

NDM Test
No. 2.

NDM Test
No. 1.

Inspection Report

Date: 27/03/23

Project: Traverse Earth works monitoring

Client: Traverse Ltd

Inspector: GS

Time on site: ~~2:30~~ 3:30 pm

Weather: Sunny

Project Number:

Contractor: Mason Construction

Inspection Number:

Time off site: 4:30 pm

Ground condition: Moist

Description of works in progress:

Backfilling the masonry blocks with hard fill

Inspecting:

- * Magnum-stone walls (Wall E, F & G)
- * Fill compaction over Lot 45

Instructions to contractor:

- * NDM tests were pass OK to proceed.
- * Excavation face along the northern boundary, next to wall B within Lot 7, Lot 9 & Lot 11, are standing vertical some 1.2m to 1.5m high. These excavation faces needs to be retained.

MOISTURE CONTENT WORKSHEET

Date:

Job Name: *Travers*

Tested By:

Job Number:

Checked By:

Sample Ref	<i>TS1</i>	<i>TS2</i>		
Container #	<i>J</i>	<i>D</i>		
Mass Container (kg) (M ₁)	<i>84.7</i>	<i>87.6</i>		
Mass Container and Wet Soil (M ₂)	<i>1020.1</i>	<i>914.8</i>		
Mass Container and Dry Soil (M ₃)	<i>798.2</i>	<i>874.6</i>		
Moisture Content (%)	<i>32.1</i>	<i>29.0%</i>		

$$WC = \frac{M_2 - M_3}{M_3 - M_1} \times 100\%$$

Nuclear Densometer Worksheet

Date:

Project:

Client:

Contractor's Rep:

Project Number:

Contractor:

Plant:

Inspector: GS

Time on site: 3:30

Weather:

Inspection Number:

Time off site:

Ground condition:

Density Standard Count

Shear Vane

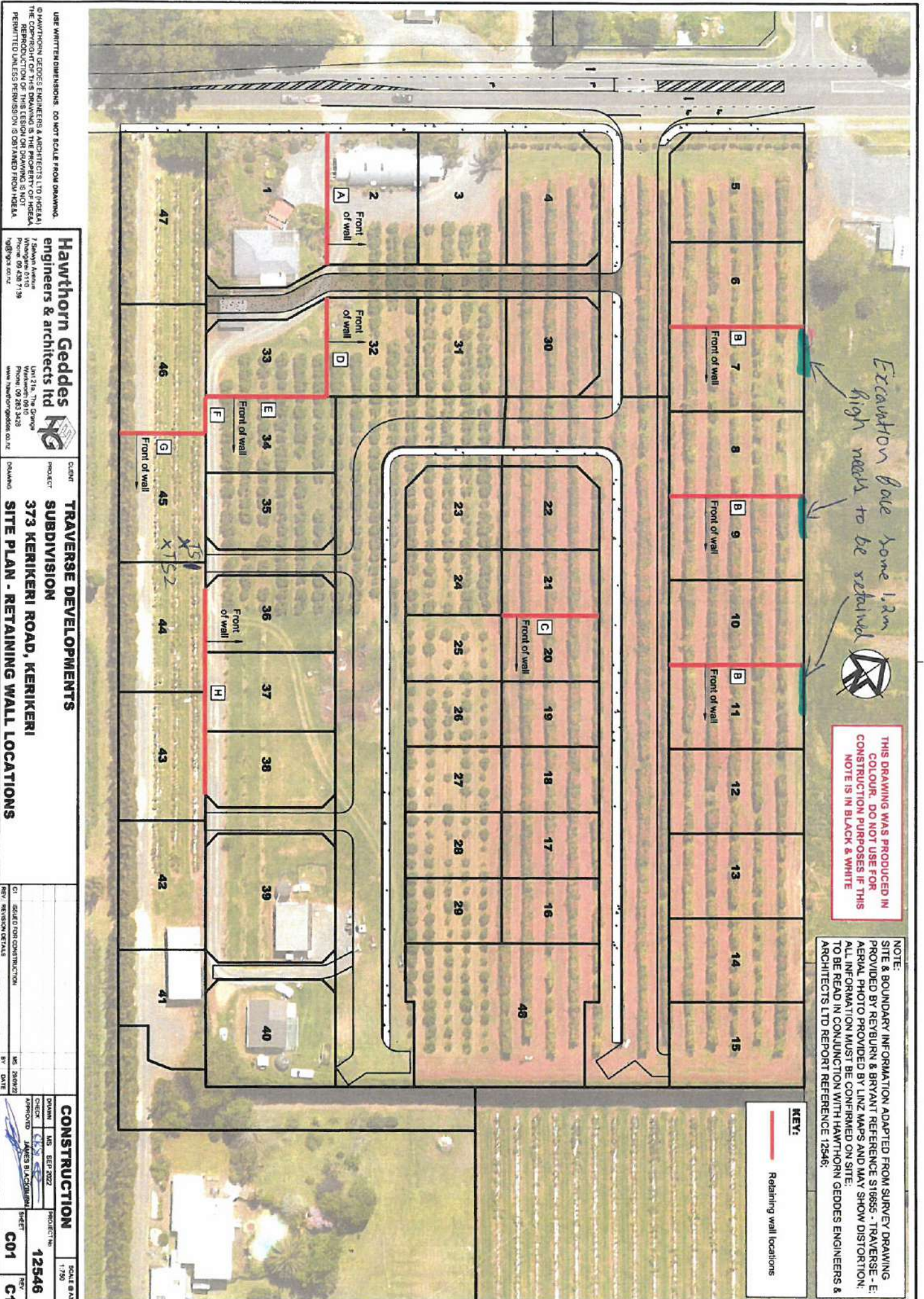
Moisture Standard Count

Solid Density

Test Reference	TS1	TS2		
Depth of Probe (mm)	300mm	-		
Level (m)	Finish level	-		
Material Description	SILT, sand	-		
Wet Density (t/m ³)	1762.0	1792.6		
Moisture Content (%)	35.8 / 32	31.4 / 29.1		
Dry Density (t/m ³)	1297.2 / 1335	1364.4 / 1.390		
Air Voids (%)	5.01 / 7.44	6.17 / 7.85		
Shear Vane (kPa)	UTP	UTP		
Location of Test				

Instructions to contractor: 74.1

78.0



Excavation base some 1.2m high needs to be retained

THIS DRAWING WAS PRODUCED IN COLOUR. DO NOT USE FOR CONSTRUCTION PURPOSES IF THIS NOTE IS IN BLACK & WHITE

NOTE: SITE & BOUNDARY INFORMATION ADAPTED FROM SURVEY DRAWING PROVIDED BY REYBURN & BRYANT REFERENCE S18855 - TRAVERSE - E. AERIAL PHOTO PROVIDED BY LINZ MAPS AND MAY SHOW DISTORTION. ALL INFORMATION MUST BE CONFIRMED ON SITE. TO BE READ IN CONJUNCTION WITH HAWTHORN GEDDES ENGINEERS & ARCHITECTS LTD REPORT REFERENCE 12546.

KEY:
Retaining wall locations

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www.hawthorngeddes.co.nz

CLIENT: TRAVERSE DEVELOPMENTS
PROJECT: SUBDIVISION
373 KERIKERI ROAD, KERIKERI
DRAWING: SITE PLAN - RETAINING WALL LOCATIONS

CI	ISSUED FOR CONSTRUCTION	MS	SHAWZ
REV	REVISION DETAILS	BY	DATE
CONSTRUCTION		NO.	SEP 2022
CHECK	MS	PROJECT NO.	12546
APPROVED	JAMES BLACKBURN	SCALE	A3
SHEET	C01	REV	C1

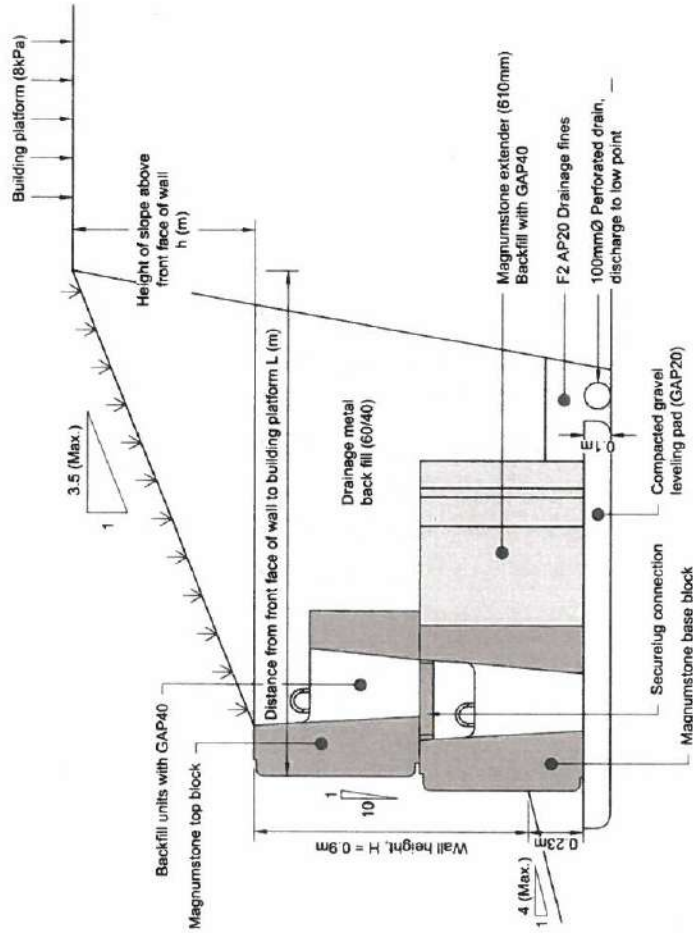
NOTES:

1. THE DIMENSIONING OF THE WALLS SHALL NOT BE MODIFIED DURING FUTURE DEVELOPMENT WITHOUT CONSULTING THE DESIGN ENGINEER, I.E. CHANGING THE L (M) DIMENSION OR SHIFTING SURCHARGE LOAD CLOSER TO THE WALL.
2. THE MAGNUMSTONE UNITS ARE MODULAR AND SHOULD FUTURE DEVELOPMENT PROPOSE MODIFYING SITE CONDITIONS, THE WALL WILL ENABLE MODIFICATION (ADDITIONAL BLOCKS/EXTENDERS) TO CATER TO DESIGN LOAD CHANGES. THIS SHALL BE SUBJECT TO SPECIFIC ENGINEERING DESIGN.

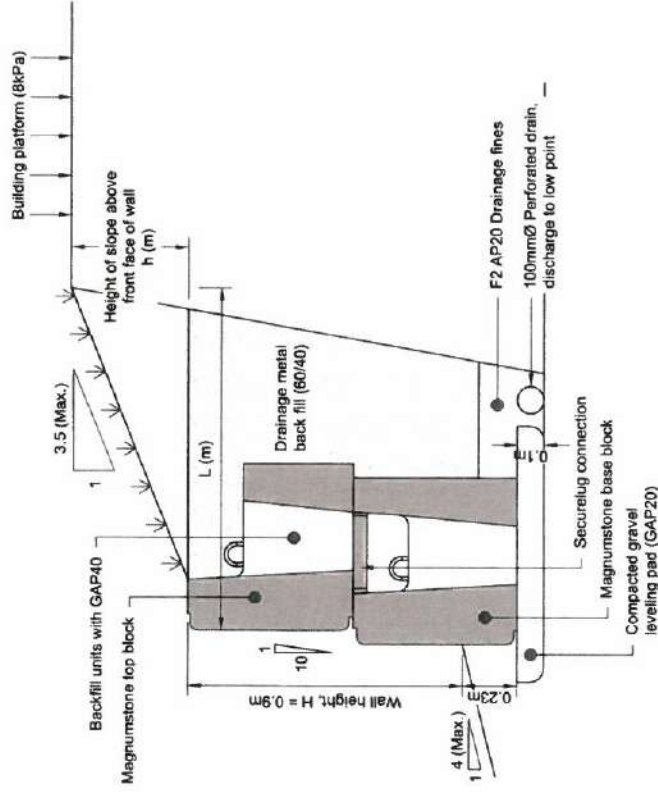
THIS DRAWING WAS PRODUCED IN COLOUR. DO NOT USE FOR CONSTRUCTION PURPOSES IF THIS NOTE IS IN BLACK & WHITE

Wall	L (m)	h (m)
A	0.75	0.2
B	1.25	0.4
C	1.25	0.4
F	1.25	0.4
H	1.5	0.4

Wall	L (m)	h (m)
D	2.0	0.6
E	1.75	0.5
G	2.25	0.65



TYPICAL RETAINING WALL CROSS SECTION - WITH EXTENDER BLOCK
NOT TO SCALE
(WALLS A, B, C, F & H)



TYPICAL RETAINING WALL CROSS SECTION - WITHOUT EXTENDER BLOCK
NOT TO SCALE
(WALLS D, E & G)

USE WRITTEN DIMENSIONS. DO NOT SCALE FROM DRAWING
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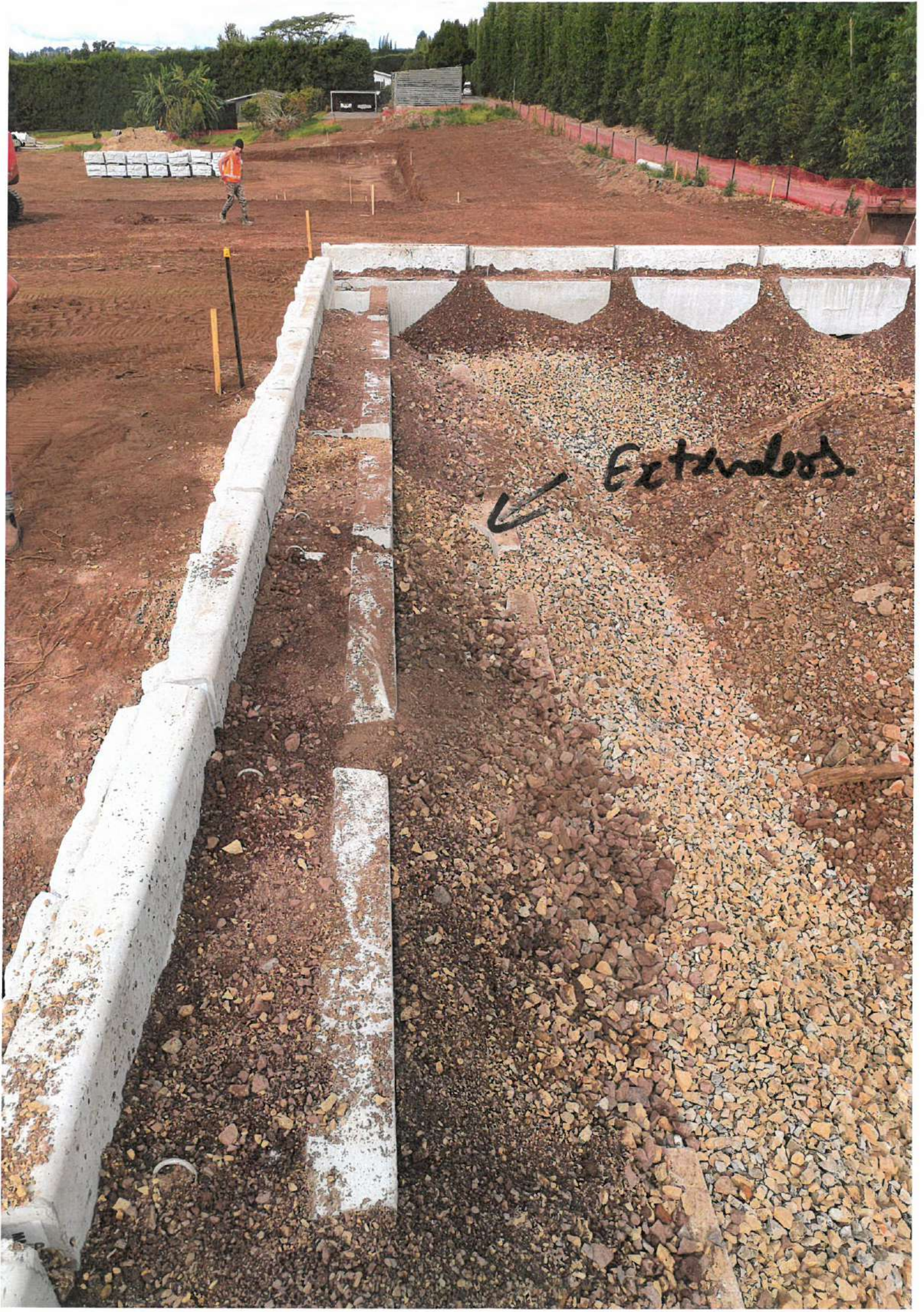
Hawthorn Geddes
engineers & architects ltd
Unit 21a, The Garage
7 Selwyn Avenue
Whangarei 010
Phone: 09 438 7139
h@gpa.co.nz

CLIENT **TRAVERSE DEVELOPMENTS**
PROJECT **SUBDIVISION**
373 KERIKERI ROAD, KERIKERI
DRAWING **TYPICAL RETAINING WALL CROSS SECTION**

SCALE B A D AS SHOWN	CONSTRUCTION	SCALE B A D AS SHOWN
PROJECT No. 12546	DATE 15 SEP 2022	PROJECT No. 12546
APPROVED JAMES BLACKBURN	DATE 15 SEP 2022	APPROVED JAMES BLACKBURN
REV. C1	BY JAMES BLACKBURN	REV. C1
ISSUED FOR CONSTRUCTION	DATE	ISSUED FOR CONSTRUCTION
REV. REVISION DETAILS	BY	REV. REVISION DETAILS





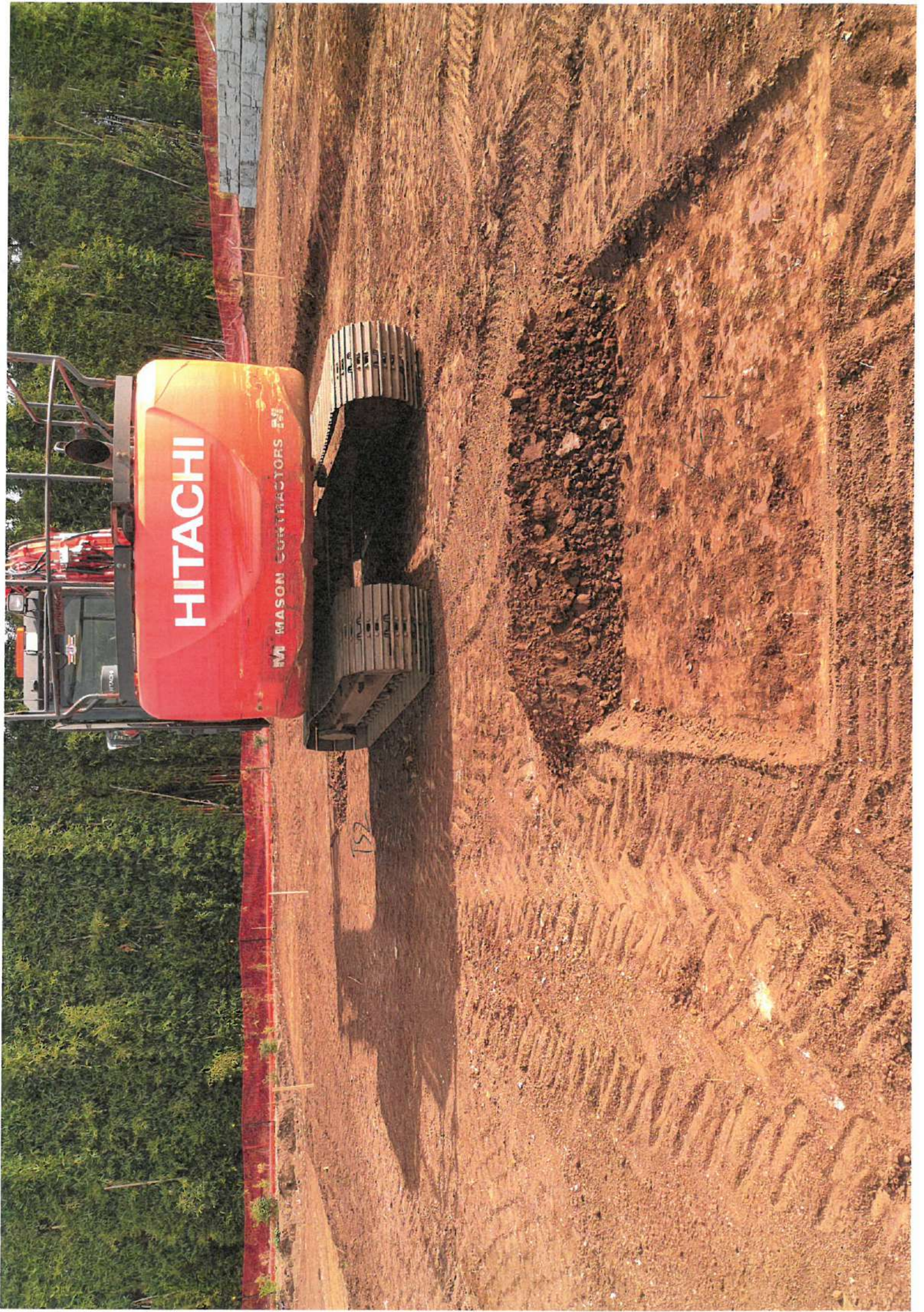


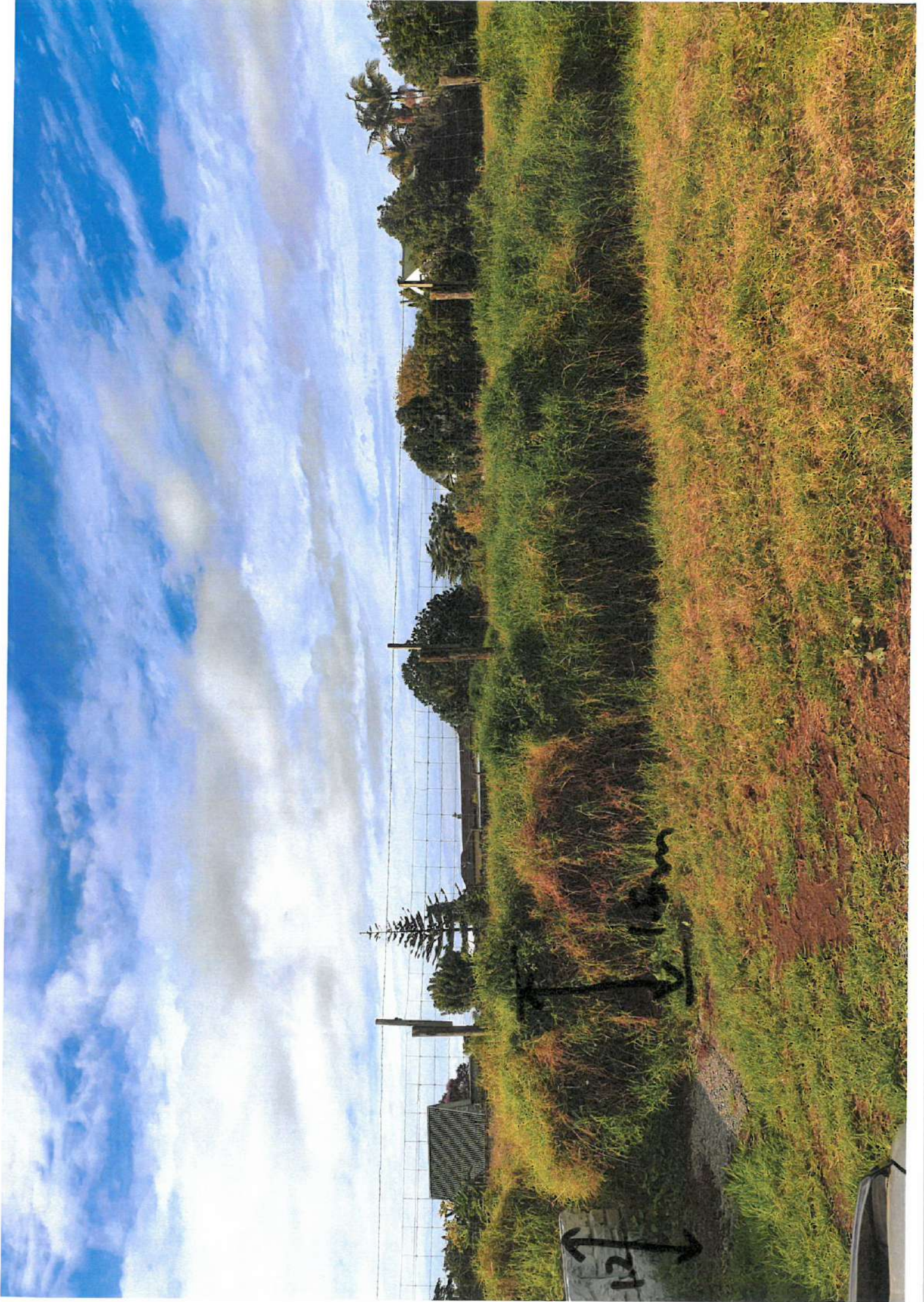
← Extensões

HITACHI

MI MASON CONTRACTORS PTE

T52





Inspection Report

Date: 24/04/23.

Project: Traverse Development LTD.

Client: Traverse Development LTD.

Project Number: 12546.

Contractor:

Inspector: SL.

Inspection Number:

Time on site: 10:00.

Time off site: 1:30.

Weather: Rainy/Sunny

Ground condition: Wet.

Description of works in progress:

Fill compaction; installing drainage.

Inspecting:

= CBR Test.

= Scale Test.

= NDM Test.

= fill compaction to determine 5% airvoids.

= Soil sample for oven correction.

Instructions to contractor:

- All test have meet the threshold of required airvoids and Scale numbers.
- We recommend CBR of 9 for the road pavement design.
- OK to proceed.

Nuclear Densometer Worksheet

Date: 24/04/23

Project: Fraverse Developments LTD

Client: Fraverse Developments LTD

Contractor's Rep:

Project Number: 12546

Contractor:

Plant:

Inspector: SL

Time on site: 0:00

Weather: Rainy / Sunny

Inspection Number:

Time off site: 0:30

Ground condition: Wet

Density Standard Count

Shear Vane

Moisture Standard Count

Solid Density

Test Reference	TS 1	TS 2	TS 3	TS 4	TS 5
Depth of Probe (mm)	600	—————→			
Level (m)	Fixed	—————→			
Material Description	FIU Compaction	—————→			
Wet Density (t/m ³)	1942.3	1997.3	1865.3	1891.7	1868.1
Moisture Content (%)	39.3 / 31.82	37.7 / 34.47	38.7 / 43.91	39.6 / 38.88	39.0 / 36.22
Dry Density (t/m ³)	1457.4 / 1.473	1406.6 / 1.441	1344.5 / 1.296	1354.8 / 1.362	1343.7 / 1.371
Air Voids (%)	-2.98 / -1.86	-5.67 / -3.42	-2.36 / -5.28	-4.36 / -3.73	-2.70 / -0.84
Shear Vane (kPa)	UTP	UTP	UTP	UTP	UTP
Location of Test	road End	road front	lot	lot	lot

Instructions to contractor:

83.3

80.4

76.8

77.4

76.8

MOISTURE CONTENT WORKSHEET

Date: 24/04/23.

Job Name: Traverse
Job Number: 12546.

Tested By: SL
Checked By:

Sample Ref	1	2	3	4	5
Container #	E	G	J	C	F
Mass Container (kg) (M ₁)	85.0	86.3	84.7.	87.4	86.2
Mass Container and Wet Soil (M ₂)	914.4	956.6	984.6	872.4.	1004.3
Mass Container and Dry Soil (M ₃)	714.2	733.5	710.0	652.6	760.2
Moisture Content (%)	31.82	34.47.	43.91.	38.88	36.22

$$WC = \frac{M_2 - M_3}{M_3 - M_1} \times 100\%$$



Calculation Sheet

Project Number: Date:
 Project Name: Sheet:
 Design Component: Designer:
 NZBC Clause/Standard: Checked:

Calcs. Transfer to drawings

Print all results & critical assumptions in this column

<u>SC1</u> 7,6,6,7,7	<u>CBR1</u> 22-23	<u>SC2</u> 6,6,7,6,7	<u>CBR2</u> 24-27	<u>SC3</u> 7,6,6,7,7	<u>CBR3</u> 24-25
SC2					
<u>SC4</u> 8,4,6,6,7	<u>CBR4</u> 24	<u>SC5</u> 7,5,6,6,7	<u>CBR5</u> 25-26	<u>SC6</u> 6,6,7,7,9	<u>CBR6</u> 25
<u>SC7</u> 6,6,6,6,7	<u>CBR7</u> 23-24	<u>SC8</u> 6,5,7,7,8	<u>CBR8</u> 23-24	<u>SC9</u> 6,5,7,7,8	
<u>SC10</u> 7,7,7,7,7	<u>CBR9</u> 24-25	<u>SC11</u> 4,3,3,3,4	<u>CBR10</u> 24-25	<u>SC12</u> 6,5,6,7	<u>CBR11</u> 24-25
<u>SC13</u> 4,10,9,8,6	CBR13 <u>CBR13</u> 5-16. (wet) pond	<u>SC15</u> 3,6,5,5,4	<u>CBR14</u> 24-25	<u>SC16</u> 4,7,7,6,8	<u>CBR15</u> 25-26
<u>SC17</u> 9,9,8,8,8					
<u>SC18</u> 7,7,7,6,5	<u>CBR16</u> 25-26				

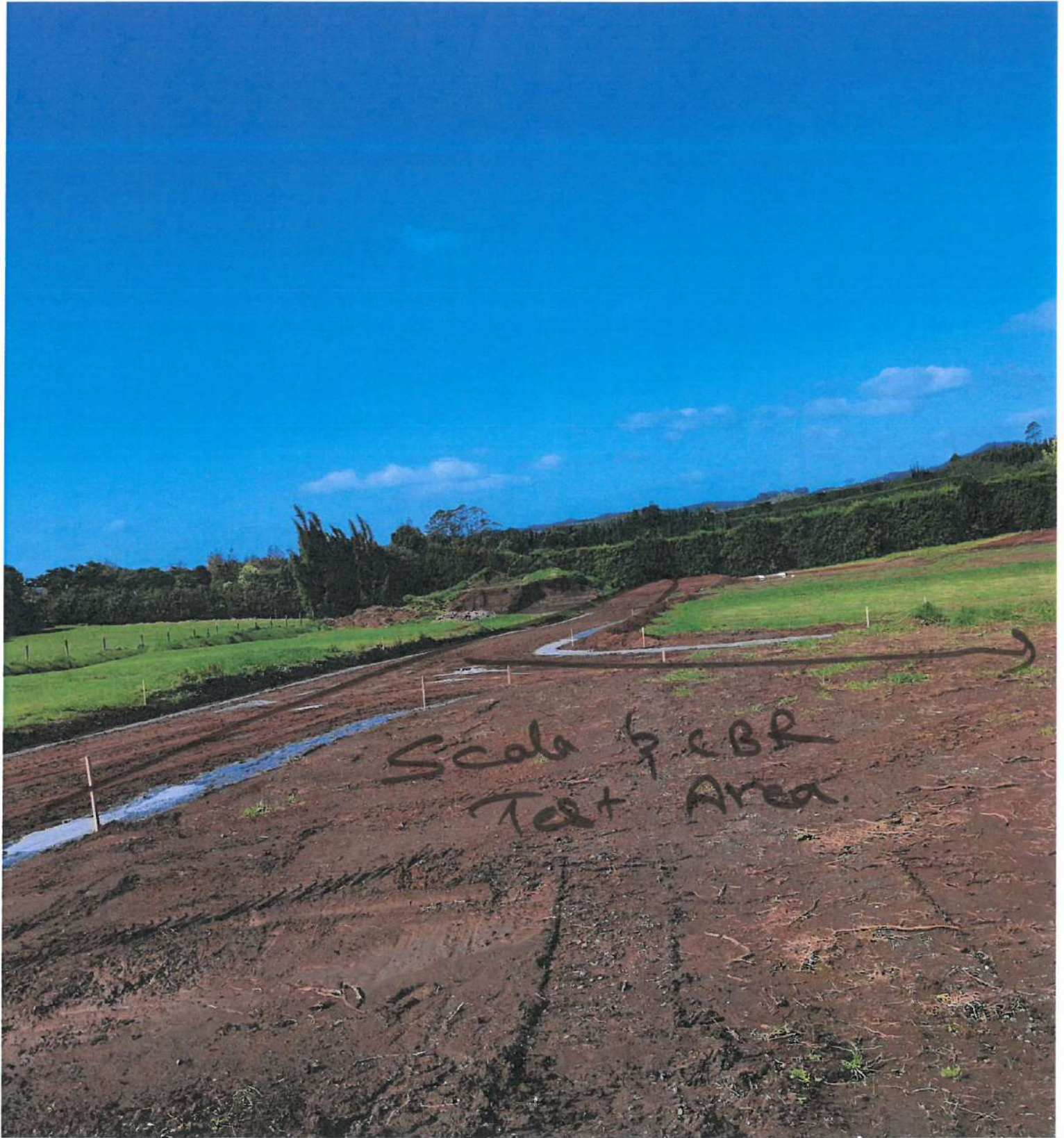




- Legend**
-  24.04.23 CBR
 -  24.04.23 NDM
 -  24.04.23 Scala
 -  Untitled Image
 -  Site Boundary
 -  NDM Test


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Title: Untitled Figure		
Client: Traverse Developments		
Project: Traverse - KeriKeri	Drawn:	Figure No.:1 Size: A4
Date:	Checked:	
Proj No.: 12546	Scale: 1:1317	Version:









Inspection Report

Date: 13/06/23

Project: Traverse Development

Client: Traverse

Inspector: GS/SL

Time on site: 3:30

Weather: Sunny

Project Number: 12876

Contractor:

Inspection Number:

Time off site: 4:30

Ground condition: Wet

Description of works in progress:

Fill compaction

Inspecting:

- Fill compaction to determine $\leq 8\%$ airvoids.
- PDM test, $\frac{1}{2}$ shear vane.
- Soil sample for oven correction.

Instructions to contractor:

- All test had used the minimum required airvoids $\frac{1}{2}$ shear strength.
- OK to proceed.

1075
2008

MOISTURE CONTENT WORKSHEET

Date: 13/06/08

Job Name: 12546
Job Number: Traverse

Tested By: SL/AS
Checked By: CL

Sample Ref	TS1	TS2	TS3	TS4
Container #	F	H	D	K
Mass Container (kg) (M ₁)	86.3	87.4	87.6	90.0
Mass Container and Wet Soil (M ₂)	948.5	903.2	1067.9	1003.0
Mass Container and Dry Soil (M ₃)	723.0	671.3	846.7	752.5
Moisture Content (%)	35.42	39.72	29.14	37.811

$$WC = \frac{M_2 - M_3}{M_3 - M_1} \times 100\%$$

Nuclear Densometer Worksheet

Date: 13/06/2023

Project: Traverse Development

Client: traverse

Contractor's Rep:

Project Number: 12546

Contractor:

Plant:

Inspector: GS/SL

Time on site: 3:30

Weather: Sunny

Inspection Number:

Time off site: 4:30

Ground condition: Wet

Density Standard Count

Shear Vane

Moisture Standard Count

Solid Density

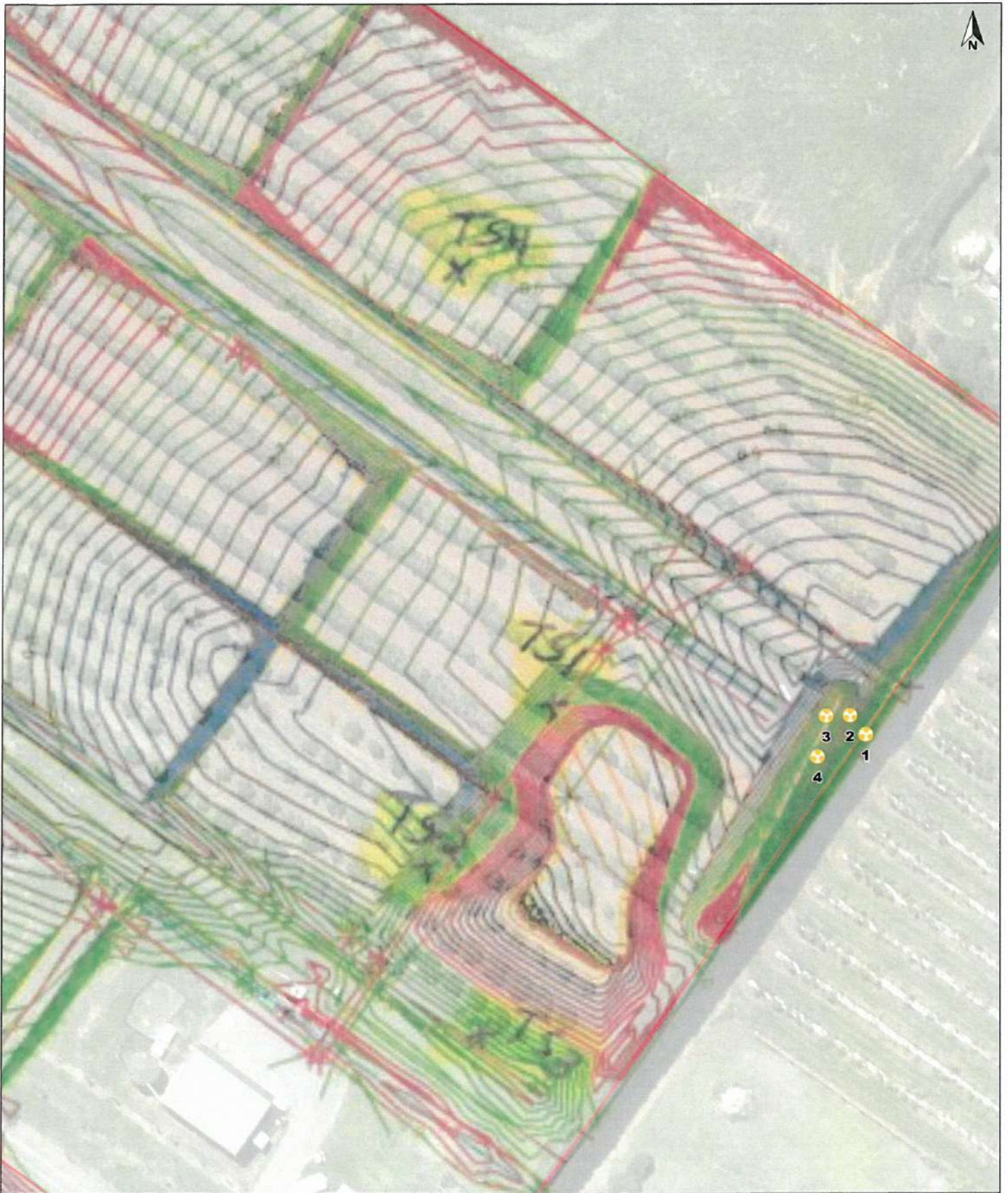
Test Reference	Ts1	Ts2	Ts3	Ts4
Depth of Probe (mm)	600	600	600	600
Level (m)				
Material Description	fill compaction	fill compaction	fill compaction	fill compaction
Wet Density (t/m ³)	1903.4	1907.2	1858.8	1920.8
Moisture Content (%)	38.3 / 35.42	37.9 / 39.72	37.5 / 29.14	37.8 / 37.81
Dry Density (t/m ³)	1375.8 / 1.406	1389.2 / 1.365	1352.2 / 1.439	1393.7 / 1.394
Air Voids (%)	-4.21 / -2.23	-3.75 / -5.51	-1.28 / 4.35	-4.83 / -4.71
Shear Vane (kPa)				
Location of Test	①	②	③	④

Instructions to contractor:

78.6

79.4

77.3



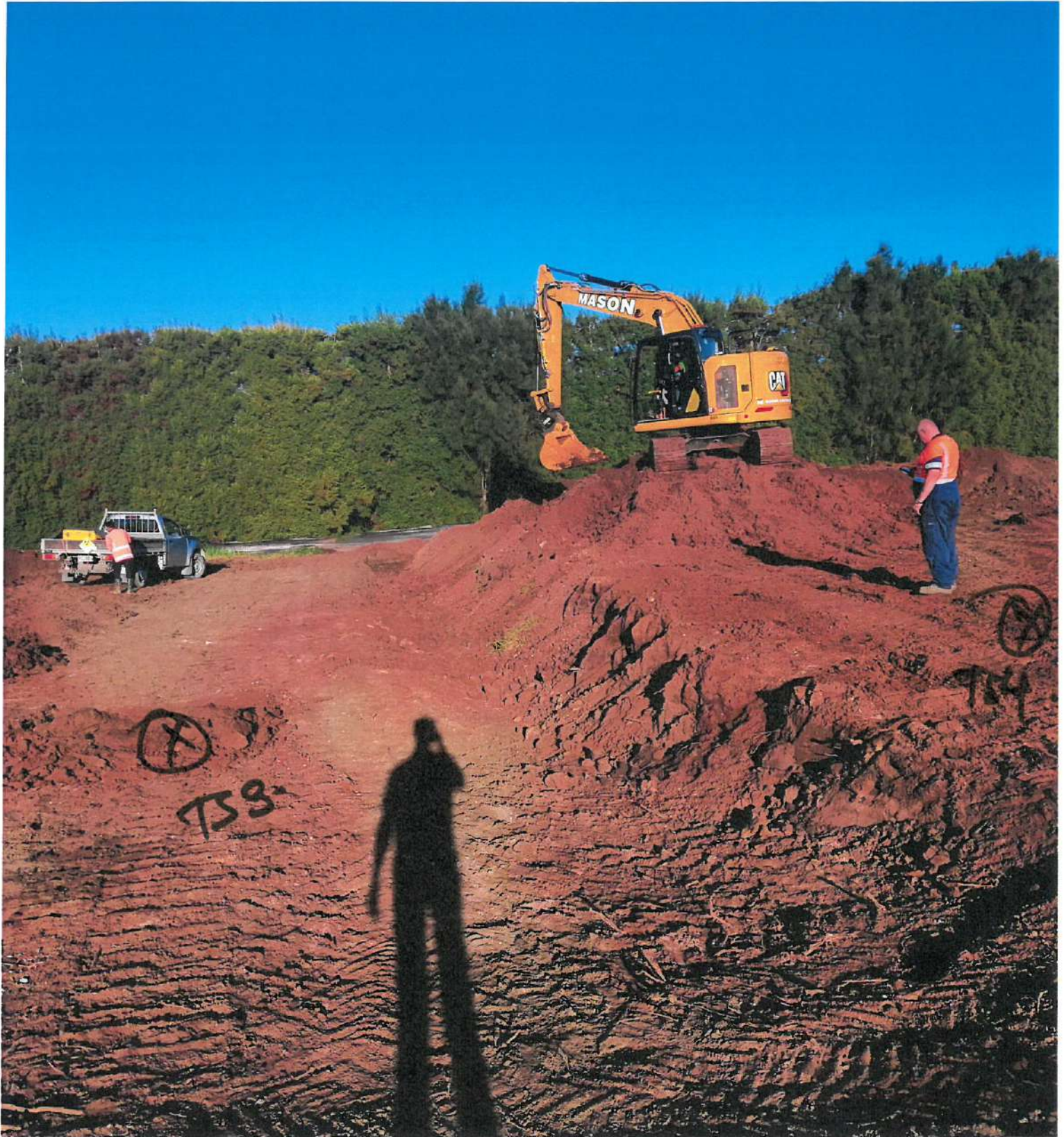
Legend

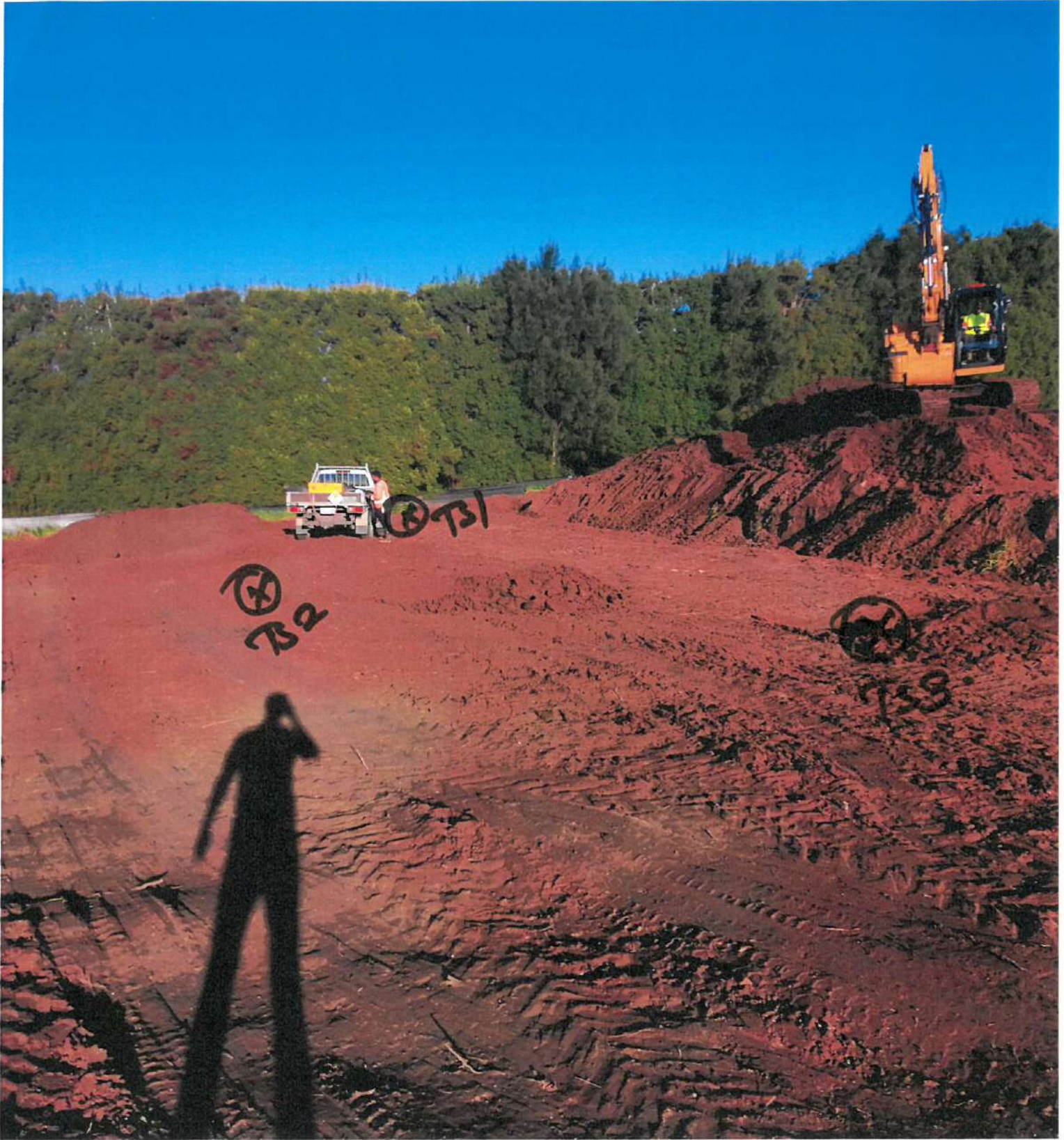
- 13.06.23 NDM
- Untitled Image
- Site Boundary

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Title: Untitled Figure		
Client: Traverse Developments		Figure No.: Size: A4
Project: Traverse - Keri...	Drawn:	
Date:	Checked:	
Proj No.: 12546	Scale: 1:602	Version:





Inspection Report

Date: 15/06/23

Project: Traverse Development

Client: Traverse

Inspector: SL

Time on site: 1:00

Weather: Cloudy

Project Number: 12546

Contractor:

Inspection Number:

Time off site: 2:00

Ground condition: Wet

Description of works in progress:

Fill compaction

Inspecting:

Fill compaction to determine $\leq 8\%$ airvoids

NDM \rightarrow Shear Vane test

Soil sample for oven correction

Instructions to contractor:

All test has meet the minimum required
airvoids $\&$ shear strength

OK to proceed

MOISTURE CONTENT WORKSHEET

Date:

Job Name: *Traverse*
Job Number:

Tested By:
Checked By:

Sample Ref	<i>TS1</i>	<i>TS2</i>	<i>TS3</i>	
Container #	<i>F</i>	<i>C</i>	<i>B</i>	
Mass Container (kg) (M ₁)	<i>86.2</i>	<i>87.3</i>	<i>84.5</i>	
Mass Container and Wet Soil (M ₂)	<i>916.6</i>	<i>994.6</i>	<i>910.2</i>	
Mass Container and Dry Soil (M ₃)	<i>670.8</i>	<i>687.3</i>	<i>640.1</i>	
Moisture Content (%)	<i>42.05</i>	<i>51.22</i>	<i>48.61</i>	

$$WC = \frac{M_2 - M_3}{M_3 - M_1} \times 100\%$$

Nuclear Densometer Worksheet

Date: 15/06/23

Project: Traverse Development

Client: Traverse

Contractor's Rep:

Project Number: 12546

Contractor:

Plant:

Inspector:

Time on site: 1:00

Weather: cloudy

Inspection Number:

Time off site: 2:00

Ground condition: wet

Density Standard Count

Shear Vane

Moisture Standard Count

Solid Density

Test Reference	TS1	TS2	TS3	
Depth of Probe (mm)	600	600	600	
Level (m)				
Material Description	fill compaction	fill compaction	fill compaction	fill compaction
Wet Density (t/m ³)	1762.3	1857.4	1856.1	
Moisture Content (%)	46.7/42.05	44.0/51.22	40.1/48.61	
Dry Density (t/m ³)	1201.2/1.241	1289.9/1.228	1324.7/1.249	
Air Voids (%)	-1.06/1.54	-5.01/-8.74	-2.69/-7.32	
Shear Vane (kPa)				
Location of Test	TS1	TS2	TS3	

Instructions to contractor:




68.6

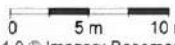
73.7

75.7





- Legend**
-  15.06.23 NDM
 -  Untitled Image
 -  Site Boundary


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Title: Untitled Figure		
Client: Traverse Developments		Figure No.: Size: A4
Project: Traverse - Keri...	Drawn:	
Date:	Checked:	Version:
Proj No.: 12546	Scale: 1:476	

Inspection Report

Date: 13/07/23

Project: Traverse Development Ltd

Project Number: 12546

Client: Traverse

Contractor:

Inspector: SL/as

Inspection Number:

Time on site: 10:30

Time off site: 11:15

Weather: Sunny

Ground conditions: Moist

Description of works in progress:

Fill compaction.

Inspecting: NDM testing.

- Fill compaction to determine $\leq 8\%$ airvoids.
- Shear Vane testing (ground condition)

- Soil sample for oven correction.

- Seala Testing to verify CBR of subgrade.

- SC4 encountered ~~soft~~ firm soils to depth of 400mm, therefore require undercut
Instructions to contractor: around SC4 & void needs to be backfilled with hardfill

- All three NDM test has meet the minimum required airvoids $\frac{1}{3}$ soil shear strength.

- The contractor were advised to undercut the subgrade by 400mm $\frac{1}{3}$ backfill it, with hardfill

beyond the stormwater pipes (as shown in attached Photo)

2.68
1.75

MOISTURE CONTENT WORKSHEET

Date: 18/07/23

Job Name: Traverser

Tested By: SL/AS

Job Number: 12546

Checked By:

Sample Ref	TS1	TS2	TS3	
Container #	K	D	C	
Mass Container (kg) (M ₁)	89.9	87.7	87.5	
Mass Container and Wet Soil (M ₂)	982.3	957.2	1181.6	
Mass Container and Dry Soil (M ₃)	748.5	700.9	875.7	
Moisture Content (%)	35.50	41.80	38.81	

$$WC = \frac{M_2 - M_3}{M_3 - M_1} \times 100\%$$

Nuclear Densometer Worksheet

Date: 18/07/23

Project: Traverse Development Ltd

Client: Traverse Development Ltd

Contractor's Rep:

Project Number: 12546

Contractor:

Plant:

Inspector: SL/AS

Time on site: 10:30

Weather: Sunny

Inspection Number:

Time off site: 11:30

Ground condition: Moist

Density Standard Count

Shear Vane

Moisture Standard Count

Solid Density

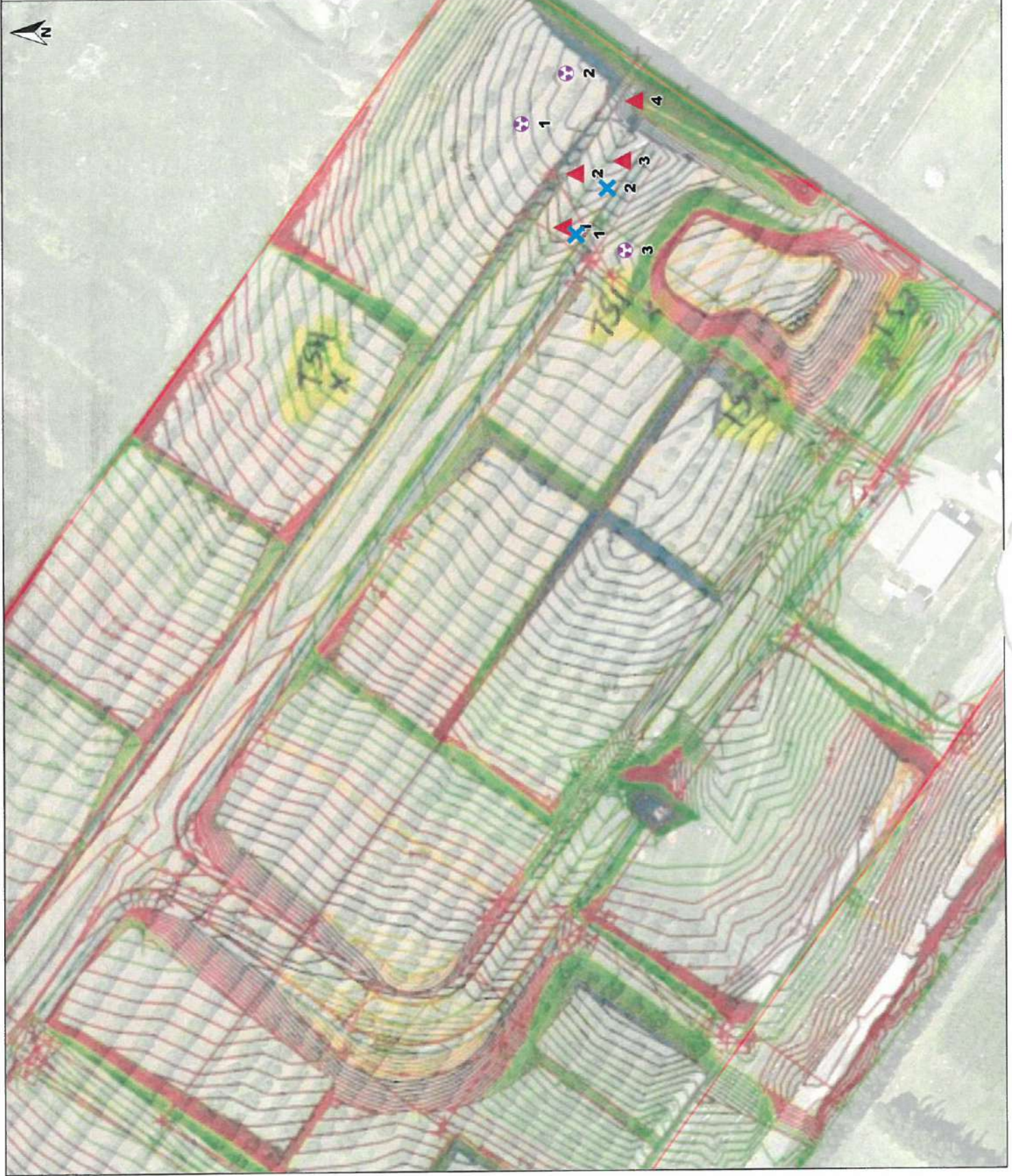
Test Reference	TS1	TS2	TS3	
Depth of Probe (mm)	300mm	300mm	-	
Level (m)	finish level	-	hr	
Material Description	SILT sand, m.f. sand,	-	-	
Wet Density (t/m ³)	1894.2	1852.4	1868.0	
Moisture Content (%)	41.0 / 35.50	38.3 / 41.80	40.7 / 38.81	
Dry Density (t/m ³)	1343.3 / 1.398	1338.9 / 1.306	1328.0 / 1.346	
Air Voids (%)	-5.33 / -1.79	1.42 / -3.35	-3.68 / -2.44	
Shear Vane (kPa)	110, 477	90, 278, 100	100, 108, 110	
Location of Test				

1. Pr 76.8
Instructions to contractor:

75.9



- Legend**
- 18.07.23 CBR
 - 18.07.23 SPT
 - 18.07.23 NDM
 - Untitled Image
 - Site Boundary



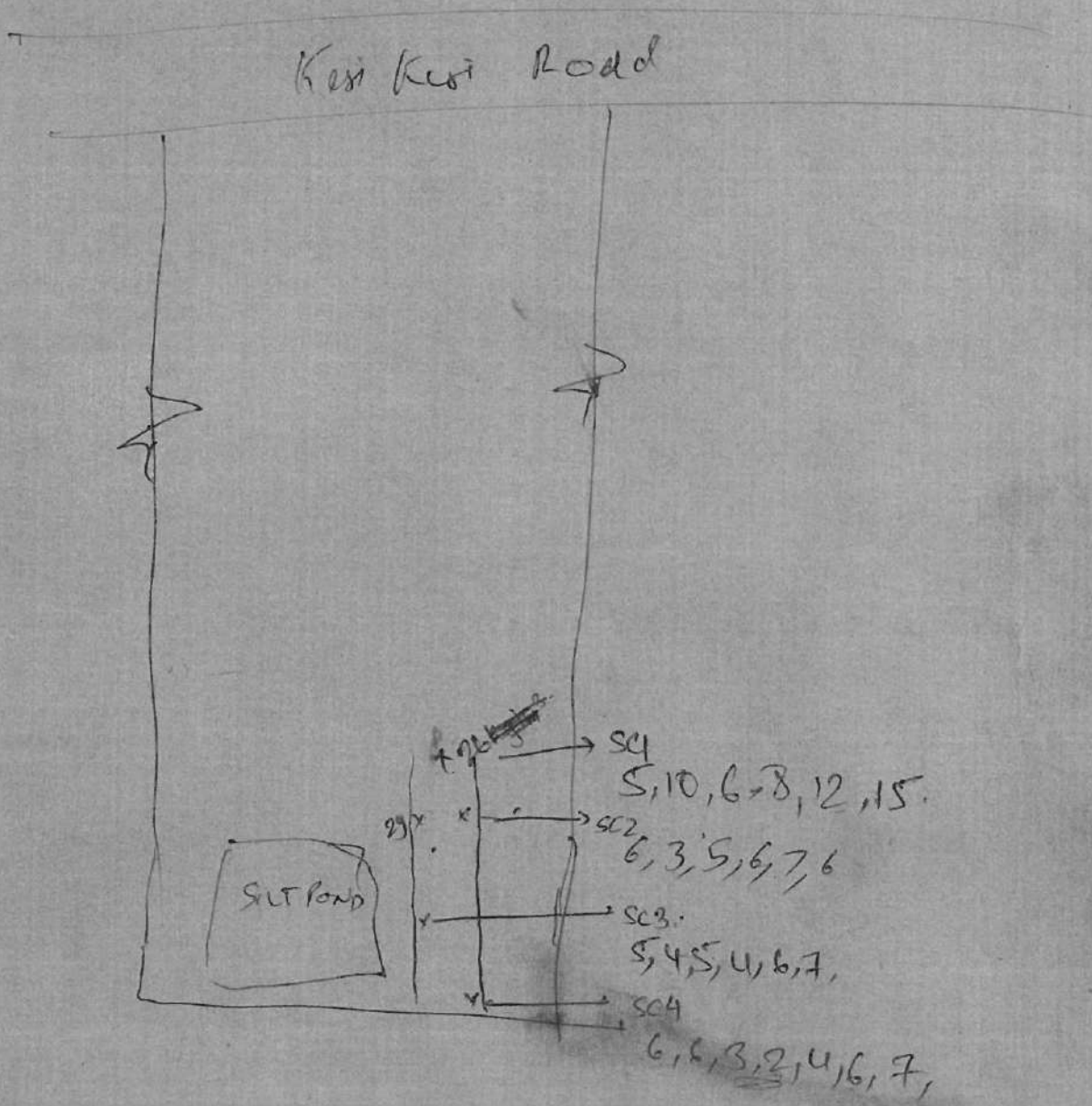
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Title: Untitled Figure	
Client: Traverse Developments	Figure No.: 1
Project: Traverse - Kerikeri	Size: A4
Date:	Drawn:
Proj No.: 12546	Checked:
	Scale: 1:840
	Version:



File Note

Project Number:
 Project Name:
 Date: Time:
 Author:
 Subject:



Need 400mm of undercut.



SC1

SC3

SC2

CBR2

NDM Test 3

SC1 CBR1



Inspection Report

Date: 09/08/2023

Project: Toavette Development - 373 Keppel Road
Project Number: 12546

Client: Toavette Ltd

Contractor:

Inspector: GS

Inspection Number:

Time on site: 1:30 pm

Time off site: 3:00 pm

Weather: Sunny

Ground conditions:

Description of works in progress:

clearing bund around ~~stormwater~~ silt retention pond.

Inspecting:

NDM test on fill over ~~west~~ eastern corner of site.
Most of the fill tested was pass, except of one area where it was too wet, failed in shear strength.

Instructions to contractor:

OK to proceed with the area passed.
Area failed ~~in~~ on site plan, needs to be stripped down to 0.5m to dry the soils and backfill again.

TS1, TS2, TS3, TS5 & TS6 were pass
TS4 failed due to low shear strength.

Nuclear Densometer Worksheet

Date:

Project:

Client:

Contractor's Rep:

Project Number:

Contractor:

Plant:

Inspector:

Time on site:

Weather:

Inspection Number:

Time off site:

Ground condition:

Density Standard Count

Shear Vane 287

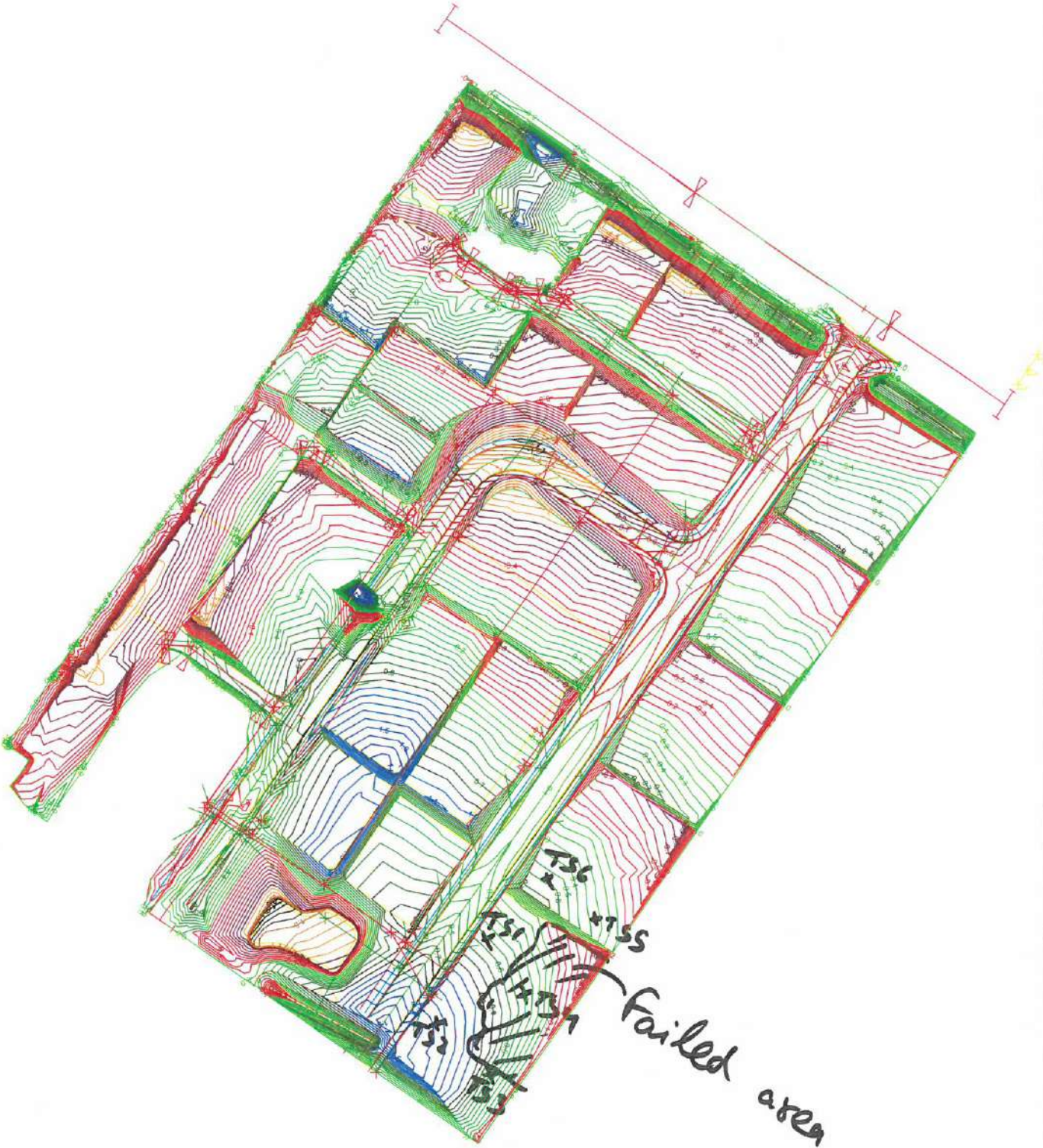
Moisture Standard Count

Solid Density 2.65

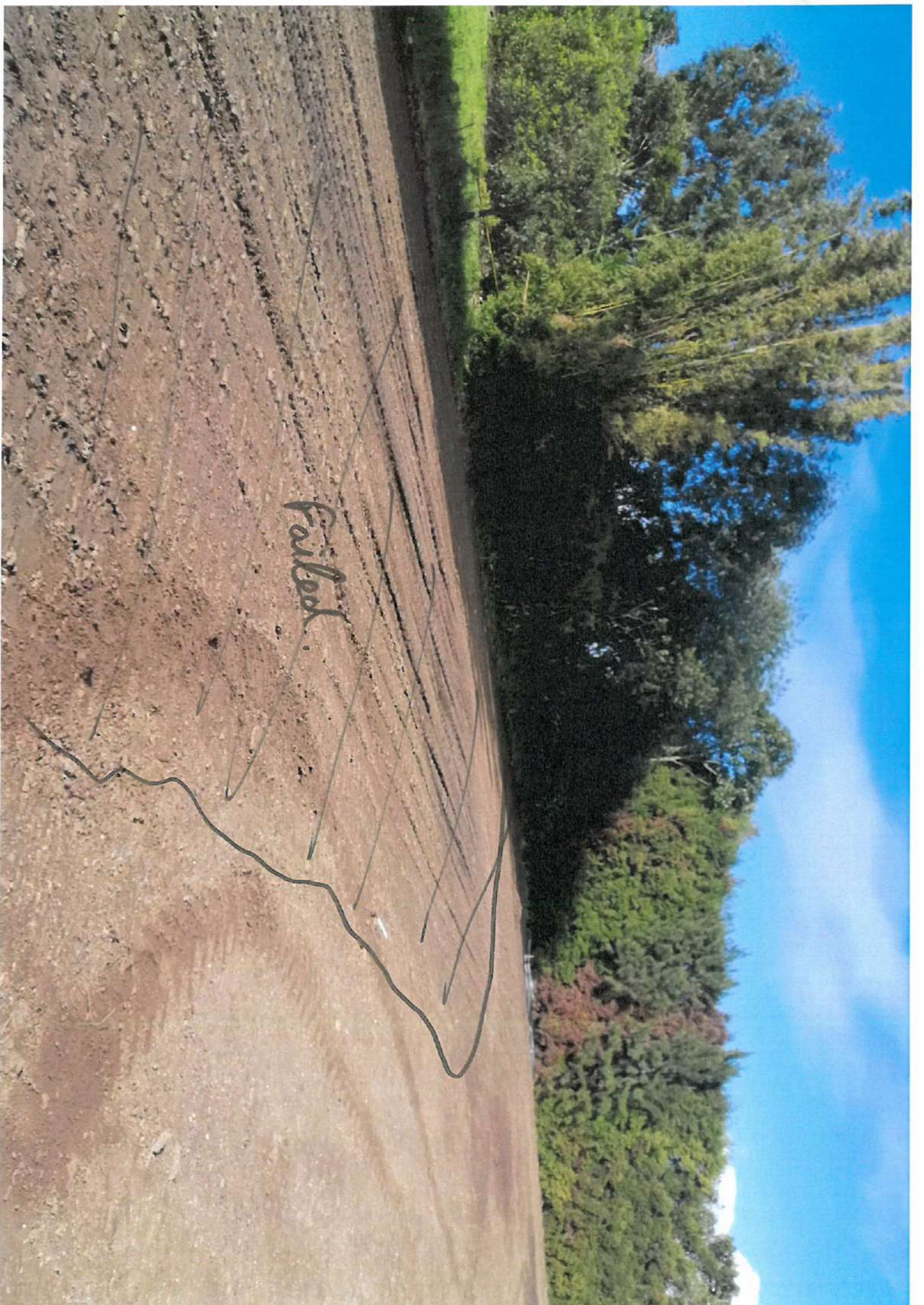
Test Reference	TS1	TS2	TS3	TS4	TS5	TS6
Depth of Probe (mm)	300mm	-	0	Failed due to low shear strength	300mm	-
Level (m)	Finish level	-	-	-	Finish level	-
Material Description	SILT, sand ml. sand 08	-	-	-	SILT, sand	-
Wet Density (t/m ³)	1968.0	1926.2	2021.4	-	2012.8	1960.6
Moisture Content (%)	39.7 36.0%	41.7 33.9%	36.2 41.2%	-	37.3 36.1	40.3 35.9
Dry Density (t/m ³)	1408.6	1382.4	1484.1	-	1466.9	1397.4
Air Voids (%)	-8.6% -6.7% / 10%	-7.34 -3.05	-9.21 -13.0%	-	-9.48 -9.2	-8.58 -6.2
Shear Vane (kPa)	140, 40 120	130, 120 90, 130	120, 90 70, 90	30, 35 40, 50	UTP	140+
Location of Test						

% PR 50.5 77.8 84.8 83.8 77.9

Instructions to contractor:

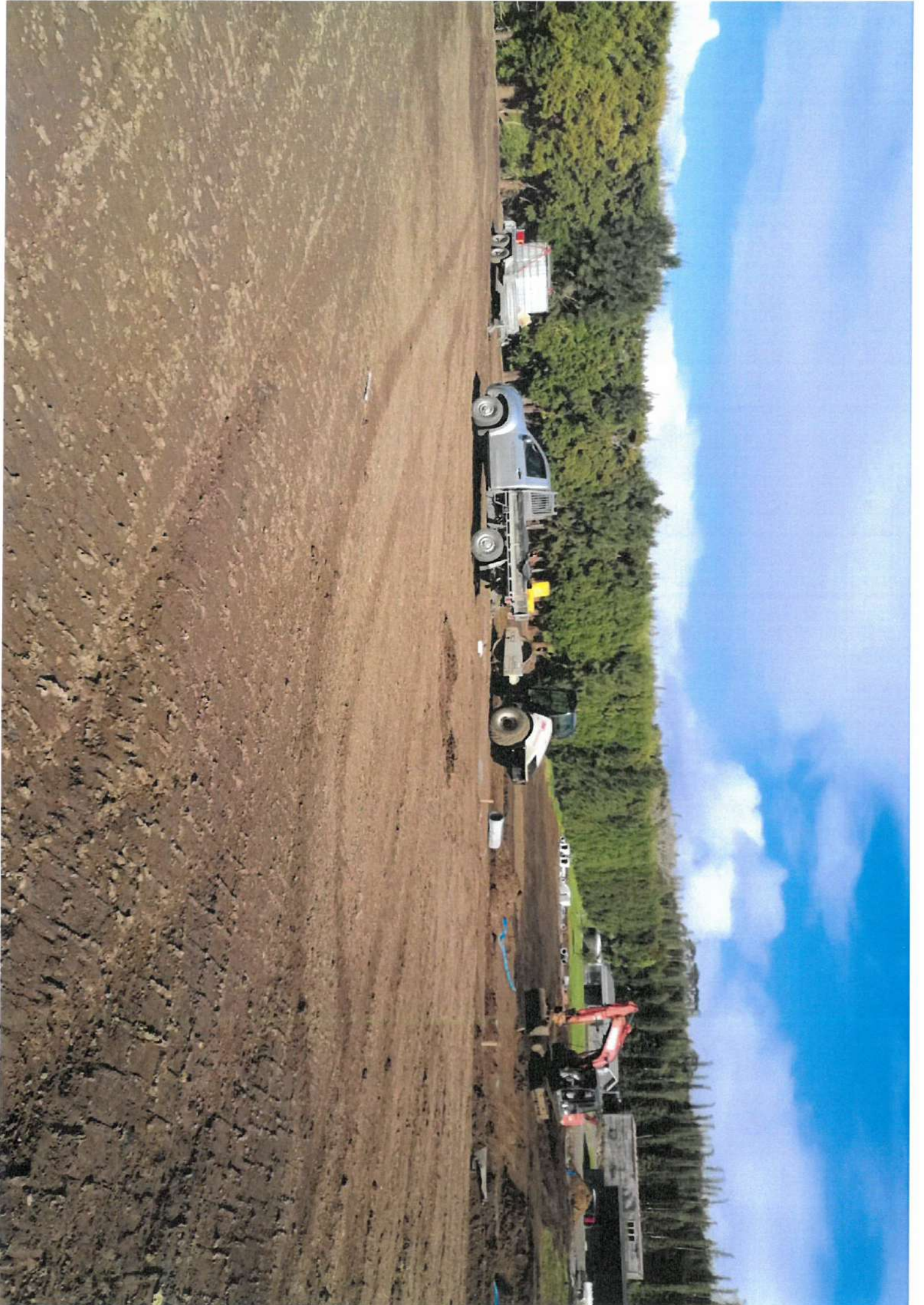


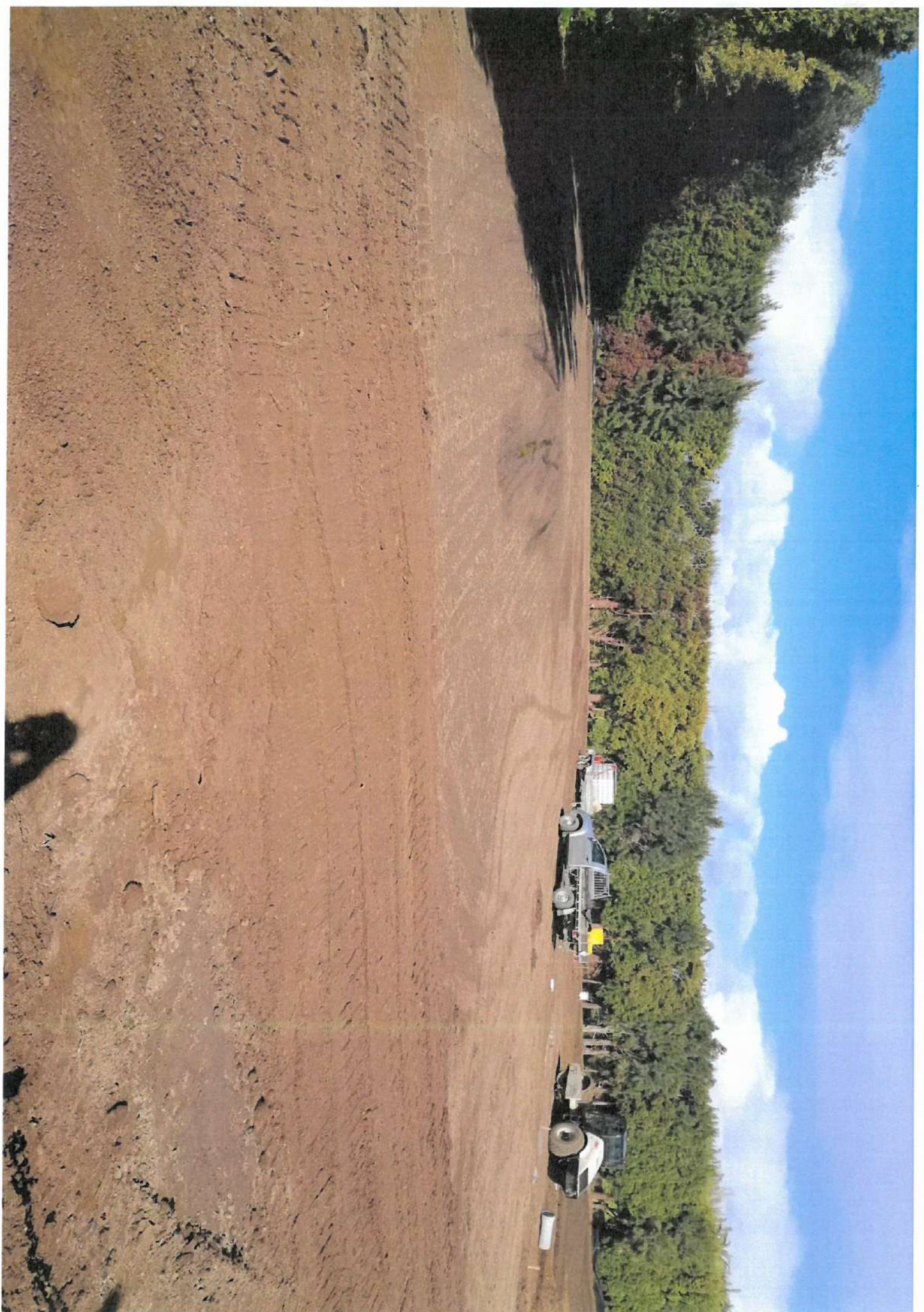




Failbook







Inspection Report

Date: 4/09/23

Project: Traveston - Earthworks inspection

Client: Traveston Ltd

Project

Number: 12546

Contractor: Mason Contractors

Inspector: GS

Time on site: 11:30 am

Weather: Sunny

Inspection Number:

Time off site: 1:00 pm

Ground conditions: Wet

Description of works in progress:

Trenching for services.

Inspecting:

Retest on the previously failed fill.

Retest on TS3 & TS4 from inspection undertaken on 09th August 2023.

Instructions to contractor:

OK to proceed.

Nuclear Densometer Worksheet

Date:

Project:

Client:

Contractor's Rep:

Project Number:

Contractor:

Plant:

Inspector:

Time on site:

Weather:

Inspection Number:

Time off site:

Ground condition:

Density Standard Count

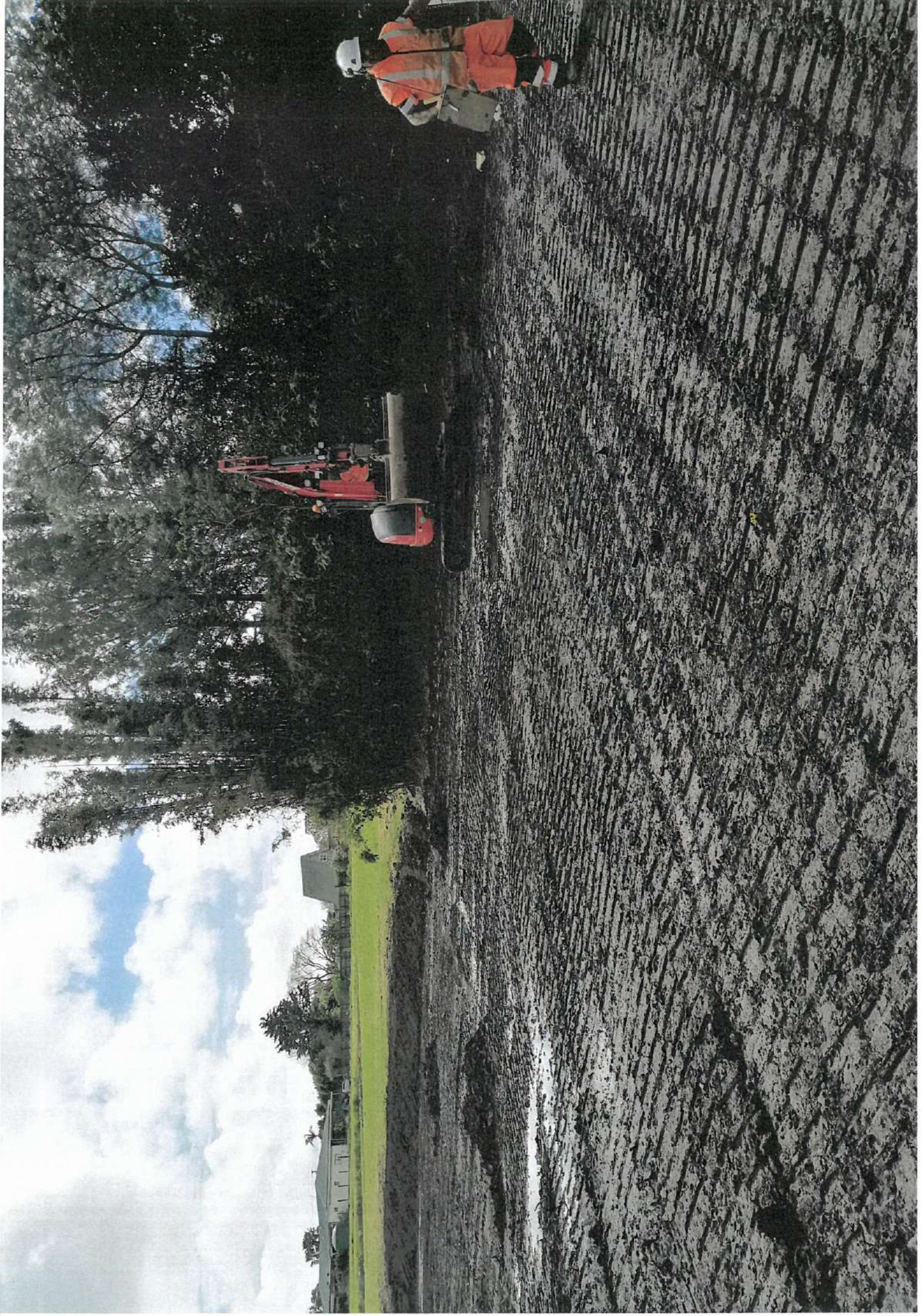
Shear Vane

Moisture Standard Count

Solid Density

Test Reference	TS1	TS2	TS3	
Depth of Probe (mm)	300mm	300mm	-	
Level (m)	Finish level	-	-	
Material Description	clayey silt	-	-	
Wet Density (t/m ³)	2089.8	2003.7	2022.2	
Moisture Content (%)	35.1% / 28.44	35.9% / 33.55	29.8% / 29.8	
Dry Density (t/m ³)	1548.2	1474.1	1558.1	
Air Voids (%)	-12.00% / -7.1	-8.0% / -6.3	-4.68% / -4.56	
Shear Vane (kPa)	UTP	UTP	120, UTP 120, 170+	
Location of Test				

Instructions to contractor: 88.51 84.2 89.0





**Appendix D – Geotechnical Report “GEOTECHNICAL REPORT
FOR PROPOSED SUBDIVISION – Prepared for Traverse Ltd at
373 Kerikeri Road, Kerikeri”**

GEOTECHNICAL REPORT FOR PROPOSED SUBDIVISION

**PREPARED FOR TRAVERSE LIMITED
AT 373 & 377 KERIKERI ROAD, KERIKERI
LOT 1 DP 25752 & PT LOT 2 DP 86081**

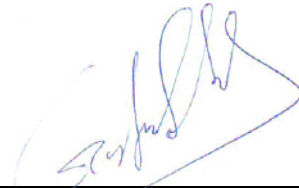


GEOTECHNICAL REPORT FOR PROPOSED SUBDIVISION

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Report
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Approved by:



James Blackburn
BEng (Hons) CPEng,
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DOCUMENT TRANSMITTAL			
Prepared for: TRAVERSE LIMITED			Job No.: 12546
Revision	Issued To	Copies Issued	Date
0	Client Traverse Limited Attn Kent Fearon Cc kent@traverseltd.co.nz	EMAIL	28.02.2022

1. Purpose

The purpose of this report is to present the results of the geotechnical investigation completed for the proposed subdivision at 373 & 377 Kerikeri Road, Kerikeri, Lot 1 DP 25752, and Pt Lot 2 DP 86081. This report provides advice on stability, earthworks, and soil conditions for foundations.

This report is suitable for a resource consent application to Far North District Council (FNDC).

2. Proposal

It is proposed to subdivide Lots 1 DP25752 and Pt Lot 2 DP86081 at 373 & 377 Kerikeri Road into 56 new lots (Lots 1 to 54 and Lots 60 and 61).

The subdivision will be completed in five different stages.

Stage one will include the subdivision of Lot 1 DP 25752 and Pt Lot 2 DP 86081 into three new lots (Lot 60, 61, & 62). The three new lots, Lot 60, 61, & 62 will have areas of some 6.4046ha, 981m², and 3.4661ha respectively. The proposed Lot 60 will remain as farmland and will not be a part of this development, therefore Lot 60 is not considered further in this report.

Stage two will include the further subdivision of Lot 62 from stage one, into twelve new lots; 1 - 7, 30, 33, 49, 50, & 100. These new proposed lots will have areas in the range of 475m² to 975m², with the exception of Lot 100 which has an area of 2.7086ha. The proposed new lots are roughly rectangular, other than Lot 100 and 49 which are of irregular shape. Lot 49 and 50 will provide access to adjacent lots.

Stage three will include the subdivision of Lot 100 from stage two into eighteen new lots; 8 - 22, 48, 51, & 101. These new lots will have areas in the range of 340m² to 608m² with the exception of lots 48, 51, & 101 with areas of 1376m², 2975m², and 1.5435ha respectively. The new Lot 48 is proposed to be a Recreation Reserve, and Lot 51 is proposed to provide access to adjacent lots.

Stage four will include the subdivision of Lot 101 from stage three, into eighteen new lots; 23 - 29, 31, 32, 34 - 40, 52, & 102. These new lots are proposed to have areas in the range of 340m² to 875m² with the exception of lots 52 & 102 with areas of 2969m² and 2721m² respectively. Lot 52 will only be used to provide access to adjacent lots.

Stage five will include the subdivision of Lot 102 from stage four, into nine new lots; 41 - 47, 53, & 54. These new lots are proposed to have areas in the range of 600m² to 800m² with the exception of lots 53 and 54 with areas of 195m² and 196m² respectively. These two new lots are proposed to provide access to adjacent lots.

The development includes 48 residential lots (Lots 1 to 47 and Lot 60), seven access lots (Lots 49 to 54 and Lot 61), and one lot for a recreation reserve (Lot 48). The internal road will be urban-type A and B, providing access to the proposed new lots and the existing neighbouring property Lot 1 DP162472. The primary entrance will be directly extending off Kerikeri Road.

The proposed site is connected to the council's reticulated wastewater and stormwater networks, therefore onsite wastewater treatment and disposal will not be required.

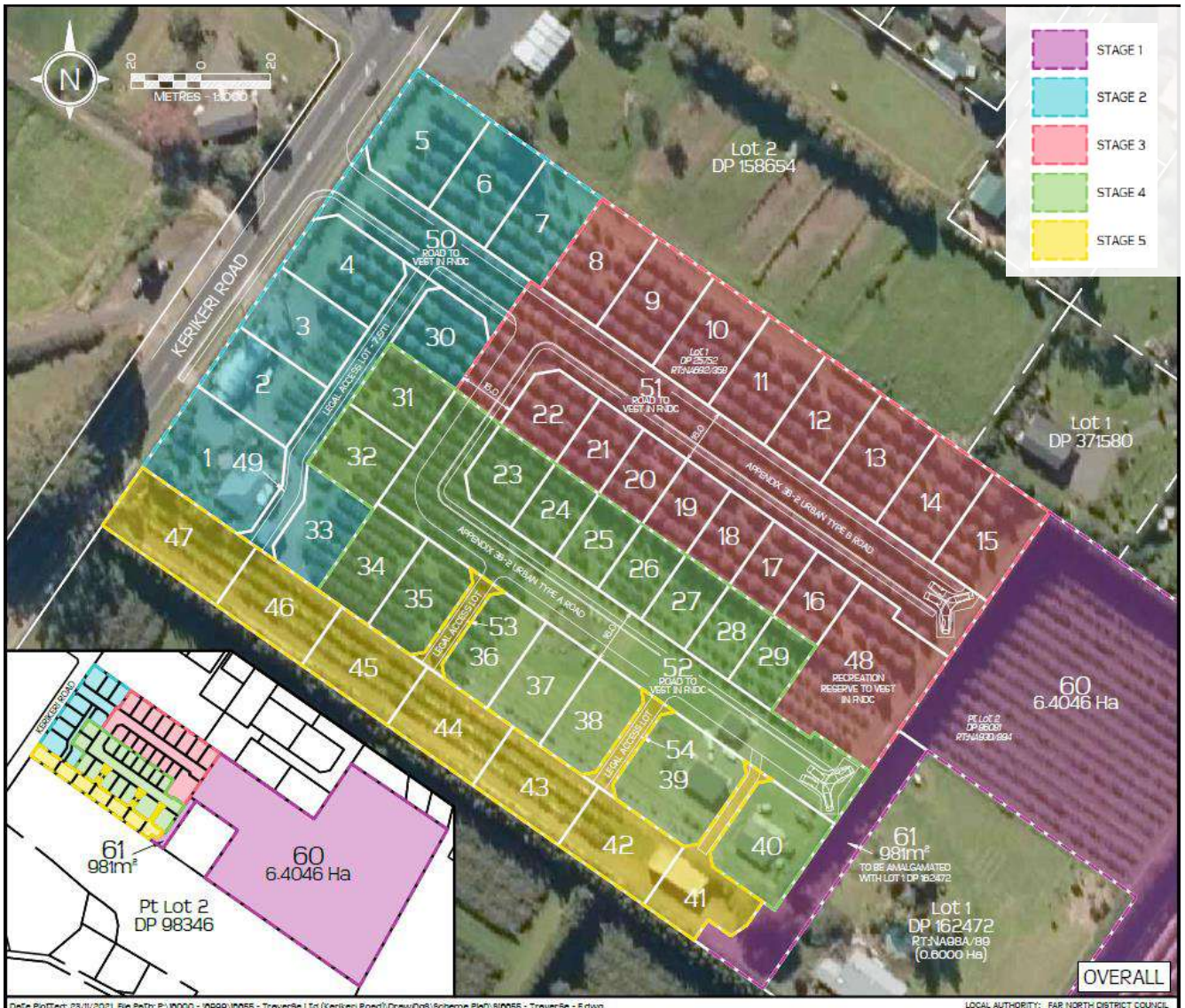


Figure 1: Subdivision scheme plan Rev. E (source: Reyburn & Bryant)

3. Site Description

The property is located east of Kerikeri Road and some 1km southwest of the Kerikeri township within a residential zone. The site and surrounding land consist of grassed paddocks and orchards.

The property is of irregular shape, some 9.87ha in area, gently sloping at approximately 4° to the southeast.

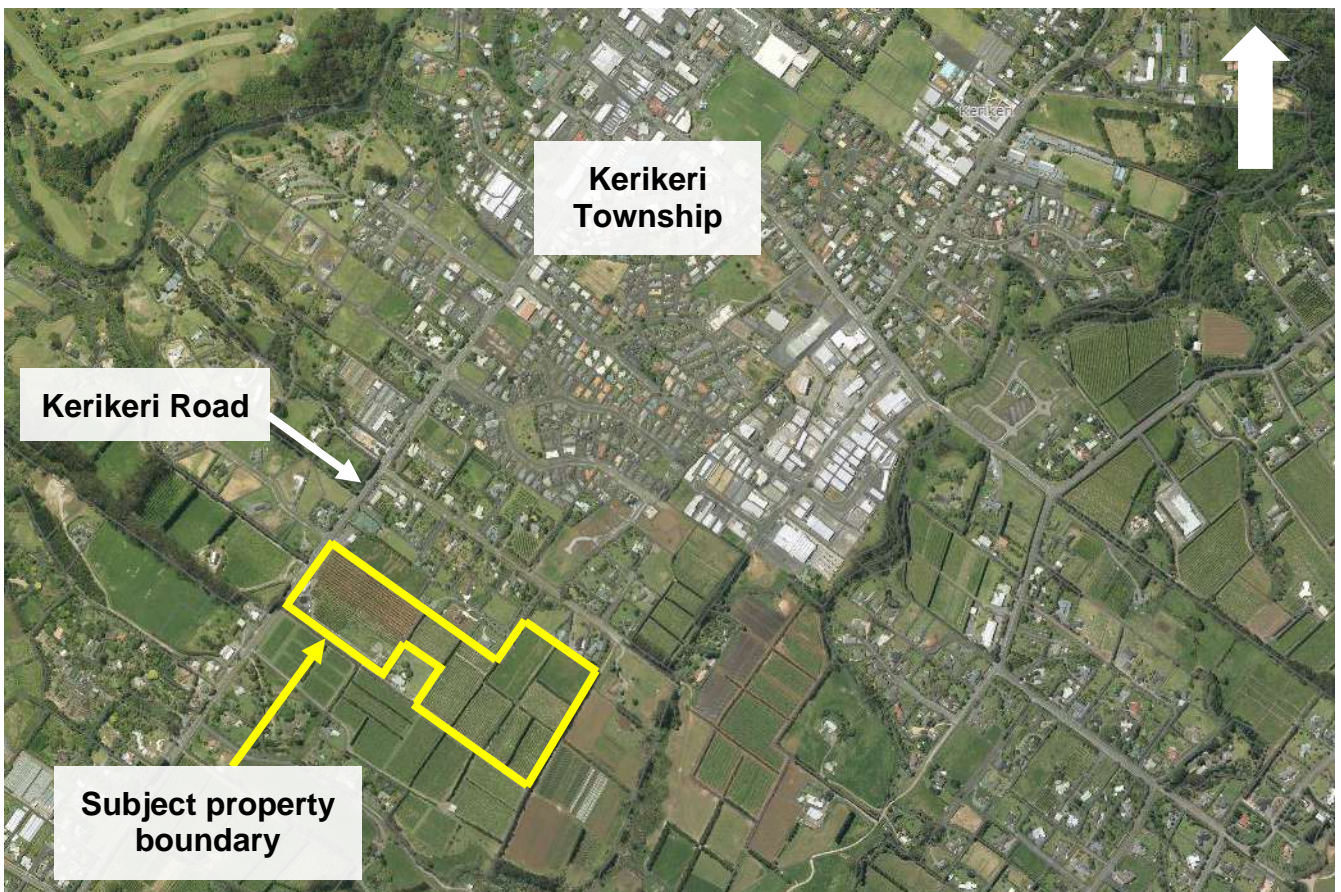


Figure 2: Aerial view of the site (source: NRC map).

4. Geological Setting

The 1:250,000 scale published geology of the area from the GNS Science website indicates that the site is underlain by two geologies:

- “Kerikeri Volcanic Group Late Miocene basalt of Kaikohe - Bay of Islands Volcanic Field”. This unit is described as Olivine basalt lava, scoria and tuff.
- “Ruatangata Sandstone of Waro Subgroup (Te Kuiti Group)”. This unit is described as Slightly calcareous, glauconitic, muddy, fine-grained sandstone.

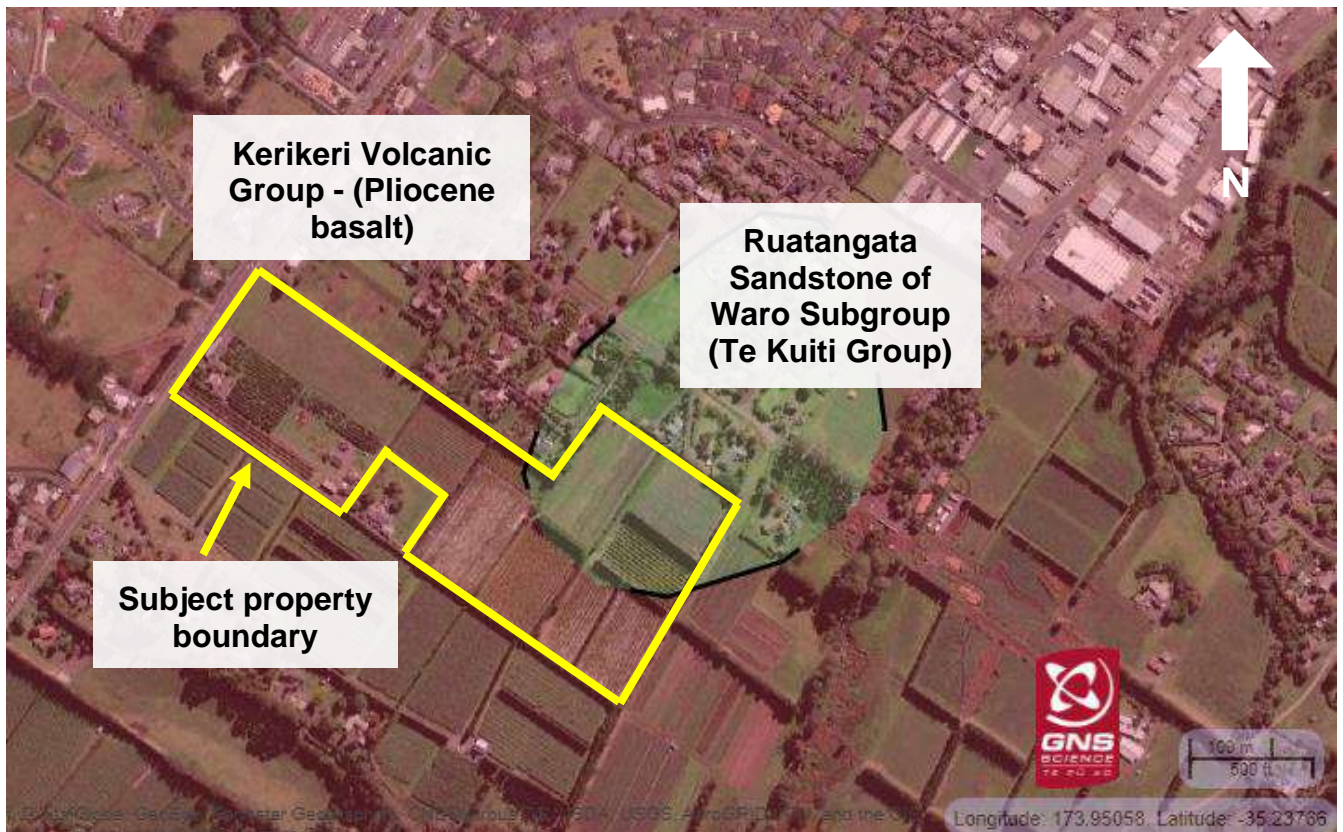


Figure 3: GNS published geology

5. Geotechnical Investigation

A geotechnical investigation was completed on the 6th of September 2021 by a geotechnical engineer from Hawthorn Geddes (HGEA). This investigation comprised three hand augured boreholes (HA01 to HA03) drilled to depths between 1m and 3m below ground level (bgl). Undrained shear strengths (Su) were measured using a hand-held shear vane at nominal 0.3m intervals in all the HAs as they were advanced.

A further detailed subsoil investigation was completed by two geotechnical engineers from HGEA on the 13th of January 2022. This comprised 11 hand augured boreholes (HA03 to HA14) drilled to depths between 2.5m and 3m bgl, with undrained shear strengths measured at nominal 0.3m intervals as the boreholes were advanced. Scala penetrometer tests were performed at the base of HA06 and HA14 to determine the soil density profile at depth and depth to rock. An additional five Scala penetrometer tests (SP01 to SP05) were performed from ground level, pushed to depths between 1.5m and 2.4m.

The Scala Penetrometer testing was performed to establish the soil strength and depth to rock. Test results indicate that the site is typically medium dense soils down to 1m bgl and dense soils beyond 1m bgl. Within HA14, Scala penetrometer refusal was encountered at a depth of 2.7m bgl. Refusal is inferred to be contact with the sandstone at depth.

Groundwater measurements were undertaken on the completion of each hole. Groundwater was not encountered within any of the hand augured boreholes drilled across the site. This water level may not be representative of typical groundwater conditions on the site, which may be higher during or following periods of prolonged and heavy rainfall (i.e. late winter / early spring). However, based on soil conditions, site locality, and geomorphology, we do not expect the groundwater table to be within 2m of the existing ground level.

Soils encountered in most of the hand augured boreholes are consistent with the mapped geology of the Kerikeri Volcanic Group. HA14 encountered an orange/yellow silt layer at a depth of 2.2m, more consistent with the underlying Te Kuiti group than the GNS mapped geology.

A loose soil layer was encountered from 3.3m to 3.8m in HA06, measured via Scala testing, with values between 1 and 2 blows per 100mm penetration. This layer was not encountered in any other test locations over the site and is considered discontinuous.

A copy of the HA logs, Scala Penetrometer testing data chart, and a site plan indicating approximate HA and Scala Penetrometer location are attached to this report.

Each hand augured borehole and Scala Penetrometer test is summarised in Tables 1 and 2 below.

Table 1: Summary of Subsoil Conditions

Hand Augered Borehole	Hand Auger Termination Depth	Scala Penetrometer Termination Depth	Topsoil Depth	Groundwater Depth	Shear Vane Soil Strengths	Scala Penetrometer Raw Data in Natural Ground	Description
All depths measured in (m) below current ground level					min - max		
					kPa	Blows/100mm	
HA1	3.0	NM	0.1	NE	120 – 180	NM	<p>Topsoil: A layer of brown, organic silt with minor clay was encountered to depths between 0.1m and 0.2m bgl across the site.</p> <p>Weathered Tuff: Below the layer of topsoil, dark brown, moist, slightly plastic, hard, silt with minor to some sand and clay was encountered down to the depth of 3.0m bgl. Undrained shear strengths measured were typically above 160kpa, indicating very stiff to hard soils.</p> <p>Completely Weathered Soils (Te Kuiti Group): An orange-yellow, non-plastic, moist, hard, silt with some sand content was encountered to a depth of 2.5m.</p> <p>Rock: Te Kuiti Group Rock, inferred from the results of Scala Penetrometer testing in HA14 at depth of 2.7m.</p>
HA2	3.0	NM	0.1	NE	120 - 180	NM	
HA3	1.0	NM	0.1	NE	NM	NM	
HA4	3.0	NM	0.1	NE	100 - UTP	NM	
HA5	3.0	NM	0.1	NE	100 - UTP	NM	
HA6	3.0	5.1	0.2	NE	120 - UTP	1 - 14	
HA7	3.0	NM	0.1	NE	200 - UTP	NM	
HA8	3.0	NM	0.2	NE	150 - 205+	NM	
HA9	3.0	NM	0.2	NE	205+ - UTP	NM	
HA10	3.0	NM	0.2	NE	170 - 233+	NM	
HA11	3.0	NM	0.2	NE	205+ - UTP	NM	
HA12	3.0	NM	0.1	NE	160 - UTP	NM	
HA13	3.0	NM	0.2	NE	205+ - UTP	NM	
HA14	2.5	2.7	0.2	NE	205+ - UTP	20+	

Table 1 Notes:

NE = not encountered

NM = not measured

UTP = unable to penetrate

Table 2: Summary of Scala Penetrometer Testing

Scala Penetrometer	Termination Depth	Raw Data in Natural Ground		
		surface – 1.0m	1.1m – 2.0m	2.0m – 2.9m
		min – max		
SP1	1.6	1 – 10	10 – 16	NM
SP2	1.5	2 – 9	7 – 17	NM
SP3	1.8	1 – 9	7 – 19	NM
SP4	2.4	2 – 5	7 – 14	12 - 14
SP5	1.6	2 – 6	7 – 14	NM

Table 2 Notes:

NM = not measured

6. Stability Assessment

A geotechnical engineer from HGEA has completed a visual stability assessment. This comprised a detailed site walkover, a review of historical aerial photographs (source: Google Earth) and a review of available Lidar data.

The property subject of this report comprises entirely gentle slopes, generally trending southeast at no more than 6°. During the site walkover, no obvious signs of shallow soil movement (creep) or any sign of deep-seated movement (tension cracks and heaving) were observed within the property boundary.

7. Recommendations and Conclusions

7.1. Stability

Slopes over the entire property are gently sloping at less than 6°, with no deep-seated or shallow instability features.

Based on the results of the subsoil investigation and our visual stability assessment described above, we consider the property is stable and suitable for the proposed development.

7.2. Earthworks

Minor earthworks, not likely to exceed 1m will be required for the formation of suitable building platforms and driveways.

Any cut shall be battered back to a stable gradient of no steeper than 3H:1V (18°), unless retained. All fill shall be placed on slopes less than 4H:1V (14°) and battered to no steeper than 3.5H:1V (16°), or shall be retained.

7.3. Foundations

Soils encountered over the property comprised of hard silts. Measured undrained shear strengths of the residual soils are typically greater than 100kPa. The ultimate geotechnical bearing capacity of soil is 300kPa.

Soils have been visually assessed to be expansive, therefore are not considered to be “good ground” as described in NZS3604:2011. Therefore, we recommend Atterberg limit testing be undertaken at the building consent stage to provide an appropriate assessment of soil shrink/swell behaviour to aid foundation design.

Based on our subsoil investigation, we consider the proposed building platforms are suitable for future residential development with no restriction on foundation type, subject to the design of the foundation taking into account the potential shrink/swell nature of the founding soils. There are no other constraints on foundations.

7.4. RMA Section 106

Based on our findings and subject to our recommendations, the risk of future instability affecting the property is low, and in terms of Section 106 of the RMA:

- a) the land in respect of which a consent is sought, or any structure on the land, is not, and is not likely to be, subject to material damage by slippage from any source; and
- c) that sufficient provision has been made for stable physical access to each allotment to be created by the subdivision.

8. Limitation

Recommendations and opinions in this report are based on data from the investigation described herein. The nature and continuity of subsoil conditions away from the boreholes is inferred and it is possible that actual conditions could vary from those assumed. Should subsoil conditions vary from those described in this report, it is essential that Hawthorn Geddes engineers and architects ltd be contacted to confirm the applicability of the recommendations.

This report has been prepared solely for the benefit of our client Traverse Limited and the Far North District Council in relation to the resource consent application for which this report has been prepared.

The comments in it are limited to the purpose stated in this report. No liability is accepted by Hawthorn Geddes engineers & architects ltd in respect of its use by any other person, and any other person who relies upon any matter contained in this report does so entirely at their own risk.

Appendix A – Figures

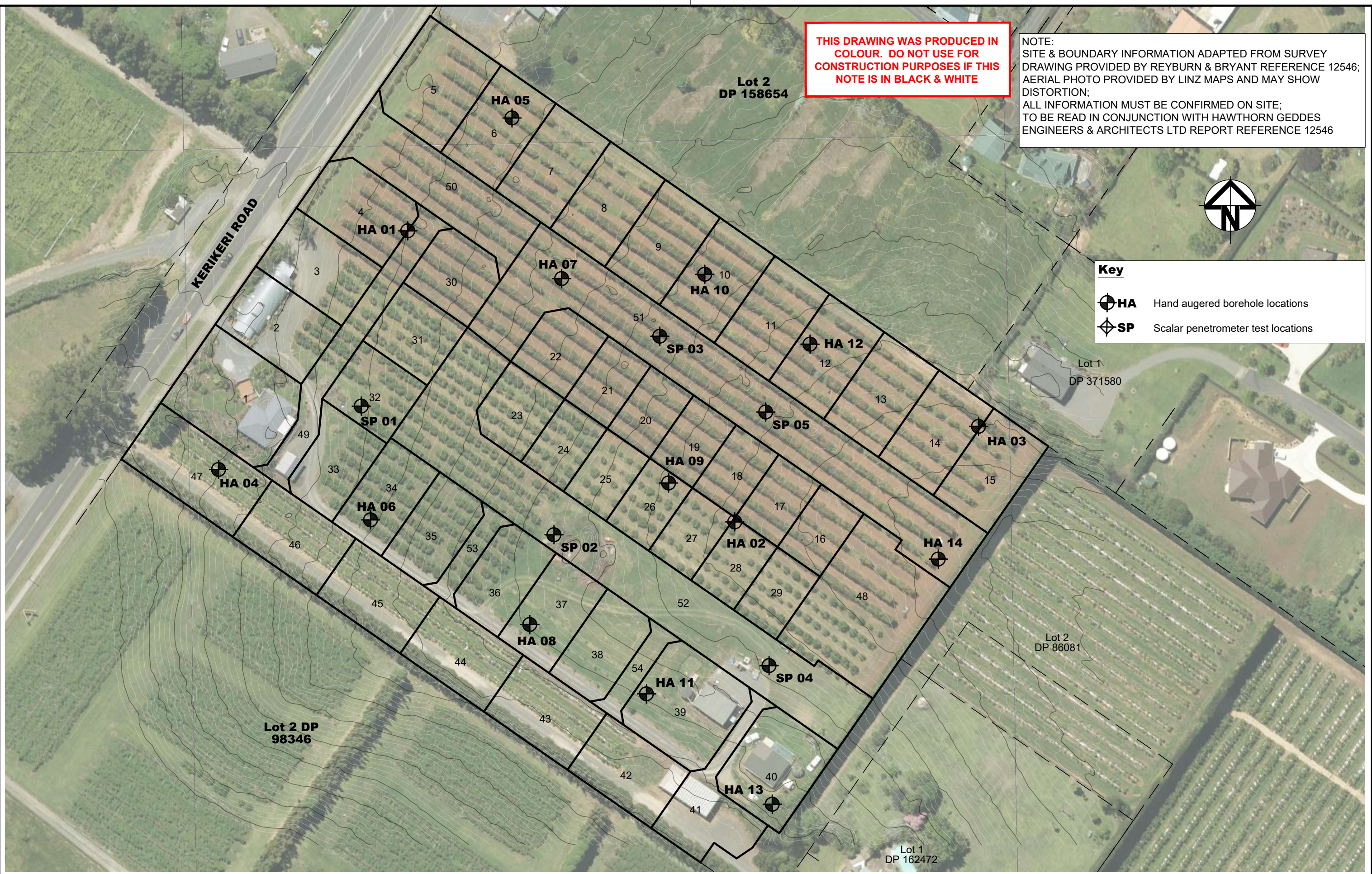
THIS DRAWING WAS PRODUCED IN COLOUR. DO NOT USE FOR CONSTRUCTION PURPOSES IF THIS NOTE IS IN BLACK & WHITE

NOTE:
 SITE & BOUNDARY INFORMATION ADAPTED FROM SURVEY DRAWING PROVIDED BY REYBURN & BRYANT REFERENCE 12546;
 AERIAL PHOTO PROVIDED BY LINZ MAPS AND MAY SHOW DISTORTION;
 ALL INFORMATION MUST BE CONFIRMED ON SITE;
 TO BE READ IN CONJUNCTION WITH HAWTHORN GEDDES ENGINEERS & ARCHITECTS LTD REPORT REFERENCE 12546



Key

- HA** Hand augered borehole locations
- SP** Scalar penetrometer test locations



TO BE READ ONLY IN CONJUNCTION WITH ASSOCIATED REPORT

USE WRITTEN DIMENSIONS. DO NOT SCALE FROM DRAWING.

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SITE PLAN
 SCALE - 1:1000

Hawthorn Geddes
 engineers & architects ltd

7 Selwyn Avenue Whangarei 0110
 Phone: 09 438 7139
 hg@hgcs.co.nz

Unit 21a, The Grange Warkworth 0910
 Phone: 09 283 3428
 www.hawthorngeddes.co.nz

CLIENT **TRAVERSE DEVELOPMENTS**

PROJECT **GEOTECHNICAL INVESTIGATION**
373 KERIKERI ROAD, KERIKERI

DRAWING **SITE PLAN**

SCALE @ A3	1:1000
PROJECT No.	12546
FIGURE No.	01
REV.	R1

18/01/2022 3:18:42 p.m. K:\12546 Traverse Developments - Subdivision Due Diligence - 373 Kerikeri Road, Kerikeri\12546 210916 Site plan for Geo.dwg

Appendix B – Borehole Logs & Scala Data Chart



CLIENT Traverse Developments	PROJECT Traverse Developments – Subdivision Due Diligence – 373 Kerikeri
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 06/09/21	COMPLETED DATE 06/09/21
DRILLING CONTRACTOR	COORDINATES
DRILLING METHOD 50mm Hand Auger	LEVEL 0.00
LOGGED BY DC	
HOLE LOCATION Start of Lot	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
0.10				Topsoil: clayey SILT; dark brown, very stiff , moderately plastic , moist	Groundwater Not Encountered	
				silty CLAY; brown, hard , highly plastic , moist		
		SV = 125 / 51 kPa (GEO952)				
		SV = 161 / 59 kPa (GEO952)				
1		SV = 176 / 59 kPa (GEO952)				
		SV = 176 / 73 kPa (GEO952)				
		SV = 176 / 73 kPa (GEO952)				
		SV = 176 / 81 kPa (GEO952)				
2		SV = 161 / 73 kPa (GEO952)				
		SV = 176 / 88 kPa (GEO952)				
		SV = 176 / 73 kPa (GEO952)				
3		SV = 154 / 66 kPa (GEO952)		EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ▷ Water In flow



CLIENT Traverse Developments	PROJECT Traverse Developments – Subdivision Due Diligence – 373 Kerikeri
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 06/09/21	COMPLETED DATE 06/09/21
DRILLING CONTRACTOR	COORDINATES
DRILLING METHOD 50mm Hand Auger	LEVEL 0.00
LOGGED BY DC	
HOLE LOCATION Bottom of Lot	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
1		SV = 117 / 29 kPa (GEO952)		0.10 Topsoil: clayey SILT; dark brown, very stiff , moderately plastic , moist	Groundwater Not Encountered	
		SV = 161 / 59 kPa (GEO952)		silty CLAY; brown, very stiff , highly plastic , moist		
		SV = 161 / 73 kPa (GEO952)				
		SV = 176 / 81 kPa (GEO952)				
		SV = 176 / 88 kPa (GEO952)				
		SV = 161 / 59 kPa (GEO952)				
		SV = 147 / 59 kPa (GEO952)				
		SV = 147 / 59 kPa (GEO952)		2.50 clayey SILT; dark brown, very stiff , moderately plastic , moist		
		SV = 147 / 66 kPa (GEO952)				
		SV = 161 / 44 kPa (GEO952)		3.00 EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ▷ Water In flow



CLIENT Traverse Developments	PROJECT Traverse Developments – Subdivision Due Diligence – 373 Kerikeri
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 06/09/21	COMPLETED DATE 06/09/21
DRILLING CONTRACTOR	COORDINATES
DRILLING METHOD 50mm Hand Auger	LEVEL 0.00
LOGGED BY DC	
HOLE LOCATION Effluent	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
				Topsoil: clayey SILT; dark brown, very stiff , moderately plastic , moist 0.10 silty CLAY; brown, hard , highly plastic , moist	Groundwater Not Encountered	
1				1.00 EOH: 1.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 06/09/21	COMPLETED DATE 06/09/21
DRILLING CONTRACTOR	COORDINATES
DRILLING METHOD 50mm Hand Auger	LEVEL 0.00
LOGGED BY DC	
HOLE LOCATION	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
0.10				TOPSOIL		
				Silty CLAY, brown, very stiff, moist, highly plastic	Groundwater Not Encountered	
		SV = 125 / 51 kPa (GEO952)				
		SV = 161 / 59 kPa (GEO952)				
1		SV = 176 / 59 kPa (GEO952)				
		SV = 176 / 73 kPa (GEO952)				
		SV = 176 / 73 kPa (GEO952)				
2		SV = 176 / 81 kPa (GEO952)				
		SV = 161 / 73 kPa (GEO952)				
		SV = 176 / 88 kPa (GEO952)				
		SV = 176 / 73 kPa (GEO952)				
3				3.00 EOH: 3.00m		
		SV = 154 / 66 kPa (GEO952)				

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ◁ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 06/09/21	COMPLETED DATE 06/09/21
DRILLING CONTRACTOR	COORDINATES
DRILLING METHOD 50mm Hand Auger	LEVEL 0.00
LOGGED BY DC	
HOLE LOCATION	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
0.10				TOPSOIL		
		SV = 117 / 29 kPa (GEO952)		Silty CLAY, brown, very stiff, moist, highly plastic	Groundwater Not Encountered	
		SV = 161 / 59 kPa (GEO952)				
1		SV = 161 / 73 kPa (GEO952)				
		SV = 176 / 81 kPa (GEO952)				
		SV = 176 / 88 kPa (GEO952)				
2		SV = 161 / 59 kPa (GEO952)				
		SV = 147 / 59 kPa (GEO952)				
		SV = 147 / 59 kPa (GEO952)		2.50		
		SV = 147 / 66 kPa (GEO952)		Clayey SILT, dark brown, very stiff, moist, moderately plastic		
3		SV = 161 / 44 kPa (GEO952)		3.00 EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ↘ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 06/09/21 COMPLETED DATE 06/09/21	COORDINATES _____ LEVEL 0.00
DRILLING CONTRACTOR _____	
DRILLING METHOD 50mm Hand Auger	
LOGGED BY DC	
HOLE LOCATION _____	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
1			0.10	TOPSOIL	Groundwater Not Encountered	
			1.00	Silty CLAY, brown, hard, moist, highly plastic EOH: 1.00m		
2						
3						

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ↘ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
COORDINATES _____ LEVEL 0.00	
DRILLING CONTRACTOR _____	
DRILLING METHOD 50mm Hand Auger	
LOGGED BY NS	
HOLE LOCATION _____	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
				0.10 TOPSOIL		
		SV = 233+ kPa (GEO287)		SILT, minor clay, brown, hard, moist, slightly plastic	Groundwater Not Encountered	
		SV = UTP (GEO287)		0.60 fine Sandy SILT, brown, hard, moist, non-plastic		
1		SV = UTP (GEO287)		1.00 SILT, trace clay, brown, very stiff, moist, slightly plastic		
		SV = 163 / 30 kPa (GEO287)		1.2m: Wet.		
		SV = 166 / 30 kPa (GEO287)				
2		SV = 186 / 17 kPa (GEO287)		1.8m - 2.0m: poor recovery		
		SV = 166 / 37 kPa (GEO287)		2.0m: Pink		
		SV = 103 / 70 kPa (GEO287)				
		SV = 189 / 50 kPa (GEO287)		2.70 Silty CLAY, purplish pink, very stiff, moist, highly plastic		
3		SV = 233+ kPa (GEO287)		3.00 EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ◁ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
COORDINATES _____ LEVEL 0.00	
DRILLING CONTRACTOR _____	
DRILLING METHOD 50mm Hand Auger	
LOGGED BY NS	
HOLE LOCATION _____	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
				0.10 TOPSOIL		
		SV = 103 / 37 kPa (GEO287)		SILT, minor clay, brown, hard, moist, slightly plastic	Groundwater Not Encountered	
		SV = 233+ kPa (GEO287)		0.7m: With some clay.		
1		SV = 233+ kPa (GEO287)		1.0m: With minor clay.		
		SV = 233+ kPa (GEO287)				
		SV = 233+ kPa (GEO287)		1.6m: Yellowish brown mottles		
2		SV = 233+ kPa (GEO287)		1.8m: Yellowish brown and dark brown intermixed		
		SV = UTP (GEO287)				
		SV = 154 / 53 kPa (GEO287)		2.4m: Very stiff.		
		SV = 153 / 56 kPa (GEO287)				
3		SV = 233+ kPa (GEO287)		3.00 EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
COORDINATES _____	
LEVEL 0.00	
DRILLING CONTRACTOR _____	
DRILLING METHOD 50mm Hand Auger	
LOGGED BY GS	
HOLE LOCATION _____	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
0.00			TS	TOPSOIL	Groundwater Not Encountered	0.00
0.20		SV = 205+ kPa (GEO952)	X	SILT, some clay, minor fine to medium sand, dark orangish brown, hard, moist, slightly plastic		0.20
0.40		SV = 205+ kPa (GEO952)	X			0.40
0.60		SV = 205+ kPa (GEO952)	X			0.60
0.80		SV = 205+ kPa (GEO952)	X			0.80
1.00		SV = 205+ kPa (GEO952)	X			1.00
1.50		SV = UTP (GEO952)	X	1.5m: With trace fine angular gravel, light orange mottles		1.50
2.00		SV = 205+ kPa (GEO952)	X			2.00
2.80		SV = 205+ kPa (GEO952)	X			2.80
3.00		SV = 117 / 64 kPa (GEO952)	X			3.00
3.00				EOH: 3.00m		3.00
3.20	2					3.20
3.40	3					3.40
3.60	4					3.60
3.80	2					3.80
4.00	2					4.00
4.20	1					4.20
4.40	2					4.40
4.60	3					4.60
4.80	4					4.80
5.00	5					5.00
5.20	6					5.20
5.40	7					5.40
5.60	10					5.60
5.80	8					5.80
6.00	10					6.00
6.20	8					6.20
6.40	9					6.40
6.60	10					6.60
6.80	12					6.80
7.00	14					7.00

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ◁ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
DRILLING CONTRACTOR	COORDINATES
DRILLING METHOD 50mm Hand Auger	LEVEL 0.00
LOGGED BY NS	
HOLE LOCATION	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
0.10				TOPSOIL		
		SV = 233+ kPa (GEO287)		SILT, some clay, dark brown, hard, moist, slightly plastic	Groundwater Not Encountered	
		SV = 233+ kPa (GEO287)				
1		SV = 233+ kPa (GEO287)		0.9m: With minor clay, Brown 1.0m: With minor fine sand		
		SV = 233+ kPa (GEO287)		1.3m: With some sand. Sand, fine.		
		SV = 233+ kPa (GEO287)		1.8m: With minor fine sand, dark brown		
2		SV = 228 / 83 kPa (GEO287)		2.3m: With some fine sand, trace clay and silt clusters		
		SV = 199 / 50 kPa (GEO287)				
		SV = 233+ kPa (GEO287)				
3		SV = UTP (GEO287)		3.00 EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
COORDINATES _____	
LEVEL 0.00	
DRILLING CONTRACTOR _____	
DRILLING METHOD 50mm Hand Auger	
LOGGED BY GS	
HOLE LOCATION _____	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
			TS	TOPSOIL		
			0.20			
		SV = 205+ kPa (GEO952)	/	SILT, some clay, minor fine to medium sand, dark orangish brown, hard, moist, slightly plastic	Groundwater Not Encountered	
		SV = 205+ kPa (GEO952)	/			
1		SV = 205+ kPa (GEO952)	/			
		SV = 205+ kPa (GEO952)	/			
		SV = 205+ kPa (GEO952)	/			
2		SV = 205+ kPa (GEO952)	/	1.8m: With trace gravel. Gravel, fine, angular.		
		SV = 205+ kPa (GEO952)	/	2.0m: Fine angular gravel absent		
		SV = 152 / 67 kPa (GEO952)	/	2.4m: Very stiff, wet.		
		SV = 161 / 76 kPa (GEO952)	/			
3				3.00 EOH: 3.00m		
		SV = 205+ kPa (GEO952)	/			

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ◁ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
COORDINATES _____	
LEVEL 0.00	
DRILLING CONTRACTOR _____	
DRILLING METHOD 50mm Hand Auger	
LOGGED BY GS	
HOLE LOCATION _____	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
				TOPSOIL		
			0.20			
		SV = 205+ kPa (GEO952)		SILT, some clay, minor fine to medium sand, dark orangish brown, hard, moist, slightly plastic	Groundwater Not Encountered	
		SV = 205+ kPa (GEO952)				
1		SV = 205+ kPa (GEO952)				
		SV = UTP (GEO952)	1.20	Clayey SILT, minor fine to medium sand, dark orangish brown, hard, moist, moderately plastic		
		SV = 205+ kPa (GEO952)	1.60			
		SV = UTP (GEO952)		SILT, minor clay and fine to medium sand, dark orangish brown, hard, moist, non-plastic		
2		SV = UTP (GEO952)				
		SV = UTP (GEO952)				
		SV = UTP (GEO952)				
		SV = UTP (GEO952)				
3		SV = UTP (GEO952)	3.00	EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ◁ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
COORDINATES _____ LEVEL 0.00	
DRILLING CONTRACTOR _____	
DRILLING METHOD 50mm Hand Auger	
LOGGED BY NS	
HOLE LOCATION _____	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
				TOPSOIL		
			0.20			
		SV = 166 / 45 kPa (GEO287)		SILT, some fine sand, minor clay, dark brown, hard, moist, slightly plastic	Groundwater Not Encountered	
		SV = 233+ kPa (GEO287)		0.7m: Some fine sand absent		
1		SV = 233+ kPa (GEO287)		1.3m: With some sand, with trace clay; orange mottles. Sand, fine.		
		SV = 233+ kPa (GEO287)		1.6m: With minor fine sand, wet		
2		SV = 233+ kPa (GEO287)		2.0m: Minor fine sand absent		
		SV = 233+ kPa (GEO287)		2.3m: Trace clay absent		
		SV = 233+ kPa (GEO287)				
		SV = 233+ kPa (GEO287)				
3		SV = 226 / 40 kPa (GEO287)		3.00 EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
COORDINATES _____ LEVEL 0.00	
DRILLING CONTRACTOR _____	
DRILLING METHOD 50mm Hand Auger	
LOGGED BY GS	
HOLE LOCATION _____	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
			TS	TOPSOIL		
			0.20			
		SV = 205+ kPa (GEO952)	/	SILT, some clay, minor fine to medium sand, dark orangish brown, hard, moist, slightly plastic	Groundwater Not Encountered	
		SV = 205+ kPa (GEO952)	/			
1		SV = 205+ kPa (GEO952)	/			
		SV = UTP (GEO952)	/	1.2m: With trace fine angular gravel		
		SV = UTP (GEO952)	/	1.6m - 1.8m: Dark orange mottles		
2		SV = 205+ kPa (GEO952)	/			
		SV = 205+ kPa (GEO952)	/	2.2m: With minor fine to medium sand		
		SV = UTP (GEO952)	/			
3		SV = 205+ kPa (GEO952)	/	2.9m: Wet		
		SV = UTP (GEO952)	/	3.00 EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
COORDINATES _____ LEVEL 0.00	
DRILLING CONTRACTOR _____	
DRILLING METHOD 50mm Hand Auger	
LOGGED BY NS	
HOLE LOCATION _____	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
0.10			TOPSOIL			
		SV = 183 / 50 kPa (GEO287)		SILT, some fine sand, minor clay, dark brown, hard, moist, slightly plastic	Groundwater Not Encountered	
		SV = 233+ kPa (GEO287)		0.6m: With minor fine sand		
1		SV = 233+ kPa (GEO287)				
		SV = 233+ kPa (GEO287)				
		SV = 233+ kPa (GEO287)		1.5m: Minor fine sand and clay absent, Brown		
		SV = 233+ kPa (GEO287)		1.8m: Orange mottles		
2		SV = 223 / 164 kPa (GEO287)		2.2m: With minor fine sand and clay, Grayish brown, white mottles		
		SV = UTP (GEO287)		2.6m: Very stiff, wet		
		SV = 166 / 100 kPa (GEO287)				
3		SV = 158 / 83 kPa (GEO287)		3.00 EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ↘ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
DRILLING CONTRACTOR	COORDINATES
DRILLING METHOD 50mm Hand Auger	LEVEL 0.00
LOGGED BY GS	
HOLE LOCATION	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
				TOPSOIL		
			0.20			
		SV = 205+ kPa (GEO952)		SILT, some clay, minor fine to medium sand, dark orangish brown, hard, moist, slightly plastic	Groundwater Not Encountered	
		SV = 205+ kPa (GEO952)				
1		SV = 205+ kPa (GEO952)				
		SV = 205+ kPa (GEO952)	1.20	Clayey SILT, trace fine to medium sand, dark orangish brown, hard, moist, moderately plastic		
		SV = 205+ kPa (GEO952)				
		SV = 205+ kPa (GEO952)				
2		SV = 205+ kPa (GEO952)	2.0m: With trace fine angular gravel			
		SV = 205+ kPa (GEO952)	2.20			
		SV = 205+ kPa (GEO952)		SILT, some clay, minor fine to medium sand, dark orangish brown, hard, moist, slightly plastic		
		SV = UTP (GEO952)				
3		SV = 205+ kPa (GEO952)	3.00	EOH: 3.00m		

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ▷ Water In flow



CLIENT Traverse Ltd	PROJECT Engineering suitability for subdivision
PROJECT NUMBER 12546	PROJECT LOCATION 373 Kerikeri Road , Kerikeri
START DATE 13/01/22	COMPLETED DATE 13/01/22
DRILLING CONTRACTOR	COORDINATES
DRILLING METHOD 50mm Hand Auger	LEVEL 0.00
LOGGED BY GS	
HOLE LOCATION	

DEPTH (m)	SCALA (Blows / 100mm)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER	DEPTH (m)
			TS	TOPSOIL		
			0.20			
		SV = 205+ kPa (GEO952)		SILT, some clay, minor fine to medium sand, dark orangish brown, hard, moist, slightly plastic (Kerikeri Volcanic Group)	Groundwater Not Encountered	
		SV = 205+ kPa (GEO952)				
1		SV = UTP (GEO952)				
		SV = 205+ kPa (GEO952)		1.6m: Dark and red mottles		
		SV = 205+ kPa (GEO952)				
2		SV = UTP (GEO952)		2.20		
		SV = UTP (GEO952)		2.50		
	20		EOH: 2.50m			
	20					
3						

PHOTO / SKETCH



WATER OBSERVATIONS

Date / Time	Water Level (m)	Type	Remarks

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ↙ Water Out flow
- ▷ Water In flow

SCALA PENETROMETER TEST RESULTS

Project No: 12546

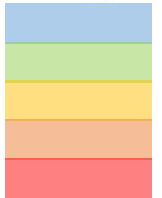
Project Name: Engineering suitability for subdivision



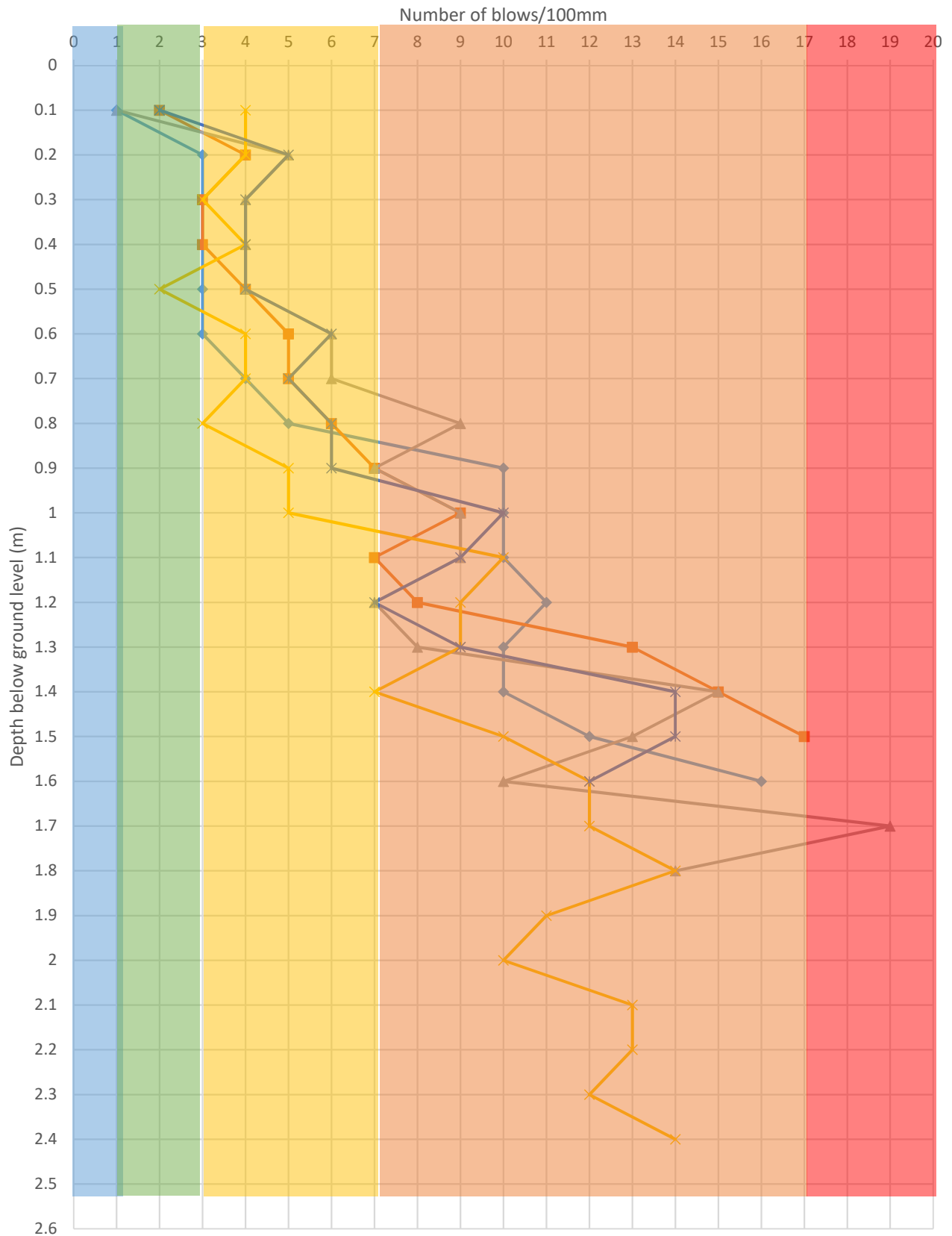
Tested by: NS & GS

Date: 13/01/22

Legend: Very Loose =
Loose =
Medium Dense =
Dense =
Very Dense =



SP01 - SP05 Raw Data in Natural Ground Blows/100 mm



Appendix E – MagnumStone Retaining Wall PS4

In reply please quote: 12546
12 April 2024

Traverse Developments Ltd
Attention: Kent Fearon
Via Email : kent@traverseltd.co.nz

TRAVERSE DEVELOPMENTS LTD – MAGNUM STONE RETAINING WALL
– 373 KERIKERI ROAD, KERIKERI – LOT 1 DP 25752
SCHEDULE TO PS4 - EXM-2023-31/0

The purpose of this schedule is to outline the scope of the attached producer statement construction review PS4. It reflects the extent of the inspections carried out by Hawthorn Geddes engineers and architects ltd.

This producer statement covers the inspection for:

- Founding soil conditions,
- Block placement, and
- Inspection for the completed wall (maximum effective retained height).

HGEA has undertaken inspections of the walls during the earthwork operations. These inspections comprised verification of founding soil conditions, retained soils conditions, verification of the effective retained height, placement of drain coils, placement of blocks (including extenders), and verification of the slope batters above and below the retaining wall, and backfill within magnum stone blocks. Inspections of the wall were undertaken between 18/01/2023 and 04/09/2023.

On the basis of these inspection(s), and/or reliant on the construction verification provided by contractor we conclude that the above building works have been completed in accordance with the building consent.

This PS4 shall be read in conjunction with the HGEA Earthworks Completion Report Dated 12.04.2024, reference 12546.

Limitation

This schedule has been prepared solely for the benefit of our client Traverse Developments Ltd and the Far North District Council in relation to the building consent application for which this schedule has been prepared. The comments in it are limited to the purpose stated in this schedule. No liability is accepted by Hawthorn Geddes engineers & architects ltd in respect of its use by any other person, and any other person who relies upon any matter contained in this schedule does so entirely at their own risk.

Callum Sands

Hawthorn Geddes
engineers & architects ltd

Schedule prepared by: Amélie Dudognon

Encl:

- Exemption for a Building Consent (A4 x 1 page)



association of
consulting and
engineering

Building Code Clause(s) B1VM4

PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

ISSUED BY: Hawthorn Geddes engineers and architects ltd
(Construction Review Firm)

TO: Traverse Developments Ltd
(Owner/Developer)

TO BE SUPPLIED TO: Far North District Council
(Building Consent Authority)

IN RESPECT OF: Refer to the attached PS4 Schedule (HG Ref# 12546)
(Description of Building Work)

AT: 373 Kerikeri Road
(Address)

Town/City: Kerikeri **LOT** 1 **DP** 25752 **SO**
(Address)

We Hawthorn Geddes engineers and architects ltd have been engaged by Traverse Developments Ltd
(Construction Review Firm)

To provide CM1 CM2 CM3 CM4 CM5 (Engineering Categories) or observation as per agreement with owner/developer Traverse Developments Ltd

or other Refer to the attached PS4 Schedule (HG Ref# 12546) services
(Extent of Engagement)

in respect of clause(s) B1 VM4 of the Building Code for the building work described in documents relating to Building Consent No. EXM-2023-31/0 and those relating to

Building Consent Amendment(s) Nos. n/a issued during the course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions/variation(s) No. n/a (copies attached) or by the attached Schedule have been issued during the course of the works.

On the basis of this review these review(s) and information supplied by the contractor during the course of the works and **on behalf of the firm** undertaking this Construction Review, **I believe on reasonable grounds** that All or Part only of the building works have been completed in accordance with the relevant requirements of the

Building Consent and Building Consent Amendments identified above, with respect to Clause(s) B1 VM4 of the Building Code. I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I, Callum Sands am: CPEng.# 1161318
(Name of Construction Review Professional)

I am a member of: Engineering New Zealand and hold the following qualifications B.e (Hons), CMEngNZ, CPEng

The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*.

The Construction Review Firm is a member of ACE New Zealand:

SIGNED BY Callum Sands (Signature)

ON BEHALF OF Hawthorn Geddes engineers and architects ltd Date 12/04/2024
(Construction Review Firm)

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000.*

This form is to accompany **Forms 6 or 8 of the Building (Form) Regulations 2004** for the issue of a Code Compliance Certificate.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACE NEW ZEALAND AND ENGINEERING NEW ZEALAND

GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional engineers New Zealand (now Engineering New Zealand), ACE New Zealand in consultation with the Building Officials Institute of New Zealand. The original suit of producer statements has been revised at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking undertaken by others.

PS1 Design Intended for use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 Design Review Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 Construction Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011²

PS4 Construction Review Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACE New Zealand and Engineering New Zealand to interpret the Producer Statement.

Competence of Design Professional

This statement is made by a Design Firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its designers.

A competent design professional will have a professional qualification and proven current competence through registration on a national competence based register, either as a Chartered Professional Engineer (CPEng) or a Registered Architect.

Membership of a professional body, such as Engineering New Zealand (formerly IPENZ), provides additional assurance of the designer's standing within the profession. If the design firm is a member of the ACE New Zealand, this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent design professional".

*Professional Indemnity Insurance

As part of membership requirements, ACE New Zealand requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to \$500,000.

Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-CM5 for Engineers³). The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design firm's engagement.

Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

Refer Also:

- 1 Conditions of Contract for Building & Civil Engineering Construction
NZS 3910: 2013
- 2 NZIA Standard Conditions of Contract SCC 2011
- 3 Guideline on the Briefing & Engagement for Consulting Engineering Services
(ACE New Zealand/IPENZ 2004)
- 4 PN Guidelines on Producer Statements

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engineering



9 March 2023

Traverse Limited
PO BOX 404299
Puhoi 0951

Reference Number: EXM-2023-31/0
Property Address: 373 Kerikeri Road, Kerikeri 0230
Property ID # 3315574
Description: Construction of retaining walls not greater than 1m in height

Dear Callum and Kent,

Exemption to the Requirement for a Building Consent

Your application for an exemption to the requirement for a Building Consent has been approved and your property file has been updated accordingly.

The exemption has been approved in accordance with:

2 Territorial and regional authority discretionary exemptions

Any building work in respect of which the territorial authority or regional authority considers that a building consent is not necessary for the purposes of this Act because the authority considers that —

(a) the completed building work is likely to comply with the building code

Please note that the exemption is subject to the following condition:

1. PS4 to be supplied to Council for all walls constructed on site.

If you have any questions, please contact the Building Compliance Team on 0800 920 029 or 09 401 5200

Yours sincerely,



Stuart Hofstetter
Team Leader – Building Compliance
Delivery and Operations

**Appendix F – Schedule 2A NZS4431:2022 Statement of Suitability
of Engineered Fill for Lightweight Structure**

STATEMENT OF SUITABILITY OF ENGINEERED FILL FOR LIGHTWEIGHT STRUCTURES

To Far North District Council
Development Traverse Development Ltd
Land title/s Lot 1 DP 25752
Location 373 Kerikeri Road, Kerikeri
Developer Traverse Development Ltd
Geotech designer Hawthorn Geddes engineers and architects ltd (HGEA)
Certifier Callum Sands of HGEA

Attachments:

- (1) HGEA earthworks completion report title "Earthwork Completion Report" reference number 12546, dated 12th of April 2024 includes:
 - a. All test results and,
 - b. All inspection records.
- (2) As-built survey completed by Reyburn & Bryant drawing reference EWA16655, dated 26.03.2024, Sheets 01 through 04

I confirm I Callum Sands of HGEA, am qualified as a certifier as defined in NZS 4431:2022.

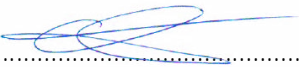
During this work, I was retained as certifier, and I or my certifier's representative undertook inspections and testing as documented in the attached earthworks completion report.

I am satisfied that the engineered fill shown in the attached as-built survey was placed, compacted, and tested in accordance with attached earthworks specification and that all variations and non-compliances have been documented in the earthwork's completion report.

Based on the information available, I certify that, to the best of my knowledge, the intent of the geotechnical designer (as presented in their design, drawing, and earthworks specification) has been achieved.

The area shown on the as-built survey plan referenced above is considered suitable for development as per NZS 3604:2011, except for the expansivity of soils, assessed to be moderately expansive Class M.

This certification does not remove the necessity for normal inspection and design of foundations as would be made in natural ground.

Certifier's signature:  Date: 12th of April 2024

Certifier's Name: Callum Sands

Certifier's Qualifications: Geotechnical Engineer – BE (Hons), CMEngNZ, CPEng, IntPE (NZ)

CPEng Number: 1161318