	
1400	2	3900	
1450	3	3950	
1500	2	4000	
1550	3	4050	
1600	3	4100	
1650	2	4150	
1700	3	4200	
1750	4	4250	
1800	3	4300	
1850	4	4350	
1900	4	4400	
1950	4	4450	
2000	5	4500	
2050	8	4550	
2100	10 +	4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

Moist Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
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SCALA PENETROMETER LOG

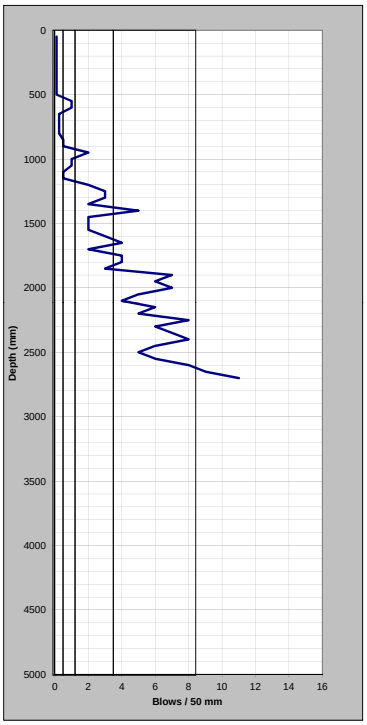
Job No: **870982.1027**
Project: **Cable Bay Rd Remedial**
Location: **Cable Bay Road**
Position: **See Site Plan**

Date: **25/05/2012**
Operated by: **DJAA**
Logged by: **DJAA**
Checked by: MPD

Test No. **SC27-1**
Sheet **1**
of **1**

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.1	2550	6
100	0.1	2600	8
150	0.1	2650	9
200	0.1	2700	11 R
250	0.1	2750	
300	0.1	2800	
350	0.1	2850	
400	0.1	2900	
450	0.1	2950	
500	0.1	3000	
550	1	3050	
600	1	3100	
650	0.25	3150	
700	0.25	3200	
750	0.25	3250	
800	0.25	3300	
850	0.5	3350	
900	0.5	3400	
950	2	3450	
1000	1	3500	
1050	1	3550	
1100	0.5	3600	
1150	0.5	3650	
1200	2	3700	
1250	3	3750	
1300	3	3800	
1350	2	3850	
1400	5	3900	
1450	2	3950	
1500	2	4000	
1550	2	4050	
1600	3	4100	
1650	4	4150	
1700	2	4200	
1750	4	4250	
1800	4	4300	
1850	3	4350	
1900	7	4400	
1950	6	4450	
2000	7	4500	
2050	5	4550	
2100	4	4600	
2150	6	4650	
2200	5	4700	
2250	8	4750	
2300	6	4800	
2350	7	4850	
2400	8	4900	
2450	6	4950	
2500	5	5000	

Moist
Rods



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
Fax: (03) 546 7619

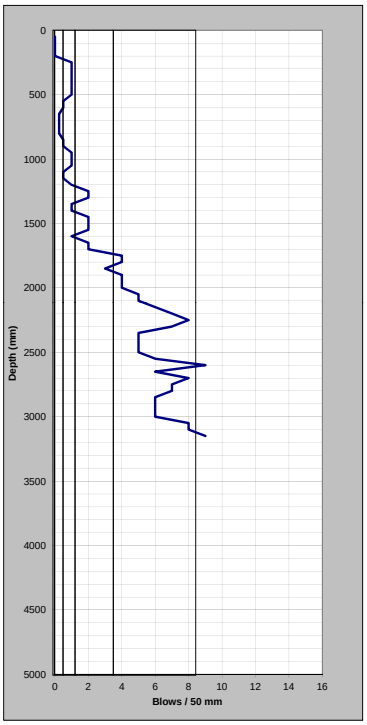
SCALA PENETROMETER LOG

Job No: 870982.1028
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 25/05/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC28-1
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	6
100	0	2600	9
150	0	2650	6
200	0	2700	8
250	1	2750	7
300	1	2800	7
350	1	2850	6
400	1	2900	6
450	1	2950	6
500	1	3000	6
550	0.5	3050	8
600	0.5	3100	8
650	0.25	3150	9
700	0.25	3200	
750	0.25	3250	
800	0.25	3300	
850	0.5	3350	
900	0.5	3400	
950	1	3450	
1000	1	3500	
1050	1	3550	
1100	0.5	3600	
1150	0.5	3650	
1200	1	3700	
1250	2	3750	
1300	2	3800	
1350	1	3850	
1400	1	3900	
1450	2	3950	
1500	2	4000	
1550	2	4050	
1600	1	4100	
1650	2	4150	
1700	2	4200	
1750	4	4250	
1800	4	4300	
1850	3	4350	
1900	4	4400	
1950	4	4450	
2000	4	4500	
2050	5	4550	
2100	5	4600	
2150	6	4650	
2200	7	4700	
2250	8	4750	
2300	7	4800	
2350	5	4850	
2400	5	4900	
2450	5	4950	
2500	5	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
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Tel: (03) 546 6339
Fax: (03) 546 7619

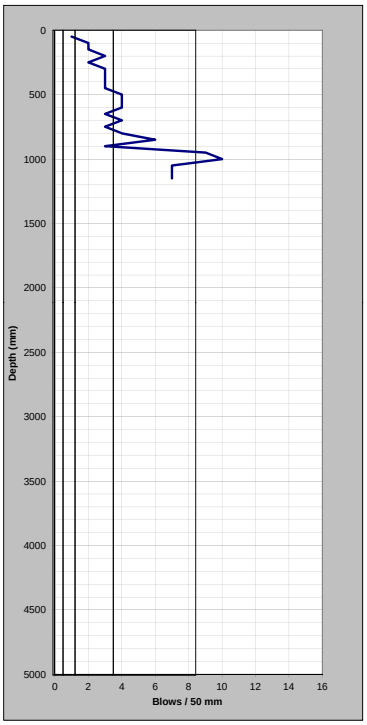
SCALA PENETROMETER LOG

Job No: 870982.1028
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/10/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC28-2
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	1	2550	
100	2	2600	
150	2	2650	
200	3	2700	
250	2	2750	
300	3	2800	
350	3	2850	
400	3	2900	
450	3	2950	
500	4	3000	
550	4	3050	
600	4	3100	
650	3	3150	
700	4	3200	
750	3	3250	
800	4	3300	
850	6	3350	
900	3	3400	
950	9	3450	
1000	10	3500	
1050	7	3550	
1100	7	3600	
1150	7	3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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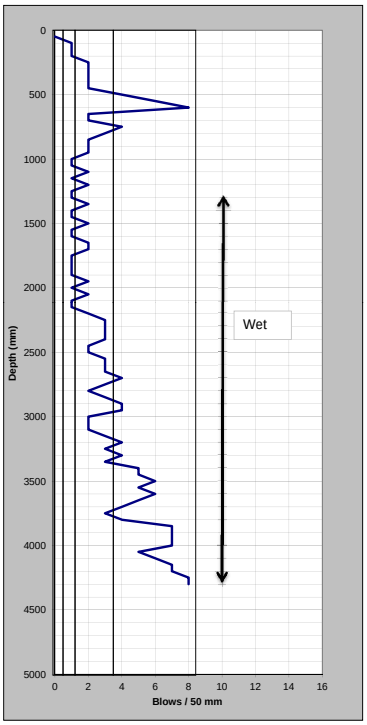
SCALA PENETROMETER LOG

Job No: 870982.1028
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 18/10/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC28-3
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	3
100	1	2600	3
150	1	2650	3
200	1	2700	4
250	2	2750	3
300	2	2800	2
350	2	2850	3
400	2	2900	4
450	2	2950	4
500	4	3000	2
550	6	3050	2
600	8	3100	2
650	2	3150	3
700	2	3200	4
750	4	3250	3
800	3	3300	4
850	2	3350	3
900	2	3400	5
950	2	3450	5
1000	1	3500	6
1050	1	3550	5
1100	2	3600	6
1150	1	3650	5
1200	2	3700	4
1250	1	3750	3
1300	1	3800	4
1350	2	3850	7
1400	1	3900	7
1450	1	3950	7
1500	2	4000	7
1550	1	4050	5
1600	1	4100	6
1650	2	4150	7
1700	2	4200	7
1750	1	4250	8
1800	1	4300	8
1850	1	4350	
1900	1	4400	
1950	2	4450	
2000	1	4500	
2050	2	4550	
2100	1	4600	
2150	1	4650	
2200	2	4700	
2250	3	4750	
2300	3	4800	
2350	3	4850	
2400	3	4900	
2450	2	4950	
2500	2	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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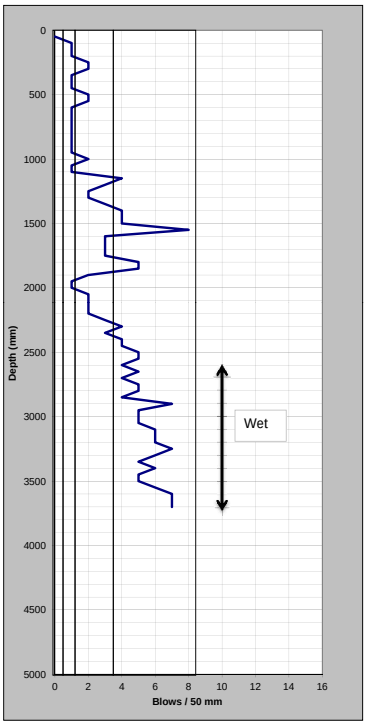
SCALA PENETROMETER LOG

Job No: 870982.1028
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 19/10/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC28-4
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	5
100	1	2600	4
150	1	2650	5
200	1	2700	4
250	2	2750	5
300	2	2800	5
350	1	2850	4
400	1	2900	7
450	1	2950	5
500	2	3000	5
550	2	3050	5
600	1	3100	6
650	1	3150	6
700	1	3200	6
750	1	3250	7
800	1	3300	6
850	1	3350	5
900	1	3400	6
950	1	3450	5
1000	2	3500	5
1050	1	3550	6
1100	1	3600	7
1150	4	3650	7
1200	3	3700	7
1250	2	3750	
1300	2	3800	
1350	3	3850	
1400	4	3900	
1450	4	3950	
1500	4	4000	
1550	8	4050	
1600	3	4100	
1650	3	4150	
1700	3	4200	
1750	3	4250	
1800	5	4300	
1850	5	4350	
1900	2	4400	
1950	1	4450	
2000	1	4500	
2050	2	4550	
2100	2	4600	
2150	2	4650	
2200	2	4700	
2250	3	4750	
2300	4	4800	
2350	3	4850	
2400	4	4900	
2450	4	4950	
2500	5	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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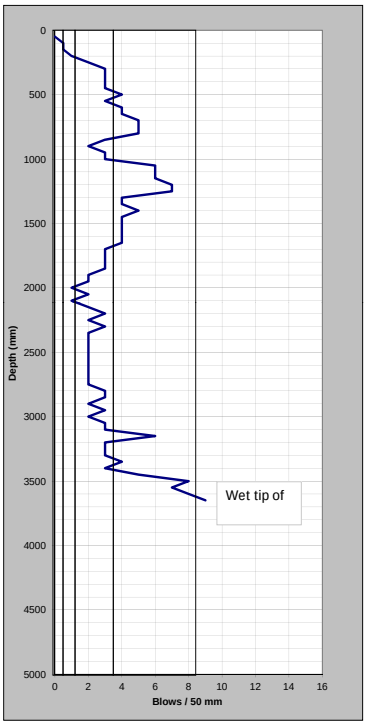
SCALA PENETROMETER LOG

Job No: 870982.1028
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 19/10/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC28-5
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	2
100	0.5	2600	2
150	0.5	2650	2
200	1	2700	2
250	2	2750	2
300	3	2800	3
350	3	2850	3
400	3	2900	2
450	3	2950	3
500	4	3000	2
550	3	3050	3
600	4	3100	3
650	4	3150	6
700	5	3200	3
750	5	3250	3
800	5	3300	3
850	3	3350	4
900	2	3400	3
950	3	3450	5
1000	3	3500	8
1050	6	3550	7
1100	6	3600	8
1150	6	3650	9
1200	7	3700	
1250	7	3750	
1300	4	3800	
1350	4	3850	
1400	5	3900	
1450	4	3950	
1500	4	4000	
1550	4	4050	
1600	4	4100	
1650	4	4150	
1700	3	4200	
1750	3	4250	
1800	3	4300	
1850	3	4350	
1900	2	4400	
1950	2	4450	
2000	1	4500	
2050	2	4550	
2100	1	4600	
2150	2	4650	
2200	3	4700	
2250	2	4750	
2300	3	4800	
2350	2	4850	
2400	2	4900	
2450	2	4950	
2500	2	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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Fax: (03) 546 7619

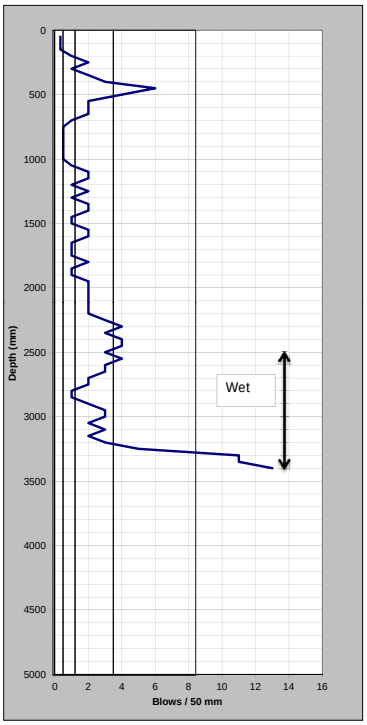
SCALA PENETROMETER LOG

Job No: 870982.1028
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 19/10/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC28-6
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.33	2550	4
100	0.33	2600	3
150	0.33	2650	3
200	1	2700	2
250	2	2750	2
300	1	2800	1
350	2	2850	1
400	3	2900	2
450	6	2950	3
500	4	3000	3
550	2	3050	2
600	2	3100	3
650	2	3150	2
700	1	3200	3
750	0.5	3250	5
800	0.5	3300	11
850	0.5	3350	11
900	0.5	3400	13
950	0.5	3450	
1000	0.5	3500	
1050	1	3550	
1100	2	3600	
1150	2	3650	
1200	1	3700	
1250	2	3750	
1300	1	3800	
1350	2	3850	
1400	2	3900	
1450	1	3950	
1500	1	4000	
1550	2	4050	
1600	2	4100	
1650	1	4150	
1700	1	4200	
1750	1	4250	
1800	2	4300	
1850	1	4350	
1900	1	4400	
1950	2	4450	
2000	2	4500	
2050	2	4550	
2100	2	4600	
2150	2	4650	
2200	2	4700	
2250	3	4750	
2300	4	4800	
2350	3	4850	
2400	4	4900	
2450	4	4950	
2500	3	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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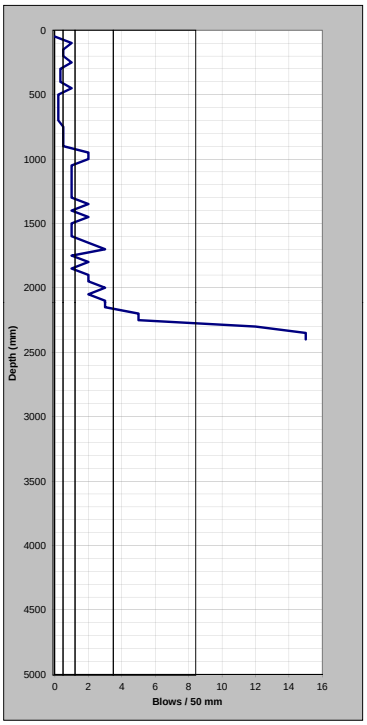
SCALA PENETROMETER LOG

Job No: 870982.1028
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 19/10/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC28-7
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	1	2600	
150	0.5	2650	
200	0.5	2700	
250	1	2750	
300	0.33	2800	
350	0.33	2850	
400	0.33	2900	
450	1	2950	
500	0.2	3000	
550	0.2	3050	
600	0.2	3100	
650	0.2	3150	
700	0.2	3200	
750	0.5	3250	
800	0.5	3300	
850	0.5	3350	
900	0.5	3400	
950	2	3450	
1000	2	3500	
1050	1	3550	
1100	1	3600	
1150	1	3650	
1200	1	3700	
1250	1	3750	
1300	1	3800	
1350	2	3850	
1400	1	3900	
1450	2	3950	
1500	1	4000	
1550	1	4050	
1600	1	4100	
1650	2	4150	
1700	3	4200	
1750	1	4250	
1800	2	4300	
1850	1	4350	
1900	2	4400	
1950	2	4450	
2000	3	4500	
2050	2	4550	
2100	3	4600	
2150	3	4650	
2200	5	4700	
2250	5	4750	
2300	12	4800	
2350	15	4850	
2400	15	4900	
2450		4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

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43 Halifax Street
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NELSON
Tel: (03) 546 6339
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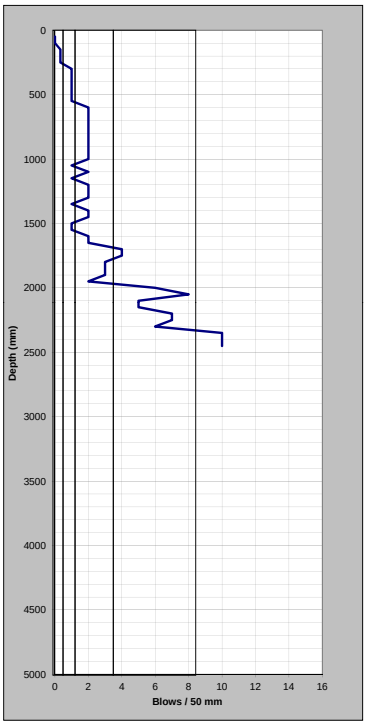
SCALA PENETROMETER LOG

Job No: 870982.1028
Project: Cable Bay Rd Remedial
Location: Cable Bay Road
Position: See Site Plan

Date: 19/10/2012
Operated by: DJAA
Logged by: DJAA
Checked by:

Test No. SC28-8
Sheet 1 of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	
100	0	2600	
150	0.33	2650	
200	0.33	2700	
250	0.33	2750	
300	1	2800	
350	1	2850	
400	1	2900	
450	1	2950	
500	1	3000	
550	1	3050	
600	2	3100	
650	2	3150	
700	2	3200	
750	2	3250	
800	2	3300	
850	2	3350	
900	2	3400	
950	2	3450	
1000	2	3500	
1050	1	3550	
1100	2	3600	
1150	1	3650	
1200	2	3700	
1250	2	3750	
1300	2	3800	
1350	1	3850	
1400	2	3900	
1450	2	3950	
1500	1	4000	
1550	1	4050	
1600	2	4100	
1650	2	4150	
1700	4	4200	
1750	4	4250	
1800	3	4300	
1850	3	4350	
1900	3	4400	
1950	2	4450	
2000	6	4500	
2050	8	4550	
2100	5	4600	
2150	5	4650	
2200	7	4700	
2250	7	4750	
2300	6	4800	
2350	10	4850	
2400	10	4900	
2450	10	4950	
2500		5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR
43 Halifax Street
P O Box 1009
NELSON
Tel: (03) 546 6339
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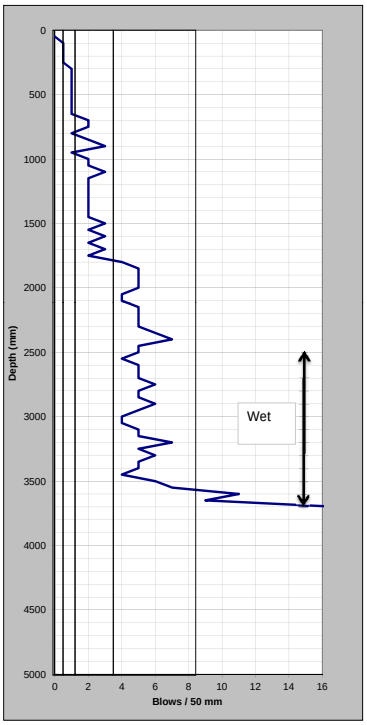
SCALA PENETROMETER LOG

Job No: **870982.1028**
Project: **Cable Bay Rd Remedial**
Location: **Cable Bay Road**
Position: **See Site Plan**

Date: **19/10/2012**
Operated by: **DJAA**
Logged by: **DJAA**
Checked by: MPD

Test No. SC28-9
Sheet 1
of 1

mm Driven	No. of Blows	mm Driven	No. of Blows
50	0	2550	4
100	0.5	2600	5
150	0.5	2650	5
200	0.5	2700	5
250	0.5	2750	6
300	1	2800	5
350	1	2850	5
400	1	2900	6
450	1	2950	5
500	1	3000	4
550	1	3050	4
600	1	3100	5
650	1	3150	5
700	2	3200	7
750	2	3250	5
800	1	3300	6
850	2	3350	5
900	3	3400	5
950	1	3450	4
1000	2	3500	6
1050	2	3550	7
1100	3	3600	11
1150	2	3650	9
1200	2	3700	17
1250	2	3750	
1300	2	3800	
1350	2	3850	
1400	2	3900	
1450	2	3950	
1500	3	4000	
1550	2	4050	
1600	3	4100	
1650	2	4150	
1700	3	4200	
1750	2	4250	
1800	4	4300	
1850	5	4350	
1900	5	4400	
1950	5	4450	
2000	5	4500	
2050	4	4550	
2100	4	4600	
2150	5	4650	
2200	5	4700	
2250	5	4750	
2300	5	4800	
2350	6	4850	
2400	7	4900	
2450	5	4950	
2500	5	5000	



Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

TONKIN & TAYLOR LTD — DRILL HOLE LOG

HOLE No. DH 1

PROJECT Castle Bay Remediation FEATURE Castle Bay Road LOCATION Ch 6477 m (Site 20)

GRID REF. 8117.52 mN 410317 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION N/A H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE (WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.)	ROCK WEATHERING SW NW HW	ROCK STRENGTH R4 R3 R2 R1	POINT LOAD TEST (MPa)	CORE LOSS /LIFT %	DEPTH H.A.D. m	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS, SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH R.O.D. %	WATER LEVEL Date	DRILL WATER LOSS %	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s
DRILLERS RECORD: SILTY SANDY CLAY, soft, with rounded & sub-angular gravel.					0.25 0.5 0.75 1.0							
COLLUVIUM / LANDSLIP DEBRIS orange-brown & dark brown, firm	N/A	N/A	2,1,1,2,1 N = 5	50/250		N/A	N/A	CLAYEY-SILT, low plasticity, with much fine SR-ANG gravel, some organic silt inclusions, saturated.		31/04/12 – 1.00m 1.45m		
NO RECOVERY					1.5			NO RECOVERY				
COLLUVIUM as above higher % clay & less gravel	N/A	N/A	2,2,2,2,1 N = 7	190/450	2.0	N/A	N/A	CLAYEY SILT, low-high plasticity, with some fine-medium gravel clasts. (ML-CL)		01/05/12 2.43m		
NO RECOVERY					2.5			NO RECOVERY		02/05/12 2.75m		
RESIDUAL SOIL, SANDY-SILT, moist-wet, stiff			5,5,2,2,5 N = 14	240/450	3.0	N/A	N/A	SANDY-SILT, no-low plasticity with some clay & sand, much fine angular-subrounded gravel. (CL-SM)		31/04/12 3.275m		
NO RECOVERY					3.5			NO RECOVERY.				
SANDSTONE, orange-brown, CW, R0, remnant rock fabric, moist.			7,5,7,6,7 N = 25	240/450	4.0		N/A	SANDY-SILT, non-low plastic with some clay & much fine, weakly cemented ang-sw gravel (ML-GM) HARD.				
NOT CORED					4.5			NOT CORED				
SANDSTONE, yellow-brown, HW-MW, V thinly bedded, moderately to steeply inclined annealed defects, R2-R3 MARLBANK FORMATION. R1-R2 (can be peeled with difficulty) below 5-2m.				750/750	5.0			J ~ 30°, SW, C B ~ 27°, SW, C Hairline cracks some Drilling breaks.				
LOST CORE Above becomes MW, yellow-brown & light grey, R3, Metasedimentary, Mg on joint surfaces (Poss drill shatter) – Annealed joint surfaces have weathered out cement R3-R2 R2 –				460/500 500/500 1300/1300	6.0 6.5			LOST CORE B ~ 40°, SW, C J ~ 70°, SW-DF, I, Mg-silt J ~ 30°, SW, O, CW J ~ 50°, SW, VT-C, CW J ~ 85°, SW, VT-C, CW J ~ 70°, SC-PL, T, CA (2-10mm) Possible drill shatter J ~ 20°, ST-K, O, CW (7mm gouge) J ~ 30°, SC-PL, VT, CW-CW J ~ 70°, SW, DR, T-O, CW.		100% 170/500 330/500		
SANDSTONE, yellow brown & light grey, MW, R2-R3. R3. R3-R4, MW-SW R3-MW.					7.0 7.5			B ~ 40°, SC-PL, O, CA (2-5mm) J ~ 80-60°, ST, DR, O, CW B ~ 43°, SC-SM, I,				

DRILLER: WEBSTER
STARTED: 31/04/2012
FINISHED: 02/05/2012
DRILL:

ROCK WEATHERING: UW – Unweathered; SW – Slightly Weathered; MW – Moderately Weathered; HW – Highly Weathered; CW – Completely Weathered

ROCK HARDNESS: ~~VH – Very hard~~; H – Hard; MH – Moderately hard; MS – Moderately soft; S – Soft; ~~VS – Very Soft~~

FRACTURE LOG: Spacing of Natural Fractures (cm: 50, 20, 10, 5, 1); Fractures/m of core (N, 10, 20, 100, 1000)

EXPLANATION:
R1 – Very weak
R2 – Weak
R3 – moderately strong
R4 – Strong
R5 – very strong

LOGGED: JxWW
DATE: 12-04-2012
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870.982-1020
HOLE NO: DH 1
LENGTH: 7.85m
CORE BOXES: 2

SHEET 1 OF 2 DRG NO

TONKIN & TAYLOR LTD — DRILL HOLE LOG

HOLE No. DH 1

PROJECT Cable Bay Remediation FEATURE Cable Bay Road, Nelson LOCATION CH 6477m (Site 20)

GRID REF. 811752 mN 410317 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION N/A H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE (WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.)	ROCK WEATHERING (SW, MW, HW)	ROCK STRENGTH (R4, R3, R2, R1)	POINT LOAD TEST (MPa)	CORE LOSS /UFT % (5, 25, 50)	DEPTH H.A.D. m (Core size. casing)	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50, 10, 5, 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS. SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH R.O.D. %	WATER LEVEL Date	DRILL WATER LOSS % 0–100	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s (0.01, 0.1, 1, 10, 100, 1000)
SANDSTONE, blue-grey & orange brown. black Mg stained, MW, R3 Drill induced shatter								J ~ 70°, SW, DF, VT-C, 2N. Drill*	02/05/12			NOT TESTED
								Recovered as coarse gravel				
E.O.H 7.85m					8.0			E.O.H 7.85m.				

DRILLER: Webster
STARTED: 31/04/2012
FINISHED: 02/05/2012
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS *
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures (100, 50, 10, 5, 1, 0.1)
Fractures/m of core (2, 10, 20, 100, 1000)

EXPLANATION: * Rock Strength
R_1 – Very weak
R_2 – Weak
R_3 – Moderately Strong
R_4 – Strong
R_5 – Very Strong

LOGGED: JKW
DATE: 12-06-2012
TRACED:
CHECKED: JWD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870982-1020
HOLE NO: DH 1
LENGTH: 7.85m
CORE BOXES: 2

SHEET 2 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH2

PROJECT Cable Bay Road - Remediation FEATURE Cable Bay Road LOCATION CH 6180m (Site 14)

GRID REF 811552 mN 410473 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION H.A.D. GROUND RL 40.0m H.A.D. COLLAR

DESCRIPTION OF CORE
WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.

ROCK WEATHERING: SW MW HW
ROCK STRENGTH: R4 MHR3 MSR2 SR1
SPT
CORE LOSS /LIFT %
DEPTH H.A.D. Core size. casing 1.7m m
GRAPHIC LOG
FRACTURE LOG (Spacing of natural fractures) cm
ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS, SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...
DATE/DEPTH
R.Q.D. %
WATER LEVEL
DRILL WATER LOSS %
WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s

DESCRIPTION OF CORE	ROCK DEFECTS
Drillers record - Sealed base - coarse.	NOT CORED
Drillers record - SILTY-SANDY CLAY, with fine-medium, rounded & angular gravel - 'soft'	NOT CORED
NO RECOVERY	NO RECOVERY
GRAVEL, dark grey, volcanic, angular, fine to medium some grit, medium-dense.	GP - loosely packed
NOT CORED	NOT CORED
CLAYEY-SILT, with occasional fine, angular gravel & some grit - orange-brown. Very-Stiff.	NO RECOVERY Low plasticity, moist CL-ML.
NOT CORED	NOT CORED
NOT RECOVERED Start HQ core	NOT RECOVERED
SILTY-CLAY with some fine to medium. angular MW gravel, some organics (silt & roots), orange-brown Hand	Low becoming high plasticity, moist (3mm thread doesn't break) ML-CH
LOST CORE	LOST CORE
RESIDUAL SOIL, CLAYEY-SILT, with many fine to medium subangular to angular clasts & sand, orange brown mottled cream Hand.	low plasticity, moist ML-CL - possible drilling break - wet - clast size increasing Mg staining remnant rock fabric CC.
SILTSTONE, HW, orange brown. MSbr; closely spaced (100-200mm) moderately inclined defects broken	
SILTSTONE-CONGLOMERATE, SW-MW, blue-grey, speckled light grey lithic & volcanic clasts, R4	J~30°, SC-PL, T-O, CC(10mm) J~20° As above
LOST CORE	LOST CORE
FINE SANDSTONE, HW-MW, recovered as gravel R3-R4	RECOVERED AS GP
FINE SANDSTONE HW-MW, green grey & red brown, with black Mg & yellow limonite staining, very closely spaced moderately to steeply inclined defects R3-R2	J~50°, SC-PL, T, silt, Fest. same joint // shear As above more open. Crush. J~10°, SC-PL, SM, VT, CV J~30°, SC, R, T, Fest During breaking
MARYBANK FORMATION LOST CORE As above LOST CORE	LOST CORE LOST CORE
SANDSTONE, light blue-grey & red-brown, MW, indurated, blocky. very closely spaced steeply dipping defects, R4	J~22°, SC, R, Fe. J~50° SC-R, T, Fe Crush. J~20°, SC, VT

END BOX 1

NOT TESTED

DRILLER: Websters
STARTED: 18-04-2012
FINISHED: 19-04-2012
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS*
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures (cm): 100, 50, 10, 5, 0.1
Fractures/m of core: 1, 2, 10, 20, 100, 1000

EXPLANATION: Dip taken normal to core axis.
* ROCK STRENGTH.
R1 – Very Weak, R3 – Moderately Strong
R2 – Weak, R4 – Strong
R5 – Very Strong

LOGGED: JxWW
DATE: 03-05-2012
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870982-1000
HOLE NO: DH2
LENGTH: 9.1m
CORE BOXES: 3

SHEET 1 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH2

PROJECT Cable Bay Road - Remediation FEATURE Cable Bay Road LOCATION CH 6180 m (Site 14)

GRID REF. 811552 mN 410473 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION H.A.D. GROUND RL 40m H.A.D. COLLAR

DESCRIPTION OF CORE (WEATHERING, HARDNESS, STRENGTH, COLOUR, ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.)	ROCK WEATHERING (SW / MW / HW)	ROCK strength (Qu, Q3, Q2, Q1)	POINT LOAD TEST (MPa)	CORE LOSS /UFT % (5, 10, 50)	DEPTH H.A.D. m (Core size, casing 47mm)	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) (50, 10, 5, 1 cm)	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS, SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH	R.Q.D. %	WATER LEVEL	DRILL WATER LOSS % (0–100)	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s (0.01, 0.1, 1, 10, 100, 1000)
SANDSTONE, light blue-grey with yellow penetrative limonite staining – SW–MW RH, Closely spaced moderately to steeply dipping defects	SW MW HW	Qu Q3 Q2 Q1		5 10 50	8.0 / 8.5 / 9.0 / 9.5		50 10 5 1 cm	J~20°, SM, R, VT, Fest. Drilling breaks. / J~58°, PL, SM, O, CC / J~30°, SC, R, VT, CN / SZ~40°, SC, PL, T, CC / J~30°, SC, , T, Fest. / E.O.H 9.11 m.	9.11m / 19-04-2012.	See Previous 688/1000	Dole	0–100	

END Box 2

END Box 3.

DRILLER: Websters STARTED: 18-04-2012 FINISHED: 19-04-2012 DRILL:	ROCK WEATHERING: UW – Unweathered; SW – Slightly Weathered; MW – Moderately Weathered; HW – Highly Weathered; CW – Completely Weathered	ROCK HARDNESS *: VH – Very hard; H – Hard; MH – Moderately hard; MS – Moderately soft; S – Soft; VS – Very Soft	FRACTURE LOG: Spacing of Natural Fractures (100, 50, 10, 5, 1, 0.1); Fractures/m of core (1, 2, 10, 20, 100, 1000)	LOGGED: J.X.W.W. DATE: 03-05-2012 TRACED: CHECKED: MPD ORIGINAL VERTICAL SCALE: 1:25 @ A3	PROJECT: 670982-1000 HOLE NO: DH2 LENGTH: 9.1m CORE BOXES: 3

EXPLANATION: Defect Angles recorded Normal to core axis

* See Sheet 1.

SHEET 2 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH3

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road - Nelson LOCATION CH6113 (Site 12)

GRID REF. 811.512 mN . 410.543 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE
WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.

ROCK WEATHERING: SW MW HW
ROCK STRENGTH: R4 R3 R2 R1
SPT (N*)
CORE LOSS /UFT %
DEPTH H.A.D. m (HQ Core size, casing 2.7m)
GRAPHIC LOG
FRACTURE LOG (Spacing of natural fractures) cm

ROCK DEFECTS
PROMINENT JOINTS, BEDDING, SEAMS VEINS, SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness
(OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...

DATE/DEPTH
R.Q.D. %
WATER LEVEL Date
DRILL WATER LOSS %
WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s

DESCRIPTION OF CORE	ROCK DEFECTS
Drillers Record - SILTY-SANDY CLAY, brown with rounded & sub-angular gravel, firm.	ML-CL
NO RECOVERY	NO RECOVERY.
GRAVELLY-SILT, orange-brown with many fine angular locally sourced gravel, some clay. SHEF. NOT LOGGED	low plasticity, wet CL-ML NOT LOGGED
NO RECOVERY	NOT RECOVERY
RESIDUAL SOIL, SILTY-SAND, orange-brown, with much angular gut & fine gravel, some clay. HARD.	Non-low plasticity Moist, v well consolidated CL-SM
NOT CORED	NOT CORED
LOST CORE	LOST CORE
SANDSTONE, HW, orange-brown speckled grey, very closely spaced (20-100mm) moderately to steeply inclined defects (peels with pocket knife) very weak - R1 rock Will excavate as a sandy gravel with silt	J~20°, SC, DR, T, Silt, CV J~55°, SC, DR, T, Silt, CV J~44°, SC, ST, T, silt, CV some drill breaks J~50, SC, DR, T, CV.
As above but medium grained & slightly more weathered Rock softens & can be crushed between 3.9 & 4.1m depth MARLBANK FORMATION. Slight strengthening, hard to peel still very friable. R1 orange-brown & dark grey Rock strength increasing & becoming more competent. HW-MW R2 Becomes SW-MW much less penetrative weathering from 6.2m R3	J 60°-SC, DR, T, CV J~30°, SC, DR, T, CV some drill breaks. Drill break. J~20°-SC, J~75°~SC, J~40°, SC, R, T, CV J~46°, SC, SM, T, CV J~10°, SC, ST, T, CV Drill break.
E.O.H 6.4m.	E.O.H 6.4m

SPT (N*): 3,2,2,3,3 N=10 | 9,6,10,12,12 N=40

CORE LOSS /UFT %: 100/450; N/A; 220/450; 700/800; 1500/1500; 1500/1500; 1500/1500

DEPTH H.A.D. m: 0.25, 0.5, 0.75, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0

FRACTURE LOG (Spacing of natural fractures) cm: N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A

DATE/DEPTH: N/A; N/A; N/A; N/A; N/A; N/A; N/A; 100/800; 980/1500; 6.4m/30/04/12 1190/1500

R.Q.D. %: N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A; N/A

WATER LEVEL Date: 30/04/12 End Drilling ▼ 0.92m

DRILL WATER LOSS %: 0–100

WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s: 0.01, 0.1, 1, 10, 100, 1000

NIL WATER HOLE COLLAPSED TO 2.1m @ 30/04/12

END Box 1

DRILLER: WEBSTERS
STARTED: 30/04/2012
FINISHED: 30/04/2012
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS *
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures: 100, 50, 10, 5, 0.1
Fractures/m of core: 1, 2, 10, 20, 100, 1000

LOGGED: JxWW
DATE: 09/05/2012
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870962-1000
HOLE NO: DH3
LENGTH: 6.4m
CORE BOXES: 2

SHEET 1 OF 1 DRG NO

EXPLANATION: Defects measured normal to core axis

NB// Hole collapsed to 2.1m depth prior to grouting – No standing water in hole

* Rock Strength.
R1 - Very Weak, R2 - Weak, R3 - Moderately Strong, R4 - Strong, R5 - Very Strong.

TONKIN & TAYLOR LTD
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DRILL HOLE LOG

HOLE No. DH4

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 6050m (Site 11)

GRID REF. 811489 mN 410554 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION H.A.D. GROUND 84.40 H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW MW HW	ROCK Strength R4 R3 R2 R1	SPT	CORE LOSS /LIFT % 5 10 50	DEPTH H.A.D. m (Core size, casing)	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50 10 5 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS, SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH R.O.D. %	WATER LEVEL Date	DRILL WATER LOSS % 0–100	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s 0.01 0.1 1 10 100 1000
DRILLERS RECORD - ROAD & SUB BASE	N/A	N/A			0.25		N/A	MADE GROUND.				
DRILLERS RECORD - SILTY SANDY CLAY.	N/A	N/A			0.5		N/A	SILTY SANDY CLAY, brown, soft to firm, with rounded & subangular gravel (ML-CL)		Sand 12/04/12 ▼0.55m		
NO RECOVERY			2,2,1,1,2 N=6	100/450	1.0			NO RECOVERY	N/A	20/04/12 ▼1.35m		
SILTY-GRAVEL, orange brown, fine, angular with some sand & silt, some clay, poorly graded LOOSE.	N/A	N/A			1.5	Δ_2-δ	N/A	Non-Plastic, wet, poorly consolidated - GM wet				
NOT CORED								NOT CORED				
NO RECOVERY			3,4,5,5,7 N=21	150/450	2.0			NO RECOVERY	N/A	29/04/12 ▼2.36m		
SILTY GRAVEL - as above	N/A	N/A					N/A	Better consolidated.				
NOT CORED					2.5			NOT CORED				
NO RECOVERY			11,6,7,9,13 N=35	200/450	3.0			NO RECOVERY	N/A			
SILTY GRAVEL - as above	N/A	N/A				Δ_2-δ	N/A	GM - more clay				
RESIDUAL SOIL, CLAYEY-SILT orange-brown, low plasticity with many fine. angular, HW-SW gravel, Hard.							N/A	ML, well consolidated moist				
NOT CORED					3.5			NOT CORED.				
Residual Soil — — HQ core ↓			20/8		4.0			ML As Above				
MARSBANK FORMATION ↓ SANDSTONE, HW-MW yellow-brown with black Mg staining, fairly well indurated, closely spaced, moderately to steeply inclined defects R3. (wet)			N<48	300/600				J~20°, SC, R, O, Fe<Mg St J~80°, SC, PL, O, Fe<Mg St J~20°-SC, T, Mg St. J~40°-SC, DR, O-T, Mg St.	210/600			
LOST CORE					5.0			LOST CORE Poss - drill break.				
As above becoming more competent R3-R4				170/1200				J~20°, SC-SM, T, Mg St-CV " , SC-DR, O, Mg St, CV. J~65°, SK, SM, T, CV J~10°, SC. SM, VT, CN	590/1200	03/05/12 ▼5.69m		
LOST CORE					6.0			LOST CORE Drill breaks.				
As ABOVE, much less Mg staining. R3-R4				300/350	6.5			Micro fractures J~40°, SW, R, O, CV.	900/1500			
				1500/1500	7.0			J~45°, SC, R, VT, CN J~65°, SC, VT, CN.				
					7.5							

DRILLER: WEBSTERS
STARTED: 20/04/12
FINISHED: 20/04/12
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS *
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures / Fractures/m of core
100 50 10 5 1 0.1
1 2 10 20 100 1000

EXPLANATION: Defects measured normal to core axis
* Rock Strength.
R_1 – Very Weak, R_3 – Moderately Strong
R_2 – Weak R_4 – Strong
R_5 – Very Strong.

LOGGED: JX WW
DATE: 04/05/12
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870982.1000
HOLE NO: DH4
LENGTH: 9.1m
CORE BOXES: 3

SHEET 1 OF 2 DRG NO

TXT 1 TXT 2

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH4

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH6065m (Site 11)

GRID REF. 811489 mN 410554 mE CO-ORD. NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION H.A.D. GROUND RL 40 H.A.D. COLLAR

DESCRIPTION OF CORE
WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.

ROCK WEATHERING (SW, MW, HW) | ROCK Strength (Rw, R3, R2, R1) | POINT LOAD TEST (MPa) | CORE LOSS /LIFT % (50, 90) | DEPTH H.A.D. Core size. casing m | GRAPHIC LOG | FRACTURE LOG (Spacing of natural fractures) 50, 10, 5, cm, 1

ROCK DEFECTS
PROMINENT JOINTS, BEDDING, SEAMS VEINS, SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...

DATE/DEPTH | R.Q.D. % | WATER LEVEL Date | DRILL WATER LOSS % 0–100 | WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s (0.01, 0.1, 1, 10, 100, 1000)

SANDSTONE, mottled yellow-brown speckled dark grey/black, fairly well indurated, closely spaced defects & micro-fracturing, Mg staining & clay veneer of defect surfaces. R3 - R2

Recovered 1000/1000 Refer Sheet 1

8.0
8.5
9.0
9.5

J ~ 72°, SM-ST, Mg & Fe ST.
J ~ 20°, SL-R, CV
Micro fractures
J ~ 140°, SW, SM, VT
J ~ 20°, SL-DR, O, CV
Micro fractures.
J ~ 30°, ST-R, VT, CV
Micro fractures.

20/04/12 – 9.1m. Refer Sheet 1. 100 %. NOT TESTED

END BOX 2 (Mislabelled)
END BOX 3

E.O.H 9.1m

E.O.H 9.1m

DRILLER: WEBSTERS
STARTED: 20/04/12
FINISHED: 20/04/12
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS *
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures: 100, 50, 10, 5, 1, 0.1
Fractures/m of core: 1, 2, 10, 20, 100, 1000

EXPLANATION: Defects measured normal to core axis
* See Sheet 1

LOGGED: JYNN
DATE: 04/05/12
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870982-1000
HOLE NO: DH4
LENGTH: 9.1m
CORE BOXES: 3

SHEET 2 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH5

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road, Nelson LOCATION CH6035m (Site 11)

GRID REF. 811473 mN 410563 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION H.A.D. GROUND RL 39m H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW MW HW	ROCK Strength Z4 Z3 Z2 Z1	SPT (N)	CORE LOSS /UFT % 5 20 50	DEPTH H.A.D. Core size, casing 3m m	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50 10 5 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS. SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH R.O.D. %	WATER LEVEL Date	DRILL WATER LOSS % 0–100	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s 0.01 0.1 1 10 100 1000
Drillers Record "Tar seal & Road sub-base"								MADE GROUND.				
Drillers Record SILTY - SANDY CLAY, brown, with rounded to sub-angular gravel, soft to firm								SM - CL				
NOT RECOVERED			3,3,7,4,8 N=26	220/450	1.0			NOT RECOVERED				
As above, more sub-angular to angular												
NOT CORED					1.5			NOT CORED				
NOT RECOVERED			11,13,13,14/125 N=WD	150/325	2.0			NOT RECOVERED low plasticity, CL-ML				
RESIDUAL SOIL, CLAYEY-SILT with some fine to medium angular gravel & sand. orange brown, HARD												
NOT CORED					2.5			NOT CORED				
LOST CORE								LOST CORE				
SANDSTONE, HW, orange-brown & dark grey, medium-coarse, very weak (R1) peels with a pocket knife, blocky with closely spaced, steeply dipping defects. Becomes MW, R2-R3 MARYBANK FORMATION. MW - R3, Defects become closely to moderately spaced., SANDSTONE, brown & dark grey fine-medium, well indurated MW-SW R3-R4				150/400 650/650 880/850 632/650	3.0 3.5 4.0 4.5 5.0 5.5			J-50°, SC, SM, T-O, CV (<1mm) J-20°, SC, DR, O, SILT J-80°, SW, ST, T-VT, CV J-20°, SC, ST, T, SILT/CV Micro fractures. J-50°, SC, ST-SM, T. (Drill induced) J-20° SC. SM, O, C(5mm) J-10°, S, SM, VT, CV Micro fractures 80° J- SC, DF, VT, CV	2/4. N/A N/A 250/700 360/650 100 % 100 %	12:00hrs 23/04 0.94m 17:00hrs 23/04 1.32m 09:00hrs 24/04 1.93m 24/04 2.36m		
E.O.H 5.55m					6.0			E.O.H 5.55m				

ROCK WEATHERING	ROCK HARDNESS *	FRACTURE LOG
UW – Unweathered	VH – Very hard	Spacing of Natural Fractures (100 50 10 5 0.1)
SW – Slightly Weathered	H – Hard	
MW – Moderately Weathered	MH – Moderately hard	
HW – Highly Weathered	MS – Moderately soft	Fractures/m of core (2 10 20 100 1000)
CW – Completely Weathered	S – Soft	
	VS – Very Soft	

DRILLER: Websters
STARTED: 23/04/12
FINISHED: 23/04/12
DRILL:

EXPLANATION: Defects measured normal to core axis

* Rock Strength
R1 – Very Weak, R3 – Moderately Strong
R2 – Weak R4 – Strong
R5 – Very Strong.

LOGGED: JXNW
DATE: 09/05/2012
TRACED:
CHECKED: MRD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870982-1000
HOLE NO: DH5
LENGTH: 5.55m
CORE BOXES: 2

SHEET 1 OF 1 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH6

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH6013m (Site 11)

GRID REF. 811442 mN 410587 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION H.A.D. GROUND RL 40m H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW MW HW	ROCK Strength R4 R3 R2 R1	SPT (N)	CORE LOSS /LIFT % 50 90	DEPTH H.A.D. m Core Ø size, casing 4.3m Ø	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50 10 5 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS. SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH	R.Q.D. %	WATER LEVEL Date	DRILL WATER LOSS % 0–100	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s 0.01 0.1 1 10 100 1000
DRILLERS RECORD – Pavement Layers	N/A	N/A			0.25		N/A	MADE GROUND					
DRILLERS RECORD – SILTY SANDY – CLAY, brown, 'soft'				N/A	0.5		N/A			N/A			
RECENT COLLUVIUM / LANDSLIP DEBRIS Stiff.		2,1,1,1,2 N=5		N/A 130/450	0.75 1.0		N/A	CLAYEY-SILT, low plasticity orange-brown-dark brown with much fine-med gravel & some clay & sand.		N/A	24/04/12 12:00hrs ▼0.63m		
NOT CORED					1.5			NOT CORED.					
COLLUVIUM / OLD LANDSLIP DEBRIS. VSt – HARD	N/A	N/A	2,4,4,3,4 N=15	150/450	2.0		N/A	ML-CIM, GRAVELLY-SILT, low plasticity red-yellow brown, moist with much fine-med ang gravel, some clay & angular silt.		N/A	24/04/12 ▼2.86m		
NOT CORED					2.5			NOT CORED					
RESIDUAL SOIL:- GRAVELLY-SILT, hint of rock fabric NOT CORED			19, 8, 4/55 N > 50	220 220	3.0 3.5		N/A	ML-CIM, GRAVELLY-SILT, low plasticity, with much fine-med HW, ang gravel & fine clay. NOT CORED		N/A	24/04/12 pm. ▼3.01m		
SILTSTONE, yellow-brown, very poorly indurated, E-weak to V weak, (indents with finger & easily peeled with pocket knife), HW-CW with closely spaced, steeply dipping, clay filled defects. – strength & weathering increase @ 4.45m, VWk, R1 – colour change to grey-brn MARTINBANK FORMATION. SILTSTONE, dark grey & orange-brown, poorly indurated, VWeak, HW, closely spaced steeply dipping defects, wet. Becomes HW-MW, R2, light yellow brown & grey. SANDSTONE (peels with difficulty). CLAY coring 100mm Th. SANDSTONE, medium grained, grey-brown, black Mg staining MW, R3, steeply dipping, closely spaced defects.			3, 2, 6, 10/55 N > 50	400 / 400 1500 / 1500	4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5		N/A	SPT disturbed top 0.25m. J~30°, SW, O, CC (5-10mm) CLAYEY-SILT, low plasticity yellow brown, with much HW-MW, angular, fine coarse gravel. (to 4-6m). wet, Hard. (ML-CIL) J~38°&80°, ST, T-O, CC, (Silty low plasticity) J~26°-30°, SW, T, O, CC " J~20°, SW, DR, VT, CV (presence of gravelly silt) J~20°, SW-SC, T, CV J~24°, SW, PL, T, CV. J~84°, SW, DR, T, CV J~40°, PL, SC, T-O, CV (2mm) J~26°, SC-PL, VT, CV. J~38°, PL, O, CC. -Clay Gouge, HP, wet, brn. J~34°, PL, O, CC. J~38°, SW-DR, O, CV J~54°, SC, DR, T, CC (2mm HP) J~60°, SW, DR, T, CV		N/A	24/04/12 2000/4500. 1500/1500. 1160/1500		END Box 1

DRILLER: Nebsters
STARTED: 24/04/2012
FINISHED: 24/04/2012
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS *
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures: 100 50 20 10 5 1 cm
Fractures/m of core: 1 2 10 20 100 1000

EXPLANATION: * ROCK STRENGTH
R1 – Very Weak
R2 – Weak
R3 – Moderately Strong
R4 – Strong
R5 – Very Strong

LOGGED: JXW
DATE: 25/06/12
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 670962-1000
HOLE NO: DH6
LENGTH: 8.3m
CORE BOXES: 2

SHEET 1 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH 6.

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 6013m (Site 11)

GRID REF. 811442 mN 410587 mE CO-ORD. NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION N/A H.A.D. GROUND RL 40m H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW MW HW	ROCK Strength Qu R3 R2 R1	POINT LOAD TEST (MPa)	CORE LOSS /UFT %	DEPTH H.A.D. Core size. casing m	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50 10 5 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS. SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH	R.Q.D. %	WATER LEVEL	DRILL WATER LOSS %	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s
See previous sheet.				5 10 50	8.0			J ~ 38°, SW-R, CV. Pass Drill induced. J ~ 18°, SW, DF, O, Ca (1-2mm)	24/04/12 8.3m.	LQD/SCD (Easy Sweet)	Dcls	0–100	0.01 0.1 1 10 100 1000
E.O.H 8.3m.					8.5 9.0			E.O.H 8.3m.					

DRILLER: Nebsters
STARTED: 24/04/2012
FINISHED: 24/04/2012
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS *
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures ..... Fractures/m of core
100 50 10 5 1 0.1
1 2 10 20 100 1000

EXPLANATION: * See Sheet 1.

LOGGED: JXWWN
DATE: 08/06/12
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 670982-1000
HOLE NO: DH6
LENGTH: 8.3m
CORE BOXES: 2

SHEET 2 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH7

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 5956m (Site 10)

GRID REF. 811390 mN 410597 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION N/A H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW MW HW	ROCK Strength	CORE LOSS /LIFT %	DEPTH H.A.D. m Core size. casing	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS, SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...
Drillers Record: Tarseal & sub-base.	N/A	N/A	N/A	0.25		N/A	MADE GROUND
Drillers Record: SILTY SANDY CLAY, brown, firm, with rounded & sub-angular gravel.	N/A	N/A	N/A	0.5 0.75		N/A	NOT CORED.
COLLUVIUM, SILTY-GRAVEL, orange-brown loose, HW-MW, angular, fine to medium with much silt & fine sand.	N/A	N/A	12,4,3,3,6 N=17	1.0		N/A	NOT RECOVERED
NOT CORED	N/A	N/A	90/450	1.5		N/A	GM, fine, angular, NOT RECOVERED
COLLUVIUM, CLAYEY-SILT, low plasticity, orange-brown with much angular fine gravel	N/A	N/A	4,2,3,3,2 N=10	2.0		N/A	NOT RECOVERED
NOT CORED	N/A	N/A	120/450	2.5		N/A	ML, Poorly consolidated. NOT CORED
POSSIBLE, RESIDUAL SOIL As above better consolidated	N/A	N/A	7,5,5,6,9 N=23	3.0		N/A	NOT RECOVERED
NOT CORED	N/A	N/A	120/450	3.5		N/A	ML. NOT CORED
NOT RECOVERED PROBABLE ROCK HEAD recovered as fine gravel	N/A	N/A	12,40	4.0		N/A	NOT RECOVERED Top 0-14 Not Disturbed GM
NOT RECOVERED	N/A	N/A	90/300	4.5		N/A	NOT RECOVERED
SILTSTONE, orange-brown. HW, E-WK, R0 (Rock with pocket knife) with V-closely spaced, gently to steeply dipping defects.			200/600				DRILL DISTURBANCE. J-10°, SM, SM, O, CV J-30°, SM, SM, O, CV J-10°, SM, DR, O, CV.
Becomes harder to peel R1, slight improvement in weathering grade, becomes fine SANDSTONE, easily rippable. - MW, R3-R2, (1 firm blow)			150/1500	5.0 5.5			J-40°, SC, DR, T, CV J-10°, SM, DR, T, Silk, MS J-40°, SC, DR, T, CN
MARLBANK FORMATION. MW, R2-R3 (scratches with pick breaks with 1 firm blow) SILTSTONE, MW, R3. increasing competence with depth.			1500/1500	6.0 6.5			J-10°, SC, DR, T. -Will excavate as firm with trace clay. J, 20, SC, DR, T-VT, CV
FINE SANDSTONE.				7.0 7.5			J-60°, SC, DR, O, CV, MS J-20°, SC, DR, T, CV

WATER LEVEL	DRILL WATER LOSS %	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s
DATE/DEPTH R.O.D. %	0–100	0.01 0.1 1 10 100 1000
N/A		
N/A		
N/A		
N/A		
0/600		
12.00 / 24/04		
07:30 / 30/04		
24/04 2:43pm.		
950/1500		
1350/1500		

TESTED 2 of 2

END Box 1

DRILLER: NEBSTERS
STARTED: 29/04/2012
FINISHED: 30/04/2012
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS *
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures: 100 50 20 10 5 0.1
Fractures/m of core: 0 10 20 100 1000

EXPLANATION: DEFECTS ORIENTATION RECORDED RELATIVE TO CORE AXIS
* Rock Strength R1 - Very Weak, R2 - Weak, R3 - Moderately Strong, R4 - Strong, R5 - Very Strong.

LOGGED: JXWW
DATE: 30/06/12
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 670982-1000
HOLE NO: DH7
LENGTH: 8.8m
CORE BOXES: 2

SHEET 1 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH 7

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 5956m (site 10)

GRID REF. 811390mN. 410597mE. CO-ORD. NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION N/A H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW MW HW	ROCK STRENGTH R4 R3 R2 R1	SPT (N)	CORE LOSS /LIFT %	DEPTH H.A.D. Core size, casing m	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS, SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH	WATER LEVEL R.O.D. %	DRILL WATER LOSS %	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s
SANDSTONE, fine grained, brown, dark grey, black dry shatter, MW, R3 (breaks + finer manner below)				See Sheet 1 100% / 100%	8.0 8.5 9.0			Run break. Split core. J~23°, SC-DR, T, CV J~30°, SC-DR, T-O, CV (1mm) J~70, SM, SM, T, CV.	30/04/2012 – 8.8m 9.10 / 100%	See Sheet 1	Dole	0–100	0.01 0.1 1 10 100 1000 TEST GP 2 of
8.8m								8.8m				

DRILLER: Nebsters STARTED: 29/04/2012 FINISHED: 30/04/2012 DRILL:	ROCK WEATHERING UW – Unweathered SW – Slightly Weathered MW – Moderately Weathered HW – Highly Weathered CW – Completely Weathered	ROCK HARDNESS VH – Very hard H – Hard MH – Moderately hard MS – Moderately soft S – Soft VS – Very Soft	FRACTURE LOG Spacing of Natural Fractures Fractures/m of core	LOGGED: JKWW DATE: 29/04/12 TRACED: CHECKED: JWPD ORIGINAL VERTICAL SCALE: 1:25 @ A3	PROJECT: 5709982-1000 HOLE NO: DH 7 LENGTH: 8.8m CORE BOXES: 2

EXPLANATION: * See Sheet 1

SHEET 2 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH 8.

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 5835m (site 7)

GRID REF. 811.275 mN 410.574 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW MW HW	ROCK Strength R4 R3 R2 R1	SPT N	CORE LOSS /UFT % 5 20 50	DEPTH H.A.D. Core Dia. casing 2.7m. m	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50 10 5 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS. SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH R.O.D. %	WATER LEVEL Date	DRILL WATER LOSS % 0–100	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s 0.01 0.1 1 10 100 1000
DRILLERS LOG: SILTY SANDY-CLAY, with gravel, cobbles & boulders	N/A	N/A	N/A		0.25 0.5 0.75		N/A	GM – CL	N/A	12:00hrs 25/04/12 R 1.36m		
COLLUVIUM / DEBRIS, firm, moist Origin – local HW-CW sandstone,	N/A	N/A	2,1,1,2,1 N=5	70/450	1.0		N/A	CLAYEY-SILT, low plasticity, orange-brown speckled dark brown, with much fine, sub-angular, sub-rounded gravel, some sand & clay				
NOT CORED			N/A		1.5			NOT CORED	N/A			
COLLUVIUM Stiff, wet	N/A	N/A	3,2,1,2,3 N=8	160/450	2.0		N/A	AS ABOVE, gravel becomes coarser, less plastic, woody debris (ML-GM)	N/A	29/04 R 2.38m		
NOT CORED			N/A		2.5			NOT CORED	N/A			
COLLUVIUM, – firm, moist, more angular gravel; indents easily with finger	N/A	N/A	2,1,1,1,1 N=5	160/450	3.0		N/A	CLAYEY-SILT, low-high plasticity, orange-brown, some fine, HW-MW angular gravel, poorly consolidated, much sand	N/A			
NOT CORED			N/A		3.5			NOT CORED	N/A			
COLLUVIUM / RESIDUAL SOIL TRANSITION ZONE Wet, Stiff			5,3,3,3,2 N=11	160/450	4.0		N/A	AS ABOVE, more gravel, non-plastic. only trace clay. (SM-GM)	N/A			
NOT CORED			N/A		4.5			NOT CORED	N/A			
RESIDUAL SOIL, NO ROCK FABRIC, increased gravel size & content.	N/A	N/A	9,9,15,4,6 N=24	250/450	5.0		N/A	GRAVELLY-SILT, non plastic orange-brown, wet, Hard, with many fine-coarse angular gravel, much sand (ML-GM) trace clay.	N/A			
NOT CORED LOST CORE					5.5			NOT CORED LOST CORE				
Recovered as a shattered sandstone cobble, grey, mm with yellow limonite staining on inside broken face. LOST CORE	N/A	N/A	11,5,6,6 N=23	100/350	6.0			SPT DISTURBED. LOST CORE	0%			
RESIDUAL SOIL, CLAYEY-SILT with gravel, sandstone, partly indent with fingers				350/1100	6.5		N/A	CLAYEY-SILT, LP, orange-brown, with some sand & much fine-coarse, angular-subangular gravel, wet, occ cobbles, soft (ML-GM)				
LOST CORE					7.0			LOST CORE				
RESIDUAL SOIL, (from only trace weak fabric) SANDSTONE, HW, orange-brown, R, (poorly with pocket kaolin)				See Page	7.5		N/A	SANDY-SILT, NP, dark brown-grey & orange brown, Hard, with trace clay, some woody plant debris & much HW-MW medium-coarse gravel		See Sheet 2		

NOT TESTED

ROCK WEATHERING	ROCK HARDNESS *	FRACTURE LOG
UW – Unweathered	VH – Very hard	Spacing of Natural Fractures: 100 50 10 5 1
SW – Slightly Weathered	H – Hard	Fractures/m of core: 1 10 20 100 1000
MW – Moderately Weathered	MH – Moderately hard	
HW – Highly Weathered	MS – Moderately soft	
CW – Completely Weathered	S – Soft	
	VS – Very Soft	

EXPLANATION: * ROCK STRENGTH
R_1 – Very Weak, R_2 – Weak, R_3 – Moderately Strong, R_4 – Strong, R_5 – Very Strong

DRILLER: NEBSTERS
STARTED: 25/04/2012
FINISHED: 26/04/2012
DRILL:

LOGGED: JXWW
DATE: 11/06/12
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870982-1000
HOLE NO: DH8
LENGTH: 9.8m
CORE BOXES: 3

SHEET 1 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH 8

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 5835 m (site 7)

GRID REF. 811.275 mN 410.574 mE CO-ORD. DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW MW HW	ROCK Strength R4 R3 R2 R1	POINT LOAD TEST (MPa)	CORE LOSS /LIFT % 5 10 50	DEPTH H.A.D. Core size. casing m	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50 10 5 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS. SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH	WATER LEVEL R.O.D. % Date	DRILL WATER LOSS % 0–100	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s 0.01 0.1 1 10 100 1000
SANDSTONE, HW, yellow-brown & green-brown, Medium grained V weak (R1) (peels with a pocket knife) with very closely spaced steeply dipping defects. MARTINBANK FORMATION Above becomes more compacted 7.75m depth HW, R2 scratches with point of hammer. – HW-MW, R2-R3, sections of V closely spaced steeply dipping defect sets. Some 70° joint sets are partially annealed R3, MW				1300/1500	8.0 8.5 9.0 9.5			J~40°, PL, SM, T, silt/CV. J~34°, SW-SC, O, CV J~62°, SW, DF, T, CV SPLIT CORE J~32°, SC, DR, T, CV. J~70-73°, SC, SM, T-O, CV(1mm) (some partially annealed) J~30°, SC-SM, T, silt/H_2O J~70-73°, SC-SM, VT, CV J, 22°, SW, DF, O, MS. Probable drill shatter.	580/1500 700/1500 26/04/12 10m 100%			NOT TESTED
E.O.H 10.0 m								E.O.H 10.0 m.				

DRILLER: Websters
STARTED: 25/04/12
FINISHED: 26/04/12
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS *
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures ..... Fractures/m of core
100 50 10 5 1 0.1
1 2 10 20 100 1000

EXPLANATION: * See Sheet 1.

LOGGED: JxwW
DATE: 11/06/12
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 670982-1000
HOLE NO: DH8
LENGTH: 9.58m
CORE BOXES: 3

SHEET 2 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH9

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 5741m (site 5)

GRID REF. 811.184 mN 410.555 mE CO-ORD. NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION N/A H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW MW HW	ROCK Strength R4 R3 R2 R1	CORE LOSS /LIFT %	DEPTH H.A.D. Core size. casing 2-9m. m	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50 10 5 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS, SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH	R.Q.D. %	WATER LEVEL Date	DRILL WATER LOSS % 0–100	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s 0.01 0.1 1 10 100 1000
DRILLERS LOG: Tar seal & road sub-base	N/A	N/A	N/A	0.25		N/A	MADE GROUND. (NOT LOGGED)				
DRILLERS LOG. SILTY SANDY-CLAY, brown with rounded & sub-angular gravel, firm to Hard.	N/A	N/A	N/A	0.5 0.75		N/A	NOT LOGGED.	N/A			
SANDSTONE/RESIDUAL SOIL CW, Remnant fabric Recovered as clayey GRAVEL with silt & sand, fine, angular		5/6/6/14 N=32	200/440	1.0		N/A	GM-GC, moist-wet, Hard				
NOT CORED				1.5			NOT CORED	N/A			
HW-CW SANDSTONE, orange-brown, R0-R1 recovered as silty GRAVEL with clay, angular, fine		11/15 N=47	50/50	2.0		N/A	GC-GM. very dense.	N/A			
NOT CORED				2.5			NOT CORED	N/A			
HW SANDSTONE, recovered as SANDY GRAVEL R0-R1		20/50 N=750	50/50	3.0		N/A	CIP. NOT CORED				
LOST CORE			130/330				LOST CORE		0%		
SANDSTONE, light brown & grey-black, HW, indurated, R2-R3, medium grained, slightly metamorphosed, with v closely spaced, steeply dipping defects, moist-wet becomes MW @ 4.4m, R3 MARMBANK FORMATION. less penetrative weathering on joint surface. Penetrative weathering Defects Closely Spaced, R2 rock. MW-SW.			1500/1500	3.5 4.0 4.5			J~72°, SC-PL, VT, SLH J~72°, SC-PL, VT, CV J~20°, SC, PL, VT, CV. J~60°, SC-DRT, CV J~40°, SC, DR, T, CV. J~20°, SW, DR, T, CV J~40°, SW, SM, T, CV J~50°, SW, DR, T-O, CN.				
			750/750	5.0			J~40°, SW, SM, O, CV J~70°, PL, SM, VT, CV Drill break. J~70°, SW-SM, T-O, CV J~50°, SW, R, O, Clay-2mm. J~20° SW-SC, T, CV J~40°, ST, DF, O-FCV J~40°, SC, SM, T, CV	300/750		12:00hrs 26/04/12	1.95m	
			400/400	5.5 6.0			J~20°, SC, R, T, CN (Probable drill break)	1300/1500		17:00hrs 26/04/12	2.16m
G.O.H 6.35m				6.5			G.O.H 6.35m.	26/04/12 6.35m. 100%			END Box 1

ROCK WEATHERING	ROCK HARDNESS *	FRACTURE LOG
UW – Unweathered	VH – Very hard	Spacing of Natural Fractures: 100 50 10 5 1 0.1
SW – Slightly Weathered	H – Hard	Fractures/m of core: 2 10 20 100 1000
MW – Moderately Weathered	MH – Moderately hard	
HW – Highly Weathered	MS – Moderately soft	
CW – Completely Weathered	S – Soft	
	VS – Very Soft	

EXPLANATION: * Rock Strength
R1 – Very weak, R4 – Strong
R2 – Weak, R5 – Very Strong.
R3 – Moderately Strong

DRILLER: NEBSTERS
STARTED: 26/04/12
FINISHED: 26/04/12
DRILL:

LOGGED: JXWW
DATE: 22/05/2012
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870982-1000
HOLE NO: DH9
LENGTH: 6.35m
CORE BOXES: 2

SHEET 1 OF 1 DRG NO

TONKIN & TAYLOR LTD — CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH 10

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 5714m (site 5)

GRID REF. 811.168 mN 410.546 mE CO-ORD NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION N/A H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE (WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.)	ROCK WEATHERING SW MW HW	ROCK Strength R4 R3 R2 R1	SPT (N*)	CORE LOSS /UFT % 5 10 50	DEPTH H.A.D. Core size, casing m	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50 10 5 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS. SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH	R.Q.D. %	WATER LEVEL Date	DRILL WATER LOSS % 0–100	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s 0.01 0.1 1 10 100 1000
DRILLERS LOG: Tar seal & Road sub-base	N/A	N/A	N/A	N/A	0.25		N/A	MADE GROUND		N/A			
SILTY SANDY-CLAY, with rounded to sub-angular gravels. (Fill)	N/A	N/A	N/A	N/A	0.5		N/A	CH-ML					
					0.75			NOT CORED					
NOT RECOVERED					1.0			NOT RECOVERED		N/A	12:00hrs 28/04/12 @ 1.03m		
CW SANDSTONE, recovered as SANDY GRAVEL, brown, angular, fine-medium, dense			50/0.05 25<2	110				GP, moist.					
NOT CORED								NOT CORED					
LOST CORE					1.5			LOST CORE					
SANDSTONE, brown & grey mottled orange brown, well indurated, SW-MW, R4, metasedimentary. Very close to closely spaced moderately to steeply (unmeasured) dipping defects.			N/A	259 / 800				J~80°, SC, DR, C, qz annealed J~18°, SC-SM, T, Fe, Silt J~20°, SC, SM, T, Fe J~20°, SC-SM, T, Fe J~75-80°, SC, (DR), C, qz annealed		180/800	16:32hrs 27/04/12 @ 1.15m		
2.1m – becomes SW, light grey & brown with qz annealed steeply dipping defects.				450 / 450	2.0			J~70°, SC-RL, T, qz, CV J~40°, SC, DF, O, CV, Fe J~40° W, DR, O, light Fe		350/450	200/450	29/04/12 @ 3.05m	
MARYBANK FORMATION					2.5								
NOT RECOVERED					3.0			NOT RECOVERED					
SW - Fresh, some penchative Fe staining blue-grey. R4. <1mm weathered clay, LP, wet.			N/A	820 / 1050	3.5			J~75°, SC, DF, VT, Fe St J~2°, PL-SM, T, CV		750/1050			
NOT RECOVERED					4.0			NOT RECOVERED					
SANDSTONE, blue-grey, well indurated SW, R4 with closely to moderately widely spaced steeply dipping defects.				820 / 900	4.5			J~75°, SC-SM, VT, Fe J~10°, SC, DR, T, Fe J~57°, W, ST, O, Fe St J~42°, SC, DF, T, Fe St		250/800	24/04/12 @ 4.8m		
E.O.H 4.8m					5.0			E.O.H 4.8m.					
					5.5								
					6.0								
					6.5								
					7.0								

DRILLER: Webster's
STARTED: 27/04/12
FINISHED: 28/04/12
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS *
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures: 100 50 10 5 1 0.1
Fractures/m of core: 2 10 20 100 1000

EXPLANATION: Defects measures normal to core axis
* Rock Strength.
R_1 – Very weak, R_3 – Moderately Strong
R_2 – Weak R_4 – Strong
R_5 – Very Strong.

LOGGED: JXWW
DATE: 23/05/12
TRACED:
CHECKED: INPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870982-1000
HOLE NO: DH.10
LENGTH: 4.8m
CORE BOXES: 2

SHEET 1 OF 1 DRG NO

TONKIN & TAYLOR LTD — CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH 11

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 5783m (Subseq 6)

GRID REF. 811.224 mN. 410576 mE. CO-ORD. NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION N/A H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW MW HW	ROCK Strength R4 R3 R2 R1	SPT (N)	CORE LOSS /UFT % 5 10 50	DEPTH H.A.D. Core size. HQ casing 3m m	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50 10 5 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS. SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH	R.Q.D. %	WATER LEVEL Date	DRILL WATER LOSS % 0–100	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s 0.01 0.1 1 10 100 1000
DRILLERS LOG: Tar Seal & Road sub-base	N/A	N/A	X	N/A	0.25	X	N/A	MADE GROUND					
DRILLERS LOG: SILTY-SANDY CLAY, brown with rounded & sub-angular gravel – FIRM.	N/A	N/A		N/A	0.5 0.75		N/A	NOT CORED.		N/A	12:00hrs 28/04/12 @1.03m		
NOT RECOVERED COLLUVIUM / DEBRIS SILTY-CLAY	N/A	N/A	2,2,3,2,2 N=9	50/450	1.0		N/A	NOT RECOVERED SILTY-CLAY, orange-brown low plasticity with some sand & occ SA fine-coarse.		N/A			
NOT CORED					1.5			NOT CORED					
NOT RECOVERED			1,1,1,3,2 N=7	140/450	2.0			NOT RECOVERED.		N/A			
As ABOVE	N/A	N/A				X	N/A	As ABOVE.					
NOT CORED					2.5			NOT CORED		N/A			
NOT RECOVERED RESIDUAL SOIL. SANDY SILT, stiff.	N/A	N/A	4,3,3,5,5 N=18	150/450	3.0			NOT RECOVERED.		N/A			
NOT CORED					3.5		N/A	SANDY-SILT, non plastic orange-brown, with gravel & trace clay, well consolidated NOT CORED.		N/A			
DRILL FRACTURED SANDSTONE HW.				150/450	4.0			UPPER 50mm SPT LOST CORE		0			
SANDSTONE, yellow-brown & cream, HW, moderately well indurated, friable, R1-R2 (Scratched with pick) weak-VWeak, moist, Drilling disturbed some steeply dipping defects.			N=50/150mm	750/850	4.5			Drill Breaks J-62°, SC-DF, VT, CV J-32°, SW-DF, T, CV. J-20°, SW, DR, VT, CN. (Poss Drill break)		470/850	Hole Collapse to 1.65m @ 03/05/12		
LOST CORE					5.0			LOST CORE					
SANDSTONE, dark grey (orange-brown weathering rind) fine, MW, moderately strong R3-R4 with very closely to closely spaced moderately to steeply inclined defects. MARLBANK FORMATION Becomes orange brown & more coarse grained. MW, R3 (Breaks with 1.5kg hammer) blow.				2425/3050	6.0 6.5 7.0 7.5			J-50°, SW, DR, T, CV J-20°, SW-DR, O, CV J-50°, SR, DR, O, CV J-50°, SW, T-O, CV J-50°, SC, C, (Drill break?) J-50°, SC-DF, T, CN. Drill break. J-60°, SC, PL, O, CG J-75°, SW, DR, O, MG (silt),		2200/3050			

NOT TESTED

DRILLER: Websters
STARTED: 26/04/12
FINISHED: 29/04/12
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures: 100 50 10 5 1 0.1
Fractures/m of core: 1 2 10 20 100 1000

EXPLANATION: Rock Strength.
R_1 – Very Weak
R_2 – Weak
R_3 – Moderately Strong
R_4 – Strong
R_5 – Very Strong.

LOGGED: JXWW
DATE: 13-06-2012
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 5709982-1000
HOLE NO: DH 11
LENGTH: 8m
CORE BOXES: 2

SHEET 1 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH 11

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 5783m

GRID REF. B11 224 mN ... 410 576 mE CO-ORD. NZTM DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION N/A H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.	ROCK WEATHERING SW HW MW	ROCK Strength S4 S3 S2 S1	POINT LOAD TEST (MPa)	CORE LOSS /UFT % 5 10 50	DEPTH H.A.D. Core size. casing m	GRAPHIC LOG	FRACTURE LOG (Spacing of natural fractures) 50 10 5 1 cm	ROCK DEFECTS PROMINENT JOINTS, BEDDING, SEAMS VEINS. SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness (OR SOIL DESCRIPTION) consistency, compactness, water content, group symbol etc...	DATE/DEPTH R.O.D. %	WATER LEVEL Date	DRILL WATER LOSS % 0–100	WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s 0.01 0.1 1 10 100 1000
See Previous sheet				See Previous	8.0			See Previous sheet	24/04/12			Data Traced
E.O.H 8.0m					8.5			E.O.H 8.0m.				

DRILLER: Websters
STARTED: 24/04/12
FINISHED: 29/04/12
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures
Fractures/m of core
100 50 10 5 1 0.1
1 2 10 20 100 1000

EXPLANATION: See Sheet 1.

NOTE: Hole collapsed to 1.05m depth prior to grouting

LOGGED: JXWW
DATE: 13-06-2012
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 670982-1000
HOLE NO: DH 11
LENGTH: 8.0m
CORE BOXES: 2

SHEET 2 OF 2 DRG NO

TONKIN & TAYLOR LTD
CONSULTING ENGINEERS

DRILL HOLE LOG

HOLE No. DH 12

PROJECT Cable Bay Road Remediation FEATURE Cable Bay Road LOCATION CH 6639 m (Sht 22)

GRID REF. 811 843 mN 410 189 mE CO-ORD. DATUM

ANGLE FROM HORIZONTAL 90° DIRECTION H.A.D. GROUND H.A.D. COLLAR

DESCRIPTION OF CORE
WEATHERING, HARDNESS, STRENGTH, COLOUR. ROCK OR SOIL TYPE, DEFECT SPACING, LITHOLOGICAL FEATURES (bedding, foliation, mineralogy, texture, cement, etc...); STRATIGRAPHIC NAME.

ROCK WEATHERING: SW MW HW

ROCK Strength: R4 R3 R2 R1

SPT (N)

CORE LOSS /UFT %: 50 90 50

DEPTH H.A.D. m — Core size: HQ casing 2.6m

GRAPHIC LOG

FRACTURE LOG (Spacing of natural fractures): 50 10 5 1 cm

ROCK DEFECTS
PROMINENT JOINTS, BEDDING, SEAMS VEINS. SHATTER, SHEAR & CRUSH ZONES, FOLIATION SCHISTOSITY attitude, width, spacing, smoothness
(OR SOIL DESCRIPTION)
consistency, compactness, water content, group symbol etc...

DATE/DEPTH

WATER LEVEL: R.O.D. %; Date

DRILL WATER LOSS %: 0–100

WATER PRESSURE TESTS – Lugeons or PERMEABILITY – 10^{-7} m/s: 0.01 0.1 1 10 100 1000

DRILLERS RECORD

SILTY SANDY-CLAY, with rounded & sub-angular gravel

0–0.25 m — N/A — N/A — 0.25 D, 0, 4 — N/A — ('SOFT')

CLAYEY-SILT, low plasticity with much SA-angular gravel & clay, some sand, locally derived. (Colluvium / Residual)?

0.25–1.0 m — N/A — N/A — 2, 2, 2, 2, 1 N = 9 — 0.25 D, 0, 4 — N/A — ML-CL- Firm.

NOT CORED

1.0–1.5 m — 1.0 D, 0, 4 — N/A — NOT CORED.

RESIDUAL SOIL - CLAYEY-SILT, low plasticity, sensitive with much subangular-angular, HW fine gravel & clay, some sand. Remnant rock fabric

1.5–2.0 m — 2, 1, 2, 2, 3 N = 10 — N/A — CL-ML - wet, Firm to Stiff.

NOT CORED

2.0–2.5 m — N/A — NOT CORED.

HQ CORE FROM 3m depth.
SANDSTONE, Yellow-brown mottled, wavy, speckled dark brown; HW-CW, Ro remnant rock fabric, V. dense.

R1 - poorly indurated, peels with a pocket knife. indents easily with fingers.
(soil strength material & unlikely to stand long term in cut face

Becoming more competent, harder to peel.

MARTINBANK FORMATION.

Steeply dipping Micro Fractures will excavate as a SANDY GRAVEL with clay & silt. Deep weathering & strength loss, can be indented with fingers & peeled with a pocket knife.

2.5–3.0 m — 16, 15, 12, 9/50 N > 50 — 1500/100 — 1500/100 — CORE DISTURBED BY SPT. Gravelly Sand, NP, well consolidated, with fine-med angular gravel with much silt & trace clay.
J-20°, SC, PL, T, C (2-3mm)

3.0–3.5 m — J-45°, SC, DR, T-O, CV

3.5–4.0 m — J-40°, SC, DR, T, CC (2mm).

4.0–4.5 m — J-30°, SC, (DR-SM), T, CV

4.5–5.0 m — J-60°, SC, PL, T, CV.

Drill break.

5.0–5.5 m — J-50°, SW, SM, T-UT, CV
J-70°, SW-DF, T-O, CV

5.5–6.0 m — J-60°, PL-SM, T, CV.

6.0–6.5 m — J-70°, SL, C

J-40°, SW, R, C, CV
J-20°, SW, R, C, CV } DI.
J-25°, SW, DR, T, CV.

6.5–7.0 m — E.O.H 6.6m.

E.O.H 6.6m

WATER LEVEL: N/A. | 12:00 PM 31/04/12 ▲ 0.85m | N/A. | 08/05/2012 ▲ 2.01m | N/A | N/A | 220/400 | 1250/1500 | 6.6m 9/12/05/2012.

DRILL WATER LOSS %: 0–100 — NOT TESTED

WATER PRESSURE TESTS: NOT MEASURED

END BOX 1

DRILLER: NEBSTERS
STARTED: 02/05/2012
FINISHED: 02/05/2012
DRILL:

ROCK WEATHERING
UW – Unweathered
SW – Slightly Weathered
MW – Moderately Weathered
HW – Highly Weathered
CW – Completely Weathered

ROCK HARDNESS *
VH – Very hard
H – Hard
MH – Moderately hard
MS – Moderately soft
S – Soft
VS – Very Soft

FRACTURE LOG
Spacing of Natural Fractures ..... Fractures/m of core
100 50 20 10 5 – 0.1
– N 10 20 100 1000

LOGGED: JXWW
DATE: 16/05/2012
TRACED:
CHECKED: MPD
ORIGINAL VERTICAL SCALE: 1:25 @ A3

PROJECT: 870982-1000
HOLE NO: DH 12
LENGTH: 6.6m
CORE BOXES: 2

SHEET 1 OF 1 | DRG NO

EXPLANATION: Defects measured normal to core axis
* ROCK STRENGTH:
R1 – Very weak
R2 – Weak
R3 – Moderately Strong
R4 – Strong
R5 – Very Strong.

TONKIN & TAYLOR LTD.

SOIL LOG

BOREHOLE NO: AH 1
SHEET 1 OF 2

PROJECT: Cable Bay Rd LOCATION: Site 1A JOB NO: 870982.1000

CO-ORDINATES: Top of hole 2.5m out from edge of seal and 1.9m below seal level

DRILL TYPE: Machine Auger

DRILL METHOD: 8 tonne excavator with 450mm dia rock auger

HOLE STARTED: 7/06/12

HOLE FINISHED: 7/06/12

DRILLED BY: Adcock & Donaldson

DATUM: refer DwG 870982.1001 A-01

DRILL FLUID:

LOGGED BY: DJA CHECKED BY: MPD

DRILLING AND TESTS:					ENGINEERING DESCRIPTION:						GEOLOGICAL:	
FLUID LOSS	WATER	SAMPLING METHOD	METHOD/CASING	SAMPLES, TESTS (machine operators comments)	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
				Easy Augering	0.5m			SILT, LP, light brown	M			Colluvium	
			450mm dia rock auger	Easy Augering	1.0m			Fragments of HW rock, angular, up to cobble size in light brown LP silt	D			CW rock (V. weak - weak)	
					1.5m			ratio of rock fragments to silt decreasing					
					2.0m								
					2.5m			Large increase in proportion of rock fragments, some coarse silt/fine sand material also	D			HW rock (Weak)	
					3.0m								
					3.5m								
					4.0m								
					4.5m			Water seeping in	W				
					5.0m								

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BOREHOLE NO: AH1
SHEET 2 OF 2

SOIL LOG

PROJECT: Cable Bay Rd
LOCATION: Site 1A
JOB NO: 870982.1000
CO-ORDINATES: Top of hole 2.5m out from edge of seal and 1.9m below seal
DRILL TYPE: Machine Auger
DRILL METHOD: 8tonne excavator with 450 mm dia. rock
HOLE STARTED: 7/06/12
HOLE FINISHED: 7/06/12
RL:
DATUM: refer Dwgs 870982.1001A-01
DRILL FLUID: auger
DRILLED BY: Adcock & Donaldson
LOGGED BY: DJA CHECKED BY: MPD

DRILLING AND TESTS:						ENGINEERING DESCRIPTION:					GEOLOGICAL:	
FLUID LOSS	WATER	SAMPLING METHOD	METHOD/CASING	SAMPLES, TESTS (machine operators comments)	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
				Easy Augering				Rock fragments slightly less weathered than above. Spoil is gritty (sandy) Free standing water	W		HW rock (weak – mod strong)	
								EOH 5.5m, end of reach, easy augering				

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SOIL LOG

BOREHOLE NO: AH2
SHEET 1 OF 1

PROJECT: Cable Bay Rd LOCATION: Site 6 JOB NO: 870982.1000
CO-ORDINATES: 1.6m out from edge of seal, 1.5m below seal level DRILL TYPE: Machine Auger HOLE STARTED: 7/06/12
RL: DRILL METHOD: 8 tonne excavator with 450mm dia. rock auger HOLE FINISHED: 7/06/12
DATUM: DRILL FLUID: DRILLED BY: Adcock & Donaldson
refer bwer 870982.1006-01 LOGGED BY: DJA CHECKED BY: MPD

DRILLING AND TESTS:						ENGINEERING DESCRIPTION:					GEOLOGICAL:	
FLUID LOSS	WATER	SAMPLING METHOD	METHOD/CASING	SAMPLES, TESTS (machine operators comments)	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
				Easy Augering				SILT, LP, light brown with rounded HW gravels	M		Colluvium / Sitecast fill	
				Medium Augering	0.5m			SILT, LP, light brown with minor CW-HW rock fragments	D		CW rock (V. weak)	
					1.0m							
					1.5m							
				Medium – Hard Augering	2.0m			CW rock fragments content increasing Spoil becomes gritty with many HW rock fragments	D		HW rock (Weak)	
					2.5m							
					3.0m			Occasional grinding	D			
					3.5m			Spoil becoming silty with CW rock fragments				
				Medium - Hard Augering	4.0m			EOH at 4.0m, unsafe to put next extension on due to over head power lines				

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SOIL LOG

BOREHOLE NO: 113

SHEET 1 OF 1

PROJECT: Cable Bay Rd — LOCATION: Site 11 (South end) — JOB NO: 870982.1000

CO-ORDINATES: Top of hole 1.3m out from edge of seal and 1.2m below seal level — DRILL TYPE: Machine Auger — HOLE STARTED: 7/6/12

RL: — DRILL METHOD: 8 tonne excavator with rock auger 450dia. — HOLE FINISHED: 7/6/12

DATUM: — DRILL FLUID: — DRILLED BY: Adcock – Donaldson

Refer DWG 870982.1011-01 — LOGGED BY: DJA — CHECKED BY: MPD

DRILLING AND TESTS: FLUID LOSS	WATER	SAMPLING METHOD	METHOD/CASING	SAMPLES, TESTS (machine operators comments)	RL (m)	DEPTH (m)	ENGINEERING DESCRIPTION: GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	GEOLOGICAL: ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
				Easy Augering		0.5			SILT, HP, brown with patches of dark brown topsoil.	M			Colluvium	
						1.0			SILT, LP, light brown	M			CW rock (V. weak)	
			450 mm dia rock auger			1.5			Occasional/rare HW rock fragment. Amount of fragments increasing				HW rock (weak)	
				Medium Augering		2.0			HW rock 40-50% fragments, 50-60% silt					
						2.5			HW rock 50-60% fragments, 40-50% silt					
				Medium-hard augering		3.0								
						3.5			Some grinding noises from auger					
						4.0				M				
						4.5			EOH 4.2m, too dangerous with overhead powerlines for next extension					

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SOIL LOG

BOREHOLE NO: AH 4
SHEET 1 OF 1

PROJECT: Cable Bay Rd
LOCATION: Site 11, 7m south of culvert
JOB NO: 870982.1000
CO-ORDINATES: 1.6m out from edge of seal, 1.0m below seal
DRILL TYPE: Machine Auger
HOLE STARTED: 7/6/12
RL: level
DRILL METHOD: 8tonne excavator with 450mm dia rock auger
HOLE FINISHED: 7/6/12
DATUM:
DRILL FLUID:
DRILLED BY: Adcock & Donaldson
refer Dwg 870982.1011-01
LOGGED BY: DJA CHECKED BY: MPD

DRILLING AND TESTS:					ENGINEERING DESCRIPTION:						GEOLOGICAL:	
FLUID LOSS	WATER	SAMPLING METHOD	METHOD/CASING	SAMPLES, TESTS (machine operators comments)	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR: RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
				Easy Augering	0.0m			SILT, HP, dark brown	M-W			Colluvium	
					0.5m			gravel fragments (colluvial)					
					1.0m								
					1.5m				M-W				
				Medium Augering	2.0m			CW-HW rock as light brown silt and rock fragments				CW rock (V. weak)	
				Hard Augering	2.5m			becomes gritty (sandy)				HW rock (weak	
					3.0m								
					3.5m			Some fragments becoming MW					
								Spoil becomming dark brown					
					4.0m								
				Hard Augering	4.5m				M				
								EOH 4.9m, end of reach					

Cable Bay Road Fibre Inspection

	Depth MM			
Hole No	**Fibre**	**Copper**	**Ground Material**	**Co-ordinates**
1	1100	800	Hard Clay	S 41° 10.583′ E 173° 25.426′
2	950	850	Hard Clay	S41° 10.532′ E173° 25.462′
3	1200	1000	Hard Clay/Rock	S41° 10.475′ E173° 25.486′
4	1100	900	Hard Clay/Rock	S41° 10.414′ E173° 25.506′
5	1200	1000	Rock/Clay	S41° 10.589′ E173° 25.512′
6	1150	1100	Clay	S41° 10.362′ E173° 25.517′
7	1050	950	Loose Clay	S41° 10.318′ E173° 25.528′
8	1150	850	Rock/Clay	S41° 10.278′ E173° 25.514′
9	1050	900	Rock	S41° 10.248′ E173° 25.490′
10	900	850	Soft Clay	S41° 10.231′ E173° 25.458′
11	1150	1000	Rock	S41° 10.224′ E173° 25.440′
12	1170	1050	Hard Clay	S41° 10.153′ E173° 25.410′
13	700	600	Rock	S41° 10.123′ E173° 25.349′
14	800	700	Rock	S41° 10.107′ E173° 25.320′
15	800	600	Hard Clay	S41° 10.051′ E173° 25.219′
16	1200	1050	Clay	S41° 10.043′ E173° 25.227′
17	1000	800	Clay/Rock	S41° 9.973′ E173° 25.076′
18	900	850	Clay	S41° 9.924′ E173° 24.952′
19	750	650	Rock	S41° 9.866′ E173° 24.912′
20	700	650	Rock/Clay	S41° 9.828′ E173° 24.798′
21	950	850	Rock/Clay	S41° 9.783′ E173° 24.786′

*NOTE: Fibre optic cable is laid in a 50mm green duct and alongside this is a 50mm drainage coil. Both are surrounded by drainage material.
The copper cable is a 50* cable.

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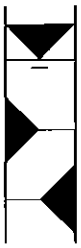
Engineering Log Terminology

GENERAL

Soil and rock descriptions follow the "Guidelines for the field classification and description of soil and rock for engineering purposes" by the New Zealand Geotechnical Society (2005). Refer to this document for methods of field determination.

Water



Core recovery

Expressed as percentage of the length of the core run recovered.

Drilling method/casing

Shows drilling method and depth of casing.

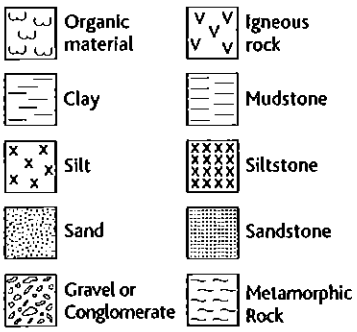
Common types:

OB	Open barrel
W	Wash
HQ3	HQ triple tube
PQ3	PQ triple tube coring
HSA	Hollow Stem Auger
WS	Window Sampler

Graphic logs

The graphic log shows soil and rock types. The defect log indicates the location, orientation and abundance of defects of all types.

Typical material symbols:



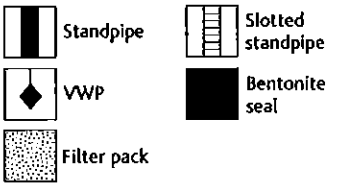
Tests

- N=22:SPT uncorrected blow count for 300 mm
- 75/12:Undrained shear strength (peak /residual as measured by field vane.

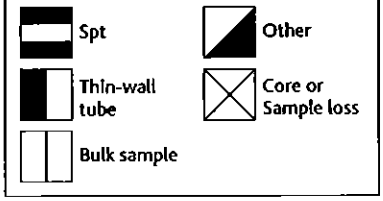
Laboratory test(s) carried out:

PMT	Pressuremeter test
LT	Lugeon test
LV	Laboratory vane
AL	Atterburg limits
UU	Undrained triaxial
PSD	Particle size
c' Ø'	Effective stress
CONS	Consolidation
DS	Direct shear
COMP	Compaction
UCS	Unconfined compression
IS	Point load

Installation type



Sample type



SOIL DESCRIPTION

Moisture content

D	Dry, looks and feels dry
M	Moist, no free water on hand when remoulding
W	Wet, free water on hand when remoulding
S	Saturated, free water present on sample

Consistency/undrained shear strength

		S_u(kPa)
VS	Very soft	< 12
S	Soft	12 to 25
F	Firm	25 to 50
St	Stiff	50 to 100
VSt	Very stiff	100 to 200
H	Hard	> 200

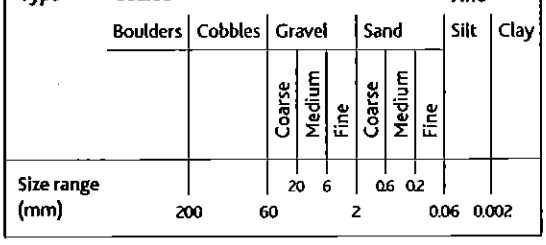
Density index

		SPT(N) - uncorrected
VL	Very loose	0 to 4
L	Loose	4 to 10
MD	Medium dense	10 to 30
D	Dense	30 to 50
VD	Very dense	> 50

Proportional terms definition (Coarse soils)

Fraction	Term	% of soil mass	Example
Major	(UPPER CASE)	Major constituent	Gravel
Subordinate	(lower case)	> 20	Sandy
Minor	with some...	12 - 20	with some sand
	with minor...	5 - 12	with minor sand
	with trace of... (or slightly)...	< 5	with trace of sand (slighly sandy)

Grain size criteria



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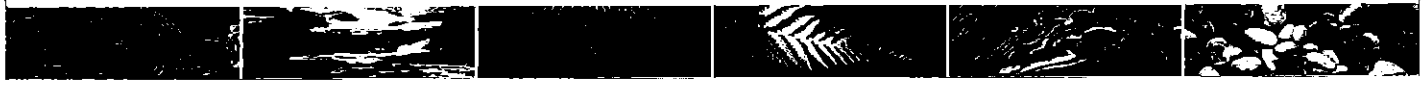

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Engineering Log Terminology

ROCK DESCRIPTION

Signifcant defects

B	Bedding
J	Joint
Sc	Schistosity
Cl	Cleavage
Bz	Broken zone/crushed zone
Ft	Fault
Fg	Fault with gauge
SZ	Shear zone
Iz	Infilled seam
XD	Extremely weathered seam
DD	Drilling - induced defect

Weathering

UW	Unweathered
SW	Slightly weathered
MW	Moderately weathered
HW	Highly weathered
CW	Completely weathered
RW	Residual soil

Defect shape

ST	Stepped
UN	Undulating
PL	Planar

Roughness of defect surface

R	Rough
SM	Smooth
SL	Slickensided

Field strength

		UCS (MPa)	$I_{S(50)}$ (MPa)
EW	Extremely weak	< 1	N/A
VW	Very weak	1 - 5	N/A
W	Weak	5 - 20	N/A
MS	Moderately strong	20 - 50	1 - 2
S	Strong	50 - 100	2 - 5
VS	Very strong	100 - 250	5 - 10
ES	Extremely strong	> 250	> 10

Aperture

		Apperture (mm)
T	Tight	nil
VN	Very narrow	0 - 2
N	Narrow	2 - 6
MN	Moderately narrow	6 - 20
MW	Moderately wide	20 - 60
W	Wide	60 - 200
VW	Very wide	> 200

Defect coding

Type — Angle (perpendicular to core axis) — Infilling description (as per soil description)

J 60°, PL, SL, T CV, STIFF GREEN CLAY

- Shape: PL
- Roughness: SL
- Aperture: T
- Infilling/coating type: CV

Defect Orientation: for vertical unoriented boreholes defect orientation is measured normal to core axis e.g horizontal = 0°. For angled boreholes defect orientation is measured relative to core axis e.g parallel to core axis = 0°.

Infillings and coatings

CG	Clay gouge	Joints have openings between opposing faces of intact rock substance in excess of 1 mm filled with clay gouge. Clay is generally described in terms os soil properties.
CV	Clay veneers	Joints contain clay coating whose maximum thickness does not exceed 1 mm. Note: Describe clay in terms of soil properties.
PL	Penetrative limonite	Joint traces are marked in terms of well defined zones of slightly to moderately weathered ferruginised rock-substance within the adjacent rock.
FeSt	Limonite stained	Joint surfaces are stained or coated with limonite, although the rock substance immediately adjacent to the joints is fresh.
CT, SC	Coated	Joints exhibit coatings other than clay or limonite, e.g. Carbonate (CT) or Silica (SC).
CL, CS, CC	Cemented	Joints are cemented with limonite (CL), Silica (CS), or Carbonates (CC).
CN	Clean	Joint surface show no trace of clay, limonite, or other coatings.