

Appendix A: Limitations

This report has been prepared for the benefit of our client, Waikanae North Developments Ltd C/-Paul Turner, and may also be relied upon by the client's authorised representatives for the purposes of the proceeding for which this report was commissioned. The reliance by any other parties on the information or opinions contained in this report shall be at such parties' sole risk.

The conclusions and recommendations contained within this report are based on the investigations as described in detail above. The nature and continuity of subsoil conditions are inferred, and it must be appreciated that actual conditions could vary considerably. Defects and unforeseen ground conditions may remain undetected which might adversely affect the stability of the site and the recommendation made herein.

This report has been prepared solely to address the issues raised in our brief and shall not be relied on for any other purpose.

In the event the third-party investigation data has been provided to us, the client acknowledges that we have placed reliance on this information to produce our report and CGW will accept no liability resulting from any errors or defect in the third-party data provided to us.

Appendix B: Nearby NZGD Logs



MACHINE BOREHOLE LOG

PROJECT: Mackays to Peka Peka Expressway JOB NUMBER: 3320901
 SITE LOCATION: Kapiti Coast CLIENT: NZTA

CIRCUIT: NZTM BOREHOLE LOCATION: West of Greenhill Road
 COORDINATES: N 5,475,972.4 m R L: 7.2 m
 E 1,774,677.2 m DATUM: Mean sea level

DRILLING						IN-SITU TESTS			DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	INSTRUMENTATION	R.L (m)	
FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	ROD	CASING	SV	τ (kPa)	SPT N									SAMPLES
		100 %	TT					2		SP	W	Medium dense, fine to medium SAND, trace silt, trace shells; grey; wet, non plastic.	Pleistocene Sand (Contd.)	Screen + Gravel	-3		
		100 %	SPT					3				Dense.					
		45 %	TT					3									
		100 %	SPT					5				11m depth, thick (900mm) saturated, dilatant zone.					
		100 %	SPT					11									
		45 %	TT					12									
		100 %	SPT					12									
		86 %	TT					3									
		100 %	SPT					5									
		100 %	SPT					8									
		76 %	TT					15									
		100 %	SPT					19									
		76 %	TT					7				13.4m depth, moderately thin (100mm) saturated, dilatant zone. Medium dense.					
		100 %	SPT					6									
		100 %	SPT					5									
		76 %	TT					6									
		100 %	SPT					5									
		76 %	TT					6									
		100 %	SPT					6									
		76 %	TT					7									
		100 %	SPT					7									
		76 %	TT					6									
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		76 %	TT					6									
		100 %	SPT					6									
		76 %	TT					7									
		100 %	SPT					7									

MACHINE BOREHOLE LOG

PROJECT: Mackays to Peka Peka Expressway JOB NUMBER: 3320901
 SITE LOCATION: Kapiti Coast CLIENT: NZTA

CIRCUIT: NZTM BOREHOLE LOCATION: SH1 400m SW of Peka Peka Rd
 COORDINATES: N 5,476,421 m R L: 13.9 m
 E 1,775,704 m DATUM: Mean sea level

DRILLING				IN-SITU TESTS			SAMPLES	DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R.L. (m)
FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	ROD	CASING	SV								
		84 %	HA							GW	W	'Loose', sandy fine to medium GRAVEL, minor silt; greyish brown; wet. Gravel: Subrounded to subangular, SW, greywacke.	Fill	13
		80 %	TT					2		SW	W	Loose, fine to coarse SAND, trace silt; greyish brown; wet.	Holocene Sand	12
		100 %	SPT					2				2.1m depth, thin (50mm) band with some silt, orange-brown.		
		100 %	TT					1		SM	M	Loose, silty SAND, trace clay; light yellow brown; moist, low plasticity.	Holocene Alluvium	11
		100 %	SPT					1		SW	M	Loose, SAND, some silt; light greyish brown; moist.		
		100 %	TT					1		SM	W	Loose, silty fine to coarse SAND, minor clay, trace fine gravel; light brown; wet, low plasticity. Gravel: Rounded, SW, greywacke.		
		100 %	TT					2		ML	M	Firm, sandy SILT, minor clay, trace fine gravel; light brown; wet, low plasticity. Gravel: Rounded, SW, greywacke.	Holocene Alluvium	10
		100 %	SPT					2		ML	M	Firm, SILT, some fine sand, trace clay; orange; moist, low plasticity.		
		100 %	TT					3		SW	W	Medium dense, fine-medium SAND, minor silt; orange brown; wet, non plastic.	Rakaia Terrane Greywacke	9
		100 %	SPT					2				Extremely weak, SW, bluish grey; foliated/sheared (mm scale) GREYWACKE. Extremely closely fractured (crushed), no preferential defect orientation observed. Very narrow (<2mm) infills: Firm, SILT, some clay; high plasticity. Trace pyrite and zeolite mineralisation. [Crush Zone]		
		100 %	TT					3						
		90 %	TT					10		GP	M		Rakaia Terrane Greywacke	8
		0 %	SC					13				7.95m depth, moderately thin (100mm) band with silt infill/ matrix removed by drilling.		
		62 %	TT					14				8.05m depth, thick (850mm) light grey band.	Rakaia Terrane Greywacke	7
		0 %	SC					15						
		75 %	TT					15						
		0 %	SC					15					Rakaia Terrane Greywacke	6
		0 %	SC					17						
		0 %	SC					20					Rakaia Terrane Greywacke	5
		0 %	SC					19						
		62 %	TT					11 for 60mm					Rakaia Terrane Greywacke	4
		75 %	TT					9				9.45m depth, moderately thin (150mm) band with silt infill/ matrix removed by drilling.		
		0 %	SC					15				9.6m depth, moderately thick (400mm) light grey band.	Rakaia Terrane Greywacke	4
		0 %	SC					20						

DATE STARTED: 29/10/10 DRILLED BY: Perry Drilling Ltd COMMENTS:
 DATE FINISHED: 29/10/10 EQUIPMENT: Edson SC = Solid cone SPT
 LOGGED BY: MRA DRILL METHOD: Rotary wireline Coordinates obtained using hand held GPS, elevation estimated from LIDAR data.
 SHEAR VANE No: N/A DRILL FLUID: Water
 DIAMETER/INCLINATION: 90 mm / 90°



MACHINE BOREHOLE LOG

PROJECT: Mackays to Peka Peka Expressway JOB NUMBER: 3320901
 SITE LOCATION: Kapiti Coast CLIENT: NZTA

CIRCUIT: NZTM BOREHOLE LOCATION: North of Greenhill Road
 COORDINATES: N 5,476,028 m R L: 7.5 m
 E 1,774,888.9 m DATUM: Mean sea level

DRILLING						IN-SITU TESTS			DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R.L. (m)
FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	ROD	CASING	SV	τ (kPa)	SPT N							
		16 %	TT									'Very loose'. PEAT; dark brown; moist, wet, non plastic. Organics: Fibrous. [Peat, H6]. (Poor recovery).	Interdune Deposits (organic silt)	7	
		100 %	UT					2				Soft, ORGANIC SILT, minor organics; dark brown; wet, non plastic. Organics: Fibrous. [Peat, H6]. (Poor recovery).			
		100 %	SPT					2				Medium dense, fine to medium SAND, trace silt, trace organics; brownish grey; wet, non plastic. Organics: Fibrous. [HOLOCENE SAND].		5	
		100 %	TT					3							
		100 %	SPT					3				Dense, fine to medium SAND, trace silt; grey; wet, non plastic.		4	
		100 %	TT					5							
		100 %	SPT					5				Very dense.		3	
		67 %	TT					8							
		100 %	SPT					8				Fine to coarse SAND.	Pleistocene Sand	2	
		100 %	TT					12							
		100 %	SPT					14				Dense.		1	
		100 %	TT					16							
		100 %	SPT					8 for 25 mm				Trace shell and echinoderm fragments.		0	
		100 %	TT					N=50+							
		100 %	SPT					5						-1	
		100 %	TT					6							
		100 %	SPT					6						-2	
		100 %	TT					7							
		100 %	SPT					7							
		100 %	TT					9							
		100 %	SPT					10							
		100 %	TT					11							
		100 %	SPT					11							
		100 %	TT					14							
		100 %	SPT					14							
		100 %	TT					N=42							
		100 %	SPT					5							
		100 %	TT					6							
		100 %	SPT					6							
		100 %	TT					7							
		100 %	SPT					7							
		100 %	TT					10							
		100 %	SPT					8							
		100 %	TT					9							
		100 %	SPT					9							
		100 %	TT					10							
		100 %	SPT					10							
		100 %	TT					N=34							

DATE STARTED: 2/9/10 DRILLED BY: Perry Drilling Ltd COMMENTS: Drilled at proposed CPT 61 location
 DATE FINISHED: 3/9/10 EQUIPMENT: Edson
 LOGGED BY: MRA DRILL METHOD: Rotary wireline
 SHEAR VANE No: N/A DRILL FLUID: Water
 DIAMETER/INCLINATION: 90 mm / 90°



MACHINE BOREHOLE LOG

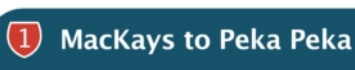
PROJECT: Mackays to Peka Peka Expressway JOB NUMBER: 3320901
 SITE LOCATION: Kapiti Coast CLIENT: NZTA

CIRCUIT: NZTM BOREHOLE LOCATION: North of Greenhill Road
 COORDINATES: N 5,476,028 m R L: 7.5 m
 E 1,774,888.9 m DATUM: Mean sea level

DRILLING						IN-SITU TESTS			SAMPLES	DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R.L. (m)
FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	ROD	CASING	SV	τ (kPa)	SPT 'N'								
		100 %	TT					7 12 23			SP	W	Dense, fine to coarse SAND, trace silt; grey; wet, non plastic. Trace shell and echinoderm fragments. Very dense.		-3	
		100 %	SPT					27 for 25mm N=50+		11			END OF LOG @ 10.75 m		-4	
										12					-5	
										13					-6	
										14					-7	
										15					-8	
										16					-9	
										17					-10	
										18					-11	
										19					-12	

DATE STARTED: 2/9/10 DRILLED BY: Perry Drilling Ltd COMMENTS:
 DATE FINISHED: 3/9/10 EQUIPMENT: Edson Drilled at proposed CPT 61 location
 LOGGED BY: MRA DRILL METHOD: Rotary wireline
 SHEAR VANE No: N/A DRILL FLUID: Water
 DIAMETER/INCLINATION: 90 mm / 90°

MACHINE_BOREHOLE_P:\332\3320901\DESIGN\GEO\TECH\GINT\MACKAYS TO PEKA PEKA EXPRESSWAY.GPJ BECA_GDT 23/9/11



MACHINE BOREHOLE LOG

PROJECT: Mackays to Peka Peka Expressway JOB NUMBER: 3320901
 SITE LOCATION: Kapiti Coast CLIENT: NZTA

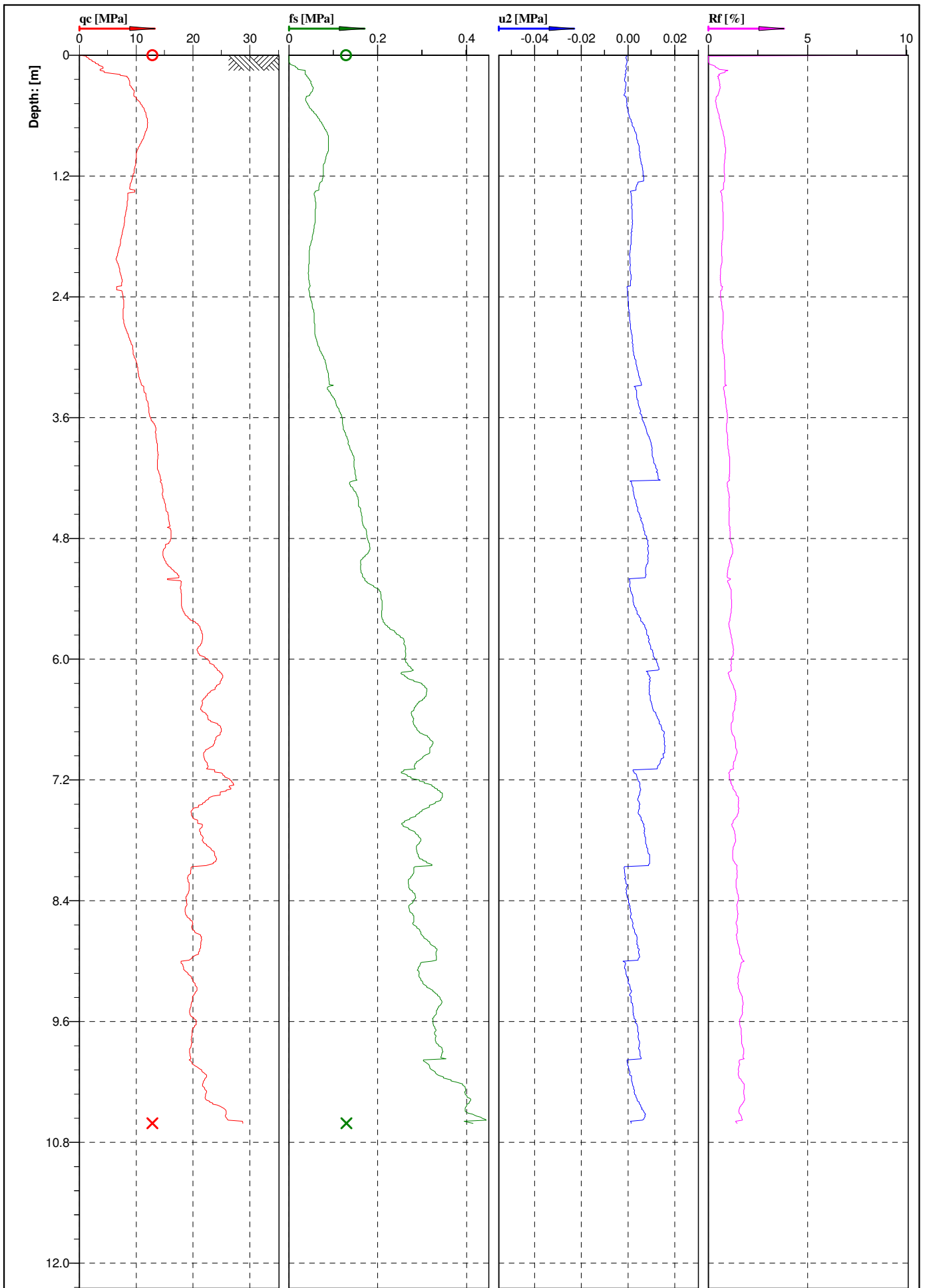
CIRCUIT: NZTM BOREHOLE LOCATION: Kensington Farm, south of Peka Peka Road
 COORDINATES: N 5,476,198.2 m R L: 8.0 m
 E 1,775,227.7 m DATUM: Mean sea level

DRILLING						IN-SITU TESTS			DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	INSTRUMENTATION	R.L. (m)
FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	ROD	CASING	SV	τ (kPa)	SPT N'								
		10.63 %	SPT TT					27 23 for 50mm N=50+				Dense, fine to medium SAND, trace silt; grey; wet, non plastic.				
									11			Very dense, fine to coarse SAND, trace silt, trace fine gravel; grey; wet, non plastic. Gravel: Subrounded, SW greywacke. END OF LOG @ 10.63 m			-3	
									12						-4	
									13						-5	
									14						-6	
									15						-7	
									16						-8	
									17						-9	
									18						-10	
									19						-11	

DATE STARTED: 24/8/11 DRILLED BY: Perry Drilling Ltd
 DATE FINISHED: 25/8/11 EQUIPMENT: Edson
 LOGGED BY: JMB DRILL METHOD: Rotary wireline
 SHEAR VANE No: N/A DRILL FLUID: Water & mud
 DIAMETER/INCLINATION: 90 mm / 90°

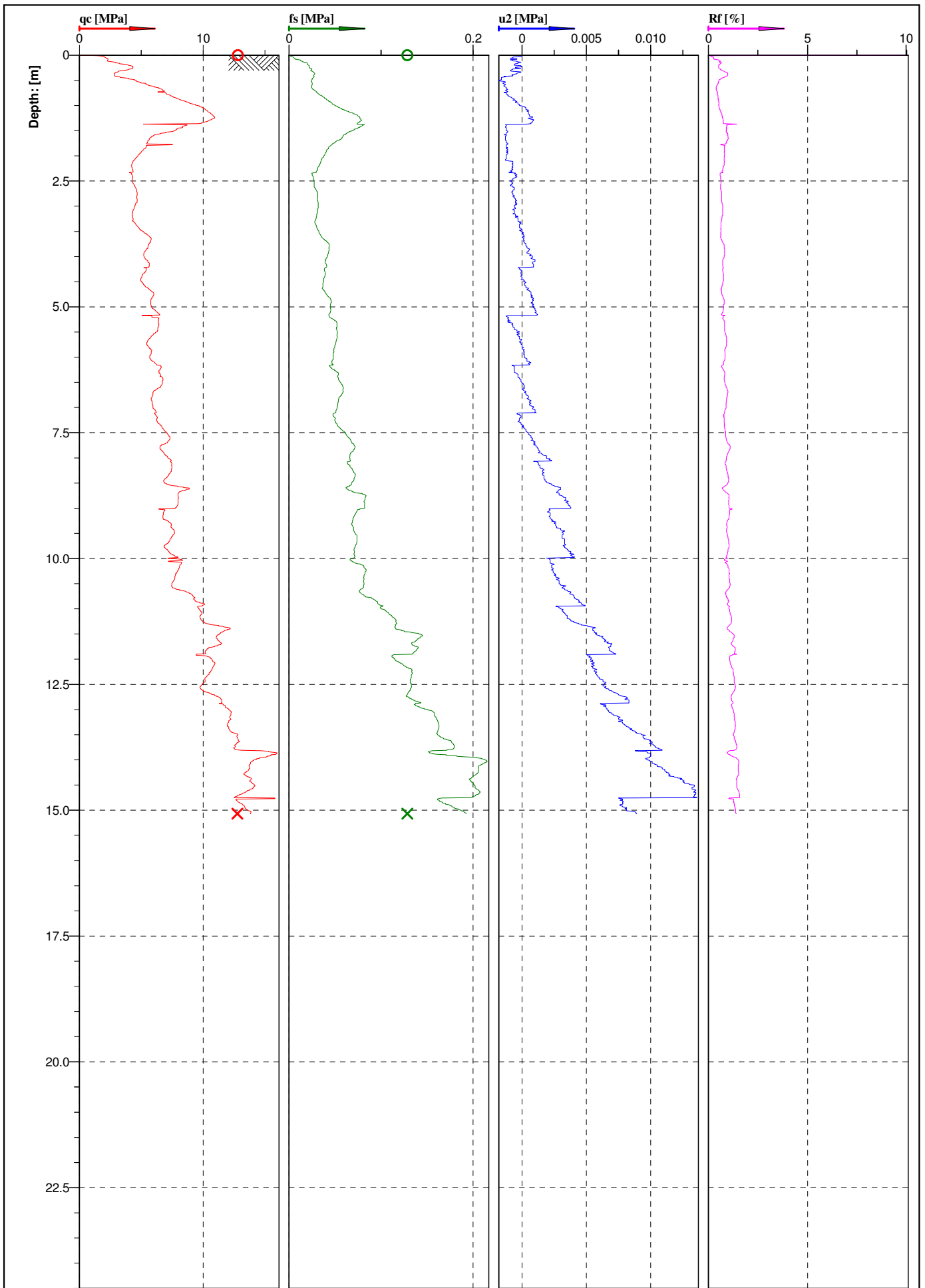
COMMENTS:
 Shallow piezometer installed in adjacent bore (~1m offset)

MACHINE_BOREHOLE_P:\332\3320901\DESIGN\GEO\TECH\GINT\MACKAYS TO PEKA PEKA EXPRESSWAY.GPJ BECA.GDT 23/9/11



Cone No: 5336
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: 304 Ngarara Rd Waikanae	Position: -, -	Ground level: 0.00	Test No.: 3
Project ID: CPT3	Client: Miyamoto	Date: 15/08/2019	Scale: 1 : 50
Project: 304 Ngarara Rd Waikanae		Page: 1/1	Fig.:
Could not push cone any further.		File: 304 Ngarara Rd cpt3.cpt	



Cone No: 5336
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: 304 Ngarara Rd Waikanae	Position: -, -	Ground level: 0.00	Test No.: 5
Project ID: CPT5	Client: Miyamoto	Date: 15/08/2019	Scale: 1 : 100
Project: 304 Ngarara Rd Waikanae		Page: 1/1	Fig.:
Target depth reached.		File: 304 Ngarara Rd cpt5.cpt	

Borelog for well BP32/0034

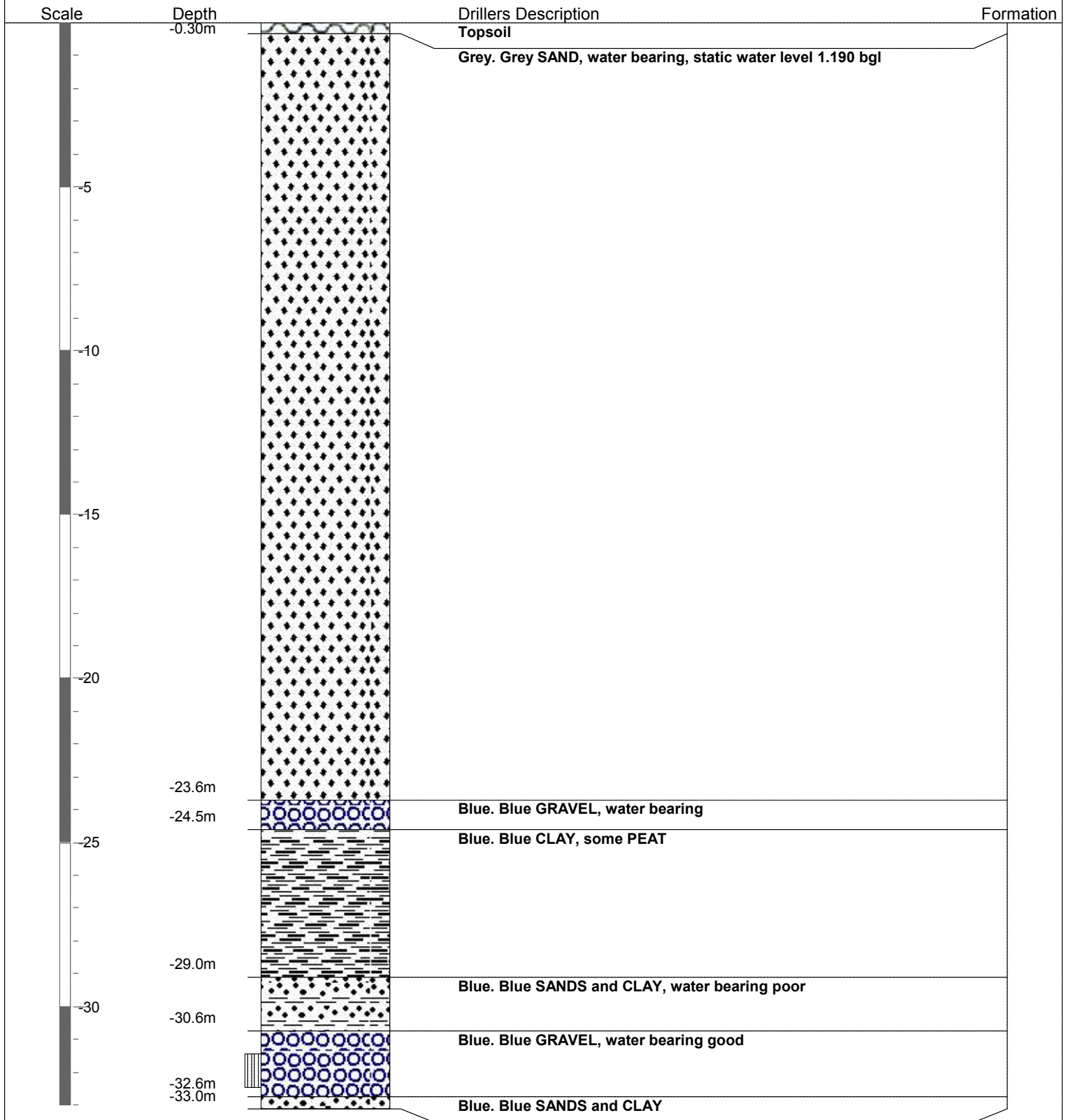
Gridref: 1773979.5476631

Ground Level Altitude -0.60 +MSD

Driller : RICHARD WEBB WELLDRILLING

Drill Method : Unknown

Drill Depth : 32.45m Drill Date : 5/11/2013 12:00:00 a.m.



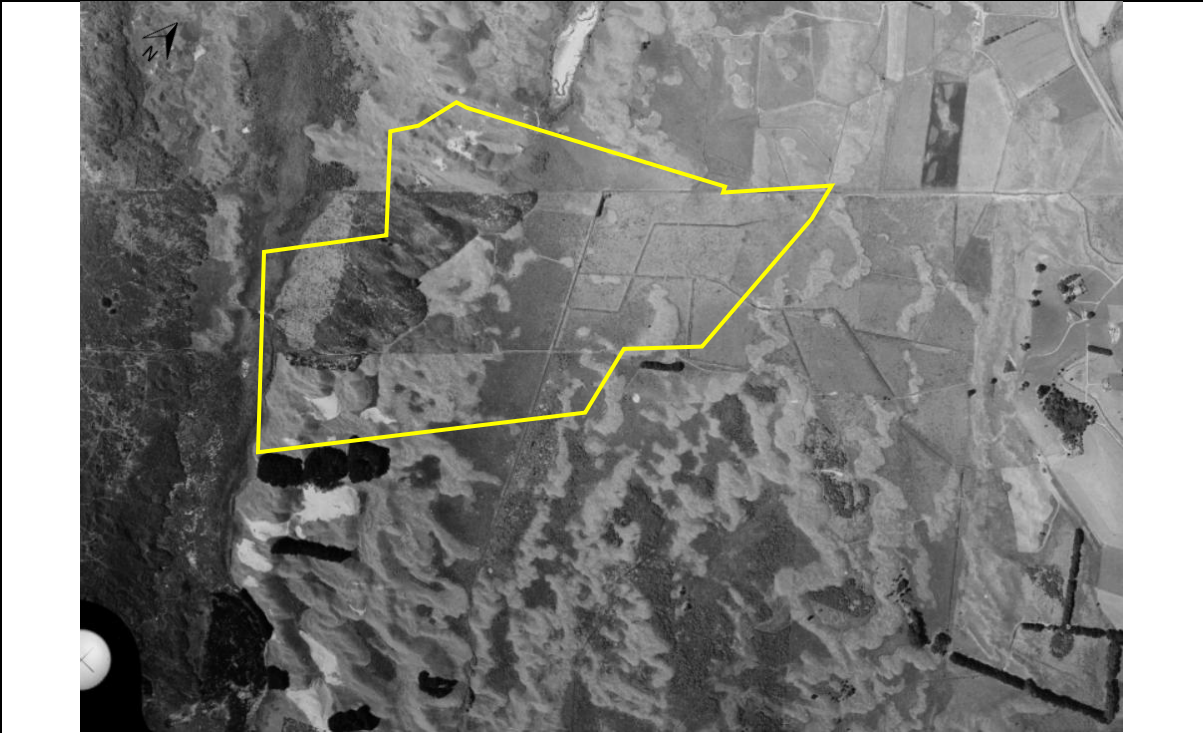
Appendix C: Historic Aerial Photography



1948 - Retrolens



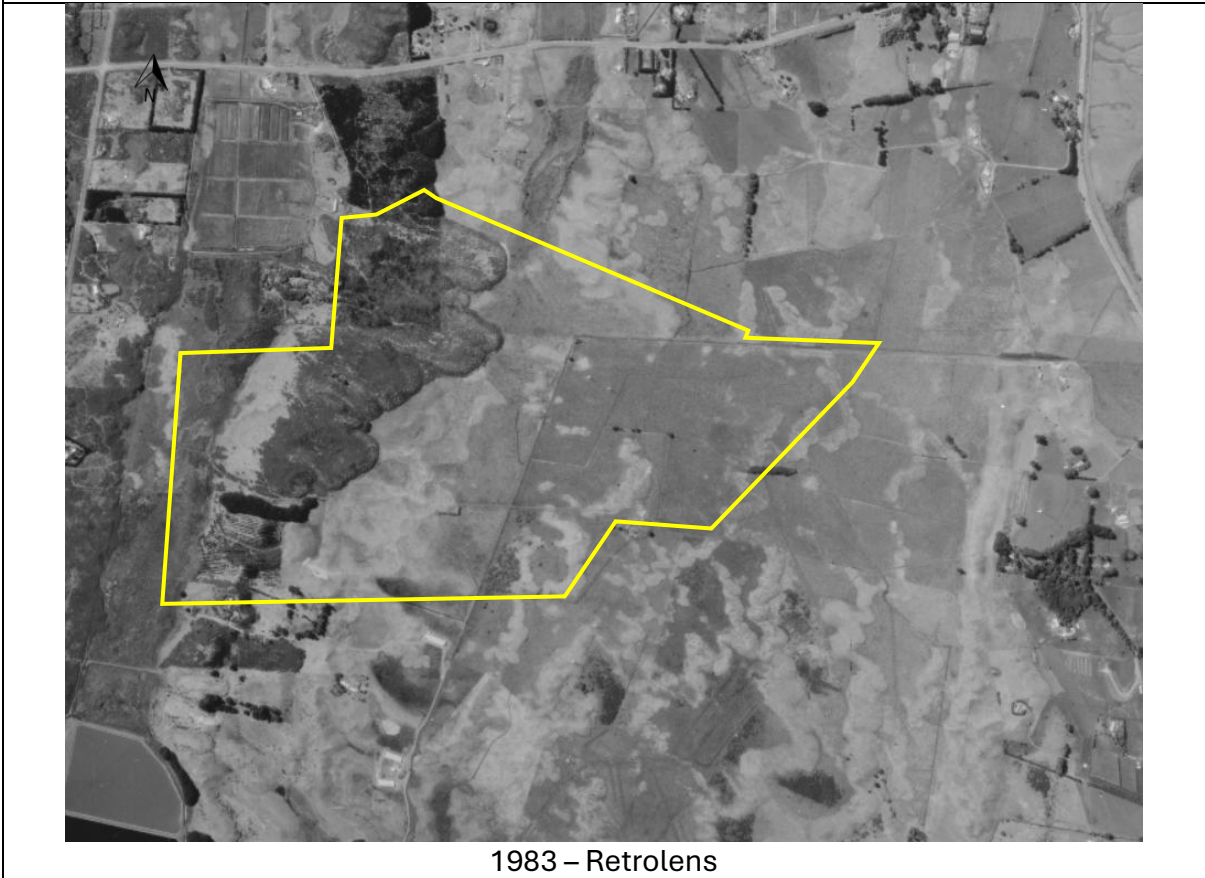
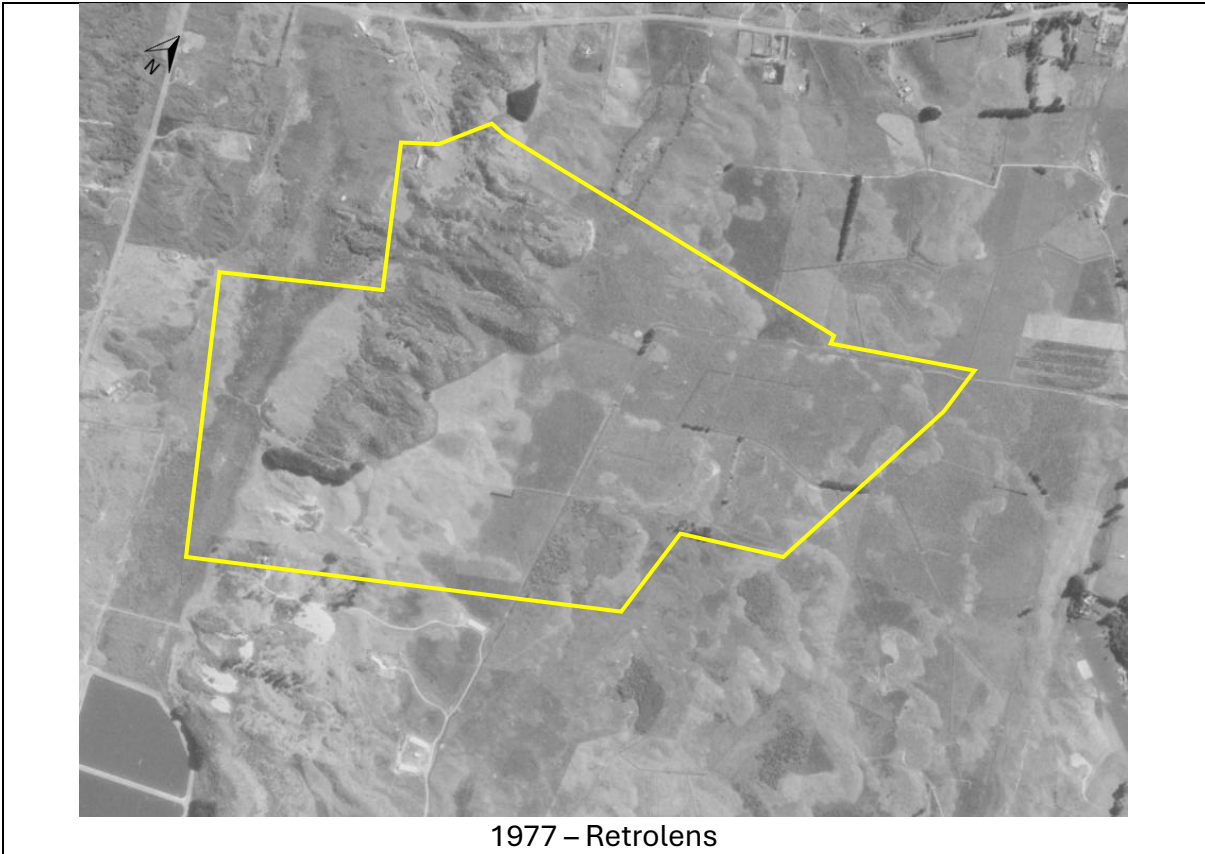
1952 - Retrolens



1957 - Retrolens



1966 - Retrolens





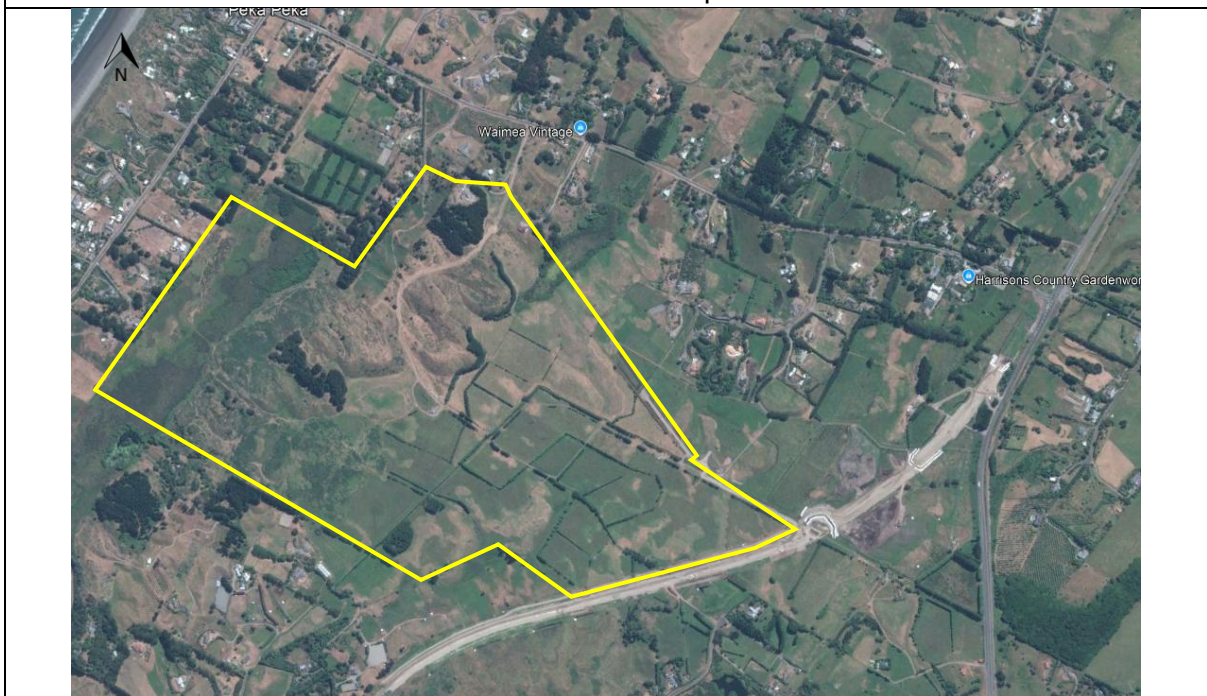
1987 – Retrolens



1998 – KCDC Maps



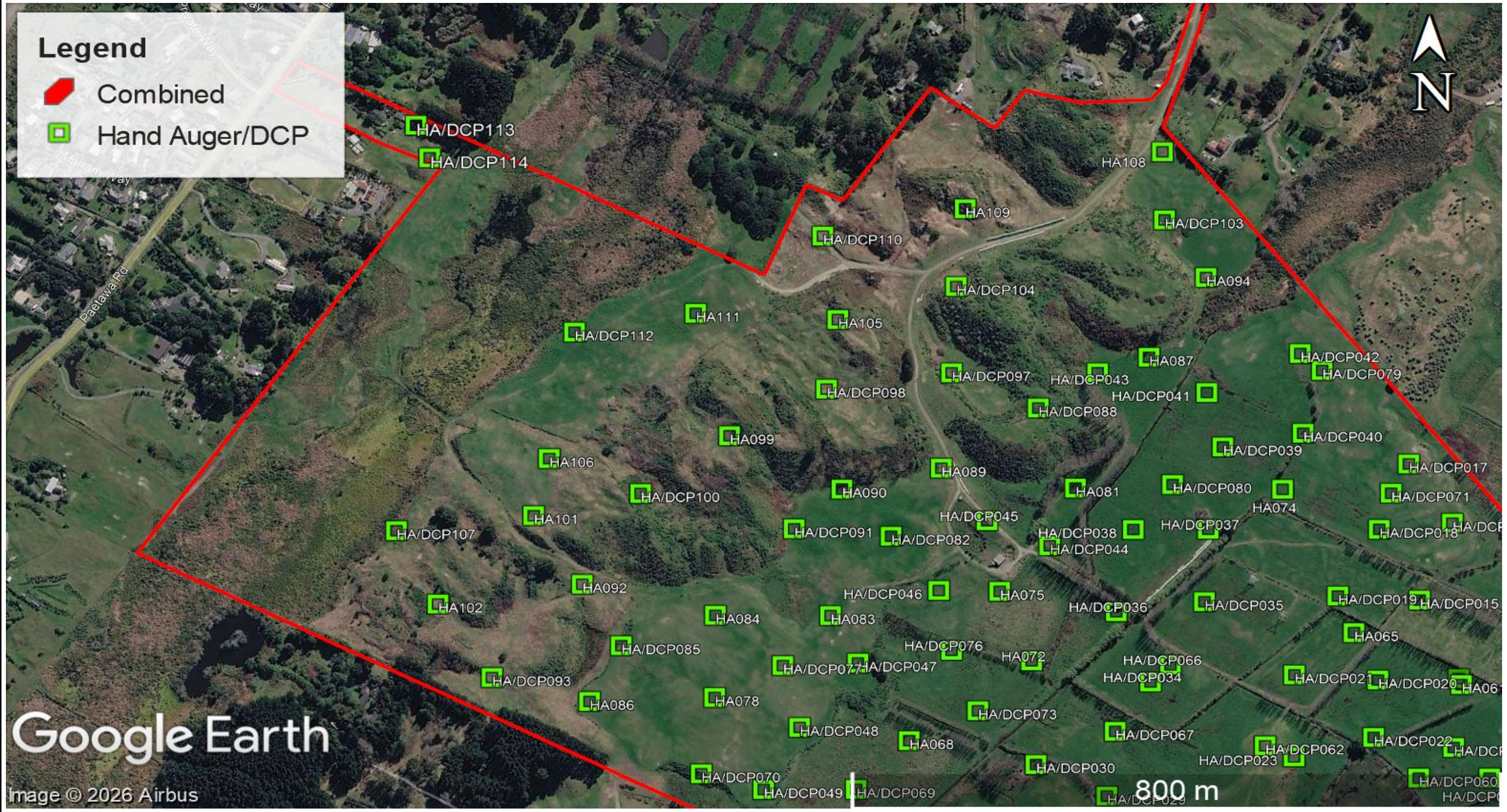
2010 – KCDC Maps



2015 – Google Earth



Appendix D: Site Investigation Plan and Geological Cross Section





Legend

- Hand Auger/DCP
- Property Boundary

Google Earth
Image © 2025 Airbus

600 m

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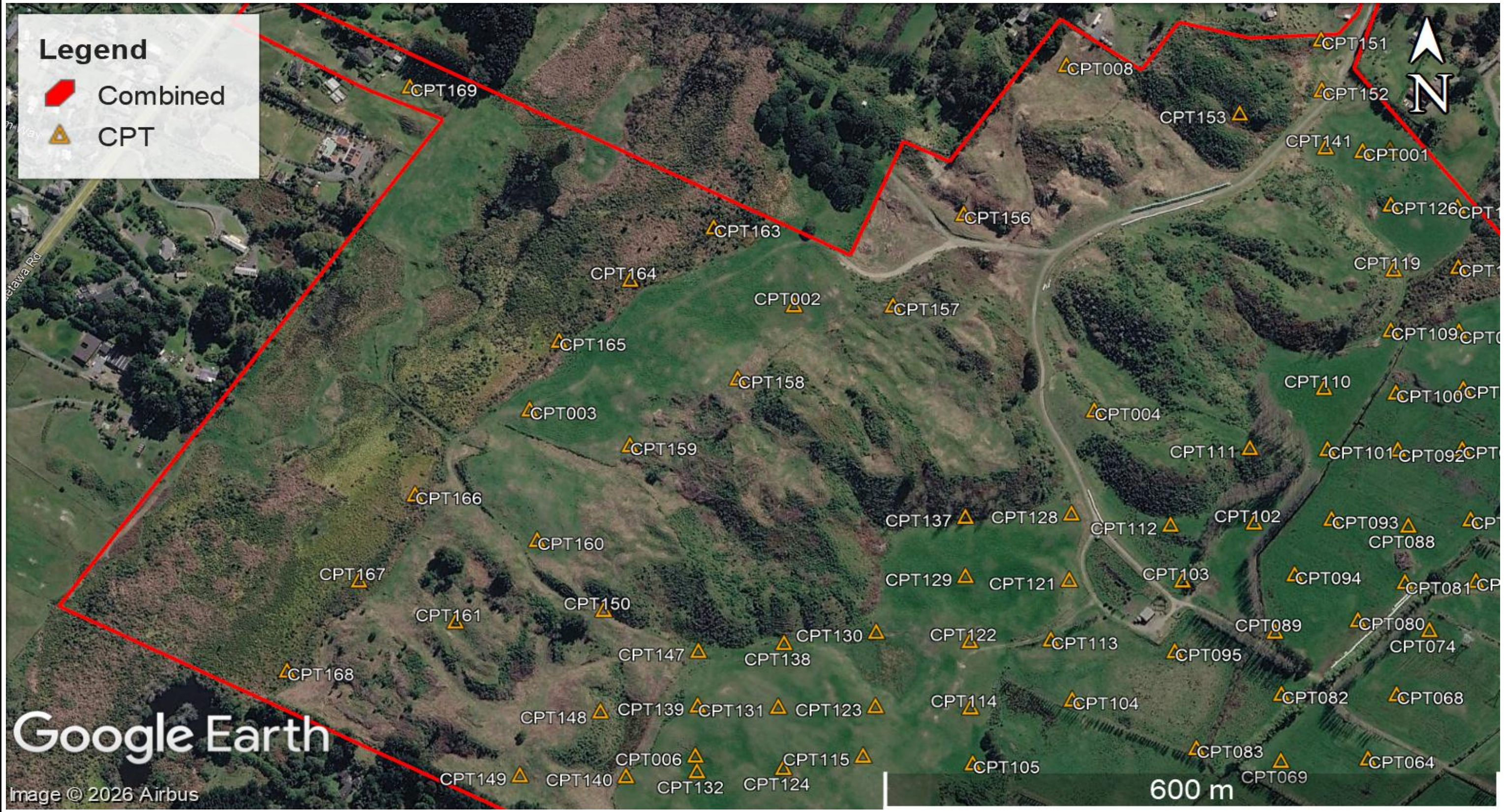
CLIENT
WAIKANAE NORTH DEVELOPMENTS
C/- LANDLINK (PAUL TURNER)

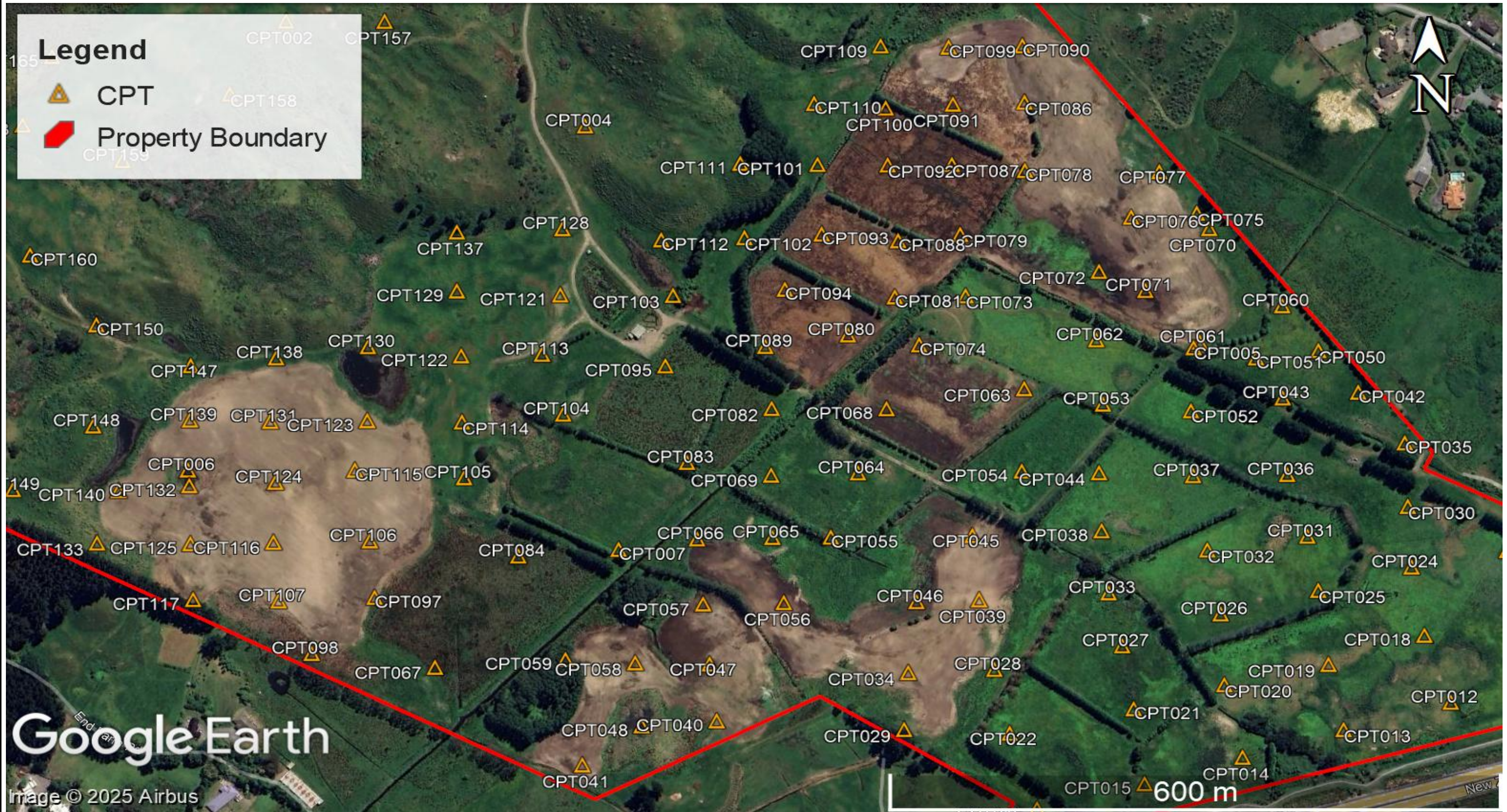
JOB TITLE
WAIKANAE NORTH SUBDIVISION
PEKA PEKA, KAPITI COAST

DRAWING TITLE
TEST LOCATION PLAN - SOUTH
HAND AUGER & DCP

DESIGNED BY:			
CLEM GIBBENS			
DRAFTED BY:			
CLEM GIBBENS			
REV	DATE	REVISION	CHD/APD
-	23/04/25	TEST LOCATION PLAN - AREA A - HA/DCP	RS

NOT FOR CONSTRUCTION			
SCALE			SIZE
N.T.S.			A3
PROJECT NO	TYPE	SHEET	REV
21512	-TLP-	G-South	A





Legend

- CPT
- Property Boundary



600 m

Google Earth
Image © 2025 Airbus

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CLIENT
WAIKANAЕ NORTH DEVELOPMENTS
C/- LANDLINK (PAUL TURNER)

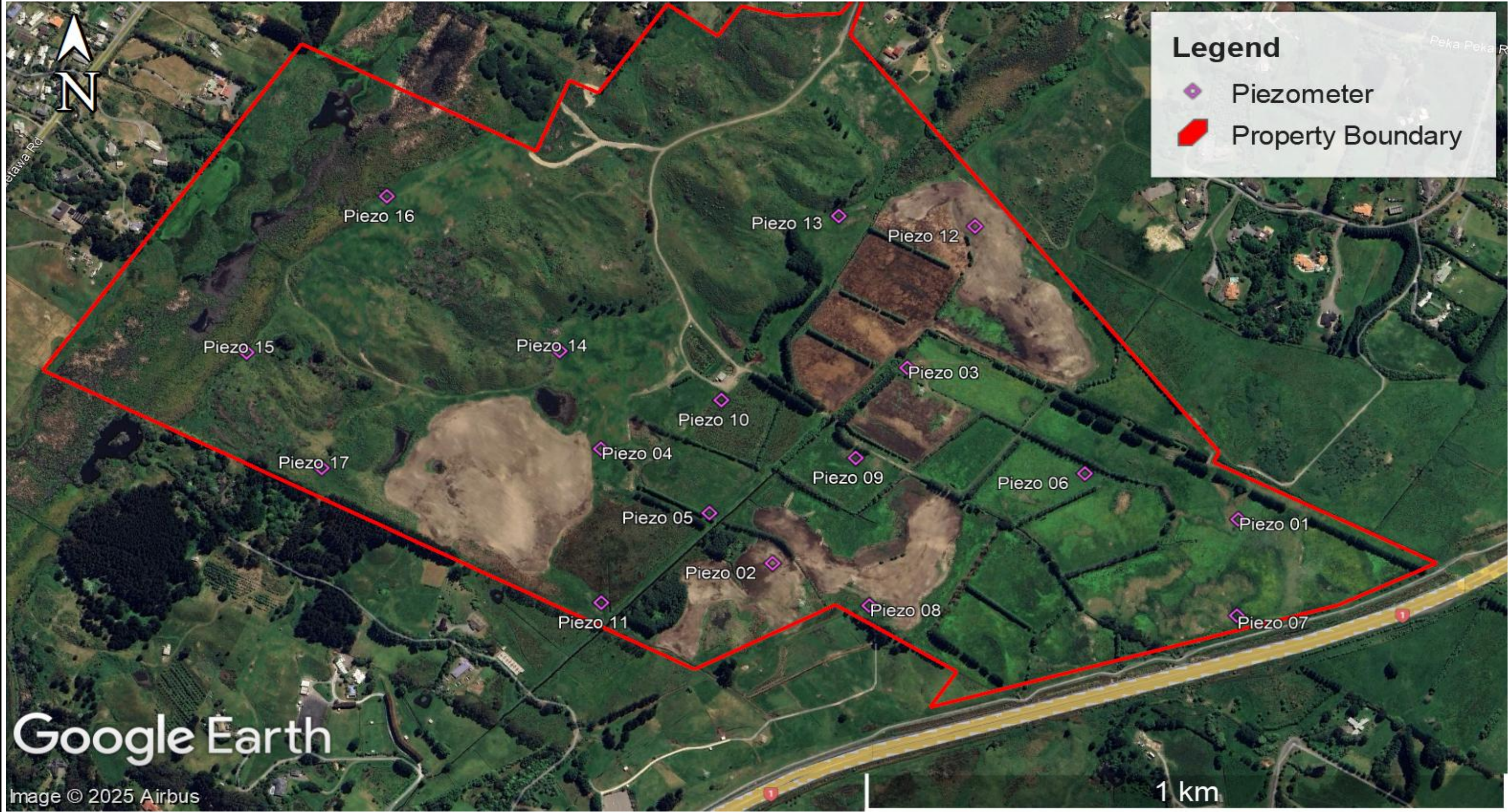
JOB TITLE
WAIKANAЕ NORTH SUBDIVISION
PEKA PEKA, KAPITI COAST

DRAWING TITLE
TEST LOCATION PLAN
CPT LOCATIONS - MID

DESIGNED BY:				
CLEM GIBBENS				
DRAFTED BY:				
CLEM GIBBENS				
REV	DATE	TEST LOCATION PLAN - CPT	RS	
		REVISION	CHD	APD

NOT FOR CONSTRUCTION				
SCALE				SIZE
N.T.S.				A3
PROJECT NO	TYPE	SHEET	REV	
21512	-TLP-	G-Mid		





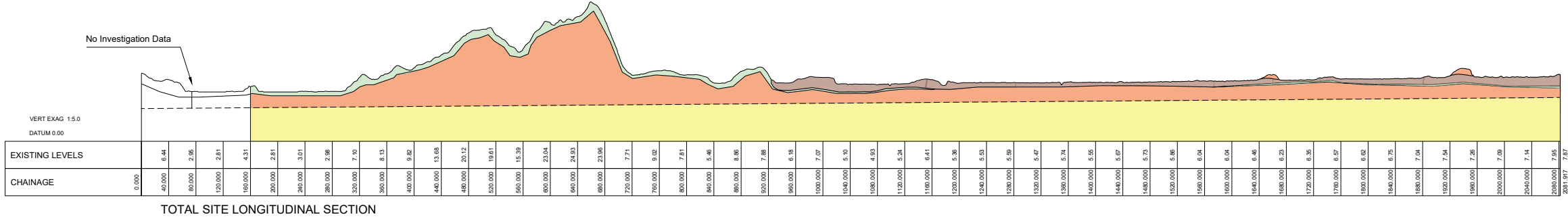


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 2. VERIFY ALL DIMENSIONS ON SITE
 3. DO NOT SCALE FROM DRAWINGS
 4. THE ADEQUACY OF THE DESIGN INCORPORATED ON THE PLANS IS SUBJECT TO THE REQUIREMENTS INCLUDED IN THE SPECIFICATION FOR THE WORKS AND THE DESIGN ASSUMPTIONS INCORPORATED IN THE CALCULATIONS AND REPORTS FOR THE PROJECT

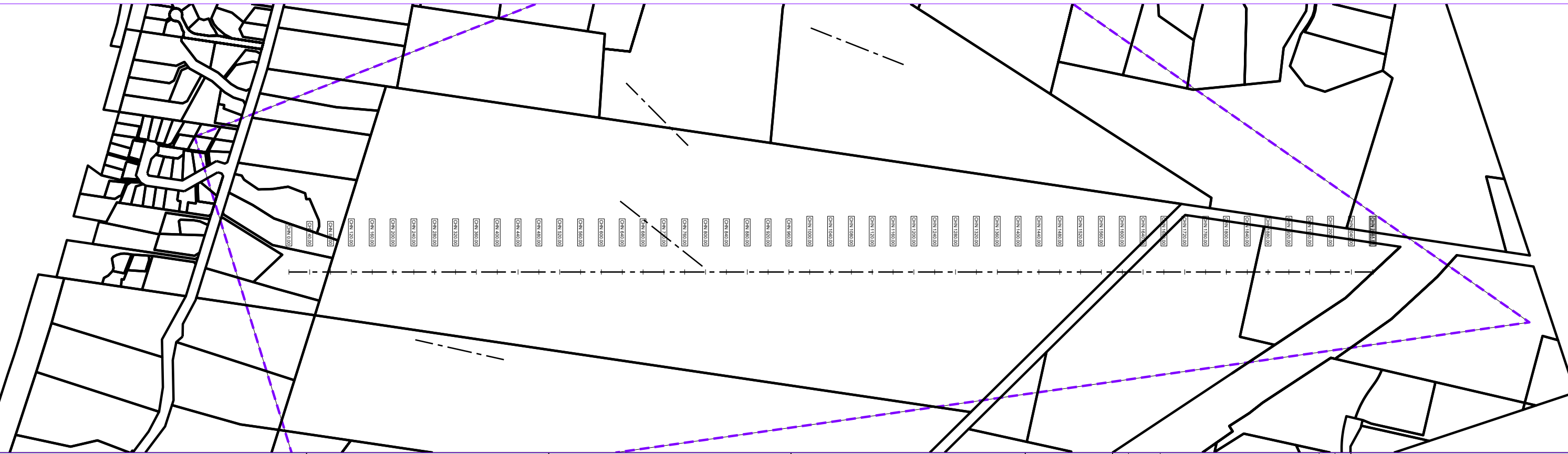
NOTE: 5X VERTICAL EXAGGERATION SHOWN IN PROFILE BELOW

SBT LEGEND

- Organic Peat Soils
- Silty sand to sandy silt
- Clean sand to silty sand (Holocene Dune Sand)
- Clean sand to silty sand (Pleistocene Estuarine Sands)



TOTAL SITE LONGITUDINAL SECTION



<p>AUCKLAND • WELLINGTON • NELSON • WESTPORT • CHRISTCHURCH • WANAKA www.cgw.co.nz • office@cgw.co.nz • Tel: +64 3 548 8259</p>	CLIENT	JOB TITLE	DRAWING TITLE	DESIGNED BY:	FOR INFORMATION			
		WAIKANAE NORTH DEVELOPMENT	GEOLOGIC CROSS SECTION	CT	SCALE	SIZE		
				DRAFTED BY:	1:7500 A3	A3		
				NT	PROJECT NO	TYPE	SHEET	REV
					21512	SKT	G-01-01	A
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