

Borehole Reference:

BH2B_1127

Photographed By:

DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX007_18.5m-21.4m



BH2B_1127_BOX008_21.4m-24.2m

Borehole Reference:

BH2B_1127

Photographed By:

DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX009_24.2m-26.95m



BH2B_1127_BOX010_26.95m-29.8m

Borehole Reference: BH2B_1127

Photographed By: DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX011_29.8m-32.73m



BH2B_1127_BOX012_32.73m-35.6m

Borehole Reference:

BH2B_1127

Photographed By:

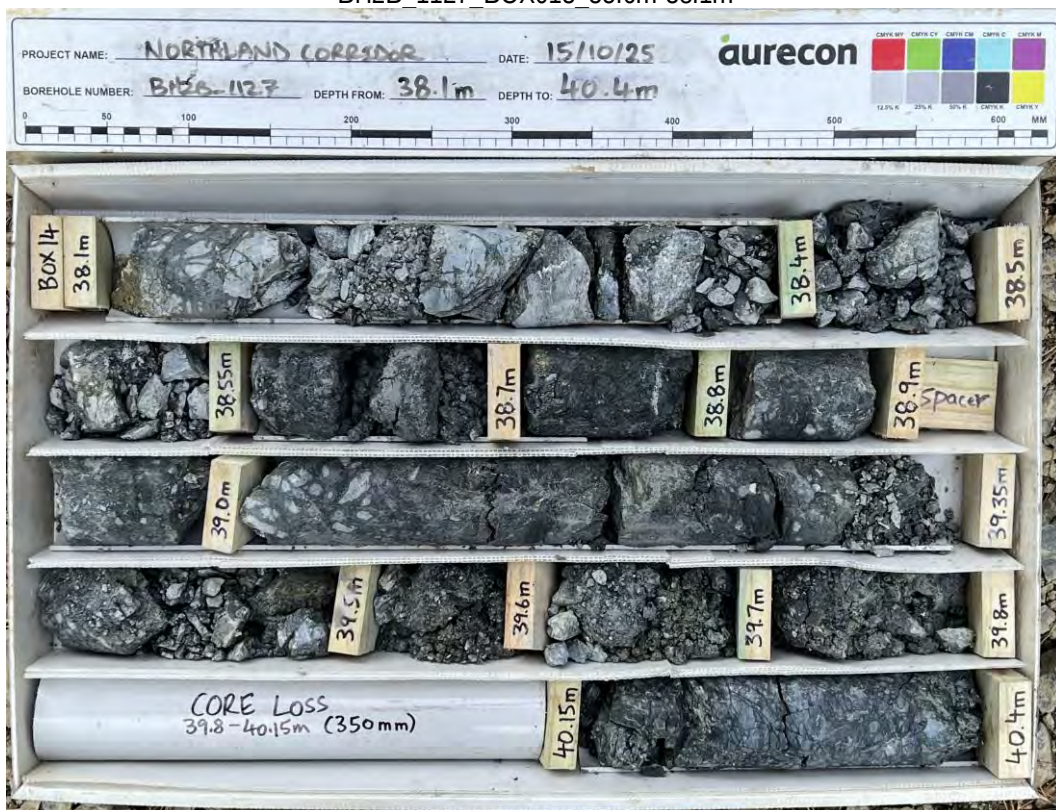
DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX013_35.6m-38.1m



BH2B_1127_BOX014_38.1m-40.4m

Borehole Reference:

BH2B_1127

Photographed By:

DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX015_40.4m-43.1m



BH2B_1127_BOX016_43.1m-45.75m

Borehole Reference:

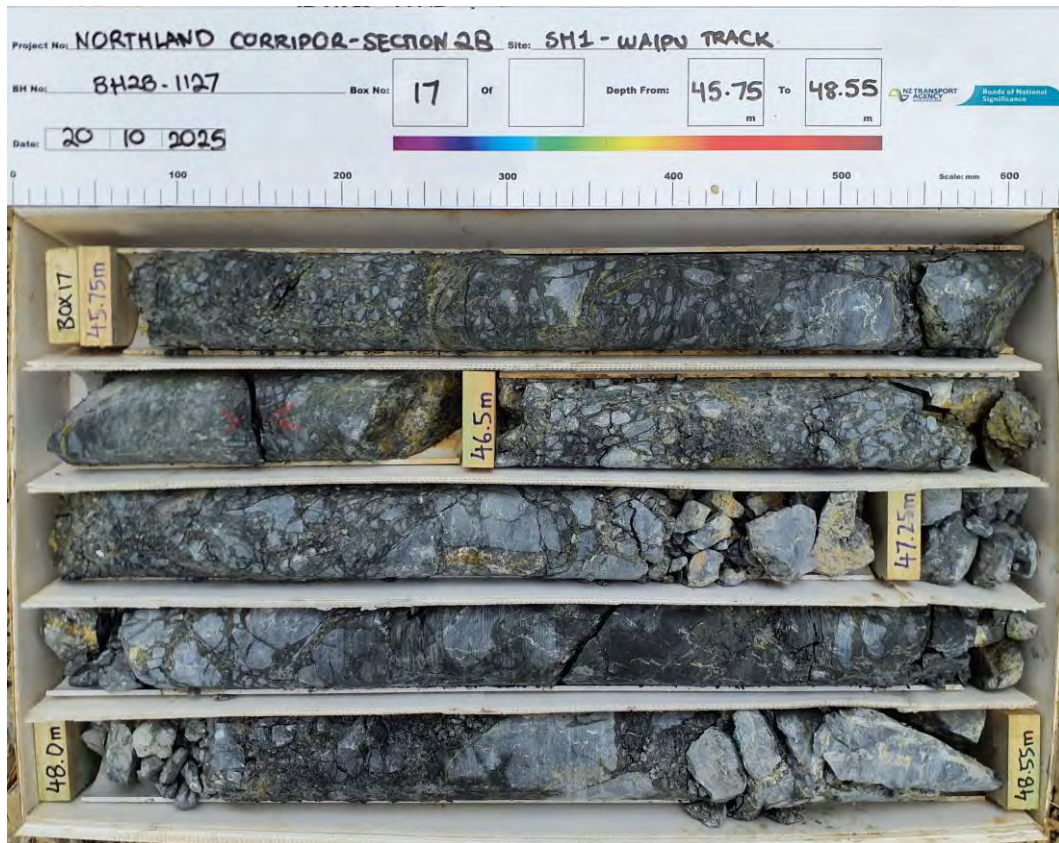
BH2B_1127

Photographed By:

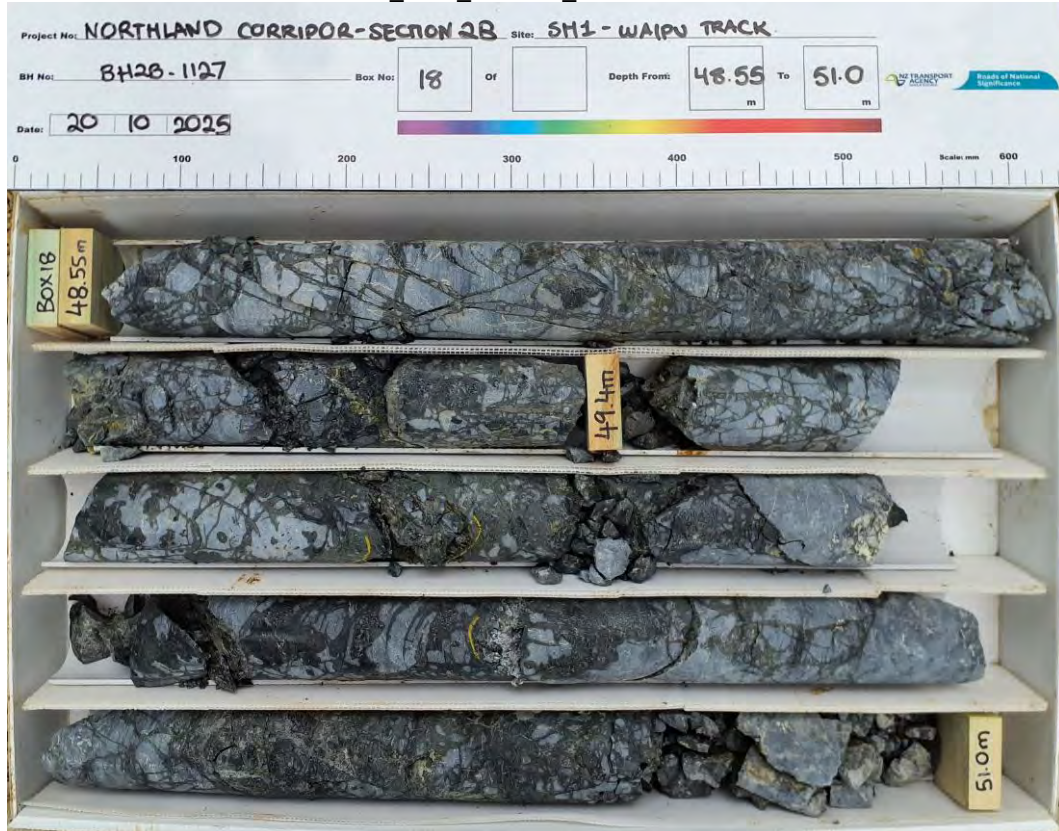
DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX017_45.75m-48.55m



BH2B_1127_BOX018_48.55m-51m

Borehole Reference:

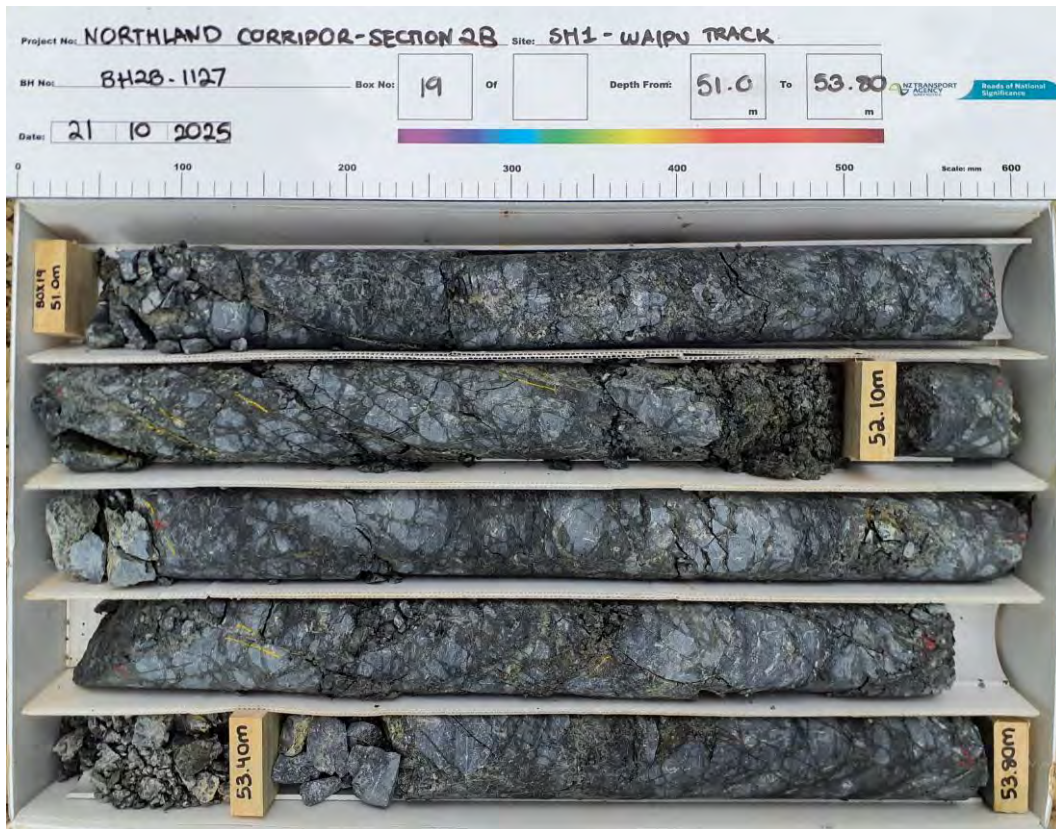
BH2B_1127

Photographed By:

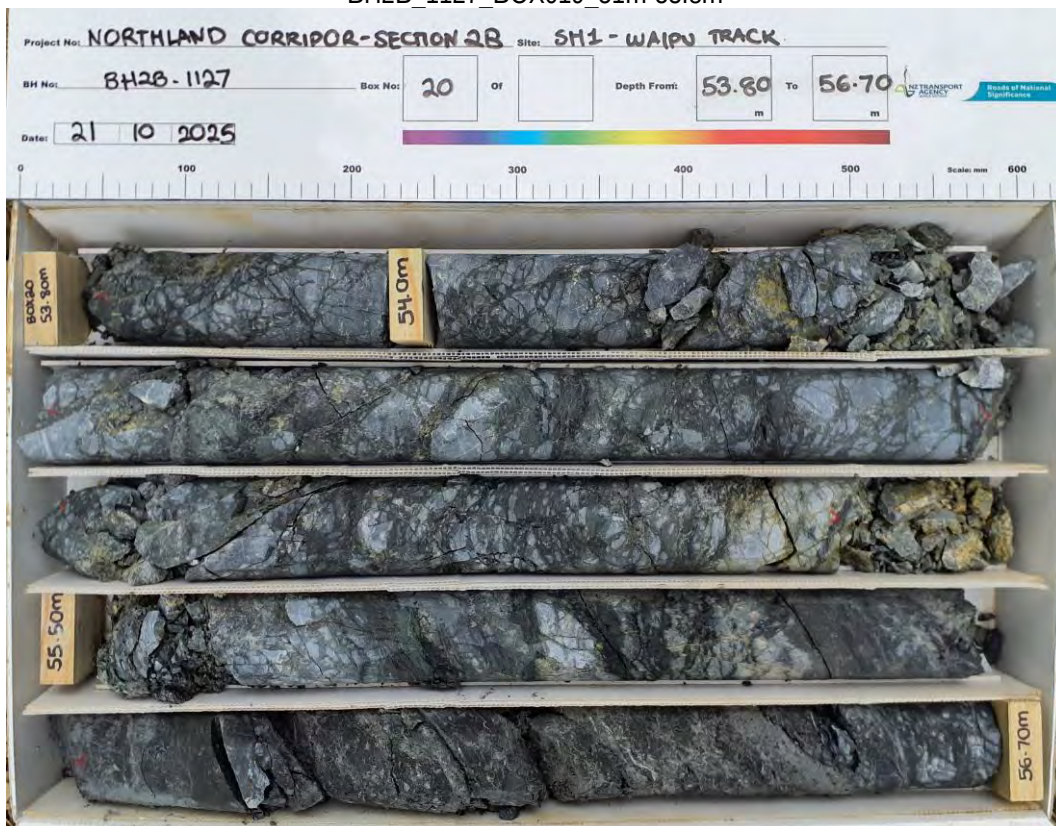
DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX019_51m-53.8m



BH2B_1127_BOX020_53.8m-56.7m

Borehole Reference:

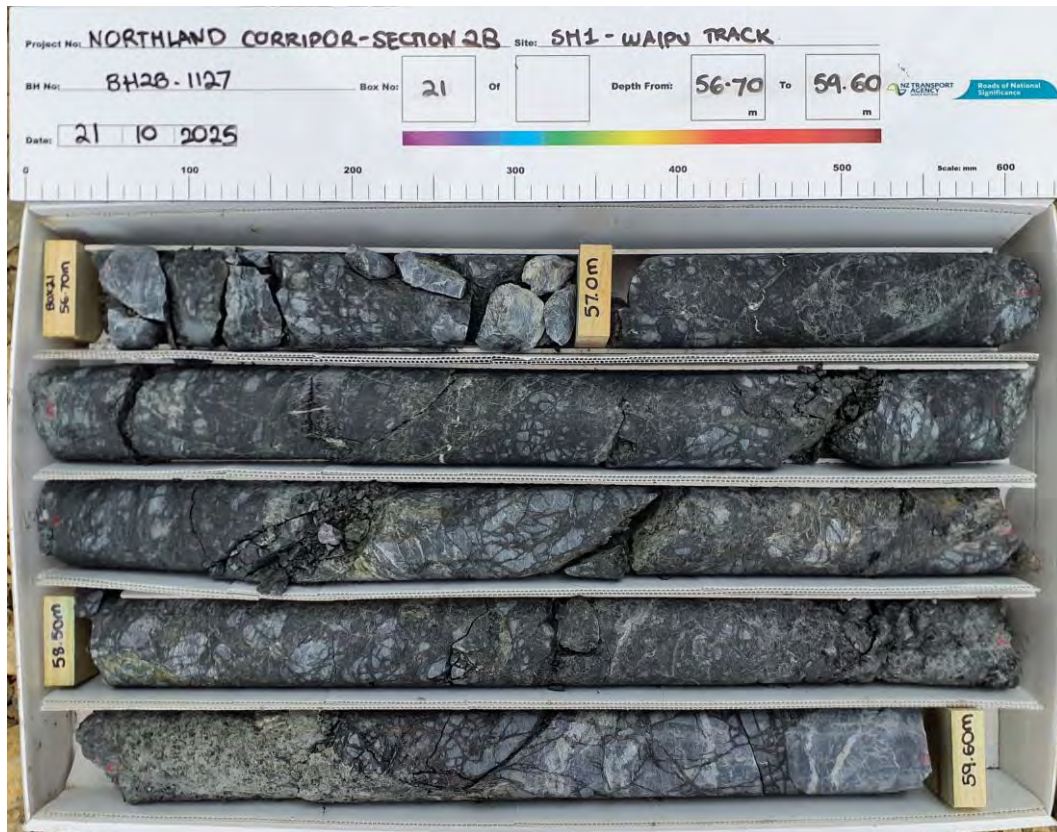
BH2B_1127

Photographed By:

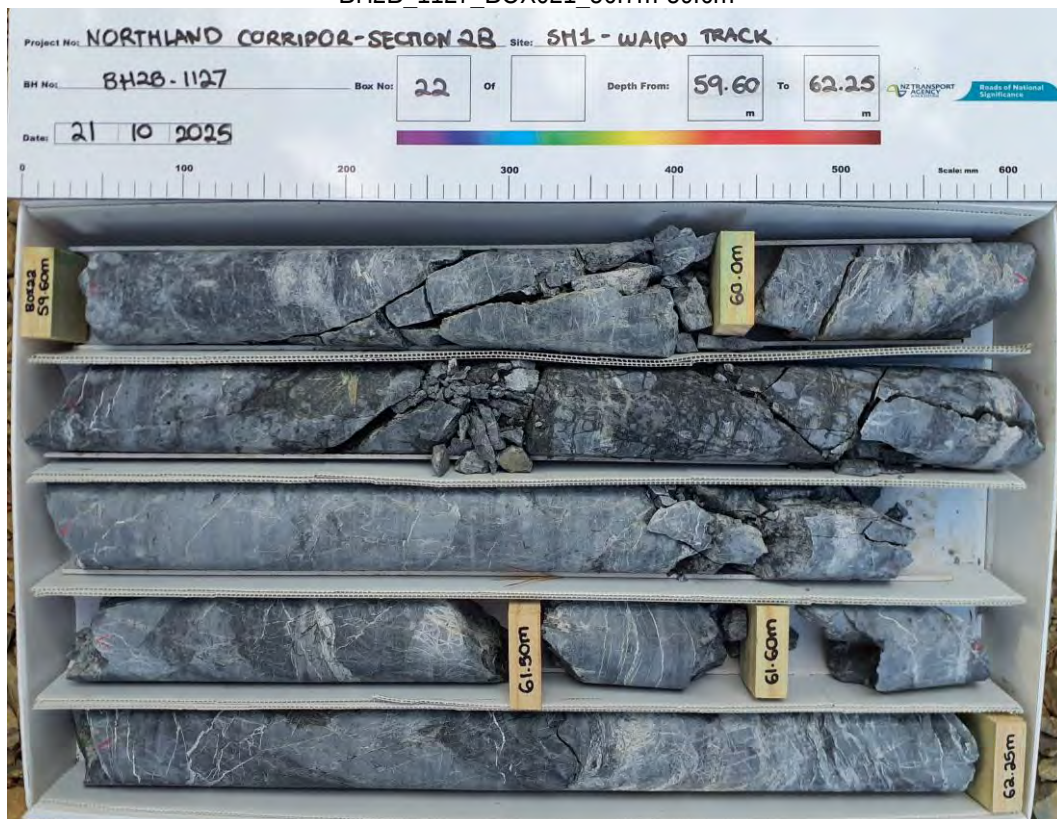
DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX021_56.7m-59.6m



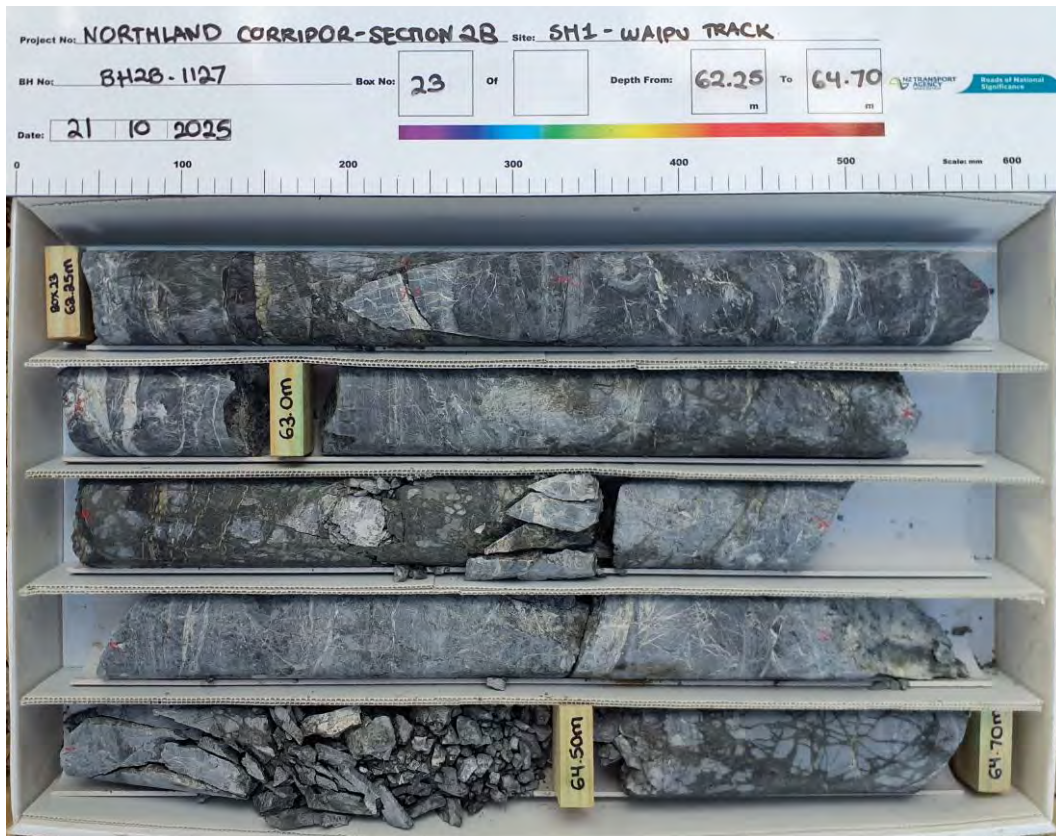
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Borehole Reference: BH2B_1127

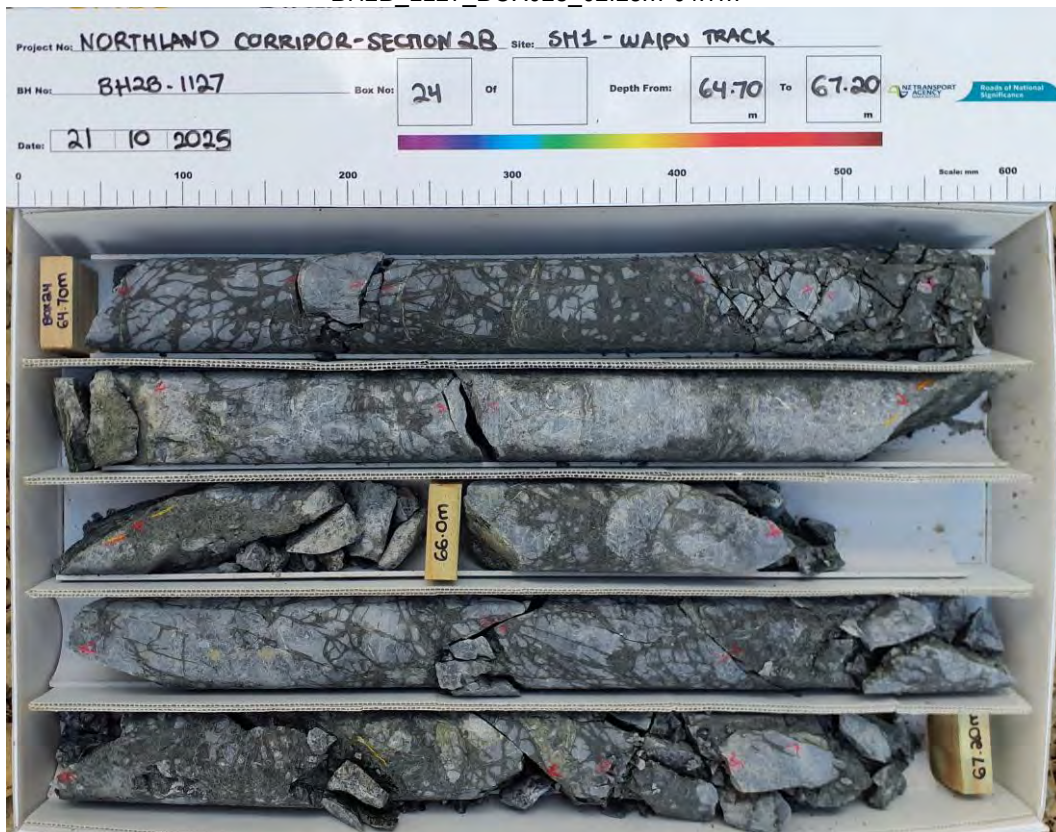
Photographed By: DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX23_62.25m-64.7m



BH2B_1127_BOX24_64.7m-67.2m

Borehole Reference:

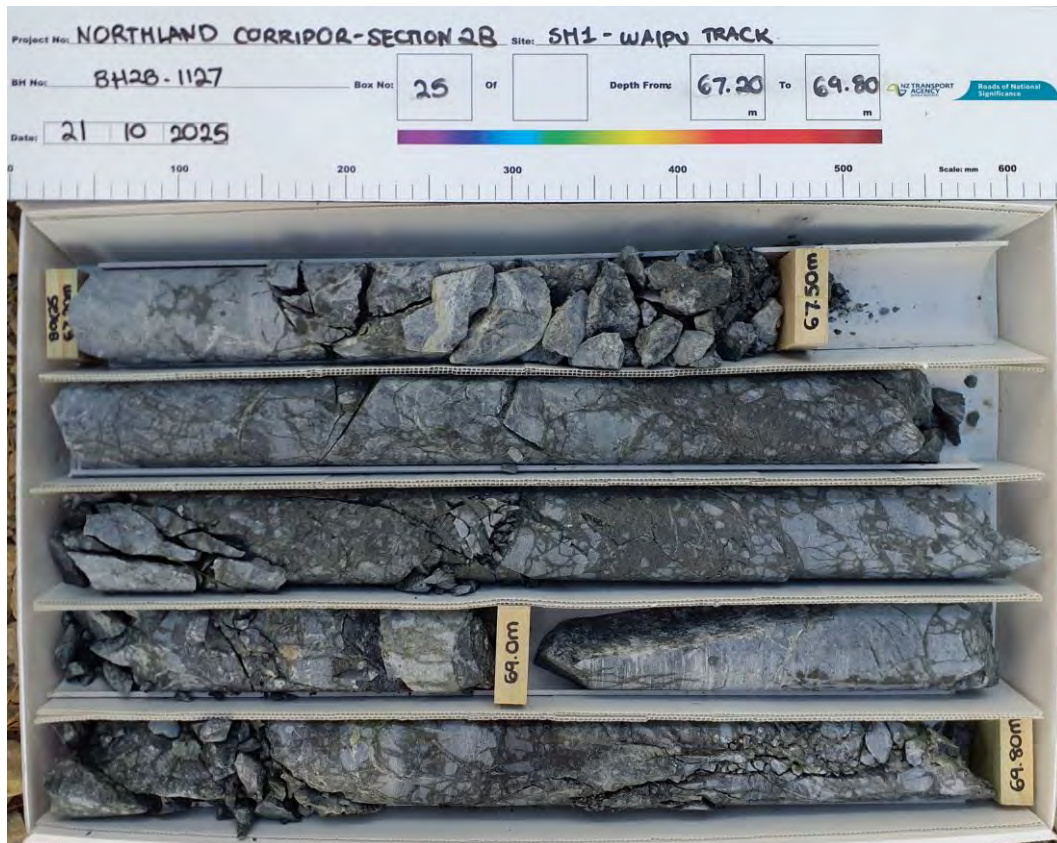
BH2B_1127

Photographed By:

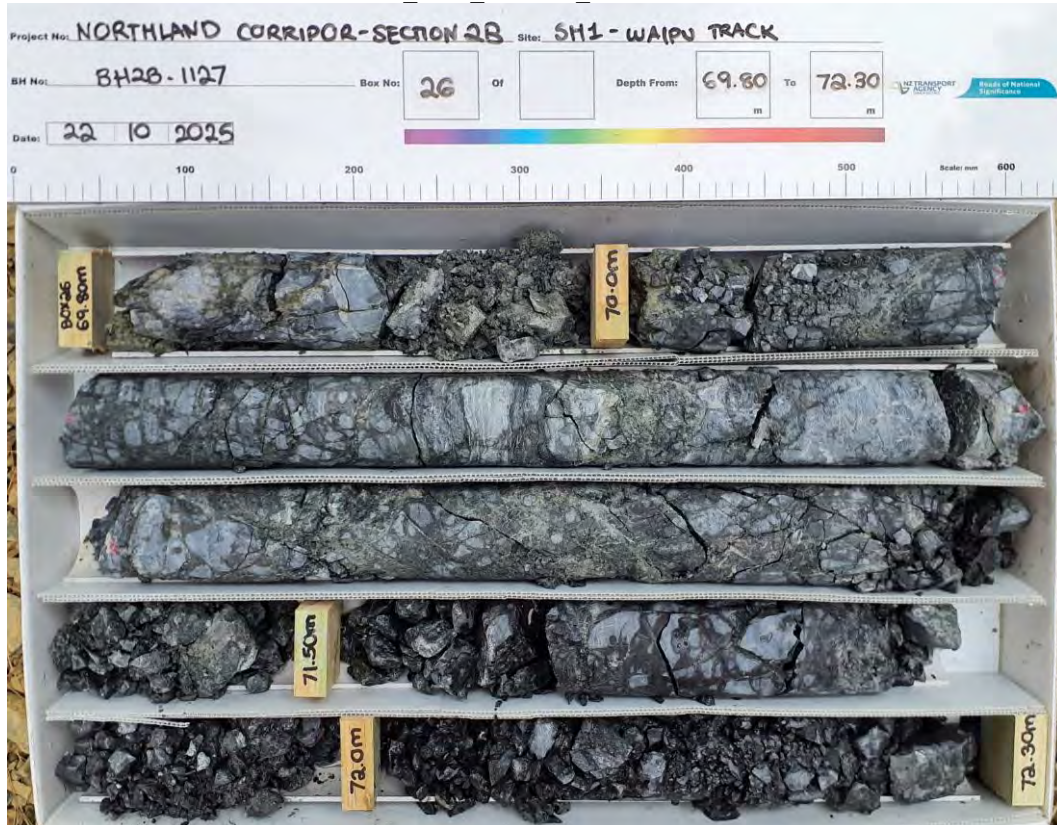
DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX025_67.2m-69.8m



BH2B_1127_BOX026_69.8m-72.3m

Borehole Reference: BH2B_1127

Photographed By: DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX027_72.3m-73m

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: MD2
Contractor: McMillan Drilling Ltd

CO-ORDINATES: NZTM2000
Easting: 1727429.71
Northing: 6008433.72
Ground level: 223.59m (NZVD2016)

Date started: 30/10/2025
Date completed: 10/11/2025
Inclination: 90°
Azimuth: N/A

Logged: J. Oliveira
Input: J. Oliveira
Reviewed: R. van Dam
Verified: C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
1	HA50	223	1		WPR	0.00m: Silty CLAY with minor sand; brown. Stiff to very stiff, moist, high plasticity. Sand is fine to medium. [RESIDUALLY WEATHERED GREYWACKE]	RS	0.5m: ISHSV 141/47 kPa 1m: ISHSV 78/28 kPa	100						
	SPT	222	2			1.70m: Silty CLAY with minor sand and minor gravel; brown, black and light grey with red streaks. Very stiff, moist, high plasticity. Sand is fine to coarse. Gravel is fine, subrounded and white. [COMPLETELY WEATHERED GREYWACKE]	CW	1.5m: ISHSV 141/31 kPa 1.5m: SPT 1, 2// 2, 3, 2, 2 N = 9	100						
	HQ3	221				2.30m: Silty CLAY with some sand; light grey with pink and red streaks. Stiff, wet, high plasticity. Sand is fine to coarse.	CW		100						
	U54		3			3.00-3.50m: ...U54 PUSH TUBE (500mm recovery).			100						
	SPT	220	4			3.50m: Clayey SILT with trace sand; brown, pink, light grey and light brown with red streaks, locally banded. Stiff, wet, low plasticity. Sand is fine to medium. Black MnO staining and orange FeO cementation on relict defect surfaces.	CW	3.5m: SPT 2, 2// 2, 4, 4, 5 N = 15	100						
2	HQ3	219			WPR			4.5m: SPT 2, 3// 2, 3, 3, 4 N = 12	100						
	SPT	219	5			4.95m: CORE LOSS (400mm)									
	HQ3	218				5.35m: Clayey SILT with minor sand; white and light brown. Stiff, wet, low plasticity. Sand is fine to medium.	CW		62						
	U54		6			5.80m: Clayey SILT with some sand; brown, light brown and white. Stiff, wet, low plasticity. Sand is fine to coarse. Relict defects have black MnO infill, 1-2 mm, soft, and orange FeO cementation, 1-2mm. 6.00-6.50m: ...U54 PUSH TUBE (500mm recovery).	CW	6.5m: SPT 3, 3// 4, 4, 4, 6 N = 18	100						
	SPT	217				6.70m: SILT; light grey and white with red streaks. Stiff, wet, low plasticity. Dark brown FeO staining on relict defect surfaces. 6.95m: ...Banded brown (10-15mm).	CW		100						
3	HQ3	216	7		WPR	7.20m: Sandy SILT; light grey and white with red streaks. Stiff, wet, low plasticity. Sand is fine to coarse.	CW		100						
	SPT	216				7.50m: SILT with some clay; brown and pink. Stiff, wet, low plasticity. Black MnO infill along relict defects, 1-2 mm, soft.	CW	7.5m: SPT 3, 3// 4, 3, 5, 5 N = 17	100						
	SPT					7.95m: CORE LOSS (300mm)									

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 240mm and vertical accuracy +/- 480mm.
- One vibrating wire piezometer was installed on 10/11/2025. BH2B_1128_PZ01 was installed at 27.5m bgl, Serial No. P378318.
- Geophysical profiling was undertaken on 7/11/25, comprising optical and acoustic televiwer.
- Falling/rising head testing undertaken with data logger at borehole depth 50.30m on 06/11/2025.
- RQD, SCR and defect spacing were assessed ignoring Incipient Fractures within Waipapa Group Greywacke.

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-10-30 16:35	20.40m	6.70mbgl
2025-10-31 08:00	20.40m	16.40mbgl
2025-10-31 12:00	24.00m	5.80mbgl
2025-11-03 09:20	24.00m	15.40mbgl
2025-11-03 16:20	31.50m	5.35mbgl
2025-11-04 08:00	31.50m	8.30mbgl
2025-11-04 16:41	42.00m	2.70mbgl
2025-11-06 08:00	42.00m	12.80mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: MD2
Contractor: McMillan Drilling Ltd

CO-ORDINATES: NZTM2000
Easting: 1727429.71
Northing: 6008433.72
Ground level: 223.59m (NZVD2016)

Date started: 30/10/2025
Date completed: 10/11/2025
Inclination: 90°
Azimuth: N/A

Logged: J. Oliveira
Input: J. Oliveira
Reviewed: R. van Dam
Verified: C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
												WWS	WS	MWS	VCS	EGS		
3	HQ3	215				8.25m: SILT with some clay; banded brown, pink and light grey. Stiff, wet, low plasticity. Black MnO infill on relict defect surfaces, 1-5mm. Banding is likely liesegang weathering.			71									
	SPT		9		WPR		CW	9m: SPT 2, 2// 3, 3, 5, 6 N = 17	100									
	HQ3	214				10.20m: 10.2 to 10.5m - CORE LOSS (300mm)			71									
	SPT	213			WPR	10.50m: SILT with some clay; banded brown, pink and light grey. Stiff, wet, low plasticity. Black MnO infill on relict defect surfaces, 1-5mm. Banding is likely liesegang weathering.	CW	10.5m: SPT 3, 4// 5, 6, 6, 8 N = 25	100									
4	HQ3	212				10.95m: Clayey SILT with minor sand; banded brown, pink and light grey. Stiff, wet, low plasticity. Sand is fine to medium. Black MnO infill along relict defects, 1-5mm, soft.	CW											
	HQ3	212				11.40m: CLAY with minor silt; banded brown and light grey. Stiff, wet, high plasticity. Black MnO infill along relict defects, 1-5mm, soft.	CW		67									
	HQ3	212				11.65m: CORE LOSS (350mm)												
	SPT	211			WPR	12.00m: CLAY with minor silt; banded brown and light grey. Stiff, wet, high plasticity. Black MnO infill along relict defects, 1-10mm, soft.		12m: SPT 2, 2// 3, 3, 3, 3 N = 12	100									
5	HQ3	210				12.45-12.70m: ...Soft to firm.			86									
	SPT	210			WPR	13.35-13.50m: ...CORE LOSS (150mm)	CW	13.5m: SPT 5, 6// 7, 8, 9, 10 N = 34	100									
	HQ3	209				13.50m: ...MnO infill up to 5 mm thick along relict defects.			71									
	SPT	208			WPR	14.70m: CORE LOSS (300mm)												
	HQ3	208				15.00m: CLAY with minor silt; light grey. Stiff, wet, high plasticity. Black MnO (1-5mm) and dark brown FeO coating (2mm) on relict defect surfaces.	CW	15m: SPT 5, 6// 10, 12, 9, 8 N = 39	47									
	SPT	208			WPR	15.15m: CLAY with minor silt, some sand and some gravel; dark brown, black and light grey. Stiff, wet, high plasticity. Sand is coarse. Gravel is fine, angular greywacke. Black MnO infill (1-5mm) and FeO cementation (1-3mm) on relict defect surfaces.	CW											

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 240mm and vertical accuracy +/- 480mm.
- One vibrating wire piezometer was installed on 10/11/2025. BH2B_1128_PZ01 was installed at 27.5m bgl, Serial No. P378318.
- Geophysical profiling was undertaken on 7/11/25, comprising optical and acoustic televiewer.
- Falling/rising head testing undertaken with data logger at borehole depth 50.30m on 06/11/2025.
- RQD, SCR and defect spacing were assessed ignoring Incipient Fractures within Waipapa Group Greywacke.

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-11-06 17:25	50.30m	0.40mbgl
2025-11-07 07:35	50.30m	7.50mbgl
2025-11-10 08:00	50.30m	15.60mbgl

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		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: Zentral Estate Property - SH1, Waipu Project Reference: Aurecon WSP JV			BH2B_1128									
Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010					Sheet 4 of 7									
BOREHOLE INFORMATION Method: Rotary Core Wireline Equipment: MD2 Contractor: McMillan Drilling Ltd		CO-ORDINATES: NZTM2000 Easting: 1727429.71 Northing: 6008433.72 Ground level: 223.59m (NZVD2016)		Date started: 30/10/2025 Date completed: 10/11/2025 Inclination: 90° Azimuth: N/A		Logged: J. Oliveira Input: J. Oliveira Reviewed: R. van Dam Verified: C. Parkes								
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
8	HQ3					25.00m: Unweathered, light bluish grey and dark grey, with white veins, indistinctly bedded GREYWACKE SANDSTONE. Moderately strong to strong; fractured rock mass; joints are moderately inclined to sub-vertical, undulating to planar, with white mineral coatings; incipient fractures, 1 - 3 mm with white mineral infill and moderate to strong tensile strength. Occasional veins, 1 - 5 mm, strong tensile strength, offset by later stage defects. Bedding tends to be chaotic and shows multiple phases of deformation. [UNWEATHERED GREYWACKE]	SW		100	33	50	VWS WS MWS US VCS ECS	24.25m: JT, 65°, Pl, Sm, FeO Sn, Clay infill 1mm. 24.55m: JT, 75°, Un, Ro, FeO Vn. 24.85m: JT, 75°, Un, Ro, FeO Vn.	
	HQ3	199							100	0	0			
	HQ3		25						100	0	0			
	HQ3								100	0	0			
	HQ3	198							100	0	0			
	HQ3		26						100	36	29			
	HQ3								100	0	0			
	HQ3								100	0	0			
	HQ3	197							100	0	0			
	9	HQ3		27					28.20-28.40m: ...Recovered as fine to coarse subangular gravel.	UW		100		
HQ3			27				100	0			0			
HQ3							100	0			0			
HQ3		196					100	0			0			
HQ3			28				100	100			100			
HQ3							100	25			0			
HQ3							100	20			0			
HQ3		195					100	50			50			
HQ3			29				100	73			73			
10		HQ3		30			30.70-30.80m: ...Recovered as fine to coarse angular gravel.					100	0	0
	HQ3		30						100	0	0			
	HQ3								100	17	17			
	HQ3	194							100	0	0			
	HQ3		31						100	0	0			
	HQ3								100	0	0			
	HQ3								100	0	0			
	HQ3	193							100	0	0			
	HQ3		31						100	0	0			
	11	HQ3		31								100	17	17
HQ3			31				100	0			0			
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 240mm and vertical accuracy +/- 480mm. 2. One vibrating wire piezometer was installed on 10/11/2025. BH2B_1128_PZ01 was installed at 27.5m bgl, Serial No. P378318. 3. Geophysical profiling was undertaken on 7/11/25, comprising optical and acoustic televiewer. 4. Falling/rising head testing undertaken with data logger at borehole depth 50.30m on 06/11/2025. 5. RQD, SCR and defect spacing were assessed ignoring Incipient Fractures within Waipapa Group Greywacke.												Water Level Readings: Date/Time Hole Depth Water Level		
Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.														

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.

[illegible]

BOREHOLE INFORMATION	CO-ORDINATES: NZTM2000	Date started: 30/10/2025	Logged: J. Oliveira
Method: Rotary Core Wireline	Easting: 1727429.71	Date completed: 10/11/2025	Input: J. Oliveira
Equipment: MD2	Northing: 6008433.72	Inclination: 90°	Reviewed: R. van Dam
Contractor: McMillan Drilling Ltd	Ground level: 223.59m (NZVD2016)	Azimuth: N/A	Verified: C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS	WS	MWS	VCS	EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
17	HQ3	175				48.50m: ...Veins are pervasively hydrothermally altered, with green minerals well developed and appear to be penetrating slightly into rock mass.												47.95m: JT, 80°, Pl, Clay Vn.	
	HQ3	49			WPU	49.00m: ...Lower concentration of veins.	UW		100	78	66							49.10m: JT, 60°, Pl, Clay Cg (1mm). 49.15m: JT, 55°, Pl, Clay Cg (1mm).	
18	HQ3	174				50.20-50.30m: ...Recovered as fine to coarse angular gravel.												49.50m: JT, 60°, Pl, Sm, Clay Vn.	
		50				Terminated at 50.30 m. Target depth.			100	43	43								
		173																	
		51																	
		172																	
		52																	
		171																	
		53																	
		170																	
		54																	
		169																	
		55																	
		168																	

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 240mm and vertical accuracy +/- 480mm. 2. One vibrating wire piezometer was installed on 10/11/2025. BH2B_1128_PZ01 was installed at 27.5m bgl, Serial No. P378318. 3. Geophysical profiling was undertaken on 7/11/25, comprising optical and acoustic televiwer. 4. Falling/rising head testing undertaken with data logger at borehole depth 50.30m on 06/11/2025. 5. RQD, SCR and defect spacing were assessed ignoring Incipient Fractures within Waipapa Group Greywacke.	Water Level Readings: Date/Time	Hole Depth	Water Level
Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.			

Borehole Reference: BH2B_1128

Photographed By:

Date Photographed:

29/10/2025-09/11/2025



BH2B 1128 BOX001 0m-2.8m



BH2B_1128_BOX002_2.8m-6.2m

Borehole Reference: BH2B_1128

Photographed By:

Date Photographed:

29/10/2025-09/11/2025



BH2B_1128_BOX003_6.2m-9.8m



BH2B_1128_BOX004_9.8m-13.5m

Borehole Reference: BH2B_1128

Photographed By:

Date Photographed:

29/10/2025-09/11/2025



BH2B 1128 BOX005 13.5m-17.3m



BH2B_1128_BOX006 17.3m-20.4m

Borehole Reference:

BH2B_1128

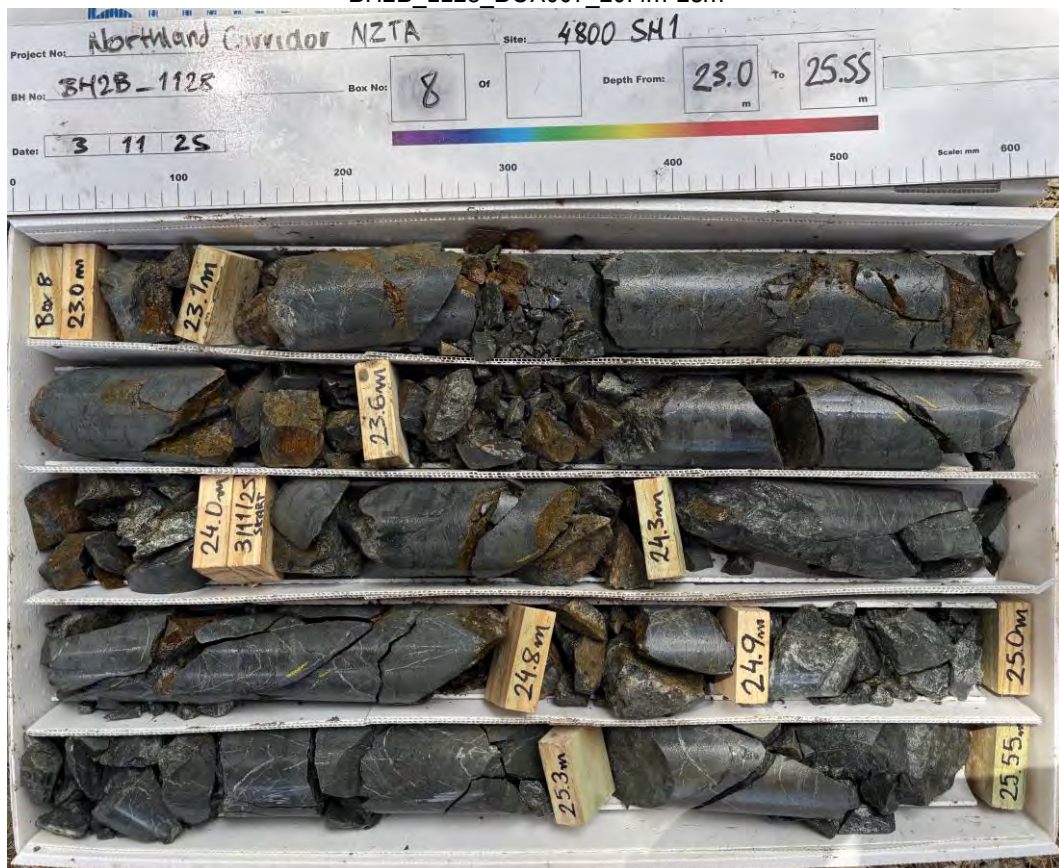
Photographed By:

Date Photographed:

29/10/2025-09/11/2025



BH2B_1128_BOX007_20.4m-23m



BH2B_1128_BOX008_23m-25.55m

Borehole Reference: BH2B_1128

Photographed By:

Date Photographed:

29/10/2025-09/11/2025



BH2B 1128 BOX009 25.55m-28.2m



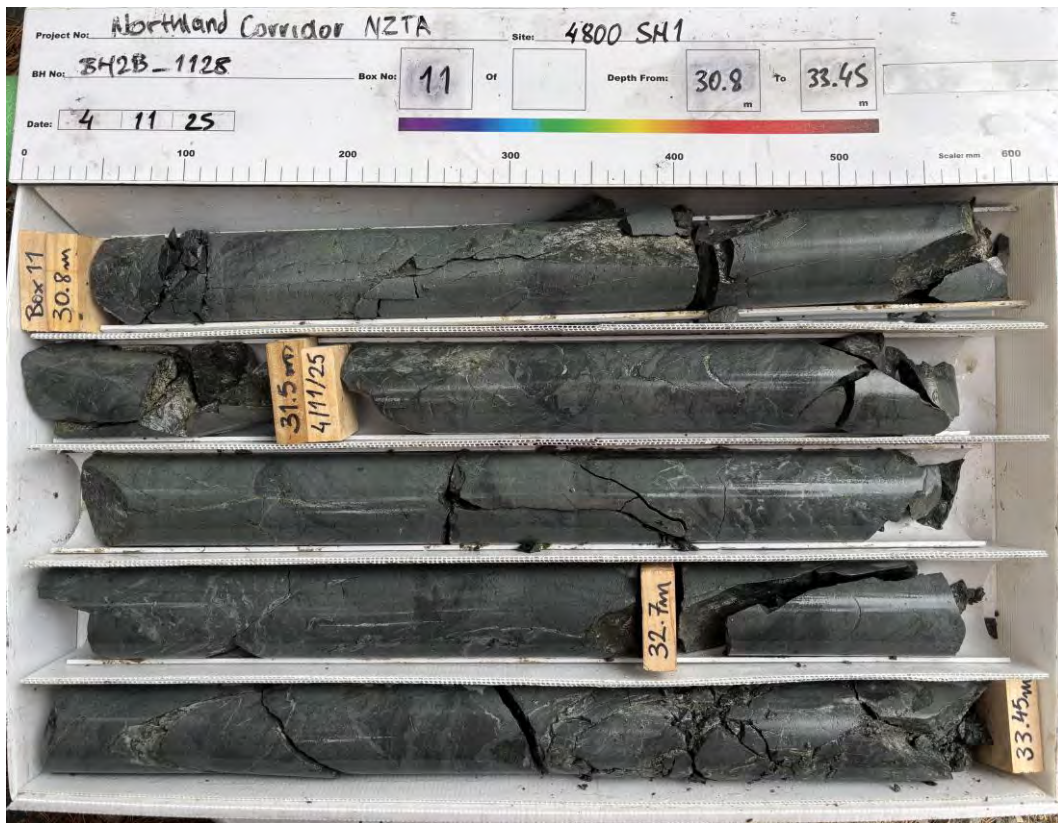
BH2B_1128_BOX010_28.2m-30.8m

Borehole Reference: BH2B_1128

Photographed By:

Date Photographed:

29/10/2025-09/11/2025



BH2B_1128_BOX011_30.8m-33.45m



BH2B_1128_BOX012_33.45m-36m

Borehole Reference: BH2B_1128

Photographed By:

Date Photographed:

29/10/2025-09/11/2025



BH2B 1128 BOX013 36m-38.6m



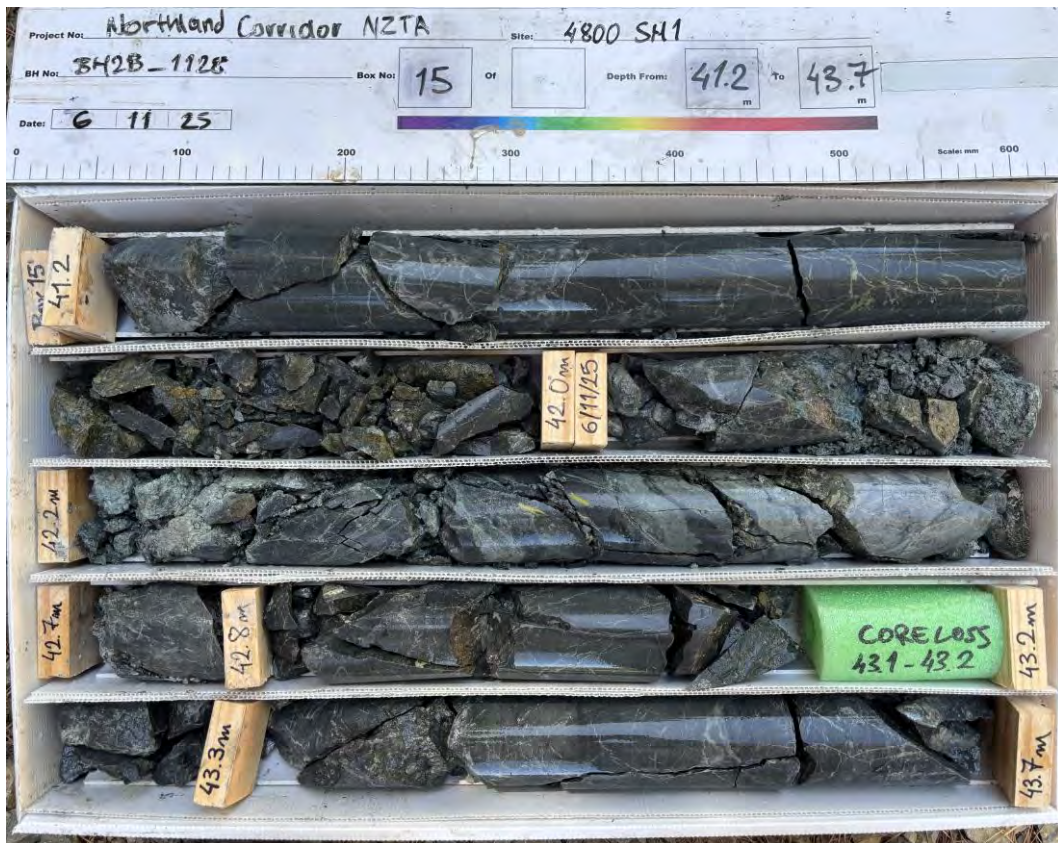
BH2B_1128_BOX014_38.6m-41.2m

Borehole Reference: BH2B_1128

Photographed By:

Date Photographed:

29/10/2025-09/11/2025



BH2B_1128_BOX015_41.2m-43.7m



BH2B_1128_BOX016_43.7m-46.4m

Borehole Reference: BH2B_1128

Photographed By:

Date Photographed:

29/10/2025-09/11/2025



BH2B_1128_BOX017_46.4m-49m



BH2B_1128_BOX018_49m-50.3m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/10/2025	Logged: I. Mans
Method: Rotary Core Wireline		Easting: 1727584.59mE,		Date Completed: 09/10/2025	Input: I. Mans
Equipment: TechDrill 250 HD		Northing: 6008951.17mN,		Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 170.85m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	HA	170	1		F	Silty CLAY with trace sand and gravel; light brown, mixed reddish orange and grey. Stiff, moist, low plasticity; sand, fine; gravel, fine, angular, highly weathered greywacke. [FILL (UNDIFFERENTIATED)].		0.5m SV BH SV 96/ 37kPa	100	-	-		0.50m: Shear vanes completed in adjacent hand auger	
	SPT	169	2			1.00m: Very stiff.		1m SV BH SV 178/59kPa						
	HQ3					2.05-2.60m CORE LOSS (430mm).		1.5m SV BH SV 178/59kPa	80	-	-			
	HQ3							1.5m SPT 1, 2/2, 4, 5, 5 N= 16	45	-	-			
2	HQ3	168	3		WPH	Highly weathered, light brownish orange with pink and white zones, fine GREYWACKE SANDSTONE; extremely weak. Joint set at 45°, 30mm spaced; incipient fractures extremely closely spaced, manganese coated. Pink zones with associated white halos occur within intact rock. These features may reflect hydrothermal alteration or bleaching. Breaks down to silty CLAY; firm, moist, low plasticity. [HIGHLY WEATHERED GREYWACKE].	HW	3m SPT 1, 0/0, 0, 1, 1 N= 2	48	-	-	VCS	3.00m: 20% water loss	
	SPT				WPR	CLAY, some silt, trace organics; light grey mixed brownish orange and pink. Soft, moist, low plasticity. Organics, rootlets, partially decomposed, 2-3mm. Relict joints at 55°, manganese and iron stained. [COMPLETELY WEATHERED GREYWACKE].	CW		88	-	-			
	HQ3	167	4						100	-	-			
	HQ3								100	-	-			
	SPT	166	5		WPH	Highly weathered, brownish orange with pink and white zones, fine GREYWACKE SANDSTONE; extremely weak. Closely spaced open joints, dipping 45°; extremely closely spaced incipient fractures, low tensile strength, MnO and FeO coated. Extremely closely spaced veins and veinlets of soft white mineral, recovered as clay. Pink zones with associated white halos occur within intact rock. These features may reflect hydrothermal alteration or bleaching. Breaks down to CLAY, some silt; very stiff, moist, high plasticity. [HIGHLY WEATHERED GREYWACKE].		4.5m SV CB SV UTP	73	-	-	CS		
	HQ3					5.15m - 5.25m: CORE LOSS (100mm).		4.5m SPT 1, 1/1, 1, 1, 2 N= 5	66	-	-	ECS		
	HQ3	165	6			5.65m: Colour change to light bluish grey mixed light pink.			95	-	-			
	SPT						HW	6m SPT 2, 2/3, 5, 5, 5 N= 18	100	-	-			
	HQ3								100	-	-			
	HQ3	164	7		WPH	Highly weathered, light greenish grey, GREYWACKE SILTSTONE; extremely weak. Closely spaced open joints, generally dipping 25°; extremely closely spaced incipient fractures, low tensile strength. Breaks down to silty CLAY; stiff, moist, high plasticity.		7.5m SPT 1, 1/2, 2, 3, 4 N= 11	33	-	-	CS		
3	HQ3					6.55-6.75m CORE LOSS (200mm).			100	-	-		5.00-5.30m: SZ. 45° , highly weathered light greenish grey GREYWACKE SILTSTONE; extremely weak. recovered as silty CLAY, stiff, high plasticity.	5.65m: 40% water loss
	SPT	163							91	-	-			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 58mm and vertical accuracy +/- 110mm.
- One vibrating wire piezometer installed on 09/10/2025. BH2B_1129_PZ01 was installed at 37m bgl, Serial No. P250947.
- Shear Vane Serial No. 2183, calibration constant 1.482.
- Falling/rising head testing undertaken with data logger at borehole depth 39m on 07/10/2025 .
- Geophysical profiling was undertaken on 08/10/2025, comprising optical and acoustic televiewer.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Water Level Readings:

DateTime

Hole Depth (m)

Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/10/2025	Logged: I. Mans
Method: Rotary Core Wireline		Easting: 1727584.59mE,		Date Completed: 09/10/2025	Input: I. Mans
Equipment: TechDrill 250 HD		Northing: 6008951.17mN,		Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 170.85m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
3	HQ3				WPH	Highly weathered, white, fine GREYWACKE SANDSTONE; very weak. Closely spaced open joints, dipping 55°; extremely closely spaced incipient fractures, low tensile strength, MnO and FeO coated. Weathered and/or altered to brownish orange and pink up to 5 mm around fractures.	HW	9m SPT 3, 3/4, 5, 6, 7 N= 22	100	-	-	CS	9.45-10.05m: SZ, 40°-55°, highly weathered, light grey GREYWACKE SILTSTONE; extremely weak. Basal contact dip 55°. Breaks down to silty CLAY, some fine sand; very stiff, low plasticity.	
	HQ3								100	-	-			
	HQ3	162	9						100	-	-			
	SPT								100	-	-			
	HQ3	161	10						96	-	-			
	HQ3								86	-	-			
	SPT	160	11						100	-	-			
	HQ3								100	66	66			
	HQ3								97	97	50			
	SPT	159	12						100	100	77			
4	HQ3				WPM	Moderately weathered, light greenish grey mixed brownish orange, silty fine GREYWACKE SANDSTONE; very weak. Closely spaced open joints, dipping 60°; extremely closely spaced incipient fractures, low tensile strength, MnO and FeO coated. Weathering is joint controlled, with isolated zones of brown discolouration up to 200mm around joints. [MODERATELY WEATHERED GREYWACKE].	MW	10.5m SPT 2, 3/5, 5, 7, 12 N= 29	100	-	-	CS	11.07m JT, 15°, RG, PL, FeO/MnO ctg	
	HQ3								100	66	66			
	HQ3								97	97	50			
	SPT	160	11						100	100	77			
	HQ3								82	-	-			
	HQ3								100	100	100			
	SPT	158	13						100	72	72			
	HQ3								100	100	100			
	HQ3								100	-	-			
	SPT	157	14						100	54	54			
5	HQ3				WPM	Moderately weathered, light greenish grey mixed brownish orange, fine GREYWACKE SANDSTONE; very weak. Closely spaced open joints, generally dipping 20°; extremely closely spaced incipient fractures, low tensile strength, MnO and FeO coated. Extremely closely spaced veins and veinlets of hard white material. Weathering is joint controlled with isolated zones of brown discolouration up to 10mm around joints.	MW	12m SPT 4, 7/10, 11, 13, 14 N= 48	100	100	100	CS	11.55m JT, 15°, RG, PL, FeO/MnO ctg , discoloured brown zone 5mm upper and lower 11.60m JT, 5°, RG, PL, FeO/MnO ctg , recovered intact, discoloured brown zone 3mm upper and lower 11.65m JT, 20°, RG, PL, FeO/MnO ctg , discoloured brown zone 8mm lower 11.75m JT, 15°, RG, UN, FeO/MnO ctg , discoloured brown zone 8mm lower 11.83m JT, 20°, RG, UN, FeO/MnO 3mm , recovered intact, discoloured brown zone 8mm lower	
	HQ3								100	72	72			
	HQ3								100	100	100			
	SPT	158	13						100	100	100			
	HQ3								100	100	100			
	HQ3								100	100	100			
	SPT	157	14						100	54	54			
	HQ3								100	100	88			
	HQ3								100	100	100			
	SPT	156	15						100	100	100			
6	SC				WPM	14.18m - 14.25m: Highly weathered zone. Recovered as SILT, some clay and trace fine sand; very stiff, moist, low plasticity. 14.85m: No distinct joint sets. Incipient fractures have low tensile strength. 15.36m - 15.58m: Extremely weak. Breaks down to SILT, some clay and trace fine sand; very stiff, moist, low plasticity. Possible SPTo disturbance. 15.58m - 15.69m: CORE LOSS (110mm).	MW	13.5m SPT 7, 10/16, 18, 19 for 74mm N = 50+	100	100	100	CS	14.50m JT, 20°, RG, PL, FeO/MnO ctg , recovered intact, discoloured brown zone 8mm upper and lower 14.59m JT, 20°, RG, PL, FeO/MnO ctg , recovered intact, discoloured brown zone 3mm upper and lower 14.80m VN, 80°, UN , hard green mineral (chlorite?) , 8mm	
	HQ3								100	100	100			
	HQ3								100	100	100			
	SPT	155	16						100	100	100			
	HQ3								100	100	100			
	HQ3								100	100	100			
	SPT	155	16						100	100	100			
	HQ3								100	100	100			
	HQ3								100	100	100			
	SPT	155	16						100	100	100			

REMARKS:

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- Geophysical profiling was undertaken on 08/10/2025, comprising optical and acoustic televiewer.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
2/10/2025 5:35:00 pm	10.50	1.82
3/10/2025 8:00:00 am	10.50	2.55
3/10/2025 12:30:00 pm	13.88	2.16
6/10/2025 8:30:00 am	13.88	8.68

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/10/2025	Logged: I. Mans
Method: Rotary Core Wireline		Easting: 1727584.59mE,		Date Completed: 09/10/2025	Input: I. Mans
Equipment: TechDrill 250 HD		Northing: 6008951.17mN,		Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 170.85m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
6	HQ3					16.00m - 16.45m: Speckled black.			100	100	100		16.29m JT, 35°, RG, PL, FeO/MnO and hard green mineral (chlorite?) ctg	
	SC	154				16.29m - 16.45m: Dominant fractures dip 35°.		16.5m SPT 6, 6/19, 17, 14, 10 for 45mm N = 50+	-	-	-			
	HQ3		17			16.91m - 17.00m: Recovered as clayey SILT; minor fine sand; brown. Very stiff, moist, high plasticity.			100	100	92		17.03m JT, 10°, RG, PL, FeO/MnO ctg , recovered intact, discoloured brown zone 5mm lower 17.10m JT, 50°, RG, PL, FeO/MnO ctg 17.20m JT, 20°, RG, PL, FeO/MnO ctg , recovered intact, discoloured brown zone 3mm upper 17.40m JT, 20°, RG, PL, FeO/MnO ctg , recovered intact, discoloured brown zone 8mm upper and lower 17.62m JT, 20°, RG, UN, FeO/MnO ctg	
	HQ3		18			17.75m - 18.08m: White, weathered brownish orange, fractured, fine GREYWACKE SANDSTONE; weak. Hydrothermally altered?.							18.05m JT, 55°, RG, PL, FeO/MnO ctg , recovered intact, discoloured brown zone 2mm upper and lower 18.15m JT, 10°, RG, ST, FeO/MnO ctg 18.25m JT, 10°, RG, PL, FeO/MnO ctg 18.50m JT, 60°, RG, PL, FeO/MnO ctg , recovered intact, discoloured brown zone 5mm upper and lower 18.70-19.10m: JT, 20°-30°, RG, PL, FeO/MnO ctg , x4	
7	HQ3		19			18.70m - 19.00m: Highly weathered zone, joint controlled. Recovered intact, upon handling breaks down to SILT, some sand and clay; very stiff, moist, low plasticity.			100	100	100			
	HQ3		20			19.70m - 19.85m: White, weathered brownish orange, fractured, fine GREYWACKE SANDSTONE; weak. Hydrothermally altered?.			98	93	87		19.70m JT, 15°, RG, PL, MnO ctg 19.83m JT, 20°, RG, PL, FeO/MnO ctg 20.10m JT, 70°, RG, PL, FeO/MnO 2mm , discoloured brown zone 5-10mm upper and lower 20.35m JT, 15°, RG, PL, FeO/MnO ctg , discoloured brown zone 10mm upper and lower 20.40m JT, 50°, RG, PL, FeO/MnO ctg , discoloured brown zone 10-20mm upper and lower 20.70m JT, 75°, RG, PL, FeO/MnO ctg , discoloured brown zone 5mm upper and lower	
	HQ3		21			20.24m - 20.73m: Highly weathered zone. Recovered as silty fine SAND; dense, moist.							21.20-21.50m: JT, 20°-35°, RG, PL, FeO ctg , discoloured brown zone 10-20mm upper and lower, x4	
	HQ3		22			Moderately weathered, light bluish grey, mixed white and brownish orange, fine GREYWACKE SANDSTONE; weak. Closely spaced open joints, generally dipping 30°; extremely closely spaced incipient fractures, high tensile strength. Weathering is joint controlled with isolated zones of brown discoloration up to 10mm. Extremely closely spaced veins and veinlets of hard white mineral, 1-10mm, high tensile strength, general dip 10-45°.	MW		100	97	50		21.80m JT, 40°, RG, PL, FeO/MnO ctg	
8	HQ3		23			21.25m - 21.29m: Highly weathered zone, joint controlled. Recovered intact, upon handling breaks down to SILT, some sand and clay; very stiff, moist, low plasticity.							22.25-22.42m: JT, 30°, RG, PL, FeO/MnO ctg , x3	
	HQ3		24			21.34m - 21.38m: Highly weathered zone, joint controlled. Recovered intact, upon handling breaks down to SILT, some sand and clay; very stiff, moist, low plasticity.							22.80-23.20m: SZ, 15°, FeO/MnO ctg , highly weathered, extremely weak, recovered as silty fine sand	
	HQ3		25			22.10m - 22.20m: White, fine GREYWACKE SANDSTONE; weak. Hydrothermally altered?.							23.20m JT, 30°, RG, PL, FeO/MnO ctg	
	HQ3		26			22.40m - 22.45m: White, fine GREYWACKE SANDSTONE; very weak. Hydrothermally altered? Upper and basal contacts dip 25°.			100	87	62		23.37m JT, 30°, RG, PL, FeO/MnO ctg	
	HQ3		27			22.80m - 23.20m: Shear zone of highly weathered, fine GREYWACKE SANDSTONE; extremely weak. Shear zone dip 15°. Recovered as silty fine SAND.							23.80-23.90m: JT, 60°, RG, PL, FeO/MnO ctg , x2	
	HQ3		28			23.05m - 23.20m: Basal zone of shear zone recovered as sandy SILT, some clay; white. Stiff, moist, low plasticity. Sand, fine. Hydrothermally altered?.								
	HQ3		29			23.85m - 23.90m: White, fine GREYWACKE								

REMARKS:

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- Shear Vane Serial No. 2183, calibration constant 1.482.
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- Geophysical profiling was undertaken on 08/10/2025, comprising optical and acoustic televiwer.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Water Level Readings:

DateTime

Hole Depth (m)

Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/10/2025	Logged: I. Mans
Method: Rotary Core Wireline		Easting: 1727584.59mE,		Date Completed: 09/10/2025	Input: I. Mans
Equipment: TechDrill 250 HD		Northing: 6008951.17mN,		Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 170.85m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
8	HQ3	146	25			[CONT] Moderately weathered, light bluish grey, mixed white and brownish orange, fine GREYWACKE SANDSTONE; weak. Closely spaced open joints, generally dipping 30°; extremely closely spaced incipient fractures, high tensile strength. Weathering is joint controlled with isolated zones of brown discolouration up to 10mm. Extremely closely spaced veins and veinlets of hard white mineral, 1-10mm, high tensile strength, general dip 10-45°.			100	93	63	CS	24.35m JT, 20°, RG, PL, FeO/MnO ctg, discoloured brown zone 30mm upper	
9	HQ3	145	26			24.70m - 25.30m: White, fine GREYWACKE SANDSTONE; very weak. Hydrothermally altered? Upper and basal contacts dip 45°.						ECS	24.60-24.63m: JT, 25°, RG, PL, FeO/MnO ctg, x2	
	HQ3	144	27									MWS	24.93m JT, 50°, RG, PL, FeO ctg, discoloured brown zone 15mm upper and lower	
	HQ3	143	28									ECS	24.95m JT, 5°, RG, UN, FeO ctg, discoloured brown zone 10mm upper and lower	
	HQ3	142	29									VCS	25.04-25.10m: CZ, 50°, silty fine to coarse sand, highly weathered greywacke, discoloured brown zone 80mm lower	
	HQ3	141	30										25.50m: 100% water loss	
	HQ3	140	31										25.71m JT, 20°, RG, PL, FeO ctg	
	HQ3	139											26.10-26.35m: FZ, RG, PL, FeO ctg, discoloured brown zone 250mm	
	HQ3												26.40-26.49m: JT, 10°-15°, RG, UN, FeO ctg, discoloured brown zone 6mm upper and lower, x2	
	HQ3												26.50-26.70m: JT, 75°-85°, RG, UN, FeO ctg, x2	
	HQ3												26.77m: CZ, 10°, silty fine to medium sand, highly weathered greywacke, discoloured brown zone 50mm upper and lower	
	HQ3												27.05m JT, 60°, RG, PL, FeO ctg	
	HQ3												27.11m JT, 5°, RG, PL, FeO ctg	
	HQ3												27.20-27.30m: JT, 45°, RG, PL, FeO ctg, discoloured brown zone 50mm upper and lower, x2	
	HQ3												27.36m JT, 65°, RG, PL, FeO ctg	
	HQ3												27.44m JT, 35°, RG, PL, FeO ctg, discoloured brown zone 20mm upper and lower	
	HQ3												27.70m JT, 35°, RG, PL, FeO ctg, discoloured brown zone 15mm upper and lower	
	HQ3												27.85m JT, 5°, RG, PL, FeO ctg, discoloured brown zone 20mm upper and lower	
	HQ3												28.13m JT, 70°, RG, PL, FeO ctg	
	HQ3												28.30m JT, 5°, RG, UN, FeO ctg, discoloured brown zone 10mm upper and lower	
	HQ3												28.36-28.46m: JT, 50°, RG, UN, FeO ctg, discoloured brown zone 15mm upper and lower, x2	
	HQ3												28.50m JT, 20°, RG, PL, FeO ctg	
	HQ3												28.55m JT, 5°, RG, PL, FeO ctg, discoloured brown zone 30mm top	
	HQ3												28.72m JT, 10°, RG, PL, FeO ctg	
	HQ3												29.00-29.10m: CZ, 45°, silty clay, firm, high plasticity, completely weathered greywacke, discoloured brown zone 70mm lower, potential crush zone	
	HQ3												29.15m JT, 30°, RG, PL, FeO ctg, discoloured brown zone 10mm lower	
	HQ3												29.50m JT, 20°, RG, PL, FeO ctg, discoloured brown zone 20mm upper and lower	
	HQ3												30.22m JT, 10°, RG, PL, FeO ctg	
	HQ3												30.42-30.49m: CZ, 30°, silty fine sand, some clay, dense, highly weathered greywacke, discoloured brown zone 30mm upper, potential crush zone	
	HQ3												30.70-30.90m: JT, 65°-80°, RG, UN, FeO ctg	
	HQ3												30.88m JT, 5°, RG, UN, FeO ctg, discoloured brown zone 15mm upper and lower	
	HQ3												31.11m JT, 5°, RG, PL, FeO vnr, discoloured brown zone 5mm upper and lower	
	HQ3												31.58-31.63m: JT, 30°-40°, RG, PL, FeO ctg, x2	
	HQ3													

REMARKS:

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- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
6/10/2025 5:10:00 pm	27.00	26.74
7/10/2025 8:00:00 am	27.00	26.00

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/10/2025	Logged: I. Mans
Method: Rotary Core Wireline		Easting: 1727584.59mE,		Date Completed: 09/10/2025	Input: I. Mans
Equipment: TechDrill 250 HD		Northing: 6008951.17mN,		Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 170.85m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
11	HQ3	138	33			Extremely closely spaced veins of hard white mineral, anastomosing, up to 3mm thick. [SLIGHTLY WEATHERED GREYWACKE].			100	100	89	MWS	32.25m JT, 30°, RG, PL, FeO ctg, discoloured brown zone 35mm upper and lower 32.44m JT, 5°, RG, UN, FeO ctg, discoloured brown zone 10mm upper and lower 32.57m JT, 5°, RG, UN, FeO ctg, discoloured brown zone 10mm upper and lower 32.76m JT, 5°, RG, ST, FeO ctg, discoloured brown zone 30mm upper and lower	
12	HQ3	137	34						100	100	87	CS	33.20m JT, 30°, RG, ST, FeO ctg 33.37m JT, 30°, RG, ST, FeO ctg 33.50m JT, 45°, RG, PL, FeO ctg, discoloured brown zone 10mm upper and lower 33.68m JT, 10°, RG, ST, FeO ctg, discoloured brown zone 8mm upper and lower 33.79m JT, 5°, RG, ST, FeO ctg, discoloured brown zone 25mm upper and lower 33.94m JT, 40°, RG, UN, FeO ctg, discoloured brown zone 20mm upper and lower 34.05m JT, 15°, RG, ST, FeO ctg, discoloured brown zone 30mm upper and lower 34.20m JT, 75°, RG, PL, FeO ctg, discoloured brown zone 10mm upper and lower 34.47m JT, 5°, RG, PL, FeO ctg, discoloured brown zone 5mm upper and lower 34.54-34.57m: JT, 5°-10°, RG, UN, FeO ctg, discoloured brown zone 5mm upper and lower 34.81m JT, 5°, RG, PL, FeO ctg, discoloured brown zone 20mm upper and lower	
		136	35			34.75m - 35.30m: Banded light greenish grey and white. Dip 40°.			100	100	80		35.20m JT, 45°, RG, PL, FeO ctg, discoloured brown zone 20mm lower 35.30m CZ, 45°, highly weathered greywacke, recovered as fine to coarse sand and fine gravel, angular, discoloured brown zone 50mm upper 35.40m JT, 45°, RG, PL, FeO ctg	
13	HQ3	135	36		WPU		SW		100	100	93	MWS CS	36.60-36.70m: JT, 50°, RG, PL, FeO 1-4mm, discoloured brown zone 50mm upper and lower, x2 37.17m JT, 55°, RG, PL, FeO ctg 37.47m JT, 20°, RG, PL, FeO ctg	
		134	37						100	100	100	MWS		
14	HQ3	133	38						100	100	96	MWS CS	38.73m JT, 40°, RG, PL, FeO ctg, discoloured brown zone 55mm lower 38.90m JT, 20°, RG, PL, FeO ctg 39.31m JT, 15°, RG, PL, FeO and hard white mineral vnr 39.73m JT, 35°, RG, PL, FeO 1-3mm, discoloured brown zone 6mm upper and lower	
		132	39											
		131												

REMARKS:

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- Falling/rising head testing undertaken with data logger at borehole depth 39m on 07/10/2025.
- Geophysical profiling was undertaken on 08/10/2025, comprising optical and acoustic televiewer.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
7/10/2025 4:15:00 pm	39.00	27.72
8/10/2025 8:30:00 am	39.00	30.04

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/10/2025	Logged: I. Mans
Method: Rotary Core Wireline		Easting: 1727584.59mE,		Date Completed: 09/10/2025	Input: I. Mans
Equipment: TechDrill 250 HD		Northing: 6008951.17mN,		Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 170.85m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
14	HQ3					[CONT] Extremely closely spaced veins of hard white mineral, anastomosing, up to 3mm thick. [SLIGHTLY WEATHERED GREYWACKE].	SW		100	100	96	MWS	40.45m JT, 40°, RG, PL, FeO 1-3mm, discoloured brown zone 25mm upper and lower 40.55m JT, 40°, RG, PL, FeO ctg, discoloured brown zone 5mm upper and lower	
15	HQ3	130	41		WPU				100	100	92	MWS		
		129	42			End Of Hole: 42.00m							41.85m JT, 60°, RG, PL, FeO/MnO ctg	
		128	43											
		127	44											
		126	45											
		125	46											
		124	47											
		123												

REMARKS:		Water Level Readings:	
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 58mm and vertical accuracy +/- 110mm. 2. One vibrating wire piezometer installed on 09/10/2025. BH2B_1129_PZ01 was installed at 37m bgl, Serial No. P250947. 3. Shear Vane Serial No. 2183, calibration constant 1.482. 4. Falling/rising head testing undertaken with data logger at borehole depth 39m on 07/10/2025. 5. Geophysical profiling was undertaken on 08/10/2025, comprising optical and acoustic televiewer. 6. Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC		DateTime	Hole Depth (m)
		8/10/2025 12:00:00 pm	42.00
		9/10/2025 7:15:00 am	29.95

Borehole Reference:

BH2B_1129

Photographed By:

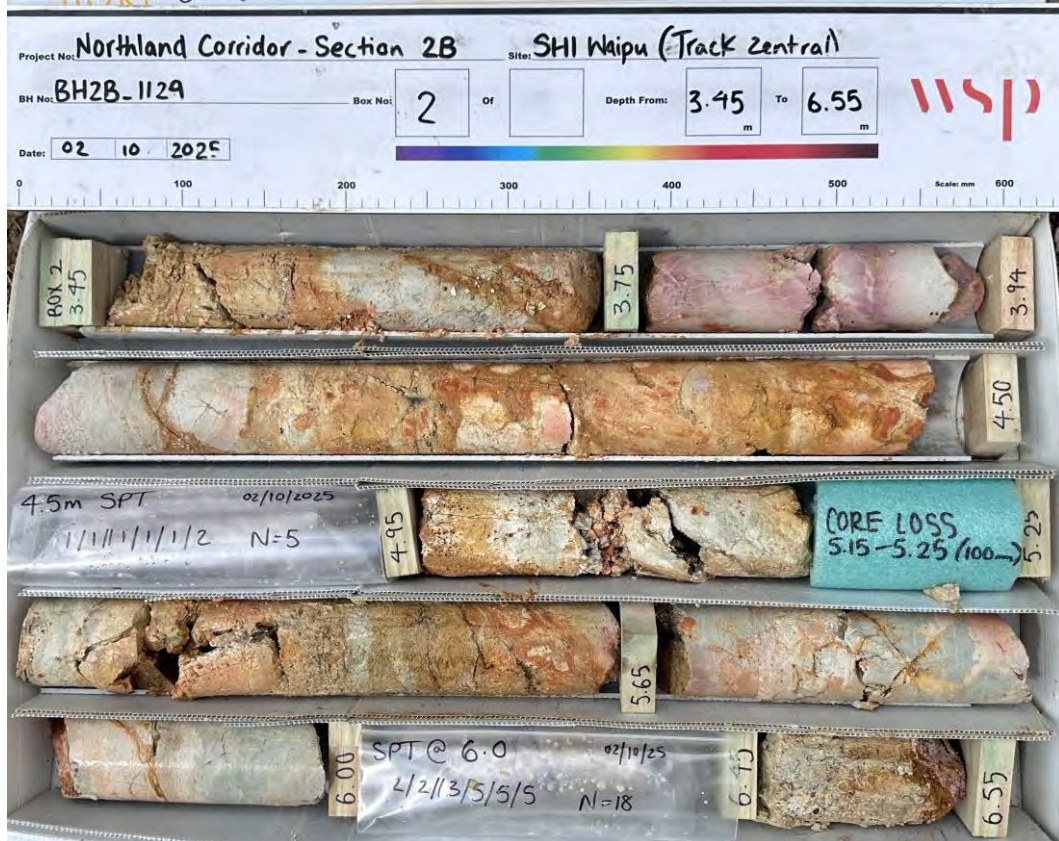
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Date Photographed:

01/10/2025-08/10/2025



BH2B_1129_BOX001_0m-3.45m



BH2B_1129_BOX002_3.45m-6.55m

Borehole Reference: BH2B_1129

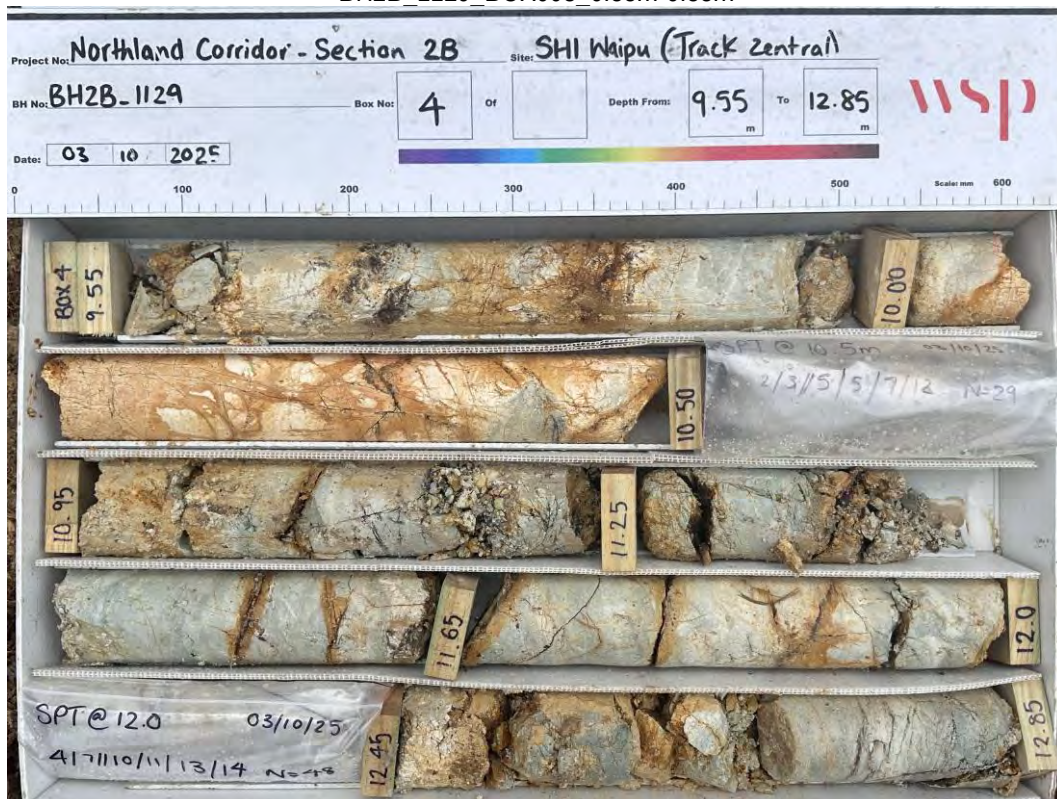
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Date Photographed:

01/10/2025-08/10/2025



BH2B_1129_BOX003_6.55m-9.55m



BH2B_1129_BOX004_9.55m-12.85m

Borehole Reference: BH2B_1129

Photographed By: IM

Date Photographed:

01/10/2025-08/10/2025



BH2B_1129_BOX005_12.85m-15.83m



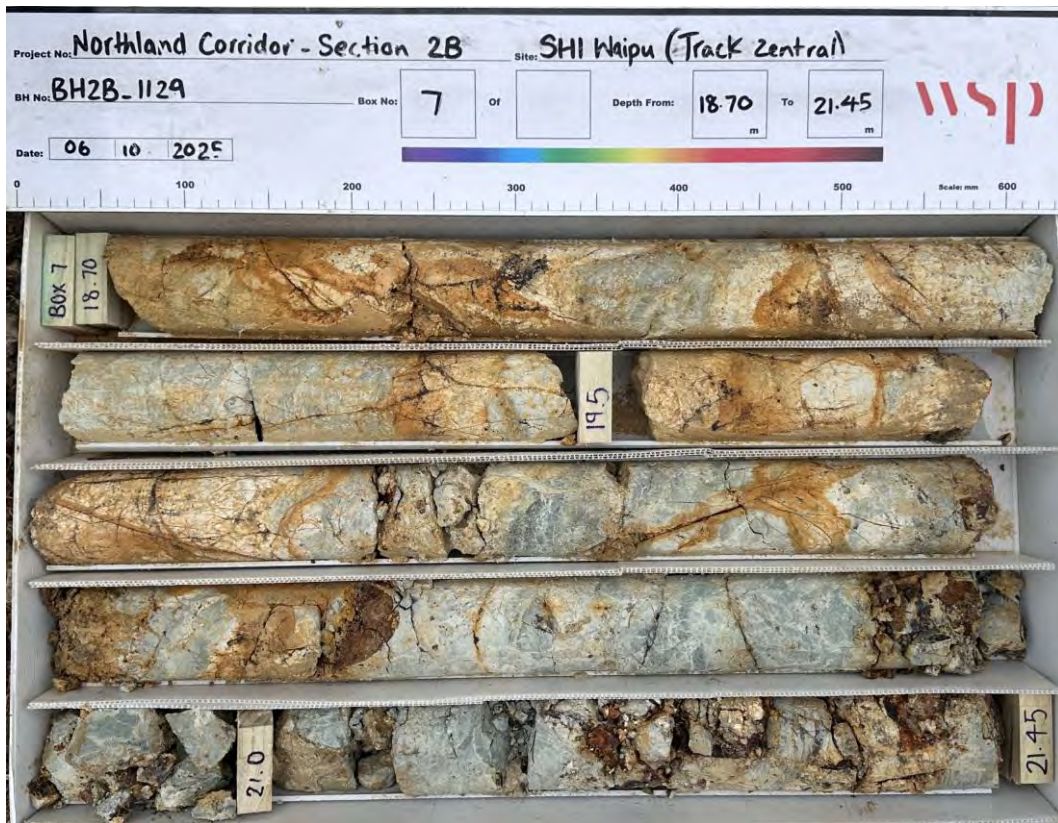
BH2B_1129_BOX006_15.83m-18.7m

Borehole Reference: BH2B_1129

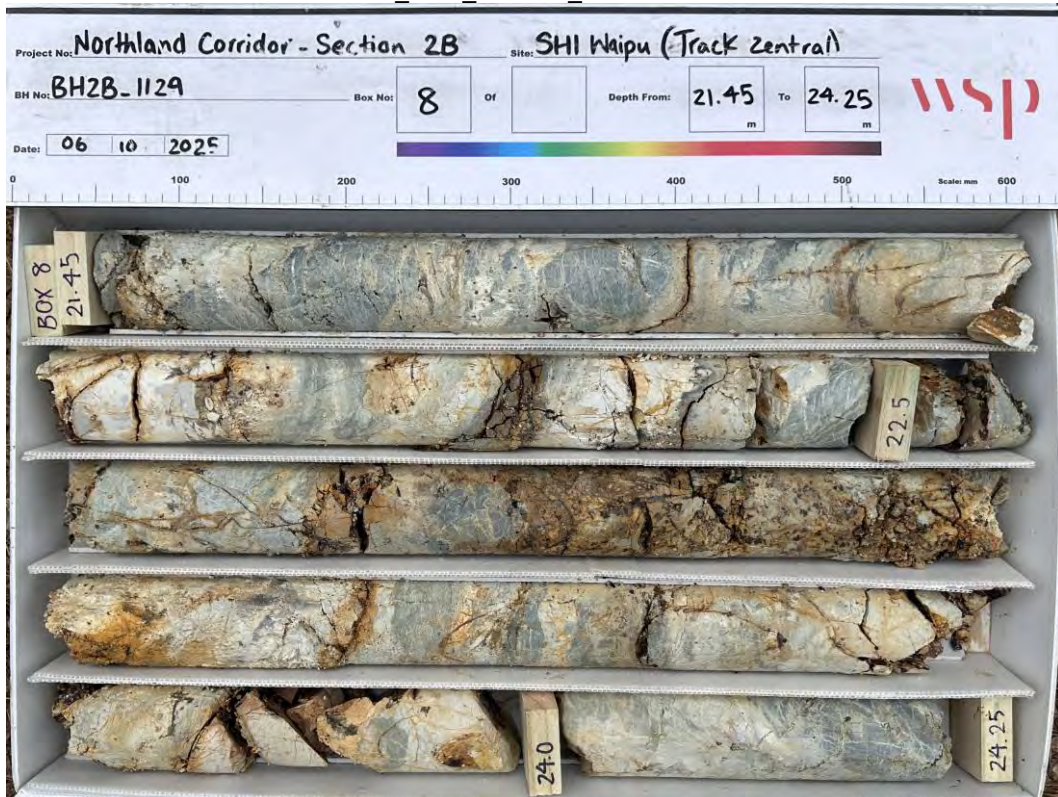
Photographed By: IM

Date Photographed:

01/10/2025-08/10/2025



BH2B_1129_BOX007_18.7m-21.45m



BH2B_1129_BOX008_21.45m-24.25m

Borehole Reference:

BH2B_1129

Photographed By:

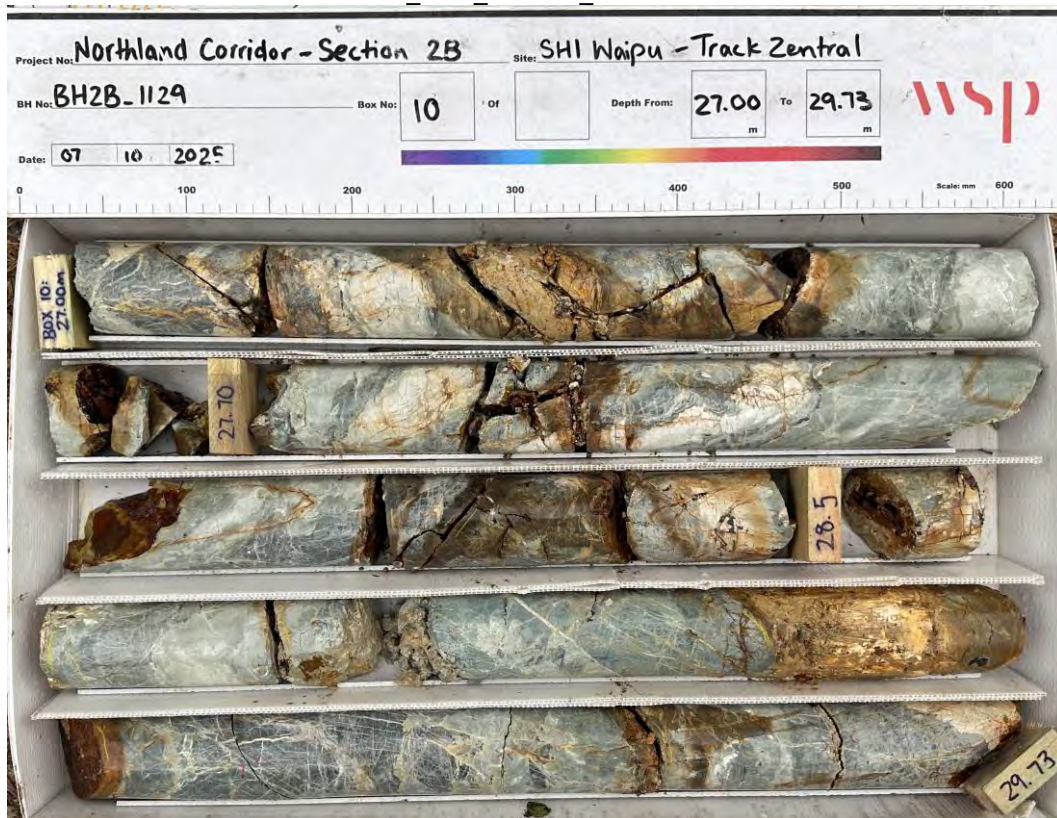
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Date Photographed:

01/10/2025-08/10/2025



BH2B_1129_BOX009_24.25m-27m



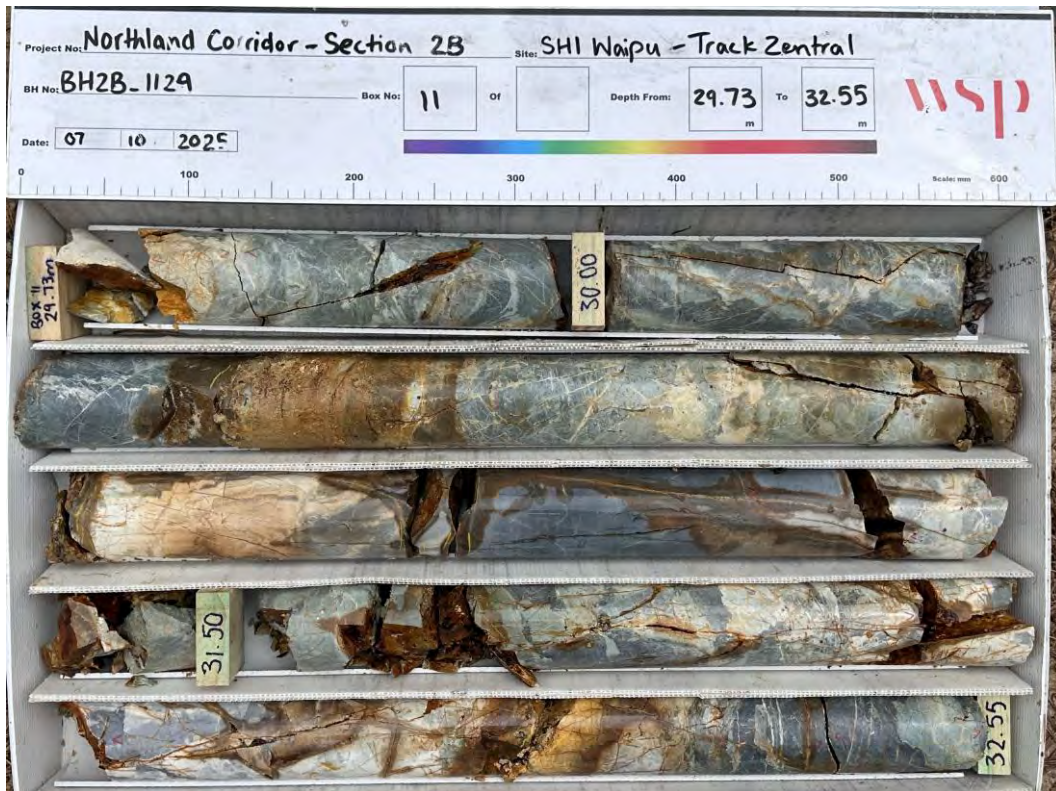
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Borehole Reference: BH2B_1129

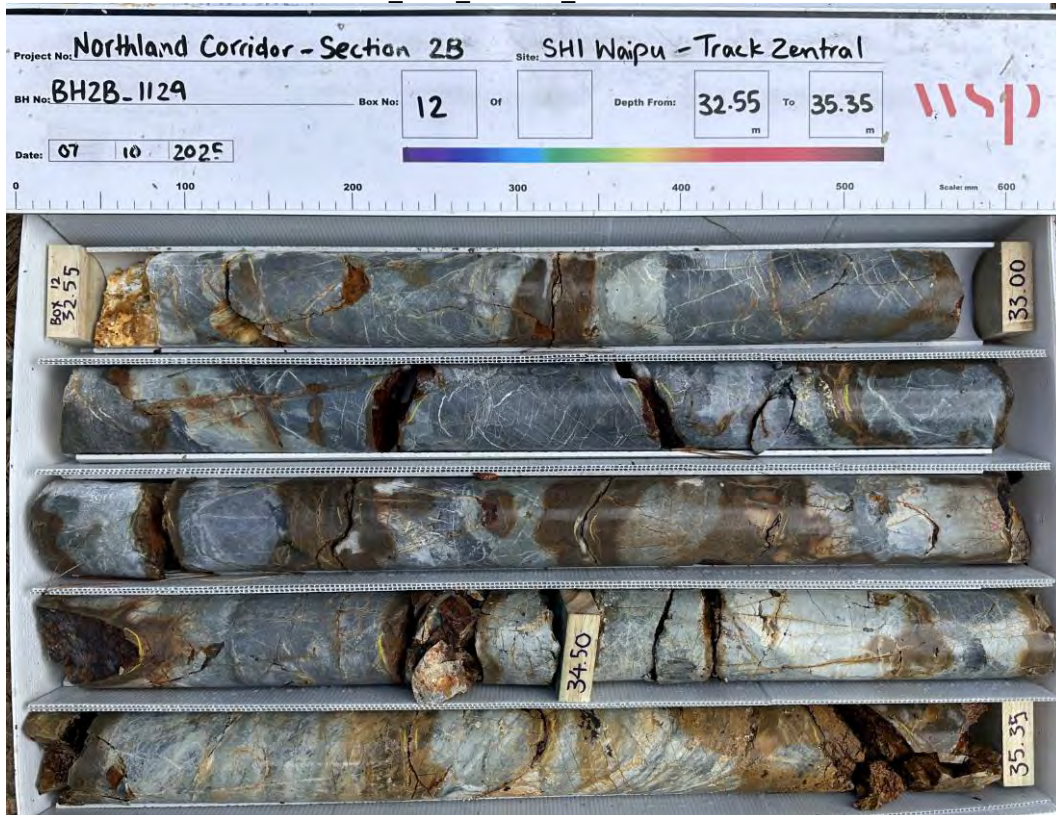
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Date Photographed:

01/10/2025-08/10/2025



BH2B_1129_BOX011_29.73m-32.55m



BH2B_1129_BOX012_32.55m-35.35m

Borehole Reference:

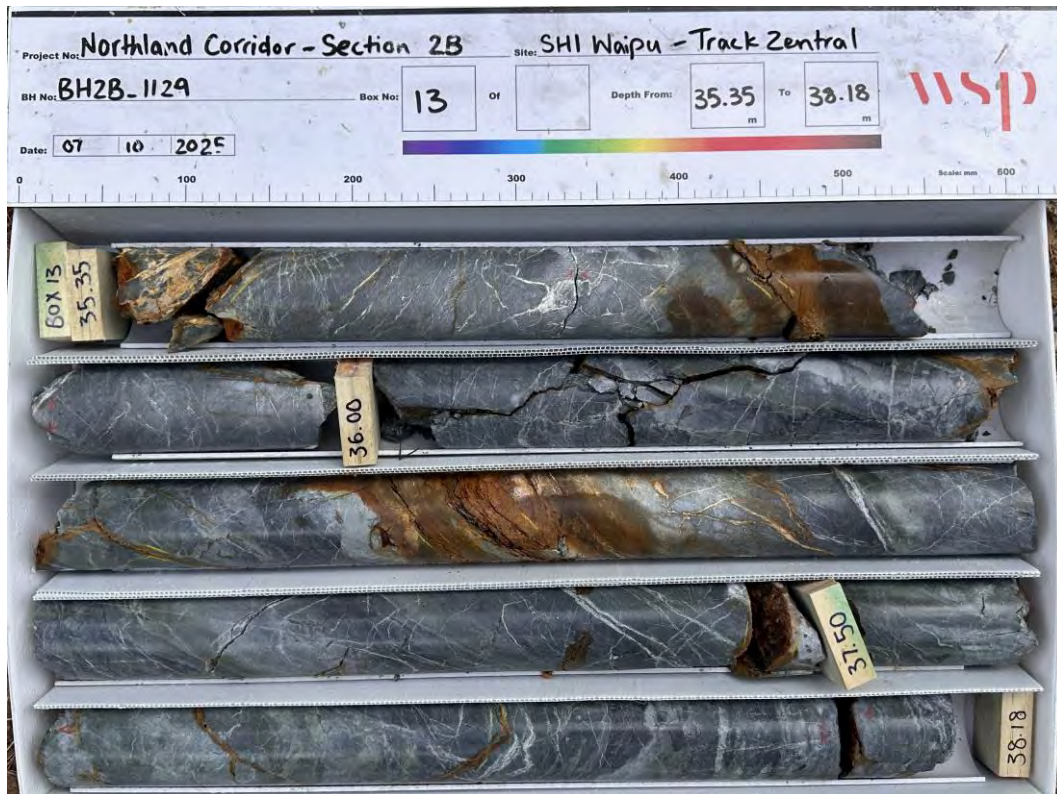
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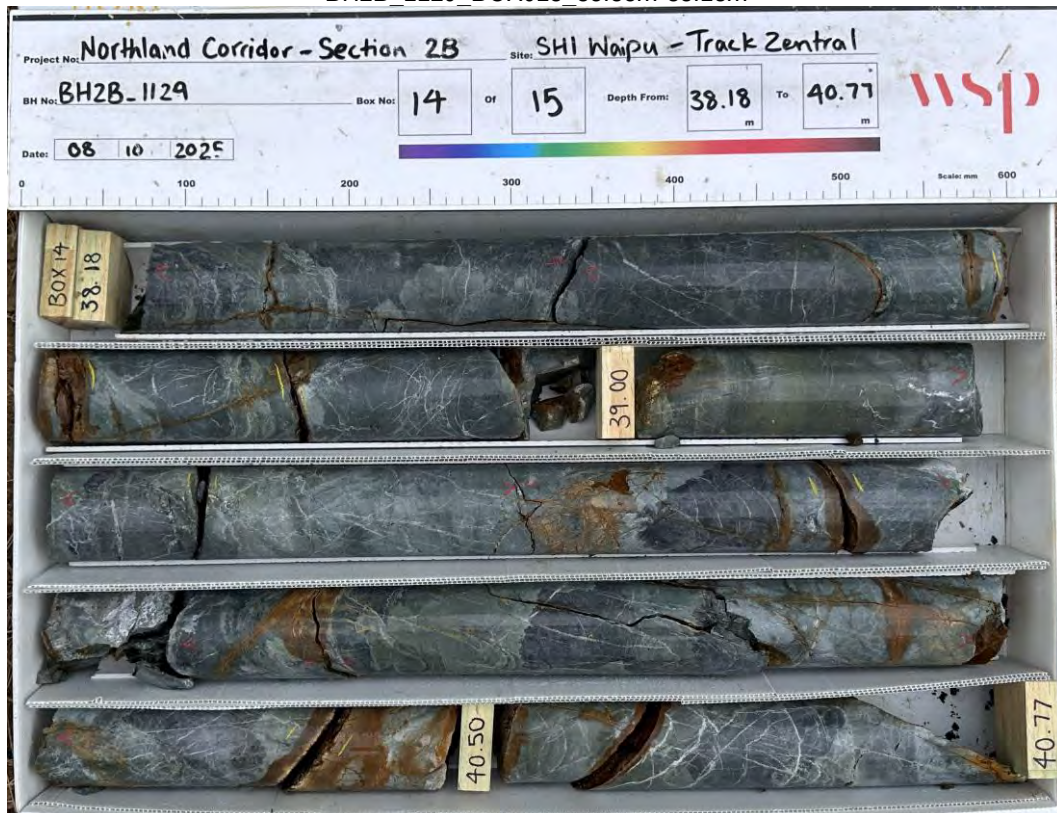
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Date Photographed:

01/10/2025-08/10/2025



BH2B_1129_BOX013_35.35m-38.18m



BH2B_1129_BOX014_38.18m-40.77m

Borehole Reference: BH2B_1129

Photographed By: IM

Date Photographed:

01/10/2025-08/10/2025



BH2B_1129_BOX015_40.77m-42m

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BOREHOLE INFORMATION	CO-ORDINATES: NZTM2000	Date Started: 16/09/2025	Logged: M. Zhang
Method: Rotary Core Wireline	Easting: 1727994.37mE,	Date Completed: 25/09/2025	Input: M. Zhang
Equipment: Fraste SRS	Northing: 6005272.22mN,	Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd	Ground level: 140.25m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
3	HQ3	132			PR	[CONT] Completely weathered, orangish brown, light grey, mottled light brown, fine to medium SANDSTONE; extremely weak. Closely spaced relict joints; joint surfaces iron stained. (Fine to medium SAND trace clay, loose, moist to wet, uniformly graded).	CW		100	-	-	WWS WS MS CS VCS ECIS	8.00m: HCl test on matrix, no reaction	
	SPT	131	9		PH	Highly weathered, light grey, mottled orangish brown, fine to medium SANDSTONE; extremely weak, iron stained. (Fine to medium SAND, medium dense, moist, uniformly graded). [HIGHLY WEATHERED PAKIRI FORMATION].	HW	9m SPT 2, 2/3, 4, 5, 6 N= 18	100	-	-			
4	HQ3	130	10		PH				100	-	-	WWS WS MS CS VCS ECIS	11.50m: HCl test on matrix, no reaction	
	SPT							10.5m SPT 3, 6/7, 5, 7, 7 N= 26	100	-	-			
5	HQ3	129	11		PM	Moderately weathered, grey, fine to medium SANDSTONE; extremely weak. Indistinctly bedded. (Fine to medium SAND, medium dense, moist). [MODERATELY WEATHERED PAKIRI FORMATION].	MW		105	-	-	WWS WS MS CS VCS ECIS	13.02m JT, 60°, RG , UN , CN 13.28m JT, 30°-40° , RG , PL , CN , (Jt x2) 13.62-13.98m: FZ, 30°-60° , RG , UN , recovered as medium to coarse, sub-angular sandstone gravel 13.70m JT, 60° , RG , UN , clean, possibly drilling induced 13.93m JT, 50°-60° , RG , UN , clean, possibly drilling induced 14.44m JT, 70° , RG , UN , CN	
	P HQ3	128	12			11.8-12.0m: CORE LOSS (200mm). Loss assumed from potential washout of moderately weathered sandstone during drilling.	MW	12m SPT 50 for 65mm N = 50+	228	-	-			
	HQ3					Moderately weathered, grey, fine to medium SANDSTONE; extremely weak. Indistinctly bedded. (Fine to medium SAND, medium dense, moist). Unweathered, grey, indistinctly bedded, fine to medium SANDSTONE; strong, with minor fine to medium, sub-angular gravel clasts throughout. Indistinct bedding fabric dips at 0-10°. Clasts comprising siltstone, calcite, mudstone (typically 1-5mm, max 40mm diameter). [UNWEATHERED PAKIRI FORMATION].			99	97	97			
	P HQ3							13.5m SPT 50 for 70mm N = 50+	100	-	-			
	HQ3								95	86	73			
6	HQ3	126	14		PU	14.03m - 14.08m: Carbonaceous laminae, thinly laminated to very thin, 10° bedding dip orientation. 14.84m - 14.89m: Carbonaceous laminae, thinly laminated, 5° bedding dip orientation.	UW					WWS WS MS CS VCS ECIS	15.00m: HCl test on matrix, no reaction	
	HQ3	125	15					15m SPT 37, 13 for 15mm N = 50+	100	-	-			

REMARKS:	Water Level Readings:		
	Date/Time	Hole Depth (m)	Water Level (m)
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm.			
2. Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. 377915. BH2B_1130_PZ02 was installed at 67.30m bgl, Serial No. P252807.			
3. Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025.			
5. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiwer.			
6. Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.			

REMARKS:	Water Level Readings:		
	DateTime	Hole Depth (m)	Water Level (m)
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm. 2. Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. 377915. BH2B_1130_PZ02 was installed at 67.30m bgl, Serial No. P252807. 3. Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025. 5. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiewer. 6. Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.			

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 16/09/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.37mE,		Date Completed: 25/09/2025	Input: M. Zhang
Equipment: Fraste SRS		Northing: 6005272.22mN,		Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 140.25m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
9	HQ3	116				[CONT] Unweathered, grey; Conglomeratic SANDSTONE; strong. Matrix (90%) comprising fine to coarse SANDSTONE. Clasts (10%) comprising lithics, sub-angular to elongated, 1-10mm thick			100	100	100	VWS WS MWS VCS ECS	25.00m: HCl test on matrix, no reaction	
		25												
10	HQ3	115				27.29m - 27.31m: Carbonaceous laminae, laminated, 10-15° bedding dip orientation. Unweathered, grey, indistinctly bedded, fine to medium SANDSTONE; strong, with minor clasts throughout (1-5mm diameter). Bedding dips at 5-15°.	UW		100	100	100	VWS WS MWS VCS ECS	27.30m: DB, 10°, breakage along bedding plane	
		26												
11	HQ3	114				28.62m - 29.20m: Very closely spaced, high tensile strength incipient fractures. Two primary orientations dipping 40° and 70-80°.			101	101	101	VWS WS MWS VCS ECS	29.00m: HCl test on matrix, no reaction	
		27												
12	HQ3	113				29.45m - 29.48m: SILTSTONE interbed, dark grey (30mm).			99	99	99	VWS WS MWS VCS ECS	31.31-31.60m: JT, 70°, RG, UN, CN	
		28												
13	HQ3	112				29.83m - 29.85m: Carbonaceous laminae, thinly laminated, 0° bedding dip orientation.			101	100	93	VWS WS MWS VCS ECS		
		29												
14	HQ3	111				30.12m - 30.18m: Carbonaceous laminae, thinly laminated to thin, 10° bedding dip orientation.			95	95	95	VWS WS MWS VCS ECS		
		30												
15	HQ3	110				Unweathered, grey, Conglomeratic SANDSTONE; strong. Matrix (60%) comprising medium to coarse SANDSTONE. Clasts (40%) comprising fine to medium, sub-rounded, irregular clasts of siltstone,						VWS WS MWS VCS ECS		
		31												
16	HQ3	109										VWS WS MWS VCS ECS		
		109												

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm. 2. Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. 377915. BH2B_1130_PZ02 was installed at 67.30m bgl, Serial No. P252807. 3. Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025. 5. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiwer. 6. Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.	Water Level Readings:		
	Date/Time	Hole Depth (m)	Water Level (m)
	16/09/2025 4:34:00 pm	27.00	2.40
	17/09/2025 8:15:00 am	27.00	5.90

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 16/09/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.37mE,		Date Completed: 25/09/2025	Input: M. Zhang
Equipment: Fraste SRS		Northing: 6005272.22mN,		Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 140.25m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
12	HQ3	108				mudstone, calcite up to 40mm diameter. Clasts elongated sub-horizontally .			95	95	95			
		33				Unweathered, grey, indistinctly bedded, fine to medium SANDSTONE, with thin to moderately thin interbeds of conglomeratic SANDSTONE, SILTSTONE; and carbonaceous laminae; strong, with minor fine to medium, sub-angular gravel clasts throughout. Bedding fabric dips at 10-20°. Clasts comprising siltstone, calcite, mudstone (typically 1-5mm diameter).								
	HQ3	107				33.84m - 34.20m: Very closely spaced, high tensile strength incipient fractures, dip at 0-20°.			101	101	101		33.00m: HCl test on matrix, no reaction	
		34				34.50m - 34.70m: Conglomeratic SANDSTONE interbed. Matrix (50%) comprising medium to coarse SANDSTONE. Clasts (50%) comprising fine, angular to sub-angular, irregular clasts of siltstone, mudstone, calcite up to 5mm diameter.							34.74m BP, 15°, SM , PL , CN	
	HQ3	105				34.74m - 34.77m: SILTSTONE interbed, dark grey (30mm).	UW		103	103	103		35.00m: HCl test on matrix, no reaction	
		35				34.80m - 34.86m: Interbedded fine SANDSTONE and SILTSTONE. Sandstone (60%), grey, 10° bedding inclination. Siltstone (40%), dark grey.								
		36				35.13m - 35.15m: SILTSTONE laminae, laminated, 10° bedding dip orientation, bedding offset 2mm.								
		37				35.65m - 35.75m: Indistinct bedding fabric dips at 20°.								
	HQ3	103				35.75m - 36.25m: Conglomeratic SANDSTONE interbed. Matrix (60%) comprising fine to coarse SANDSTONE. Clasts (40%) comprising fine to medium, angular to sub-angular, irregular clasts of siltstone, mudstone, calcite up to 30mm diameter.			100	100	100			
		38				36.25m - 36.45m: Very closely spaced, high tensile strength incipient fractures, dip at 10-20°.								
		39				37.61m - 37.65m: Conglomeratic SANDSTONE interbed (40mm).								
14	HQ3	102				Unweathered, grey, dark grey, thin to moderately thin, Interbedded fine SANDSTONE and thin to laminated SILTSTONE; moderately strong. 0-10° bedding inclination; Sandstone (60%), Siltstone (40%). Soft sediment deformation and concentrated jointing in siltstone beds.			99	99	99		38.30m JT, 70°, RG , UN , calcite infill (1 mm)	
		39				38.25m - 38.37m: Medium to coarse SANDSTONE interbed, with minor fine clasts (siltstone, mudstone, calcite).							38.50-38.90m: JT, 70°-90° , UN , closed, (Jt x3)	
		101				39.30m - 39.41m: Bedding offset 1mm along incipient fracture.	UW		97	85	85		39.00-39.32m: JT, 75°, RG , UN , CN	
													39.40m JT, 60° , UN , calcite infill (1mm), closed	
													39.60m: HCl test on matrix, no reaction	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm.
- Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. P252807.
- Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025.
- Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiwer.
- Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.

Water Level Readings:

DateTime | Hole Depth (m) | Water Level (m)

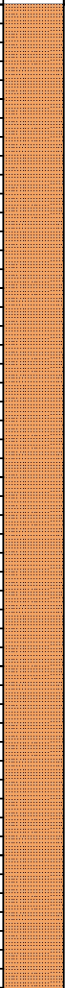
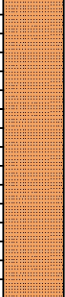
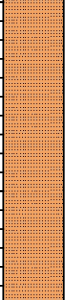
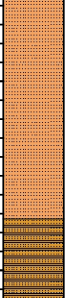
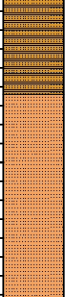
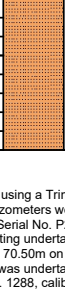
BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 16/09/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.37mE,		Date Completed: 25/09/2025	Input: M. Zhang
Equipment: Fraste SRS		Northing: 6005272.22mN,		Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 140.25m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
15	HQ3	100				[CONT] Unweathered, grey, dark grey, thin to moderately thin, Interbedded fine SANDSTONE and thin to laminated SILTSTONE; moderately strong. 0-10° bedding inclination; Sandstone (60%), Siltstone (40%). Soft sediment deformation and concentrated jointing in siltstone beds.	UW		97	85	85	WS VS MS CS VCS ECS	40.20m JT, 50°, SM, ST, CN	
	HQ3	41	99						105	104	104		41.18-41.20m: CS, 0°, recovered as fine, angular siltstone gravel	
	HQ3	42	98			Unweathered, grey, fine to medium SANDSTONE, with widely spaced SILTSTONE laminae interbeds; strong, with minor fine to medium gravel clasts throughout. Indistinct bedding fabric dips at 0-10°. Clasts comprising siltstone and mudstone (up to 5mm diameter); numerous thin (1mm) calcite veins throughout.							42.00m: HCl test on matrix, no reaction	
	HQ3	43	97						96	96	96	WS	42.30m JT, 70°, calcite infill (1mm), healed	
	HQ3	44	96		PU	43.62m - 43.68m: SILTSTONE laminae, laminated, 0° bedding dip orientation. 43.68m - 43.80m: Sub-angular, irregular siltstone clasts up to 20mm. 43.80m - 43.87m: Interbedded SILTSTONE and fine SANDSTONE. Siltstone (60%), dark grey. Sandstone (40%), grey.			102	102	102		44.56m JT, 45°, RG, PL, carbonaceous staining	
	HQ3	45	95			44.77m - 44.81m: Carbonaceous laminae, thinly laminated, 0-5° bedding dip orientation.	UW						45.62m JT, 60°, UN, calcite infill (1mm, strong reaction to HCl), healed 45.66-45.95m: VN, 80°-90°, UN, calcite infill (2mm), strong reaction to HCl, closed 46.00-46.17m: FZ, breakage along very closely spaced healed joint, calcite infill (1-2mm), low tensile strength, handling induced break 46.12m JT, 50°, PL, calcite infill (1mm) strong reaction to HCl	
	HQ3	46	94			45.23m - 45.29m: Carbonaceous laminae, thinly laminated to laminated, 0-5° bedding dip orientation.			99	89	89	MWS VCS	46.50m: HCl test on matrix, no reaction	
	HQ3	47	93			46.77m - 46.82m: Carbonaceous laminae, thinly laminated, 0-5° bedding dip orientation.			100	100	100	MWS WS	47.09m JT, 70°, RG, UN, FeO staining	

REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm.		Date/Time	Hole Depth (m)	Water Level (m)
2. Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. 377915. BH2B_1130_PZ02 was installed at 67.30m bgl, Serial No. P252807.		17/09/2025 4:50:00 pm	47.99	4.10
3. Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025.		18/09/2025 7:50:00 am	47.99	8.07
5. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiwer.				
6. Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.				

REMARKS:	Water Level Readings:		
	DateTime	Hole Depth (m)	Water Level (m)
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm. 2. Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. 377915. BH2B_1130_PZ02 was installed at 67.30m bgl, Serial No. P252807. 3. Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025. 5. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiewer. 6. Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.			

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000 Easting: 1727994.37mE, Northing: 6005272.22mN, Ground level: 140.25m (NZVD2016)	Date Started: 16/09/2025 Date Completed: 25/09/2025 Inclination: 90 Azimuth: N/A	Logged: M. Zhang Input: M. Zhang Reviewed: B. O'Loughlin Verified: A. George
Method:	Rotary Core Wireline			
Equipment:	Fraste SRS			
Contractor:	Pro-Drill (Auck) Ltd			

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
19	HQ3	84			PU	[CONT] 52.69m - 52.80m: Limonite staining.	UW					WVS WS MS VS CS EC		
						56.40m: SILTSTONE, dark grey (15mm).			99	99	99			
						56.43m - 56.45m: Carbonaceous laminae, thinly laminated, 0° bedding dip orientation.								
20	HQ3	83					UW						58.00m: HCl test on matrix, no reaction	
									101	101	101			
	HQ3	81			PU	59.50m - 60.42m: Conglomeratic SANDSTONE interbed. Matrix (80%) comprising fine to medium SANDSTONE. Clasts (20%) comprising fine to medium, angular to sub-angular SILTSTONE up to 30mm diameter.	UW					WVS WS MS VS CS EC		
									100	100	100			
21	HQ3	80					UW							
									101	101	101			
	HQ3	79				60.97m - 61.04m: SILTSTONE, dark grey (70mm).	UW							
						Unweathered, grey, dark grey, Interbedded fine SANDSTONE and thin to laminated SILTSTONE; moderately strong. 10-20° bedding inclination; Sandstone (60%), Siltstone (40%). Soft sediment deformation in siltstone beds.								
	HQ3	78				Unweathered, grey, indistinctly bedded, fine to medium SANDSTONE; strong, with minor fine to medium gravel clasts throughout. Indistinct bedding fabric dips at 0-10°. Clasts comprising siltstone, calcite, mudstone (up to 5mm diameter).	UW							
									99	99	99			
22	HQ3	63					UW						62.98m: VN, 60° , UN , calcite infill (1mm)	
	HQ3	77					UW						63.55-63.72m: JT, 60°-70° , RG , PL , calcite infill (1mm) , closed (Jlx2)	
	HQ3	63					UW							
	HQ3	77					UW							
	HQ3	63					UW							
	HQ3	77					UW							
	HQ3	63					UW							
	HQ3	77					UW							
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	HQ3	63					UW							
						</								

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 16/09/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.37mE,		Date Completed: 25/09/2025	Input: M. Zhang
Equipment: Fraste SRS		Northing: 6005272.22mN,		Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 140.25m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
22	HQ3	76				[CONT] Unweathered, grey, indistinctly bedded, fine to medium SANDSTONE; strong, with minor fine to medium gravel clasts throughout. Indistinct bedding fabric dips at 0-10°. Clasts comprising siltstone, calcite, mudstone (up to 5mm diameter).			102	93	93	WVS WS MWS VCS ECS	64.00m: HCl test on matrix, no reaction	
	HQ3	75							97	95	95	WVS	65.60m: VN, 10°, UN 65.61-65.64m: HB	
23	HQ3	74							102	99	93	ECS	66.85-67.05m: CZ, 10°, recovered as fine to coarse, angular sandstone gravel	
		73										CS	67.20m: JT, 30°, RG, UN, CN 67.33m: JT, 45°, RG, UN, clayey silt infill (1 mm)	
	HQ3	72			PU	67.87m - 67.89m: Carbonaceous laminae, thinly laminated, 0° bedding dip orientation.	UW		99	99	99	WVS	70.00m: HCl test on matrix, no reaction	
24	HQ3	71							102	102	99	WVS		
		70												
		70												
25	HQ3	69				71.45m - 71.75m: Unweathered, light grey, Conglomeratic SANDSTONE interbed; strong. Matrix (85%) comprising fine to coarse SANDSTONE. Clasts (15%) comprising angular to sub-angular siltstone and calcite (1-5mm diameter).			98	98	98		71.42m: JT, 50°, RG, UN, CN 71.70m: JT, 50°-60°, RG, UN, CN (Jb2)	

REMARKS:		Water Level Readings:		Date/Time	Hole Depth (m)	Water Level (m)
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm.				22/09/2025 9:00:00 am	70.50	53.44
2. Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. 377915. BH2B_1130_PZ02 was installed at 67.30m bgl, Serial No. P252807.						
3. Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025.						
5. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiwer.						
6. Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.						

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 16/09/2025	Logged: M. Zhang
Method:	Rotary Core Wireline			
Equipment:	Fraste SRS			
Contractor:	Pro-Drill (Auck) Ltd			
		Easting: 1727994.37mE,	Date Completed: 25/09/2025	Input: M. Zhang
		Northing: 6005272.22mN,	Inclination: 90	Reviewed: B. O'Loughlin
		Ground level: 140.25m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
25	HQ3	68				[CONT] 71.45m - 71.75m: Unweathered, light grey, Conglomeratic SANDSTONE interbed; strong. Matrix (85%) comprising fine to coarse SANDSTONE. Clasts (15%) comprising angular to sub-angular siltstone and calcite (1-5mm diameter).			100	100	100	WS MS CS VCS ECS		
		73							100	100	100			
26	HQ3	67				73.92m - 73.95m: SILTSTONE interbed, dark grey (30mm). Soft sediment deformation.	UW					VWS	75.00m: HCl test on matrix, no reaction	
		74							103	103	103			
27	HQ3	66			PU	76.63m - 76.78m: Interbedded fine SANDSTONE and SILTSTONE. Sandstone (90%), grey. Siltstone (10%), dark grey.						WS	77.22m JT, 30°, RG, PL, CN	
		75							98	98	98			
28	HQ3	65				78.49m - 78.56m: Conglomeratic SANDSTONE interbed (70mm).						MWS	78.08m JT, 70°, UN, closed 78.30m JT, 70°, RG, UN, CN 78.56-78.59m: DB, recovered as medium to coarse, sub-angular sandstone gravel 78.59m JT, 70°, RG, UN, CN (Jbx2)	
		76							98	98	98			
		77				79.40m - 79.66m: Interbedded fine SANDSTONE and SILTSTONE. Sandstone (60%), grey. Siltstone (40%), dark grey. 79.50m - 79.52m: Carbonaceous laminae, thinly laminated, 0° bedding dip orientation.						WS	79.00m: HCl test on matrix, no reaction 79.20m JT, 70°, RG, UN, CN 79.63m JT, 75°, RG, PL, CN	
		78							101	95	90			
		79							99	99	99			

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm. 2. Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. 377915. BH2B_1130_PZ02 was installed at 67.30m bgl, Serial No. P252807. 3. Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025. 5. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiwer. 6. Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.	Water Level Readings:		
	DateTime	Hole Depth (m)	Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 16/09/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.37mE,	Date Completed: 25/09/2025	Input: M. Zhang
Equipment: Fraste SRS		Northing: 6005272.22mN,	Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 140.25m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
28	HQ3	60				[CONT] 79.50m - 79.52m: Carbonaceous laminae, thinly laminated, 0° bedding dip orientation.			99	99	99	WVS	80.55m: JT, 60°, UN, calcite (infill 1mm), closed	
		81										WVS		
	HQ3	59				81.45m - 81.61m: Conglomeratic SANDSTONE (160mm).						WVS	81.19m: JT, 60°, UN, calcite (infill 1mm), closed	
		82				81.61m - 81.83m: Interbedded fine SANDSTONE and SILTSTONE. Sandstone (70%), grey. Siltstone (30%), dark grey. Siltstone laminae, sub-horizontally bedded at 0-5°.			99	93	84	MWS	81.52m: JT, 60°, UN, calcite (infill 1mm), closed	
		58				82.27m - 82.50m: Interbedded fine SANDSTONE and SILTSTONE. Sandstone (60%), grey. Siltstone (40%), dark grey. Siltstone laminae, sub-horizontally bedded at 0-5°.							81.96-82.02m: JT, 50°-60°, RG, UN, CN (Jbx3)	
		83												
	HQ3	57					UW		97	97	97		83.00m: HCl test on matrix, no reaction	
29		84			PU									
	HQ3	56				84.18m - 84.21m: Dark grey SILTSTONE clasts, (<5mm diameter).								
		85				84.28m - 84.44m: Interbedded fine SANDSTONE and SILTSTONE. Sandstone (80%), grey. Siltstone (20%), dark grey. 10mm bedding offsets.			103	103	103			
		55				85.03m - 85.07m: Conglomeratic SANDSTONE interbed (40mm).						WVS		
						85.20m: Dislocated bedding along incipient fracture, dipping at 20°.								
						85.25m - 85.31m: Carbonaceous laminae, thinly laminated, 0° bedding dip orientation.								
		86				85.48m - 85.85m: Interbedded fine SANDSTONE and SILTSTONE. Sandstone (60%), grey. Siltstone (40%), dark grey.								
	HQ3	54							97	97	97			
30		87												
		53				Unweathered, grey, dark grey, Interbedded fine to medium SANDSTONE and thin to laminated SILTSTONE; moderately strong. 0-10° bedding inclination; Sandstone (60%), Siltstone (40%). Soft sediment deformation.	UW		101	101	101		87.00m: HCl test on matrix, no reaction	

REMARKS:

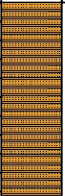
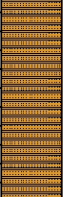
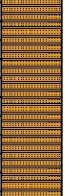
- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm.
- Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. 377915. BH2B_1130_PZ02 was installed at 67.30m bgl, Serial No. P252807.
- Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025.
- Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiwer.
- Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
22/09/2025 4:56:00 pm	82.50	43.70
23/09/2025 7:45:00 am	82.50	53.50

REMARKS:		Water Level Readings:		
		Date/Time	Hole Depth (m)	Water Level (m)
1. Coordinates captured using a Trimble R12i Receiver and TSCS Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm. 2. Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. 377915. BH2B_1130_PZ02 was installed at 67.30m bgl, Serial No. P252807. 3. Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025. 5. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiewer. 6. Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.				

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 16/09/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.37mE,		Date Completed: 25/09/2025	Input: M. Zhang
Equipment: Fraste SRS		Northing: 6005272.22mN,		Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 140.25m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
33	HQ3	44			PU	[CONT] [CONT] Unweathered, grey, dark grey, Interbedded fine to medium SANDSTONE and thin to laminated SILTSTONE; moderately strong. 0-10° bedding inclination; Sandstone (60%), Siltstone (40%) . Soft sediment deformation.	UW		99	99	99	WVS WS MS CS VCS ECs		
		97												
34	HQ3	43			PU	97.60m: Fine SANDSTONE bed (600mm).	UW		102	102	102	WVS WS MS CS VCS ECs	98.00m: HCl test on matrix, no reaction	
		98												
35	HQ3	41				99.00m: Flame structures/soft sediment deformation.			104	104	104			
		100				End Of Hole: 100.00m								
		40												
		101												
		39												
		102												
		38												
		103												
		37												

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 69mm. 2. Two vibrating wire piezometers were installed on 25/09/2025. BH2B_1130_PZ01 was installed at 20.80m bgl, Serial No. 377915. BH2B_1130_PZ02 was installed at 67.30m bgl, Serial No. P252807. 3. Falling/rising head testing undertaken with data logger at borehole depth 48.0m on 17/09/2024. Second Falling/rising head testing undertaken with data logger at borehole depth 70.50m on 18/09/2025. 5. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiwer. 6. Shear Vane Serial No. 1288, calibration constant 1.546 was used down to 1.9m. Shear Vane Serial No. DR4940, calibration constant 1.613 was used down to 4m.	Water Level Readings:			
	DateTime	Hole Depth (m)	Water Level (m)	
	23/09/2025 4:29:00 pm	100.00	43.20	

Borehole Reference: BH2B_1130

Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B 1130 BOX001 0m-1.9m



BH2B_1130_BOX002_1.9m-5.25m

Borehole Reference: BH2B_1130

Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX003_5.25m-8.55m



BH2B_1130_BOX004_8.55m-11.68m

Borehole Reference: BH2B_1130

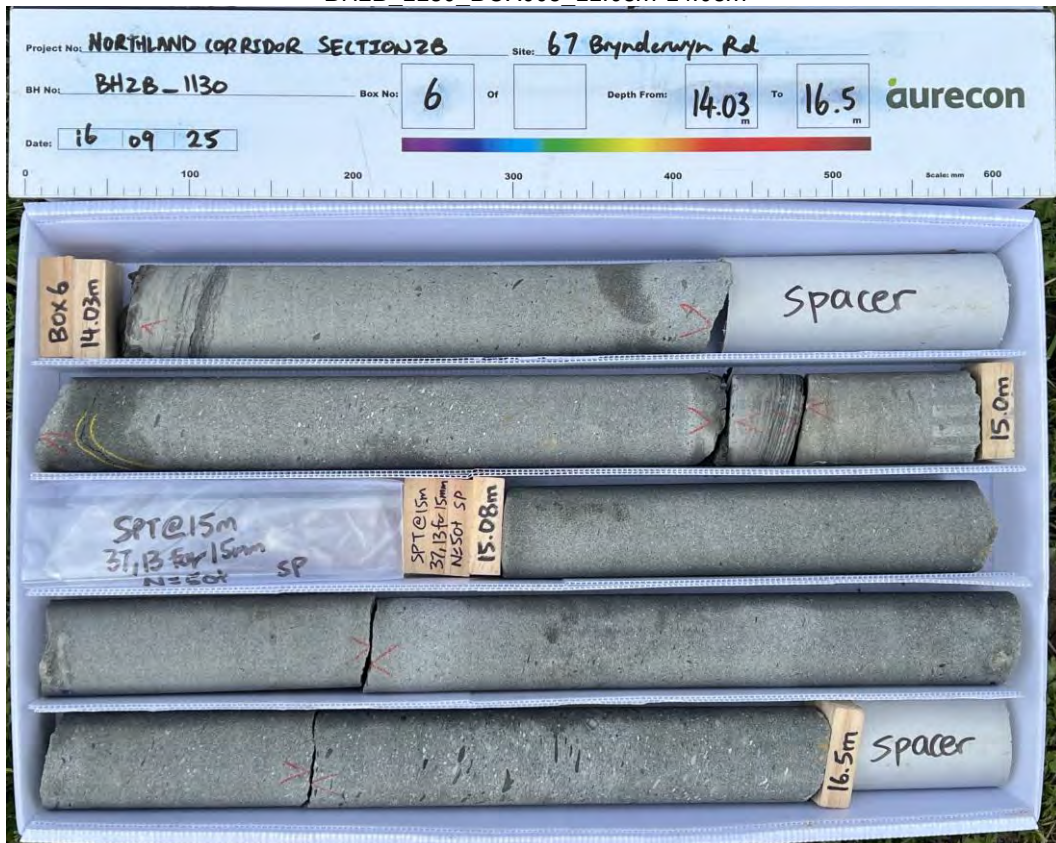
Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX005_11.68m-14.03m



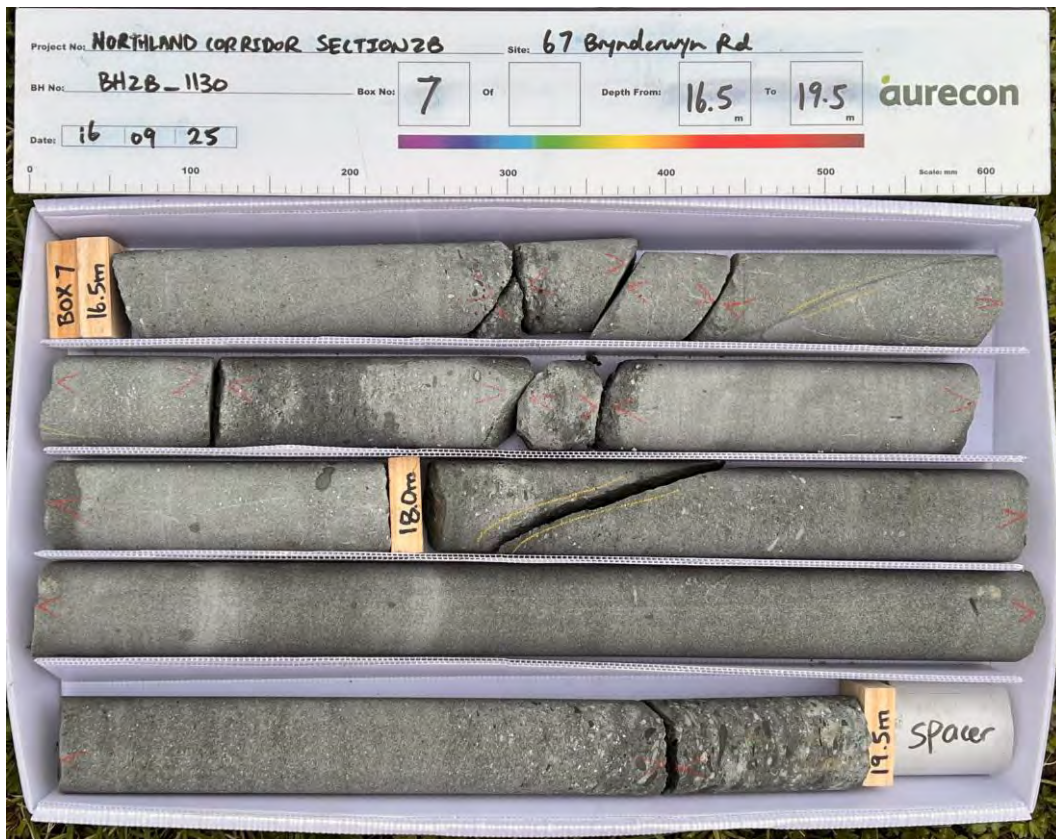
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Borehole Reference: BH2B_1130

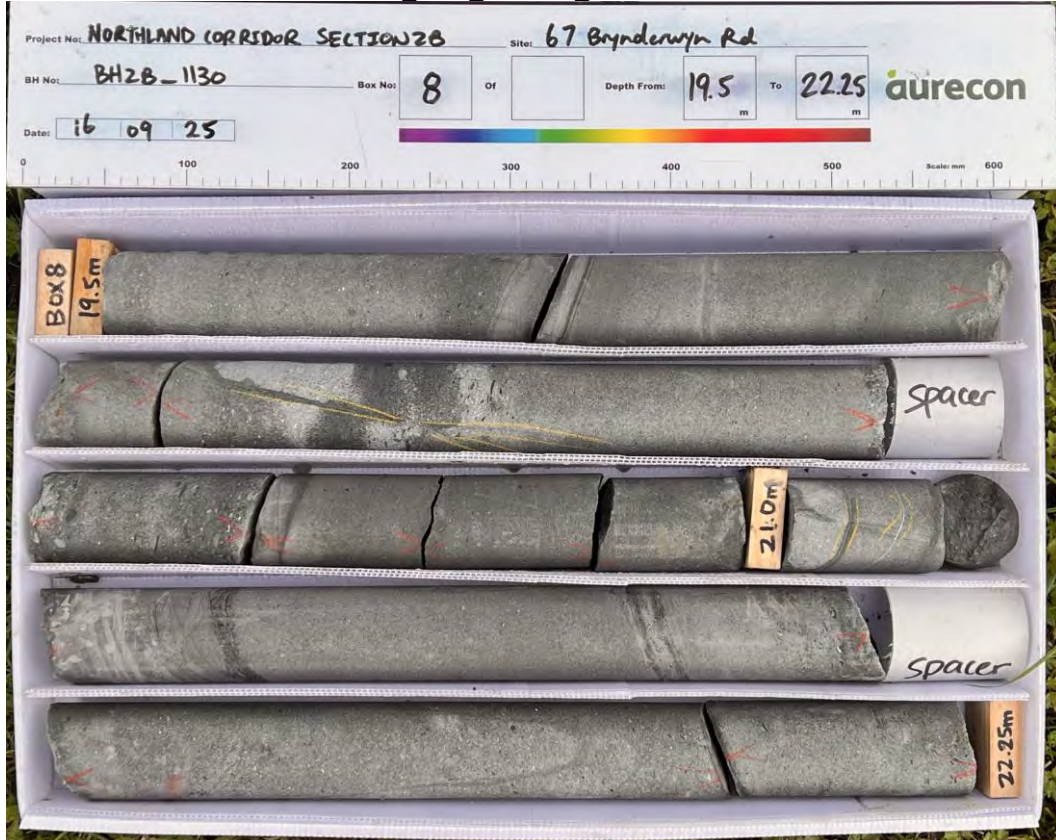
Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX007_16.5m-19.5m



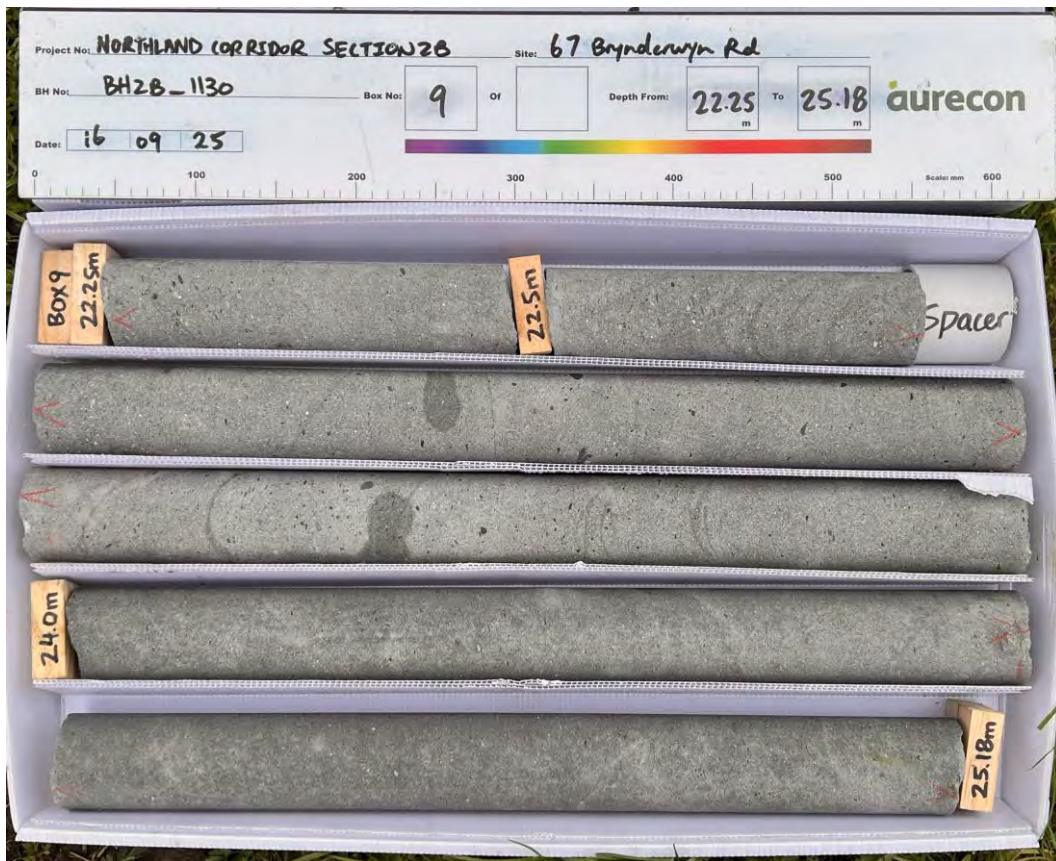
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Borehole Reference: BH2B_1130

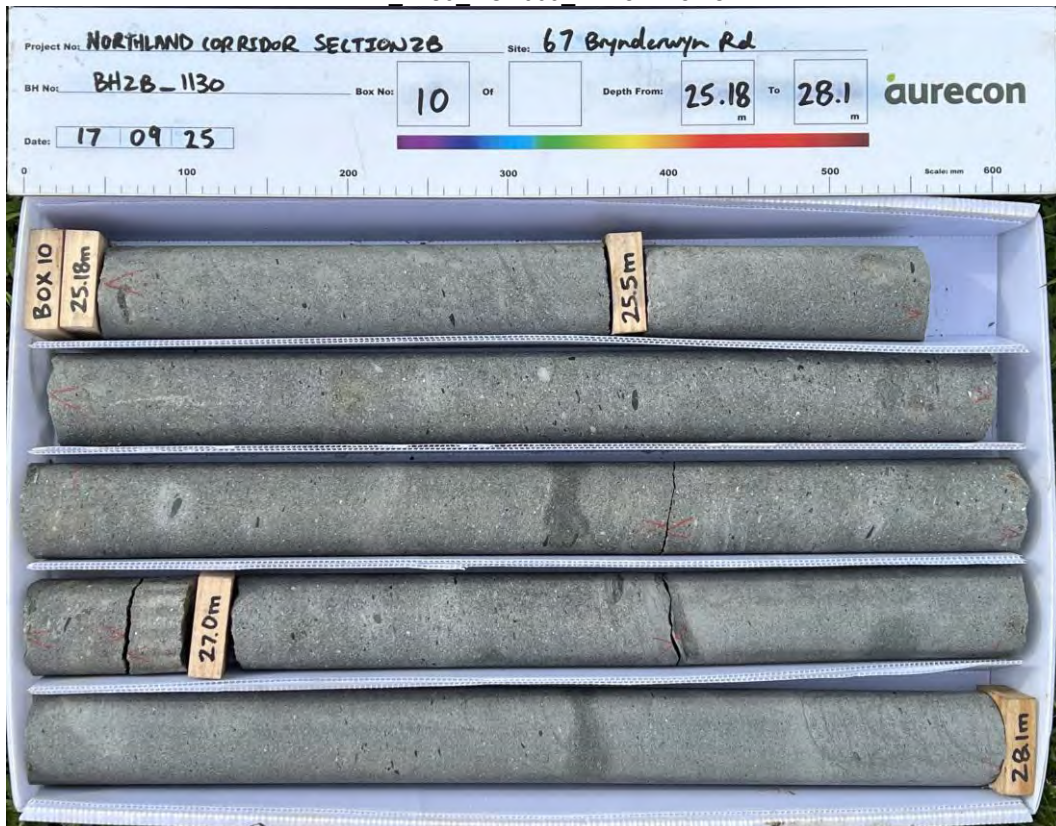
Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX009_22.25m-25.18m



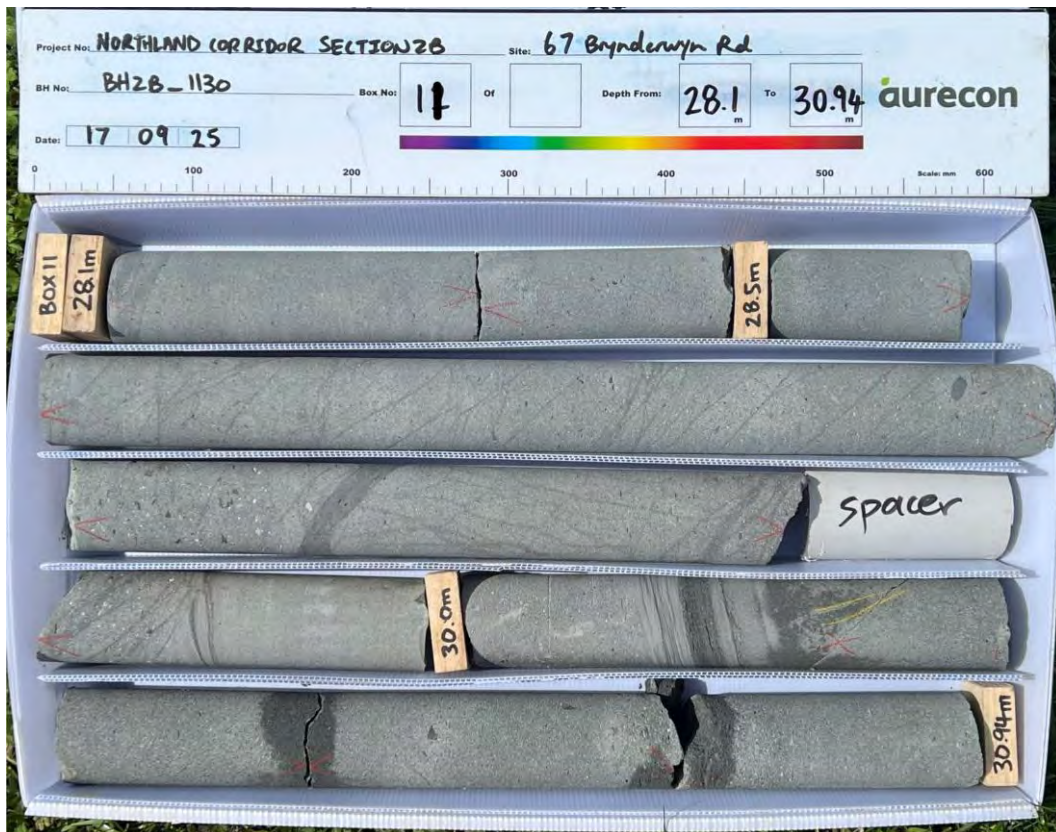
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Borehole Reference: BH2B_1130

Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX011_28.1m-30.94m



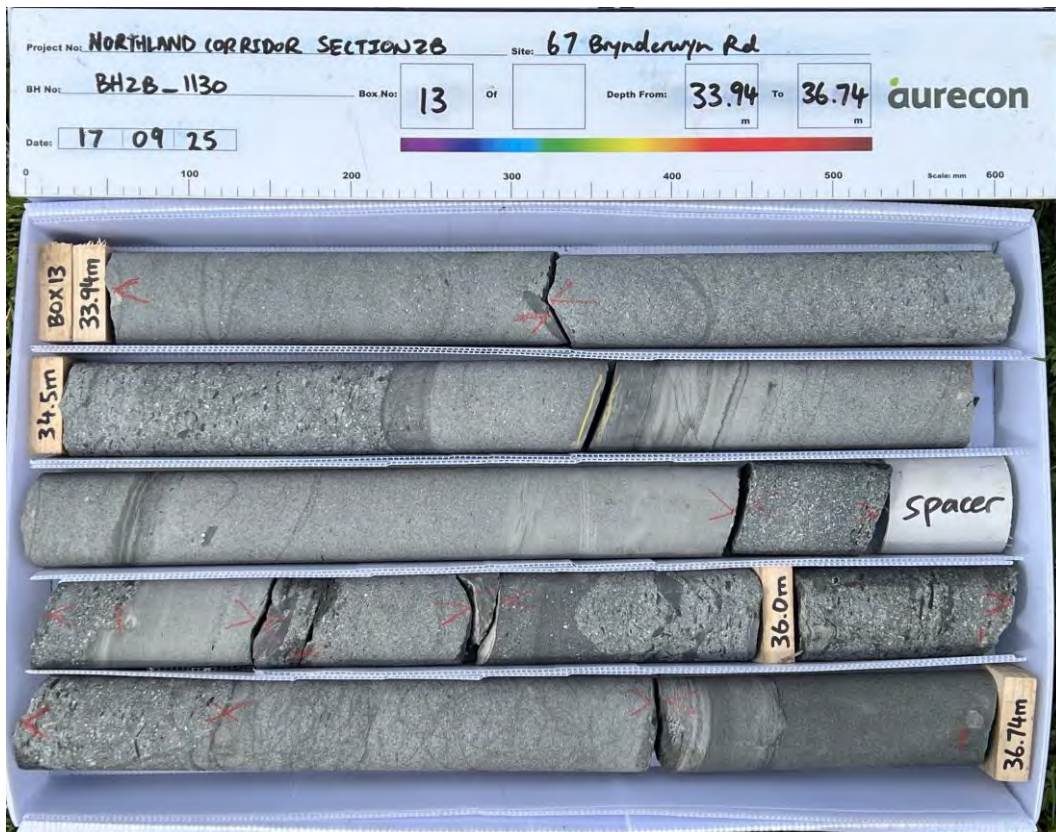
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Borehole Reference: BH2B_1130

Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX013_33.94m-36.74m



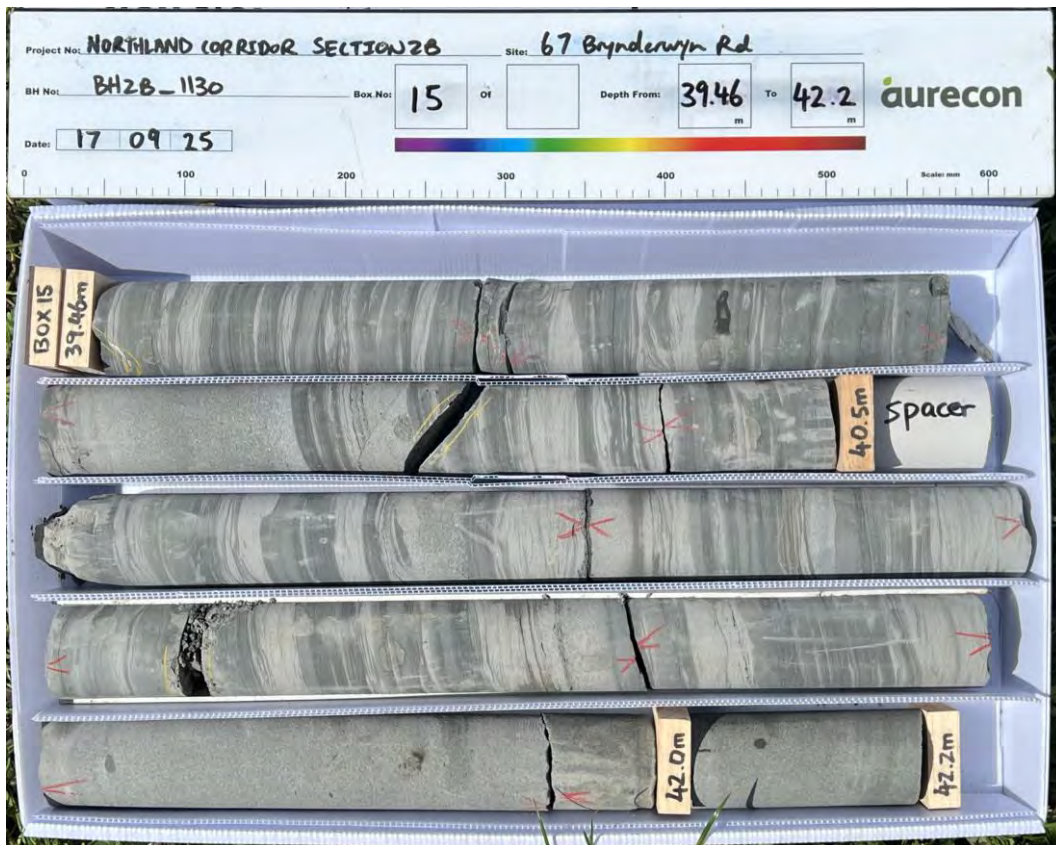
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Borehole Reference: BH2B_1130

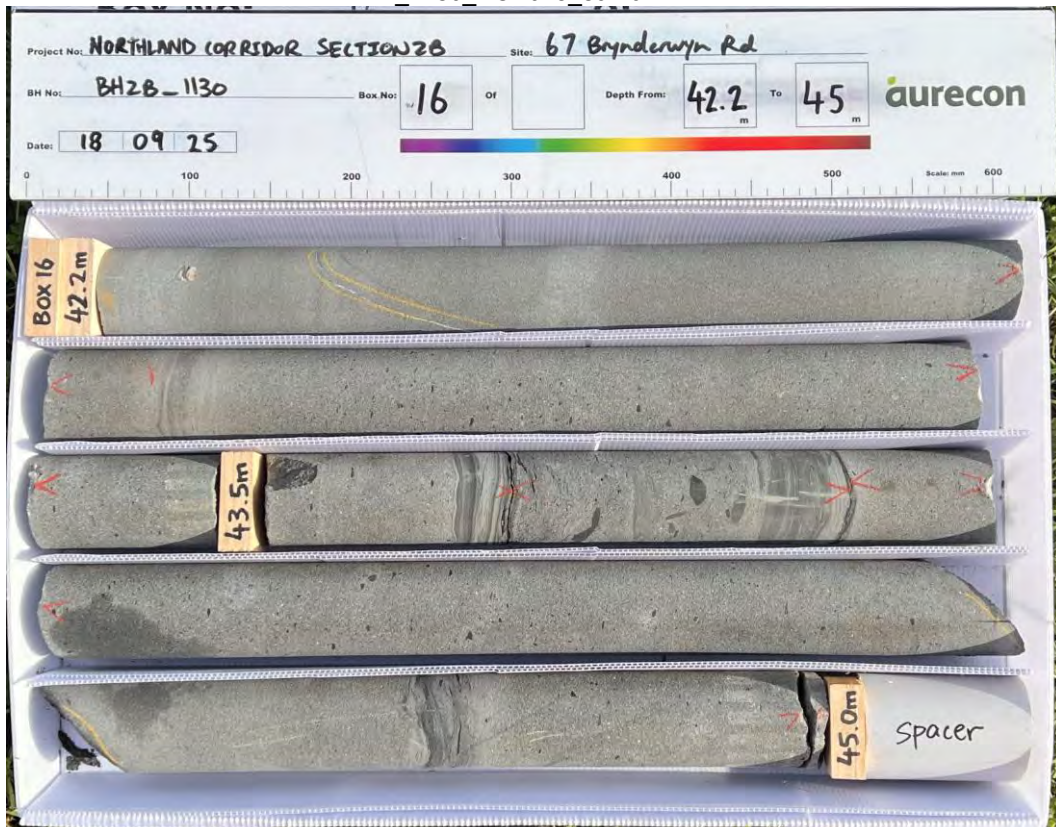
Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX015_39.46m-42.2m



BH2B_1130_BOX016_42.2m-45m

Borehole Reference: BH2B_1130

Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX017_45m-47.58m



BH2B_1130_BOX018_47.58m-50.45m

Borehole Reference: BH2B_1130

Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B 1130 BOX019 50.45m-53.31m



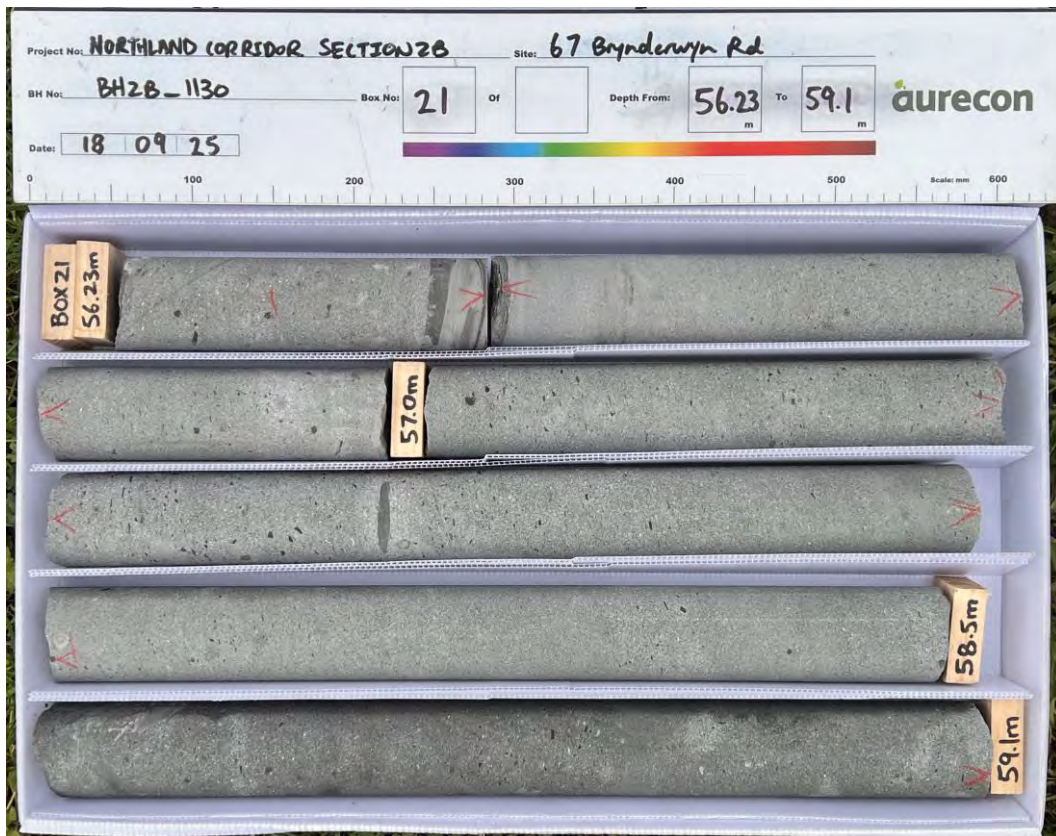
BH2B_1130_BOX020_53.31m-56.23m

Borehole Reference: BH2B_1130

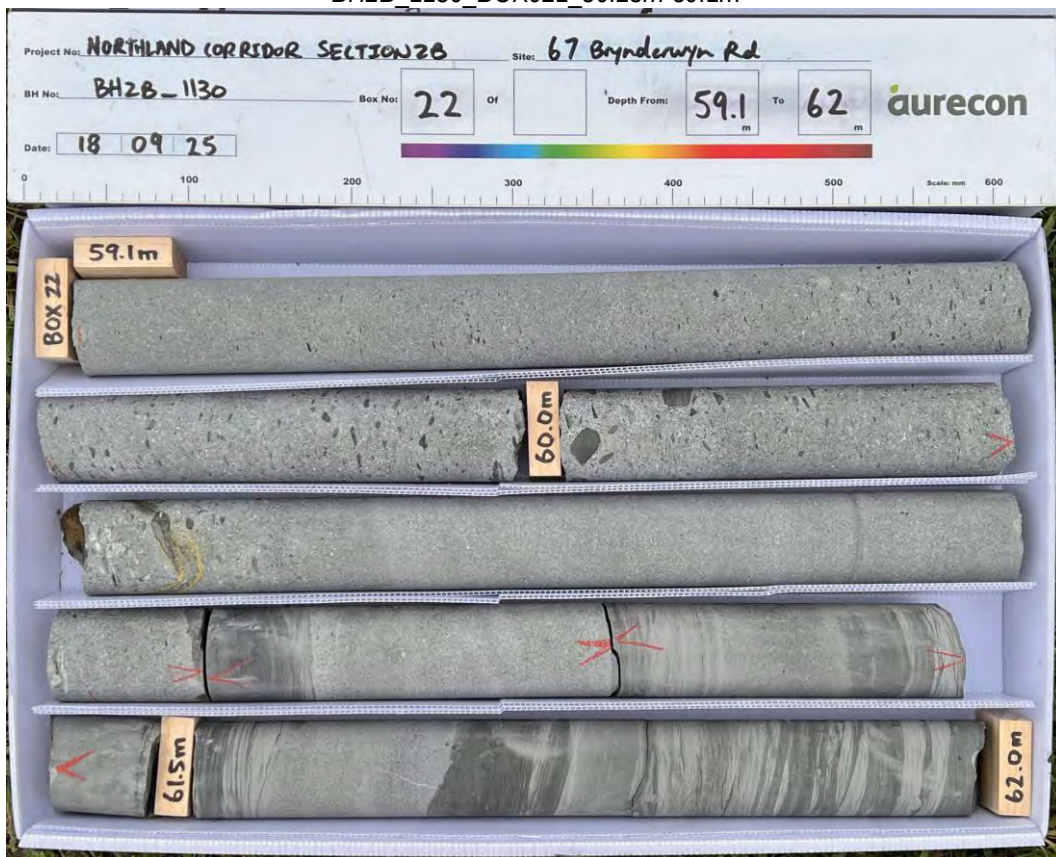
Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX021_56.23m-59.1m



BH2B_1130_BOX022_59.1m-62m

Borehole Reference: BH2B_1130

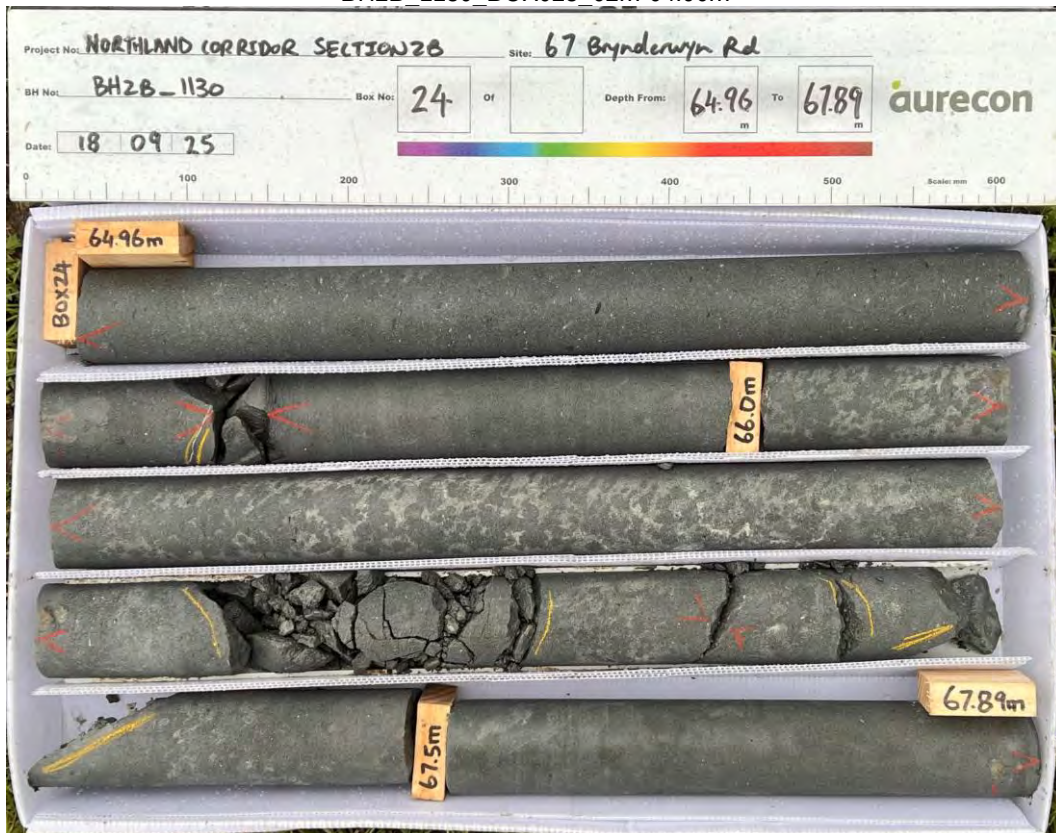
Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130 BOX023 62m-64.96m



BH2B_1130_BOX024 64.96m-67.89m

Borehole Reference: BH2B_1130

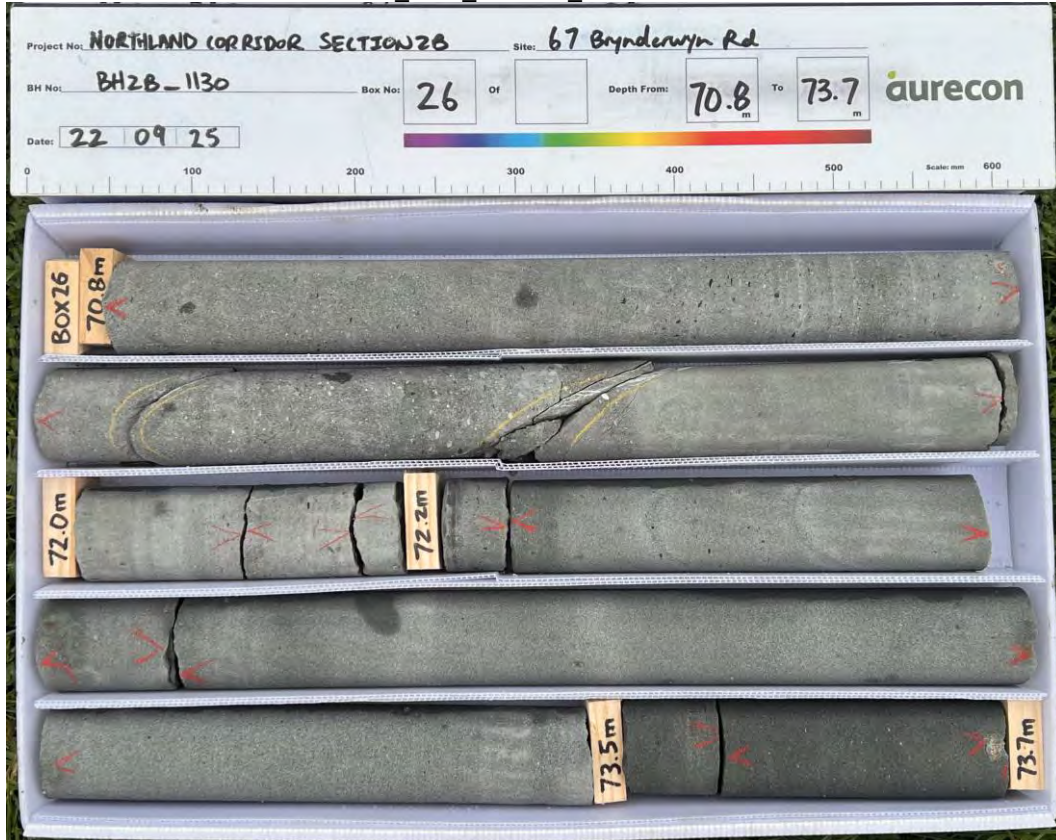
Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX025_67.89m-70.8m



BH2B_1130_BOX026_70.8m-73.7m

Borehole Reference: BH2B_1130

Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B 1130 BOX027 73.7m-76.75m



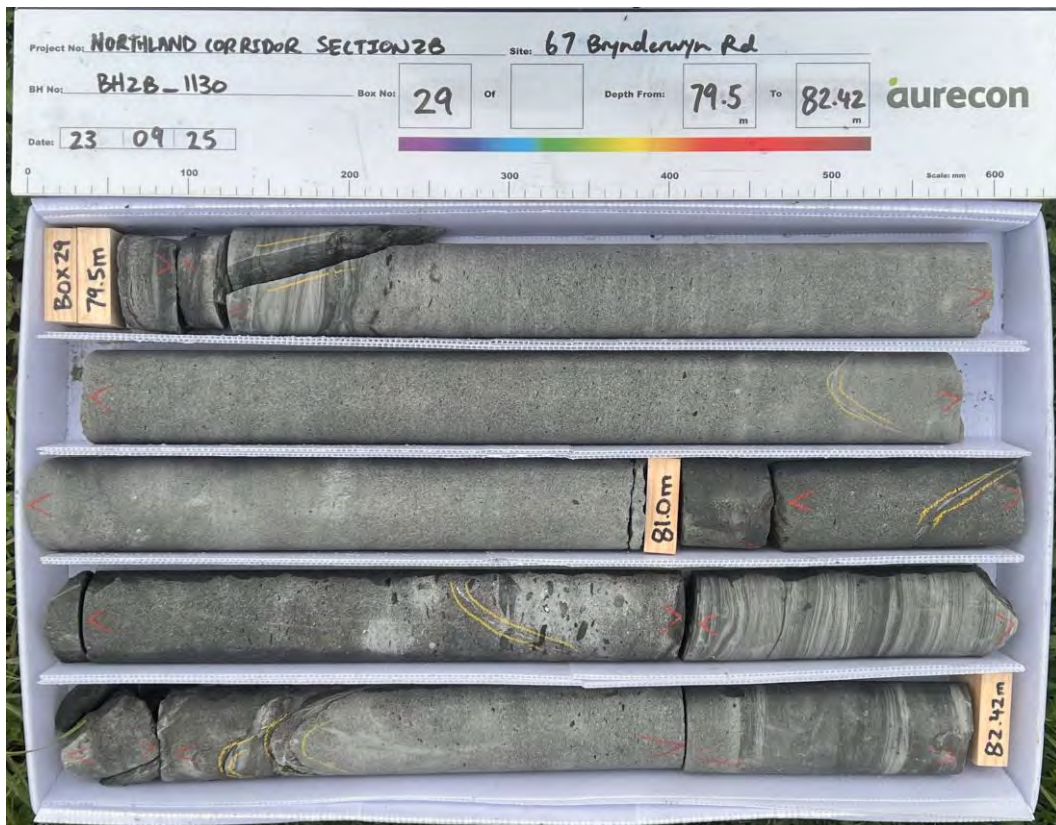
BH2B_1130_BOX028_76.75m-79.5m

Borehole Reference: BH2B_1130

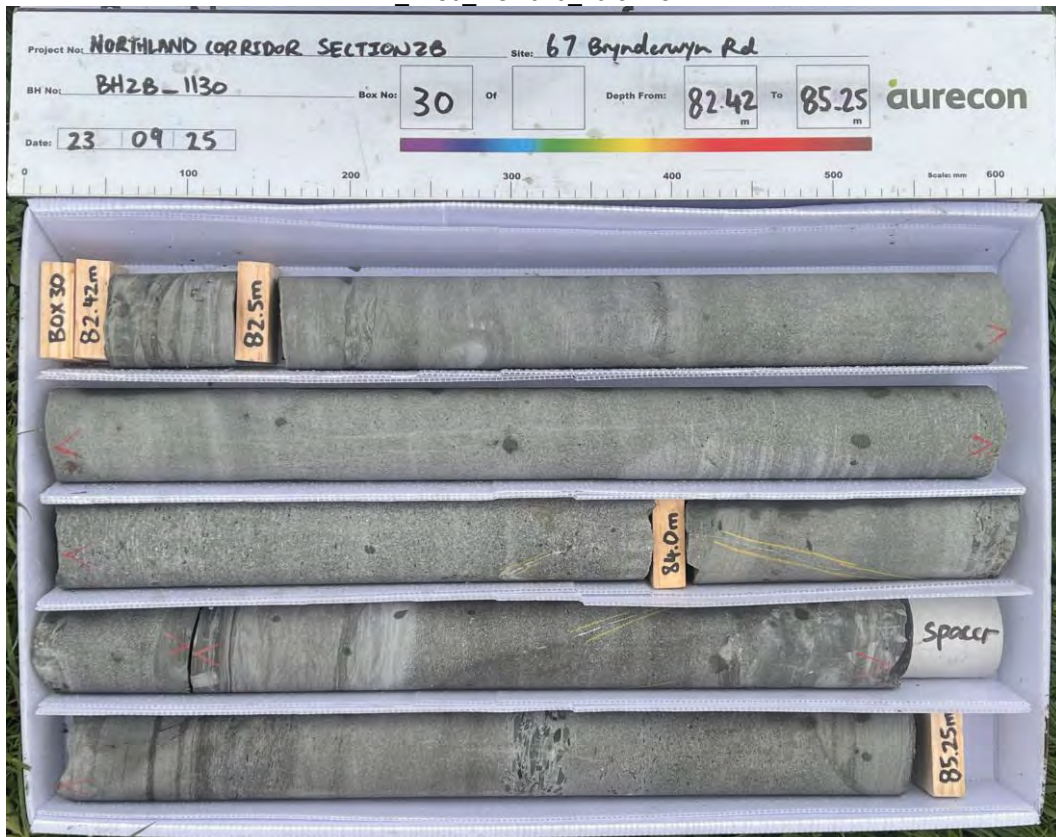
Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX029_79.5m-82.42m



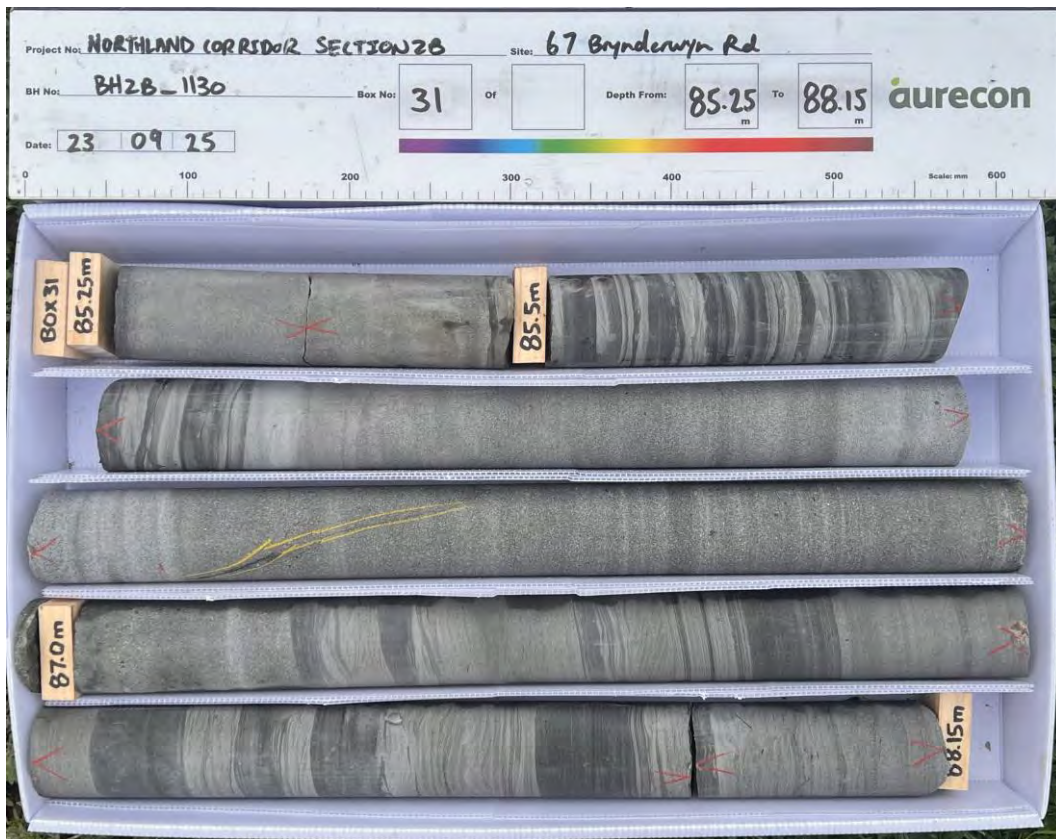
BH2B_1130_BOX030_82.42m-85.25m

Borehole Reference: BH2B_1130

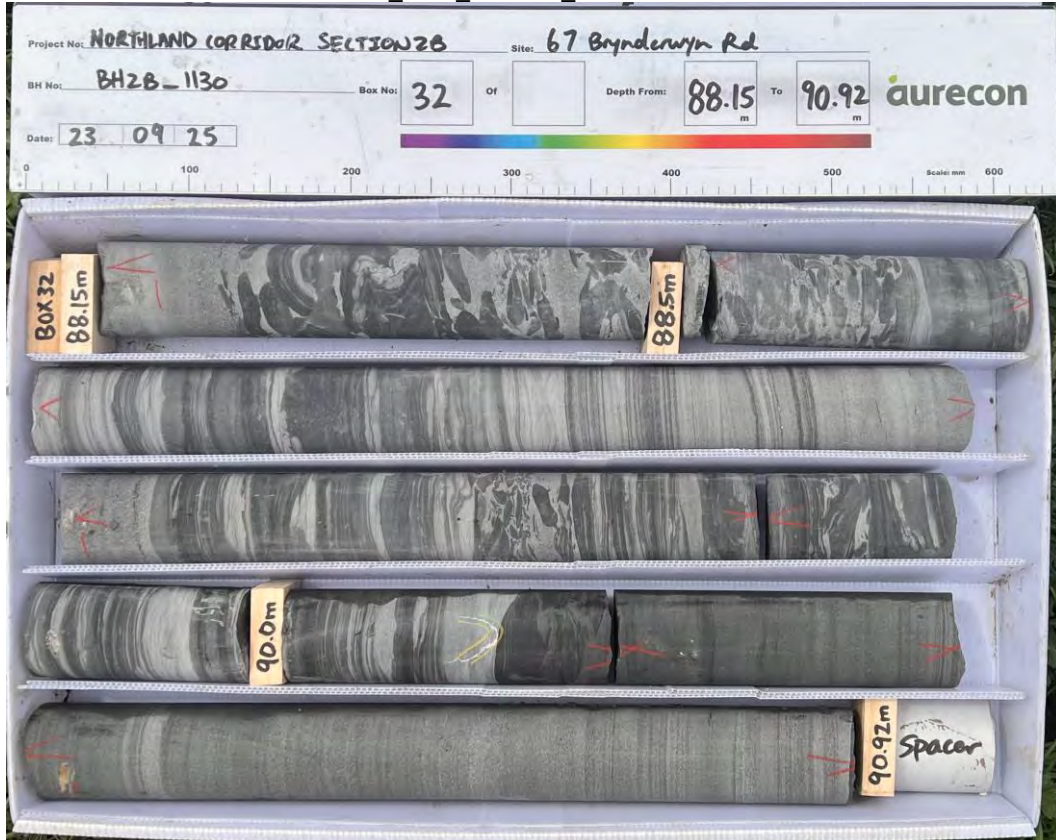
Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX031_85.25m-88.15m



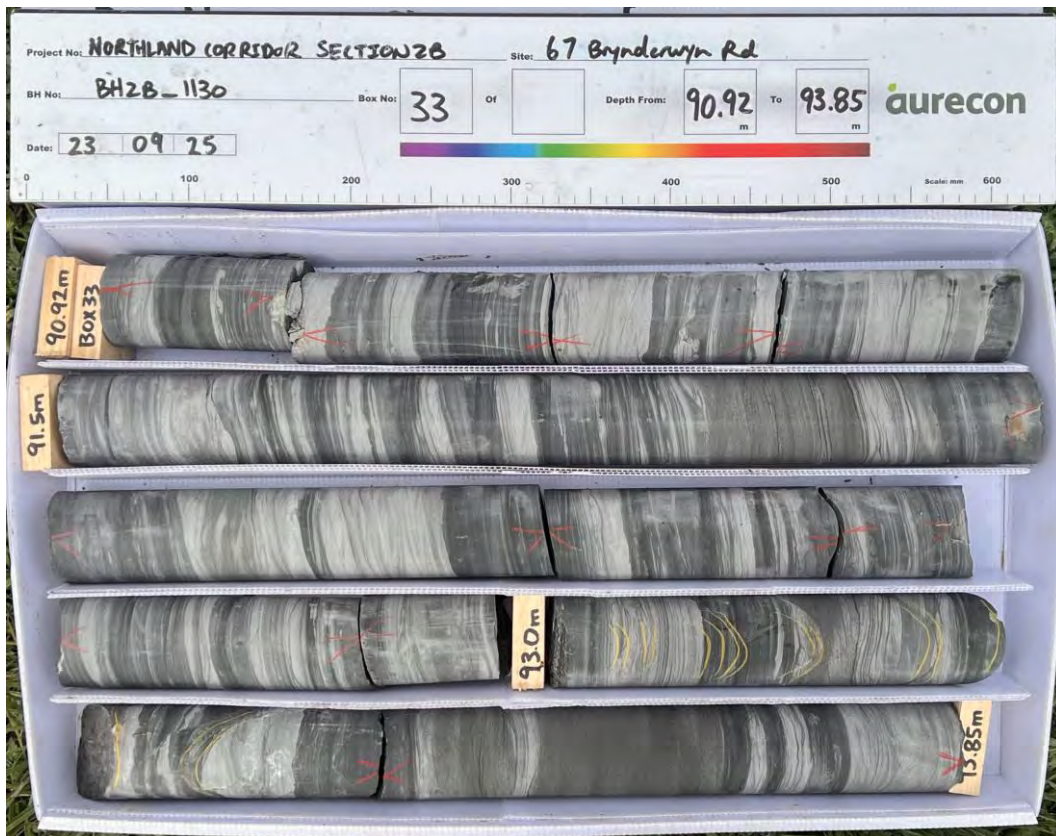
BH2B_1130_BOX032_88.15m-90.92m

Borehole Reference: BH2B_1130

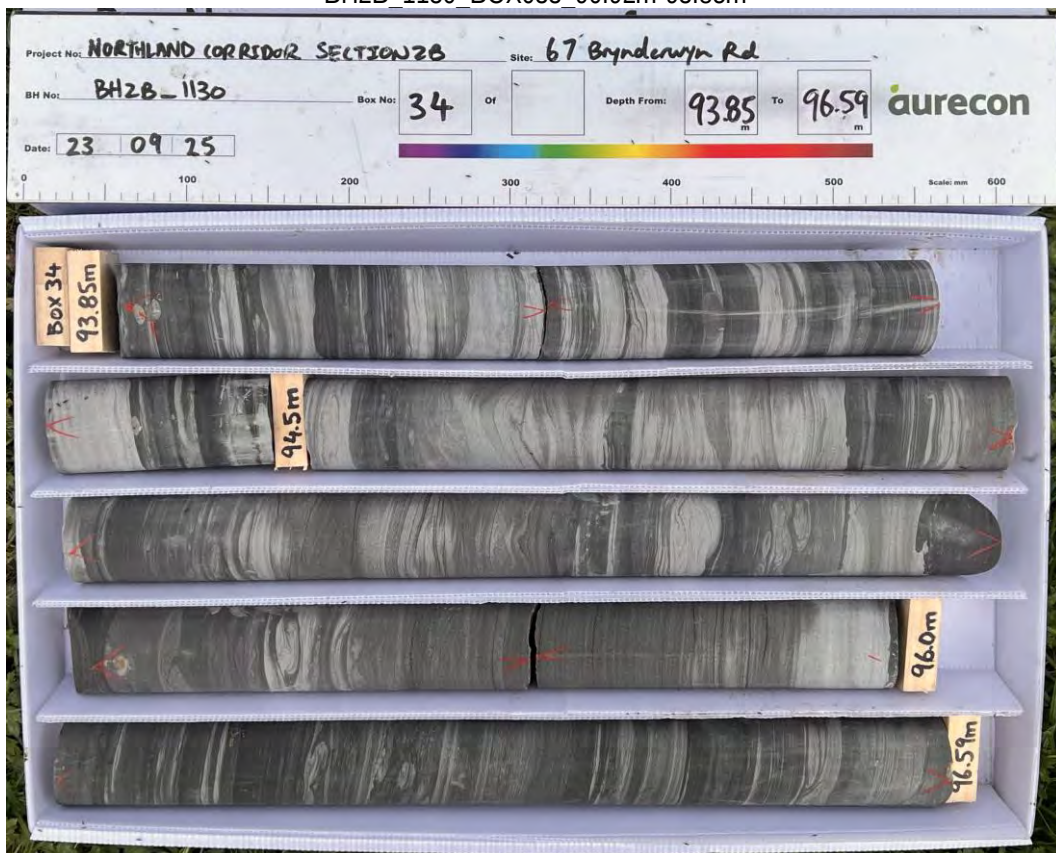
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Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX033_90.92m-93.85m



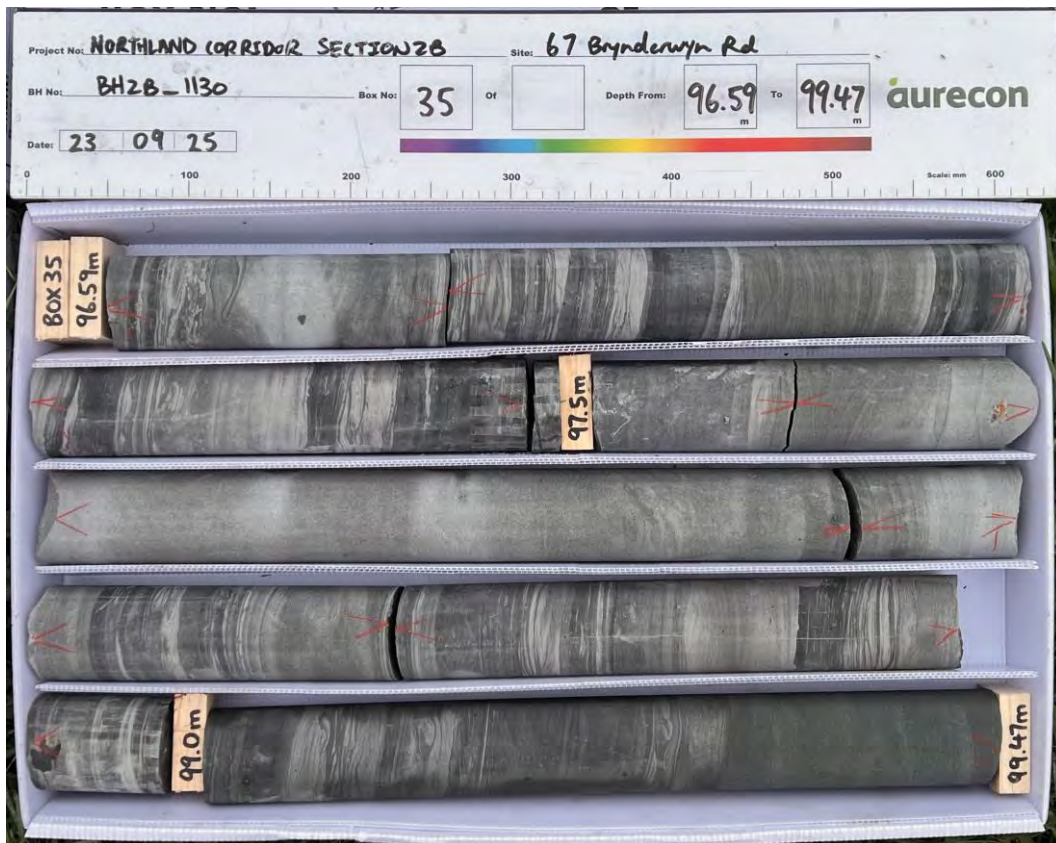
BH2B_1130_BOX034_93.85m-96.59m

Borehole Reference: BH2B_1130

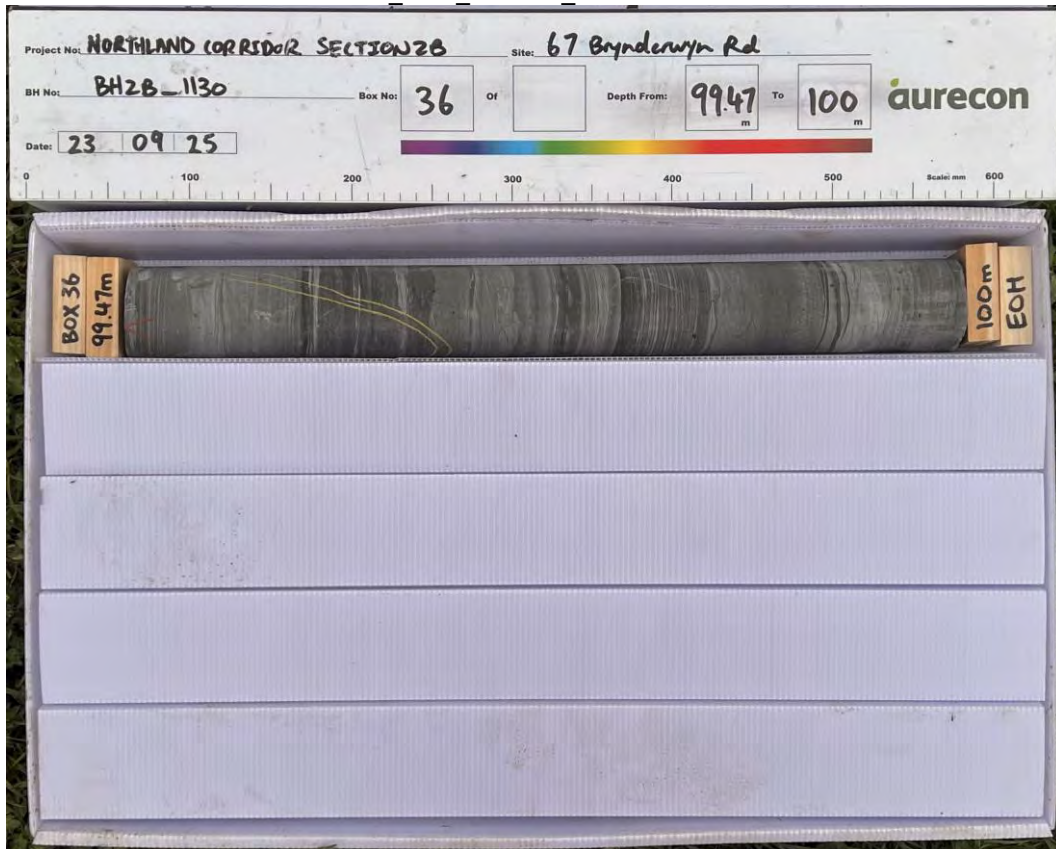
Photographed By:

Date Photographed:

16/09/2025-23/09/2025



BH2B_1130_BOX035_96.59m-99.47m



BH2B_1130_BOX036_99.47m-100m

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Fraste SRS
Contractor: Pro-Drill (Auck) Ltd

CO-ORDINATES:

NZTM2000
Easting: 1727853.32
Northing: 6004883.19
Ground level: 47.22m (NZVD2016)

Date started: 28/08/2025

Date completed: 29/08/2025

Inclination: 90°

Azimuth: N/A

Logged: C. Struthers

Input: C. Struthers

Reviewed: N. Crampton

Verified: C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS VGS EGS	FRACATURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
		47			TS	0.00m: SILT, with minor rootlets, with trace clay and gravel; dark brown. Firm, wet; gravel, fine, subangular. [TOPSOIL].									
						0.30m: CLAY, with some silt, with trace rootlets; light bluish grey mottled orange. Stiff, moist, high plasticity; rootlets, partially decomposed, <4 mm; limonite nodules, <2 mm [NORTHLAND ALLOCHTHON RESIDUAL SOIL].	RS	0.5m: ISHSV 115/34 kPa 1m: ISHSV 133/18 kPa	100						
		46			NAS	1.60m: CLAY, with some silt; brownish light grey mottled orange. Stiff, moist, high plasticity. Remoulds easily.	RS	1.5m: ISHSV 73/14 kPa							
						1.90m: Gravelly SILT, with some clay; dark orange mottled grey. Very stiff, moist, low plasticity; gravel, medium to coarse, angular, slightly weathered, Calcareous Siltstone [COMPLETELY WEATHERED NORTHLAND ALLOCHTHON].	CW	1.9m: ISHSV 53/11 kPa 2m: ISHSV 98/28 kPa 2m: SPT 0, 0// 0, 0, 0, 1 N = 1 2.45m: ISHSV UTP	544						
		45				2.81m: CORE LOSS [2.81m - 3m]: suspected washout.			65						
						3.00m: Highly weathered, grey mottled orange, Calcareous SILTSTONE; Extremely weak. Pervasively sheared, no preferred orientation. (Gravelly SILT, with some clay; Very stiff, moist, low plasticity; gravel, medium to coarse, angular) [NORTHLAND ALLOCHTHON DEGRADED ZONE]	HW	3m: SPT 0, 1// 1, 0, 1, 1 N = 3	89					3.77m: Strong HCl reaction.	
		44				3.60-4.00m: ...Recovered as sandy fine to coarse GRAVEL. Core disintegrates upon handling.			91					4.00m: Strong HCl reaction	
						4.05m: Moderately weathered; bluish grey, Calcareous SILTSTONE; Extremely weak. Pervasively sheared. Fabric dips 10°. Core partially breaks down on handling. (Gravelly SILT; Very stiff, moist, low plasticity; gravel, fine to medium, angular)	MW	4.5m: SPT 6, 6// 7, 7, 7, 7 N = 28	100						
		43							111					5.10m: Strong HCl reaction.	
					NAD				70	38				5.50m: Strong HCl reaction.	
		42				5.60m: CORE LOSS [5.6 m - 6 m]: suspected washout.									
						6.00m: Moderately weathered; bluish grey, Calcareous SILTSTONE; Very weak. Pervasively sheared; fabric dips 10-20°. Minor angular blocks of dark grey siltstone and whitish grey, weak calcareous siltstone, <60mm.		6m: SPT 4, 4// 7, 10, 10, 11 N = 38	100						
		41												6.90m: Strong HCl reaction.	
						7.00m: ...Moderate strength incipient fractures.	MW		105	100	100				
		40						7.5m: SPT 5, 45 for 70mm// N = 50+	100						
														7.94m: JT, 80°, Slk, Un	

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 23mm and vertical accuracy +/- 31mm.
- One vibrating wire piezometer was installed on 01/09/2025. Piezometer BH2B_1131_PZ01 was installed at 29.00m, Serial No. 378397.
- Incipient fractures have been logged as moderate tensile strength and have not been included in the RQD calculation.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-08-28 17:00	34.50m	5.10mbgl
2025-08-29 08:30	34.50m	5.30mbgl
2025-08-29 12:00	42.00m	7.90mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started: 28/08/2025		Logged: C. Struthers	
Method: Rotary Core Wireline		Easting: 1727853.32		Date completed: 29/08/2025		Input: C. Struthers	
Equipment: Fraste SRS		Northing: 6004883.19		Inclination: 90°		Reviewed: N. Crampton	
Contractor: Pro-Drill (Auck) Ltd		Ground level: 47.22m (NZVD2016)		Azimuth: N/A		Verified: C. Parkes	

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
												VWS	WS	MWS	VCS	EGS		
HQ3		23				24.20-25.20m: ...Core breaks along incipient fractures, 40-60° dip.			100	95	95							
						25.00m: ...Fabric dips 10°.												
HQ3		22				26.80m: ...Fabric dips 30°.			100	91	91							
						27.60-29.60m: ...Core breaks along incipient joints and calcite veins on handling, x2 joint sets, 10-20° and 50-60°; dark grey silt infill, polished surfaces.												
HQ3		20			NAL	30.00-31.00m: ...Occasional dark grey mudstone inclusions, 50-100mm, sheared, fabric dips 20-40°.	UW		100	100	100						27.60-29.60m: Core breaks along incipient joints and calcite veins on handling, x2 joint sets, 10-20° and 50-60°; dark grey silt infill, polished surfaces.	
						30.55m: ...Fabric dips 45°.												
HQ3		18							100	93	93							
HQ3		17							100	100	100						31.35m: Strong HCl reaction.	
HQ3		16																

Remarks:		Water Level Readings:	
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 23mm and vertical accuracy +/- 31mm.		DateTime	
2. One vibrating wire piezometer was installed on 01/09/2025. Piezometer BH2B_1131_PZ01 was installed at 29.00m, Serial No. 378397.		2025-08-28 17:00	
3. Incipient fractures have been logged as moderate tensile strength and have not been included in the RQD calculation.		2025-08-29 08:30	
		2025-08-29 12:00	
		Hole Depth	
		34.50m	
		34.50m	
		42.00m	
		Water Level	
		5.10mbgl	
		5.30mbgl	
		7.90mbgl	

Shear Vane (ISHSV) Serial No. 1378, calibration constant 1.49.

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started: 28/08/2025	Logged: C. Struthers
Method: Rotary Core Wireline		Easting: 1727853.32		Date completed: 29/08/2025	Input: C. Struthers
Equipment: Fraste SRS		Northing: 6004883.19		Inclination: 90°	Reviewed: N. Crampton
Contractor: Pro-Drill (Auck) Ltd		Ground level: 47.22m (NZVD2016)		Azimuth: N/A	Verified: C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS VGS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
HQ3	HQ3	15				32.00-32.50m: ...Indistinct shear fabric.	UW		100	100	100			33.00-34.50m: Core breaks along incipient joints and calcite veins on handling, x2 joint sets, 10-20° and 60°; dark grey silt infill, polished surfaces.	
						32.70m: ...Fabric dips 50°.									
						33.00-34.50m: ...Core breaks along incipient joints and calcite veins on handling, x2 joint sets, 10-20° and 60°; dark grey silt infill, polished surfaces. 33.00-35.90m: ...Indistinct shear fabric.			100	100	100				
HQ3	HQ3	14			NAL		UW		100	100	100				
HQ3	HQ3	13					UW								
HQ3	HQ3	12					UW		100	98	98				
HQ3	HQ3	11				35.90m: ...Fabric dips 10°.	UW							38.50m: Weak HCl reaction.	
HQ3	HQ3	10				37.25m: Unweathered; greenish grey, banded dark grey, mottled chocolate brown, intermixed MUDSTONE and Calcareous SILTSTONE; Extremely weak. Pervasively sheared with calcite veining; variable fabric dip, top contact 10°. Core breaks down on handling. (Gravelly SILT, minor sand; Very stiff, moist, non-plastic; gravel fine to medium, angular) [NORTHLAND ALLOCHTHON MELANGE MATRIX].	UW								
HQ3	HQ3	9			NAM	38.10m: ...Fabric 10° dip.	UW		100	87					
						38.50m: ...Convolute fabric.									
HQ3	HQ3	8					UW								
						39.70m: ...Fabric 70° dip.			100	100					

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 23mm and vertical accuracy +/- 31mm. 2. One vibrating wire piezometer was installed on 01/09/2025. Piezometer BH2B_1131_PZ01 was installed at 29.00m, Serial No. 378397. 3. Incipient fractures have been logged as moderate tensile strength and have not been included in the RQD calculation.		Water Level Readings:	
Date/Time		Hole Depth	Water Level
2025-08-28 17:00		34.50m	5.10mbgl
2025-08-29 08:30		34.50m	5.30mbgl
2025-08-29 12:00		42.00m	7.90mbgl
Shear Vane (ISHSV) Serial No. 1378, calibration constant 1.49.			

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started: 28/08/2025	Logged: C. Struthers
Method:	Rotary Core Wireline	Easting:	1727853.32	Date completed: 29/08/2025	Input: C. Struthers
Equipment:	Fraste SRS	Northing:	6004883.19	Inclination: 90°	Reviewed: N. Crampton
Contractor:	Pro-Drill (Auck) Ltd	Ground level:	47.22m (NZVD2016)	Azimuth: N/A	Verified: C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
												VWS	WS	MWS	VCS	EGS		
	HQ3	7				40.30m: ...Fabric 50°dip.												
	HQ3	6	41		NAM		UW		100	100								
			42			Terminated at 42.00 m. Target depth.												
		5																
			43															
		4																
			44															
		3																
			45															
		2																
			46															
		1																
			47															
		0																

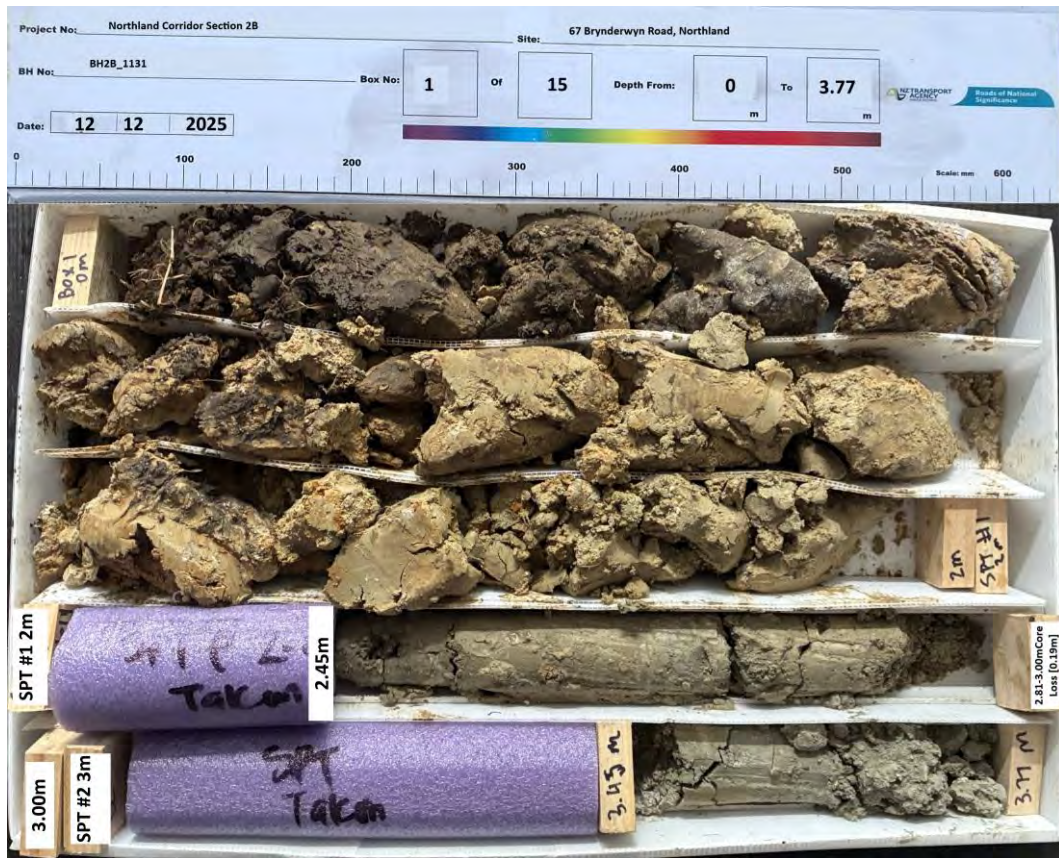
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 23mm and vertical accuracy +/- 31mm. 2. One vibrating wire piezometer was installed on 01/09/2025. Piezometer BH2B_1131_PZ01 was installed at 29.00m, Serial No. 378397. 3. Incipient fractures have been logged as moderate tensile strength and have not been included in the RQD calculation.		Water Level Readings:		
		DateTime	Hole Depth	Water Level
		2025-08-28 17:00	34.50m	5.10mbgl
		2025-08-29 08:30	34.50m	5.30mbgl
		2025-08-29 12:00	42.00m	7.90mbgl
Shear Vane (ISHSV) Serial No. 1378, calibration constant 1.49.				

Borehole Reference: BH2B_1131

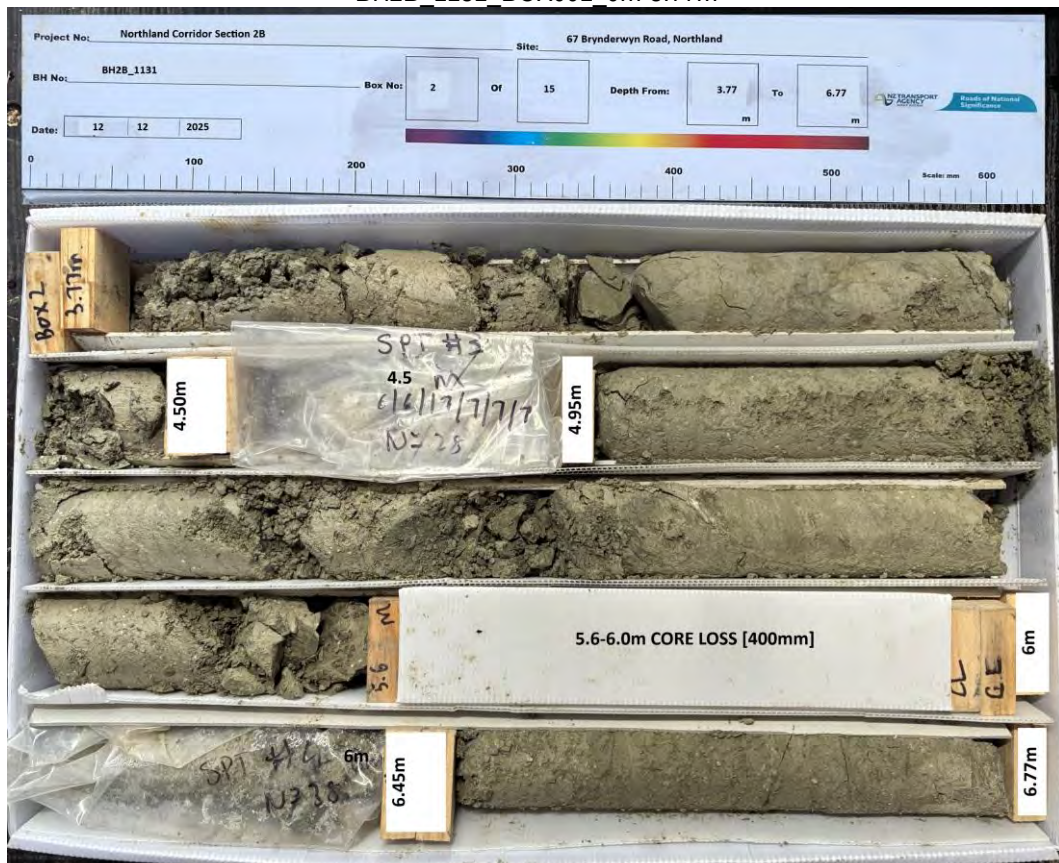
Photographed By:

Date Photographed:

28/08/2025-22/01/2026



BH2B_1131_BOX001_0m-3.77m



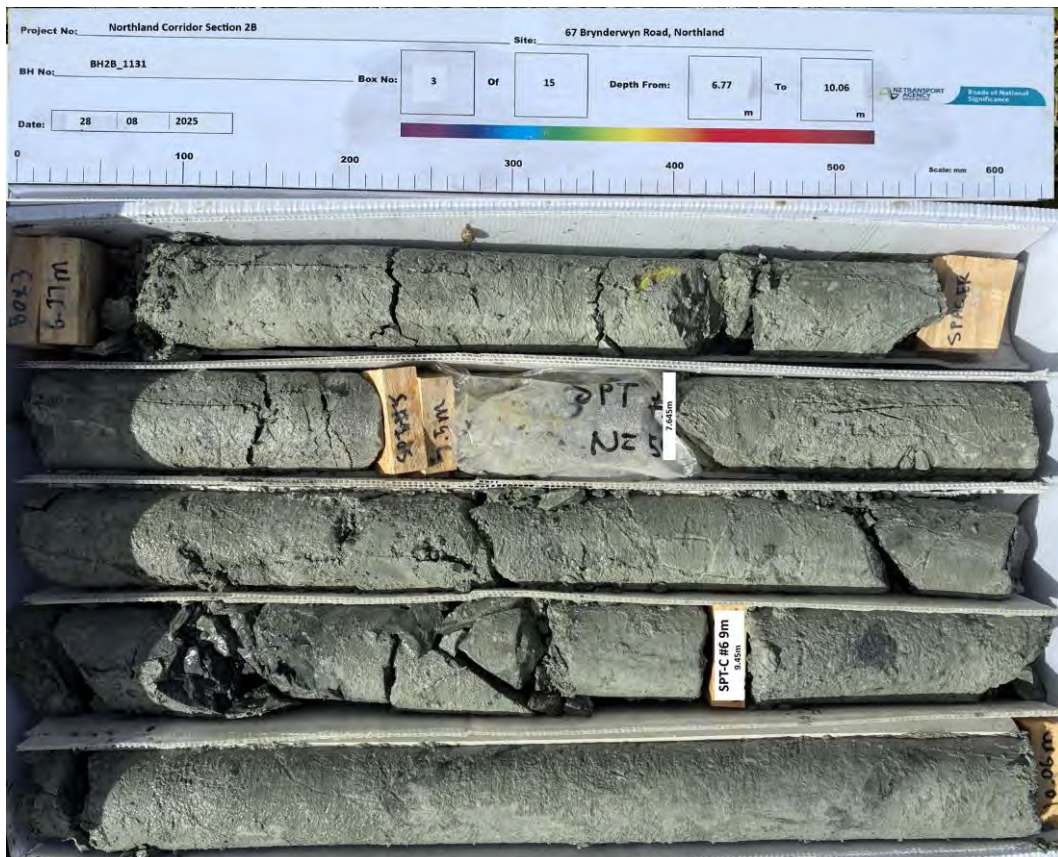
BH2B_1131_BOX002_3.77m-6.77m

Borehole Reference: BH2B_1131

Photographed By:

Date Photographed:

28/08/2025-22/01/2026



BH2B_1131_BOX003_6.77m-10.06m



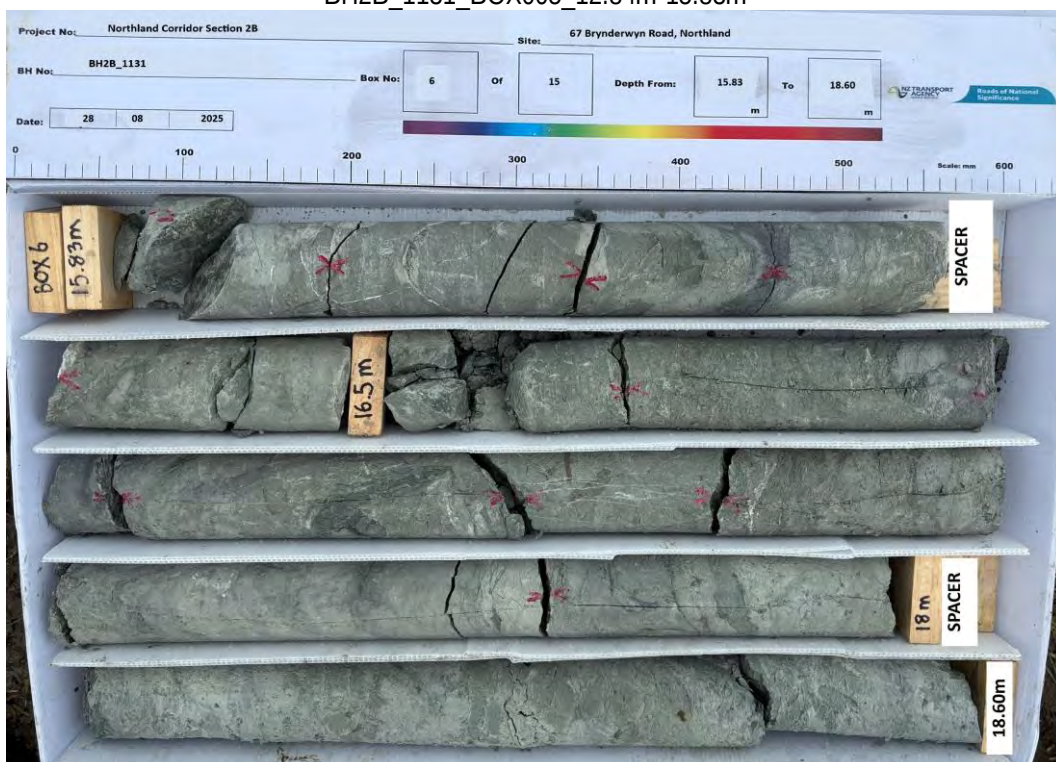
BH2B_1131_BOX004_10.06m-12.84m

Borehole Reference: BH2B_1131

Photographed By:

Date Photographed:

28/08/2025-22/01/2026

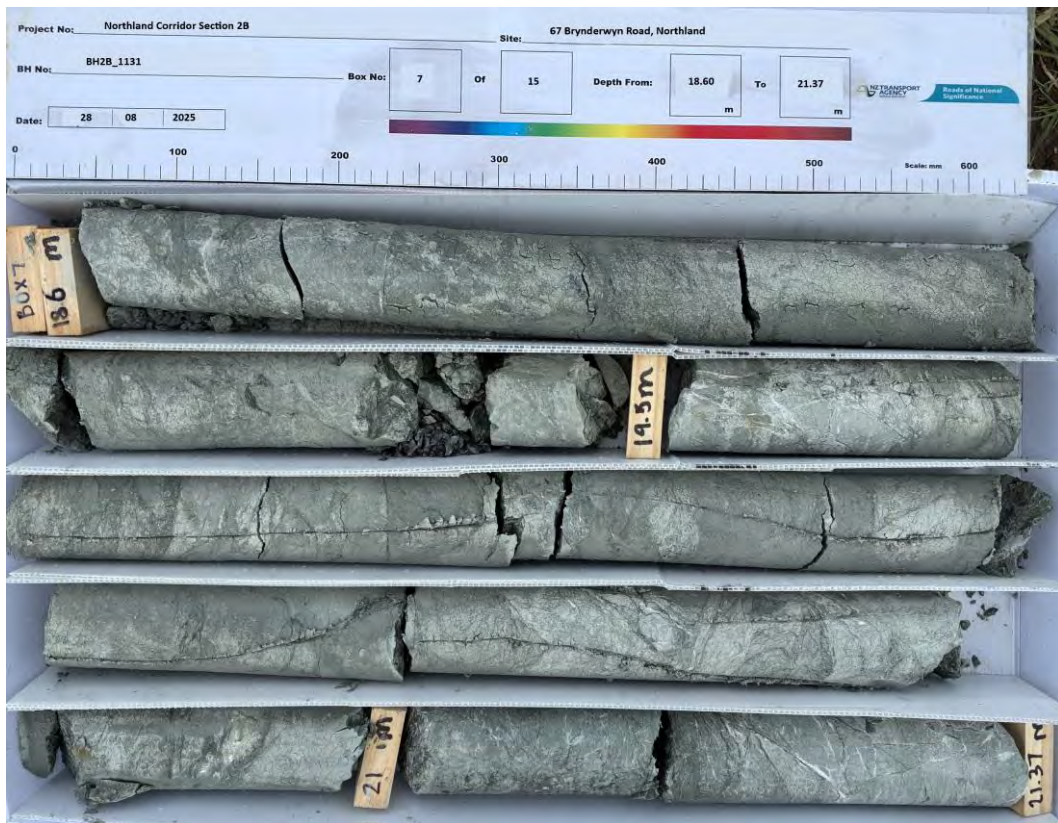


Borehole Reference: BH2B_1131

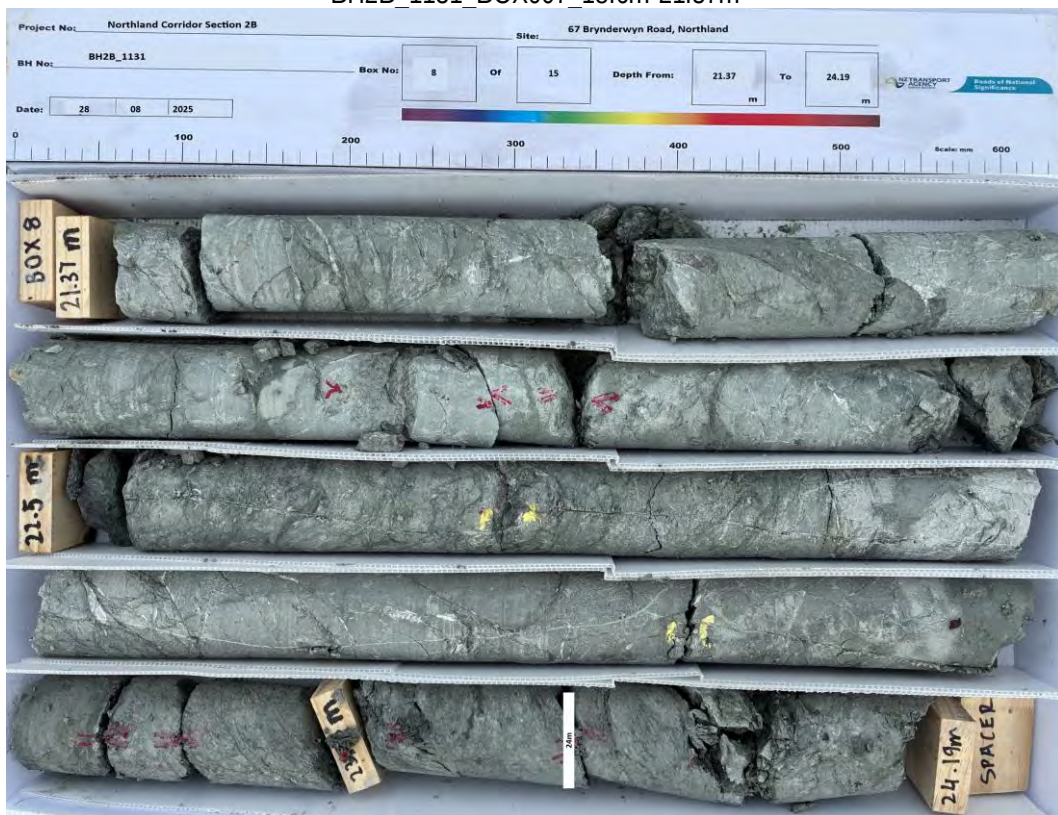
Photographed By:

Date Photographed:

28/08/2025-22/01/2026



BH2B_1131_BOX007_18.6m-21.37m



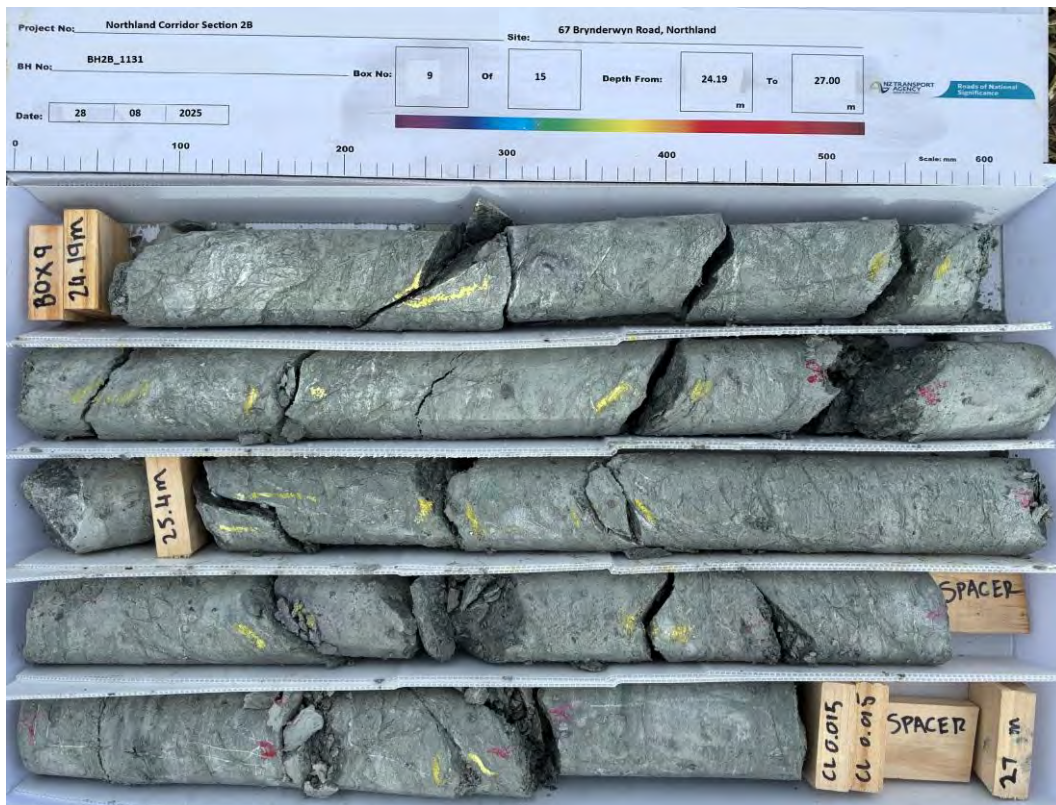
BH2B_1131_BOX008_21.37m-24.19m

Borehole Reference: BH2B_1131

Photographed By:

Date Photographed:

28/08/2025-22/01/2026



BH2B_1131_BOX009_24.19m-27m



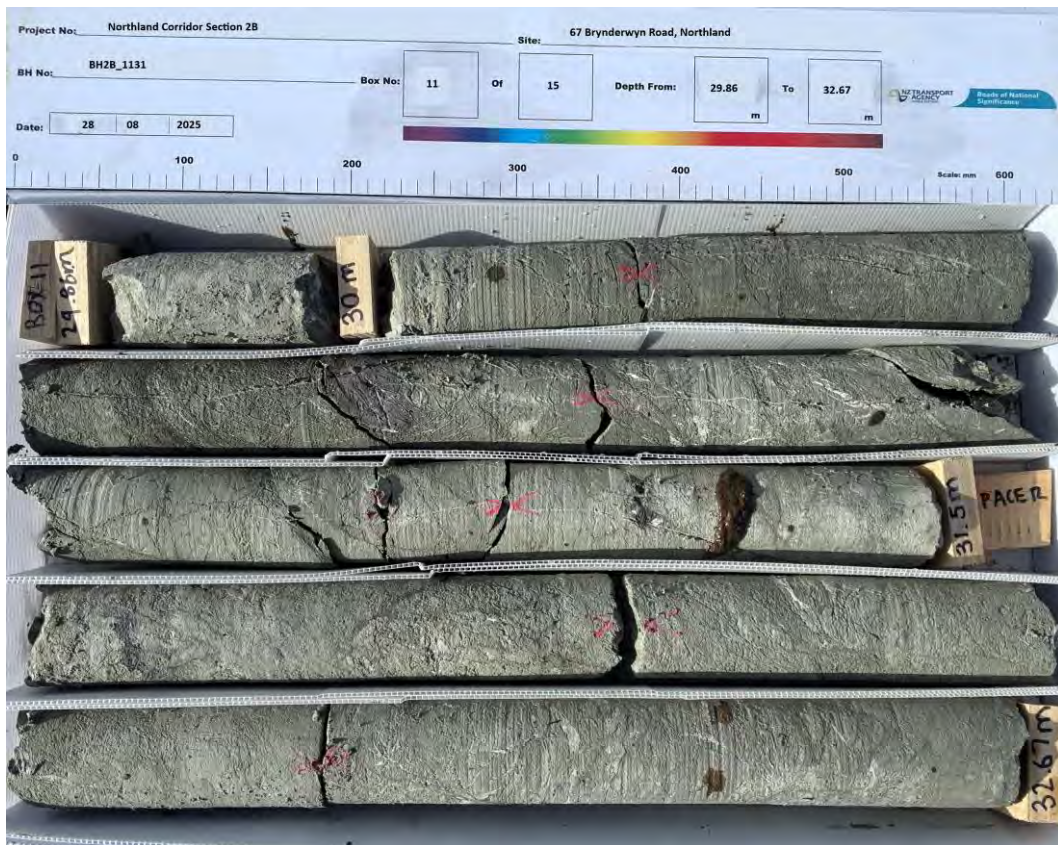
BH2B_1131_BOX010_27m-29.86m

Borehole Reference: BH2B_1131

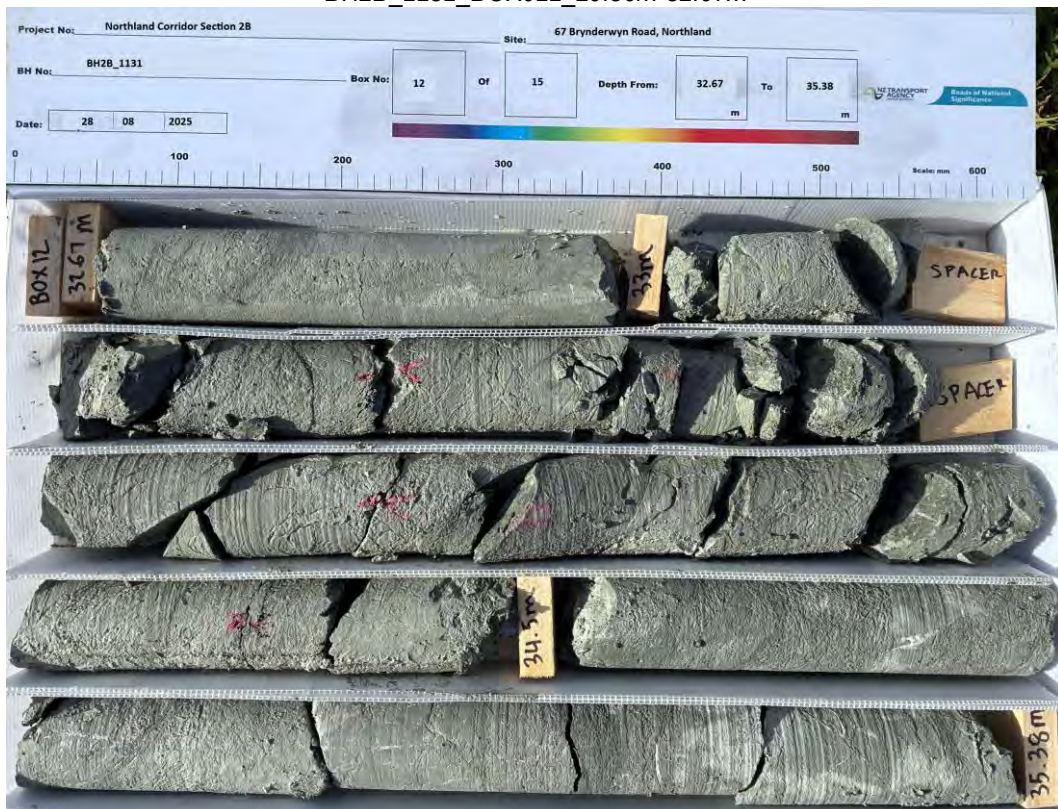
Photographed By:

Date Photographed:

28/08/2025-22/01/2026



BH2B_1131_BOX011_29.86m-32.67m



BH2B_1131_BOX012_32.67m-35.38m

Borehole Reference: BH2B_1131

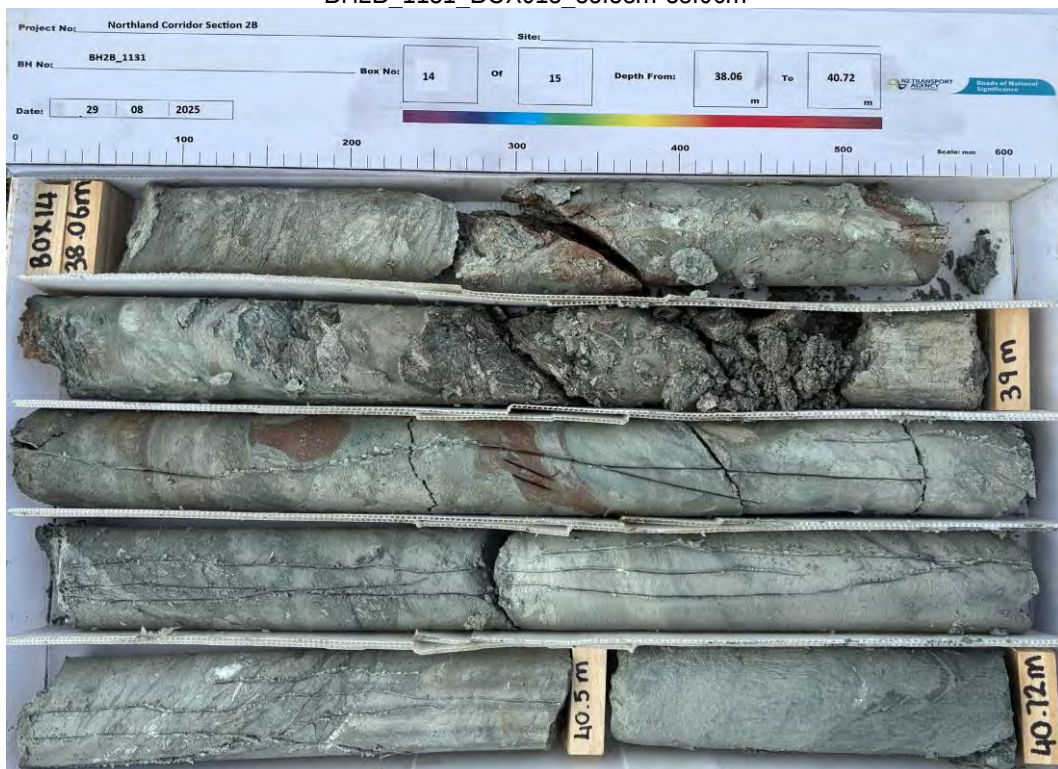
Photographed By:

Date Photographed:

28/08/2025-22/01/2026



BH2B_1131_BOX013_35.38m-38.06m



BH2B_1131_BOX014_38.06m-40.72m

Borehole Reference: BH2B_1131

Photographed By:

Date Photographed:

28/08/2025-22/01/2026



BH2B_1131_BOX015_40.72m-42m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 26/08/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.13mE,		Date Completed: 01/09/2025	Input: M. Zhang
Equipment: CAT 308 on Digger Rig		Northing: 6004337.48mN,		Inclination: 90	Reviewed: S. Nelis
Contractor: Pro-Drill (Auck) Ltd		Ground level: 63.74m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	HA	63	1		TS NAS	SILT, with some clay, with some rootlets; dark brown. Stiff, moist, low plasticity; rootlets less than 3mm thick. [TOPSOIL]. Silty CLAY with some organics; brown. Stiff, moist, high plasticity. Organics are rootlets and disseminated fibrous wood fragments up to 4-5mm. [NORTHLAND ALLOCHTHON SOILS]. Silty CLAY; light brownish grey. Stiff, moist, high plasticity.	RS	0.5m SV BH SV 59/30kPa 1m SV BH SV 76/32kPa 1.5m SV BH SV 178/30kPa	100	-	-			
	SPT		2		NAS	1.9-2.0m: CORE LOSS (100mm). Loss from washbore. SILT, with some clay; bluish grey, grey. Stiff, moist; low plasticity, strong reaction to HCl. . 2.00m - 2.08m: Gravelly CLAY, light brown, inferred stiff, wet, high plasticity. Gravel (limestone); fine, angular to sub-angular (80mm). 2.45-2.65m: CORE LOSS (200mm). Loss assumed from potential washout of residual soil during drilling.	CW	1.9m SV BH SV 111/39kPa 2m SPT 2, 3/3, 3, 3, 2 N= 11	71	-	-		2.20m: HCl test on matrix, strong reaction	
	HQ3	61	3		NAD	Highly weathered, bluish grey, calcareous, pervasively sheared, MUDSTONE; extremely weak. (Clayey SILT, very stiff, low plasticity, with minor fine to coarse, angular limestone gravel). [NORTHLAND ALLOCHTHON DEGRADED ZONE]. 3.45-3.87m: CORE LOSS (420mm). Loss assumed from potential washout of clayey silt matrix during drilling.	HW	3m SPT 2, 5/7, 6, 6, 4 N= 23	64	-	-			
	SPT		4		NAD	Highly weathered, bluish grey, calcareous, pervasively sheared, MUDSTONE; extremely weak. (Clayey SILT, very stiff, low plasticity, with minor fine to coarse, angular limestone gravel).	HW	4.5m SPT 2, 5/7, 9, 9, 10 N= 35	89	-	-			
	HQ3	58	5		NAD	4.95-6.0m: CORE LOSS (1050mm). Loss assumed from potential washout of clayey silt matrix with limestone gravel.			38	-	-		5.61m - 6.00m: Approximate recovery of 300mm of fine to coarse, sub-angular to sub-rounded Silt Limestone gravel from washout.	
	SPT		6		NAD	Moderately weathered, bluish grey, banded grey, sheared, Intermixed Calcareous MUDSTONE and SILTSTONE; extremely weak. Shear fabric dips at 30-40°; closely spaced incipient joints throughout; with minor limestone clasts up to 50mm thick. [MELANGE BLOCK]. 6.67m: Carbonaceous laminae, 4mm thick.		6m SPT 2, 5/6, 4, 4, 5 N= 19	55	-	-			
	HQ3	57	7		NAD	6.95m: Shear fabric dips at 10-20°. 7.15m: Dark grey SILTSTONE laminae, 6mm thick.	MW		100	95	-		7.00m: HCl test on matrix, strong reaction	
	SPT					7.39m: Shear fabric dips at 30-40°. 7.45m - 7.50m: Siltstone infill up to 11mm thick across incipient joints.		7.5m SPT 6, 7/10, 8, 8, 7 N= 33	78	-	-			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 63mm.
- One vibrating wire piezometer was installed on 01/09/2025. BH2B_1132_PZ01 was installed at 20m bgl, Serial No. 378390.
- Shear Vane Serial No. 1378, calibration constant 1.383.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
18/08/2025 1:00:00 pm	1.90	1.30

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 26/08/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.13mE,	Date Completed: 01/09/2025	Input: M. Zhang
Equipment: CAT 308 on Digger Rig		Northing: 6004337.48mN,	Inclination: 90	Reviewed: S. Nelis
Contractor: Pro-Drill (Auck) Ltd		Ground level: 63.74m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
3	HQ3	55	9		NAD	7.95m - 8.40m: Shear fabric dips at 30-50°.	MW		100	62	-			
	SPT					Highly weathered, bluish grey, calcareous, pervasively sheared, MUDSTONE; extremely weak. (Clayey SILT, very stiff, low plasticity).	HW	9m SPT 2, 4/5, 7, 6, 6 N= 24	47	-	-		8.76m - 9.00m: core broken during extraction from splits 9.00m: HCl test on matrix, strong reaction	
4	HQ3	54	10			9.8-10.05m: CORE LOSS (250mm). Loss assumed from potential washout of clayey silt matrix during drilling.			100	-	-		9.69m - 9.76m: core broken during extraction from splits	
	SPT					Highly weathered, bluish grey, mottled dark grey, calcareous, pervasively sheared, MUDSTONE; extremely weak. (Clayey SILT, very stiff, low plasticity).			64	-	-			
	HQ3	53	11			10.10m - 10.21m: With minor, medium to coarse, sub-angular and sub-rounded limestone gravel.		10.5m SPT 3, 5/4, 5, 6, 10 N= 25	73	-	-		11.00m: HCl test on matrix, strong	
	SPT					10.95m - 11.70m: Matrix becomes very weak.	HW		100	-	-			
	HQ3	52	12						100	-	-			
	SPT							12m SPT 2, 1/2, 4, 5, 5 N= 16	80	-	-			
5	HQ3	51	13		NAD	Moderately weathered, bluish grey, banded dark grey, mottled brownish grey, calcareous, pervasively sheared, MUDSTONE; extremely weak.			100	-	-		13.00m: HCl test on matrix, strong	
	SPT							13.5m SPT 4, 13/6, 9, 9, 8 N= 34	66	-	-			
	HQ3	49	14			14.15m - 14.35m: Shear fabric dips at 30-40°.			100	-	-		14.50m: HCl test on matrix, strong reaction	
	SPT					14.84m - 15.00m: Fine SANDSTONE, 10-20° bedding inclination, very closely spaced incipient joints (160mm).	MW		100	-	-			
6	HQ3	48						15m SPT 4, 6/6, 7, 7, 7 N= 27	66	-	-		15.75-15.88m: HB	

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 63mm. 2. One vibrating wire piezometer was installed on 01/09/2025. BH2B_1132_PZ01 was installed at 20m bgl, Serial No. 378390. 3. Shear Vane Serial No. 1378, calibration constant 1.383.	Water Level Readings:		
	Date/Time	Hole Depth (m)	Water Level (m)
	26/08/2025 4:40:00 pm	13.95	0.50
	27/08/2025 7:50:00 am	13.95	0.00

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 26/08/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.13mE,		Date Completed: 01/09/2025	Input: M. Zhang
Equipment: CAT 308 on Digger Rig		Northing: 6004337.48mN,		Inclination: 90	Reviewed: S. Nelis
Contractor: Pro-Drill (Auck) Ltd		Ground level: 63.74m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
6	HQ3				NAD	[CONT] Moderately weathered, bluish grey, banded dark grey, mottled brownish grey, calcareous, pervasively sheared, MUDSTONE; extremely weak. 16.06m - 16.11m: Fine SANDSTONE (50mm). 16.11m - 16.33m: Shear fabric dips at 45°.	MW		100	-	-		16.00m: HCI test on matrix, strong	
	SPT	47	17			Slightly weathered, light grey, banded dark grey, mottled brownish grey, calcareous, pervasively sheared, Intermixed MUDSTONE and SILTSTONE; very weak; trace limestone clasts throughout. [NORTHLAND ALLOCHTHON MELANGE MATRIX].		16.5m SPT 4, 10/11, 12, 14, 13 for 65mm N = 50+	56	-	-			
	HQ3								100	94	-		17.64-17.68m: SZ, 50°, recovered as extremely weak, fine to medium, angular siltstone gravel, minor fine to coarse sand and clayey silt, low plasticity	
	HQ3	46	18						100	100	-			
	SC					18.60m: Shear fabric dips at 50-60°.		18m SPT 11, 11/9, 12, 15, 14 for 50mm N = 50+	0	-	-		19.00m: HCI test on matrix, strong reaction	
	HQ3	45	19		NAM	19.20m: Shear fabric dips at 10-15°.	SW		100	82	-		19.30-19.42m: FZ, 20°, recovered as extremely weak, fine to medium, angular siltstone gravel, some clayey silt, minor fine to coarse sand, low plasticity	
7	SC	44	20			19.45m - 20.50m: Shear fabric dips at 30-60°.		19.5m SPT 6, 8/10, 12, 12 N = 46	0	-	-		20.07-20.11m: CZ, 5°, recovered as extremely weak, fine mudstone gravel, some fine to coarse sand, minor clayey silt, low plasticity. Drilling disturbed	
	HQ3								100	70	-		20.55-20.79m: SZ, 20°-30°, recovered as extremely weak, fine to coarse, angular mudstone gravel, drilling disturbed	
	HQ3	43	21										21.00m: HCI test on matrix, strong reaction	
	SC							21m SPT 4, 5/8, 10, 12, 15 N = 45	0	-	-			
	HQ3	42	22			21.70m - 22.50m: Dark grey, extremely weak, pervasively sheared MUDSTONE (85%) intermixed with fine to medium, lenticular limestone gravel (15%). Shear fabric dips 20-30, polished surfaces.			92	92	-			
	HQ3								100	91	-		22.08m: JT, 30°, SM, ST, clean	
8	SC	41	23		NAL	Slightly weathered, grey mixed light grey, pervasively sheared, Calcareous SILTSTONE; very weak. Shear fabric dips at varying orientations; closely spaced, low tensile strength incipient joints with dark grey mudstone infill. [NORTHLAND ALLOCHTHON CALCAREOUS SEQUENCE]. 22.84m - 23.21m: Shear fabric dips at 10-30°. 23.21m - 23.32m: Shear fabric dips at 50-60°.	SW	22.5m SPT 16, 34 for 35mm N = 50+	0	-	-		23.00m: HCI test on matrix, strong reaction	
													23.20-23.31m: SZ, 20°-40°, ST	
	HQ3	40							100	84	-			
	SC								100	64	-		23.95-24.00m: HB, recovered as medium to	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 63mm.
- One vibrating wire piezometer was installed on 01/09/2025. BH2B_1132_PZ01 was installed at 20m bgl, Serial No. 378390.
- Shear Vane Serial No. 1378, calibration constant 1.383.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
27/08/2025 4:29:00 pm	21.00	1.80
28/08/2025 8:02:00 am	21.00	0.50

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 26/08/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.13mE,		Date Completed: 01/09/2025	Input: M. Zhang
Equipment: CAT 308 on Digger Rig		Northing: 6004337.48mN,		Inclination: 90	Reviewed: S. Nelis
Contractor: Pro-Drill (Auck) Ltd		Ground level: 63.74m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
8	S					[CONT] Slightly weathered, grey mixed light grey, pervasively sheared, Calcareous SILTSTONE; very weak. Shear fabric dips at varying orientations; closely spaced, low tensile strength incipient joints with dark grey mudstone infill. [NORTHLAND ALLOCHTHON CALCAREOUS SEQUENCE]. 24.11m - 24.24m: CORE LOSS (140mm). Loss assumed from washout of soil cone SPT overrun.	SW	24m SPT 20, 30 for 35mm N = 50+	0	-	-	CS	coarse, angular silty limestone gravel	
	HQ3	39	25		NAL	25-25.4m: CORE LOSS (400mm). Loss assumed from potential washout of weathered limestone during drilling.			84	63	-	ECS	24.92-25.00m: SZ, 30°, recovered as fine to medium angular limestone gravel with clayey silt matrix, low plasticity.	
	HQ3				NAL	25.40m - 25.50m: Recovered as medium to coarse, angular Silty LIMESTONE gravel.	SW		30	-	-	ECS		
9			38			25-25.95m: CORE LOSS (450mm). Loss assumed from potential washout of weathered limestone during drilling.						ECS	25.95-26.08m: SZ, 20°, recovered as medium to coarse, angular limestone gravel, non-plastic	
	HQ3	26	37			Slightly weathered, grey mixed light grey, pervasively sheared, Calcareous SILTSTONE; very weak. Shear fabric dips at varying orientations; closely spaced, low tensile strength incipient joints with dark grey mudstone infill.			70	43	-	CS	26.27-26.65m: SZ, 30°, recovered as fine to medium, angular to sub-angular limestone gravel, some clayey silt, highly plastic	
						27.00m - 27.14m: Shear fabric dips at 10-20°.						ECS	26.60m: HCl test on matrix, strong reaction	
	HQ3	27	36			27.58m: Bluish green mudstone clast, 85mm diameter.						CS	27.42-27.49m: CZ, 30°, recovered as fine to medium angular to sub-angular limestone gravel, minor silt, low plasticity	
						27.79m - 30.00m: Indistinct shear fabric.			100	71	-	ECS	27.72-28.13m: CZ, 20°, recovered as angular to sub-angular, fine to medium limestone gravel, minor clayey silt matrix, low plasticity	
	HQ3	28	35			28.13m: Bluish green mudstone clast, 120mm diameter.						CS		
10			29		NAL	Slightly weathered, bluish grey, dislocated bedding structure, pervasively sheared, intermixed Calcareous MUDSTONE and SILTSTONE; very weak. Shear fabric dips at varying orientations, closely spaced, low tensile strength incipient joints with mudstone infill.	SW		100	79	-	ECS	29.00m: HCl test on matrix, strong reaction	
	HQ3	34	30			Slightly weathered, grey mixed light grey, pervasively sheared, Calcareous SILTSTONE; very weak. Shear fabric dips at varying orientations; closely spaced, low tensile strength incipient joints with dark grey mudstone infill.						CS	29.40-30.00m: CZ, 0°-10°, recovered as angular to sub-angular, fine to medium limestone gravel, trace clayey silt matrix, low plasticity	
						30.00m - 30.12m: CORE LOSS (120mm). Loss assumed from potential washout of weathered limestone during drilling.			100	20	-	ECS		
	HQ3	33	31			31.08m - 31.25m: Shear fabric dips at 40-50°.			83	-	-	CS	30.40-30.80m: CZ, 50°, recovered as fine to coarse, angular to sub-angular limestone gravel. Matrix is minor clay, some silt, highly plastic	
11						31.50m - 32.05m: Shear fabric dips at 10-20°.						ECS	31.22m JT, 60°, SM, ST, clean	
	HQ3	32							100	74	-	CS	31.76-31.81m: HB	
									90	68	-			

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 63mm. 2. One vibrating wire piezometer was installed on 01/09/2025. BH2B_1132_PZ01 was installed at 20m bgl, Serial No. 378390. 3. Shear Vane Serial No. 1378, calibration constant 1.383.	Water Level Readings:		
	Date/Time	Hole Depth (m)	Water Level (m)
	28/08/2025 4:37:00 pm	31.50	2.22
	29/08/2025 8:22:00 am	31.50	0.70

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 26/08/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727994.13mE,	Date Completed: 01/09/2025	Input: M. Zhang
Equipment: CAT 308 on Digger Rig		Northing: 6004337.48mN,	Inclination: 90	Reviewed: S. Nelis
Contractor: Pro-Drill (Auck) Ltd		Ground level: 63.74m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
11	HQ3					[CONT] Slightly weathered, grey mixed light grey, pervasively sheared, Calcareous SILTSTONE; very weak. Shear fabric dips at varying orientations; closely spaced, low tensile strength incipient joints with dark grey mudstone infill.			90	68	-	CS	32.00m: HCl test on matrix, strong reaction	
	HQ3	31							100	50	-	ECS	32.30-32.70m: SZ, 40°, recovered as fine to coarse angular to sub-angular gravel, some clayey silt, highly plastic.	
	HQ3	33										CS	32.77m: JT, 5°, RG, PL, clean	
	HQ3												32.97-33.00m: HB	
12	HQ3								100	26	-		33.40-35.17m: CZ, 30°, recovered as fine to coarse angular limestone gravel, some clayey silt. Polished surfaces. Core broken on handling	
	HQ3	30												
	HQ3	34							91	46	-	ECS	34.30m: HCl test on clasts, strong reaction	
	HQ3	29							100	15	-			
	HQ3	35				36.35m - 37.00m: Matrix dominant comprising Sandy SILT / CLAY with Limestone gravel up to 50mm diameter.			100	92	-		35.58-35.65m: HB	
13	HQ3	28					SW					CS		
	HQ3	36							98	88	-			
	HQ3	27							100	40	-		37.00-37.19m: DB,	
	HQ3	37				38.30m - 38.90m: Shear fabric dips at 30-50°.						ECS	37.39-37.55m: CZ, 40°, recovered as fine to coarse, angular to sub-angular limestone gravel, minor silt, low plasticity	
	HQ3	26							100	75	-	CS	38.12-38.30m: CZ, 10°, recovered as fine to medium, angular to sub-angular limestone gravel, with clayey silt matrix, low plasticity	
	HQ3	38										ECS	38.50m: HCl test on matrix, strong reaction	
	HQ3	25							100	95	-	CS		
14	HQ3	39				End Of Hole: 40.00m							39.20-39.50m: CZ, 0°-10°, recovered as medium to coarse, sub-rounded to sub-angular limestone gravel, minor silt, low plasticity	
	HQ3	24							90	47	-	ECS		
	HQ3											CS	39.76-39.86m: CZ, 20°, extremely weak, recovered as angular to sub-angular limestone gravel with some clayey silt, low plasticity	
	HQ3								100	40	-	ECS		

REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 63mm.		Date/Time	Hole Depth (m)	Water Level (m)
2. One vibrating wire piezometer was installed on 01/09/2025. BH2B_1132_PZ01 was installed at 20m bgl, Serial No. 378390.		29/08/2025 12:27:00 pm	37.00	1.80
3. Shear Vane Serial No. 1378, calibration constant 1.383.		1/09/2025 9:17:00 am	37.00	1.30
		1/09/2025 1:22:00 pm	39.99	1.56

Borehole Reference:

BH2B_1132

Photographed By:

MZ

Date Photographed:

26/08/2025-21/10/2025



BH2B_1132_BOX001_0m-1.9m



BH2B_1132_BOX002_1.9m-5.6m

Borehole Reference:

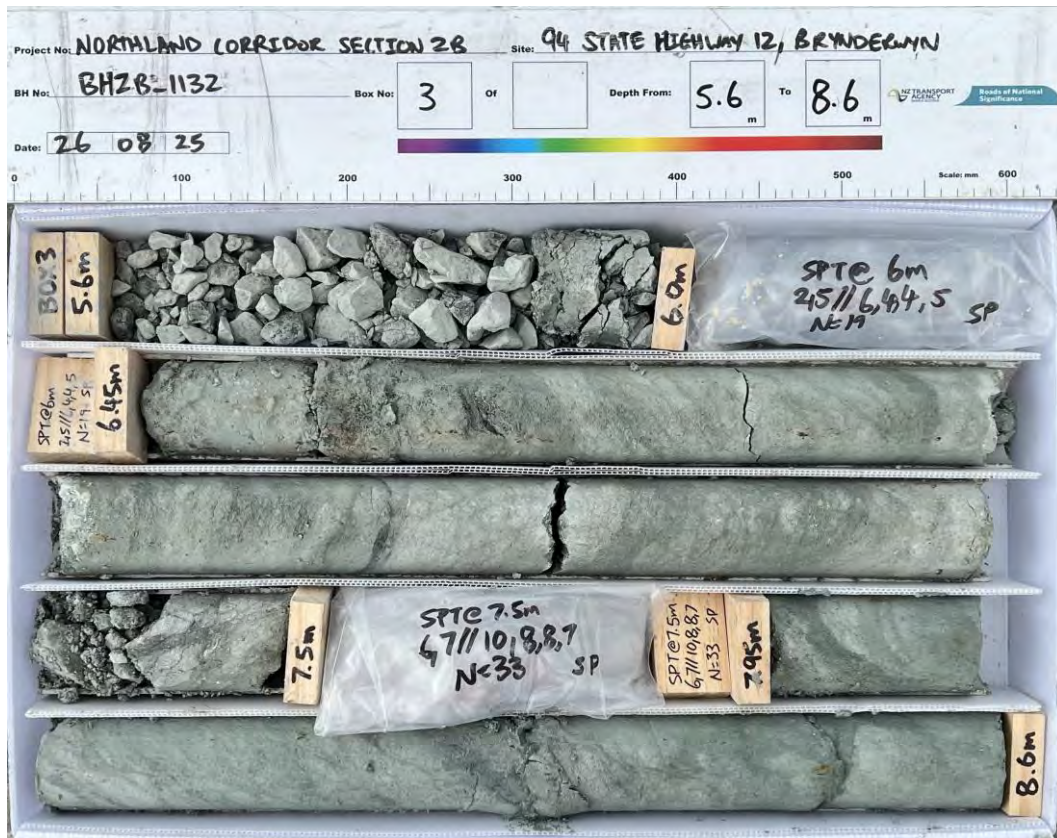
BH2B_1132

Photographed By:

MZ

Date Photographed:

26/08/2025-21/10/2025



BH2B_1132_BOX003_5.6m-8.6m



BH2B_1132_BOX004_8.6m-11.8m

Borehole Reference:

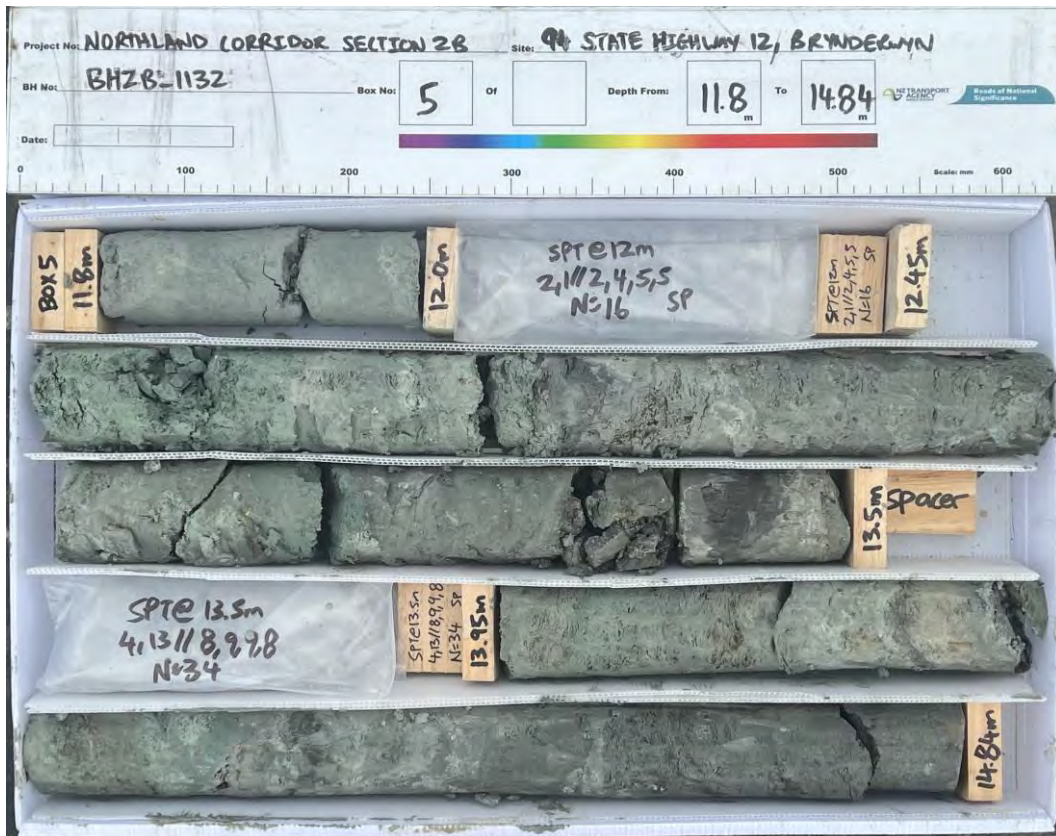
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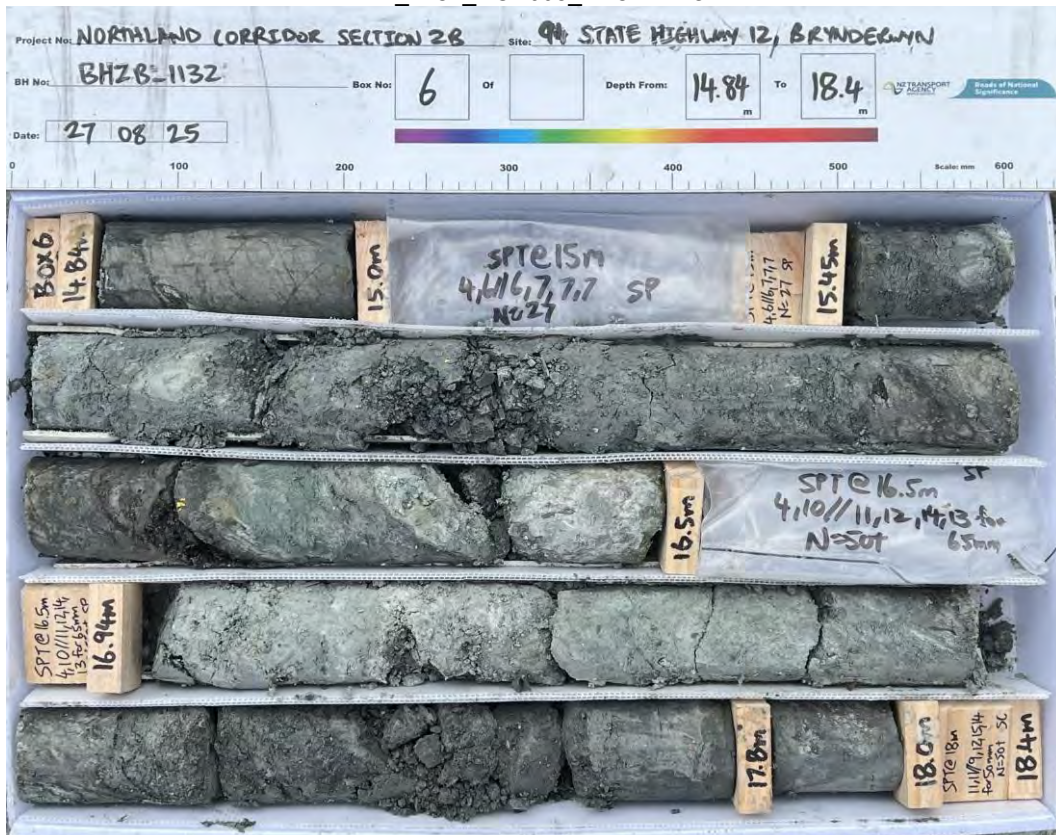
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Date Photographed:

26/08/2025-21/10/2025



BH2B_1132_BOX005_11.8m-14.84m



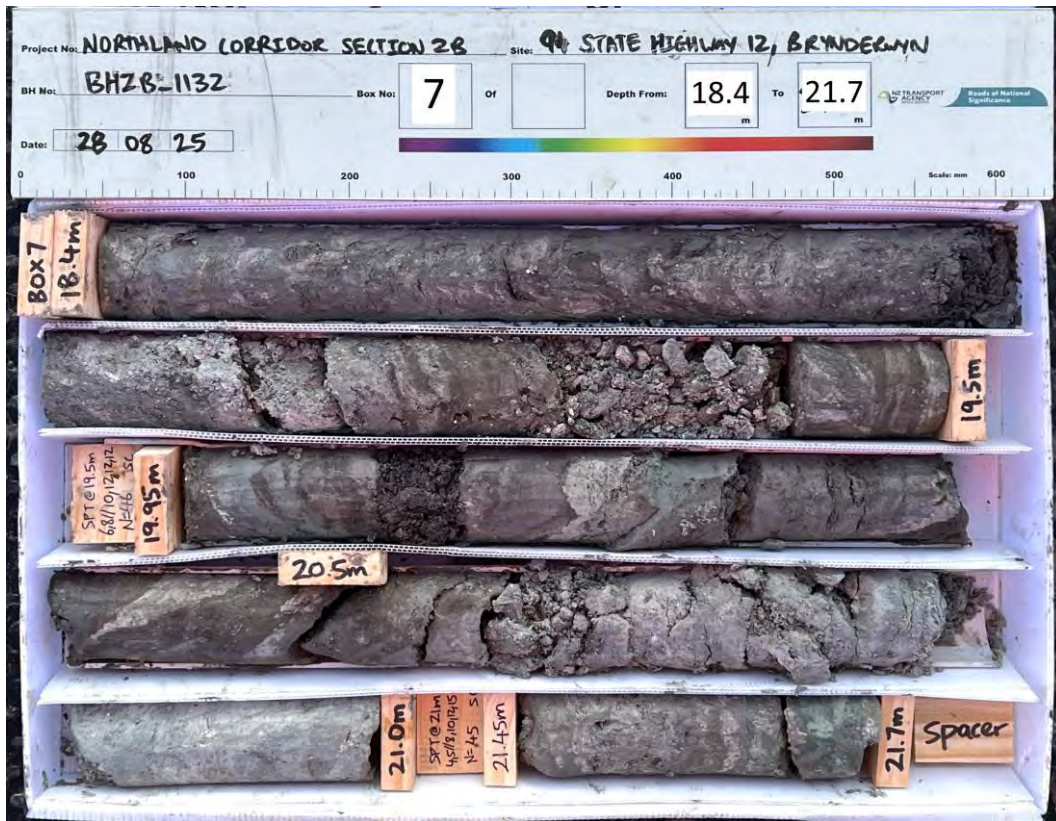
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Borehole Reference: BH2B_1132

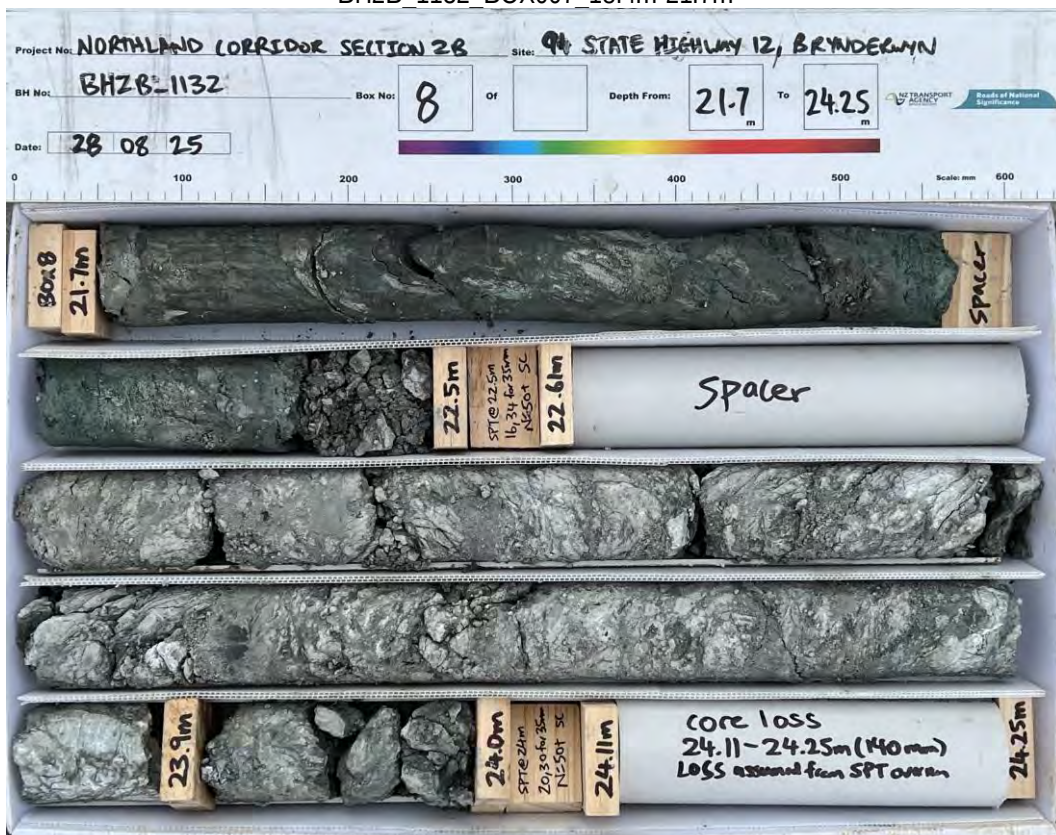
Photographed By: MZ

Date Photographed:

26/08/2025-21/10/2025



BH2B 1132 BOX007 18.4m-21.7m



BH2B_1132_BOX008_21.7m-24.25m

Borehole Reference:

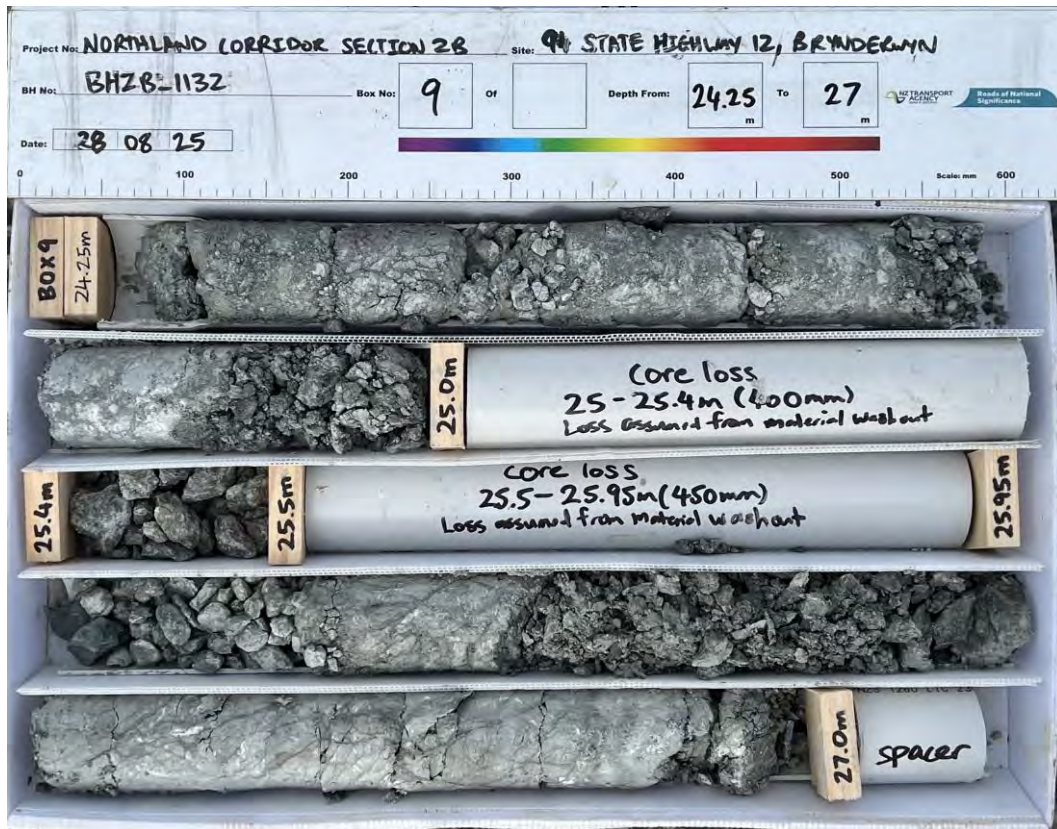
BH2B_1132

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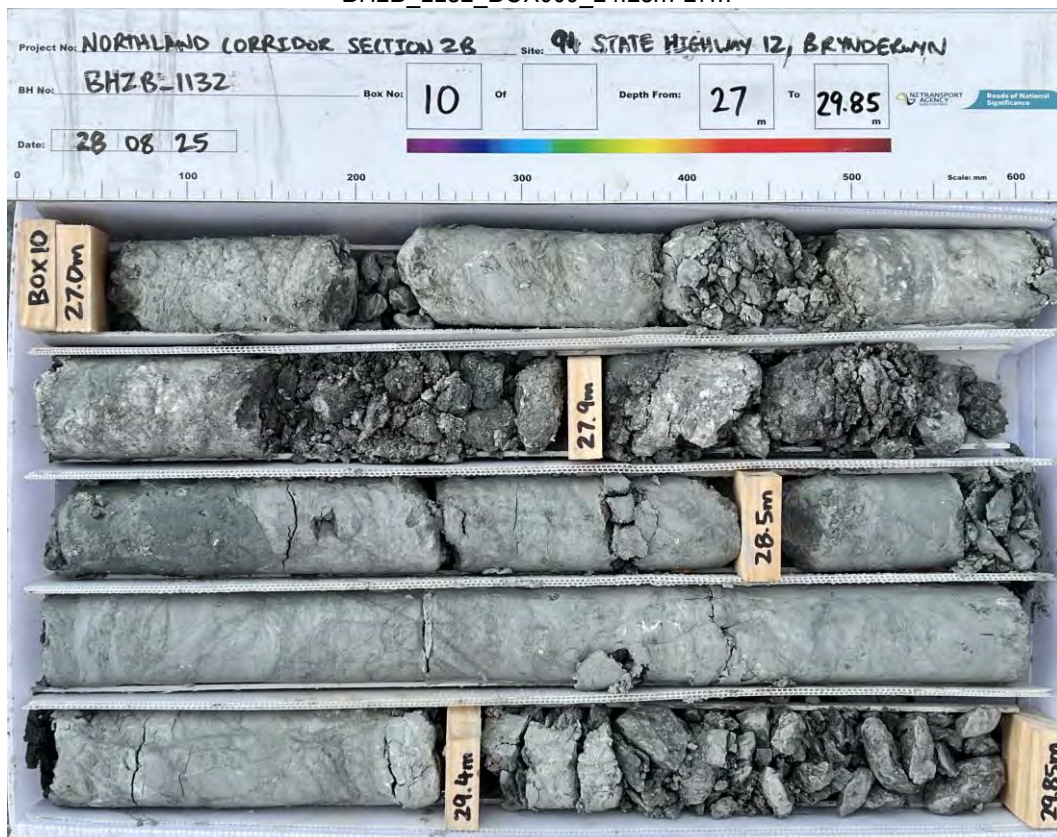
MZ

Date Photographed:

26/08/2025-21/10/2025



BH2B_1132_BOX009_24.25m-27m



BH2B_1132_BOX010_27m-29.85m

Borehole Reference:

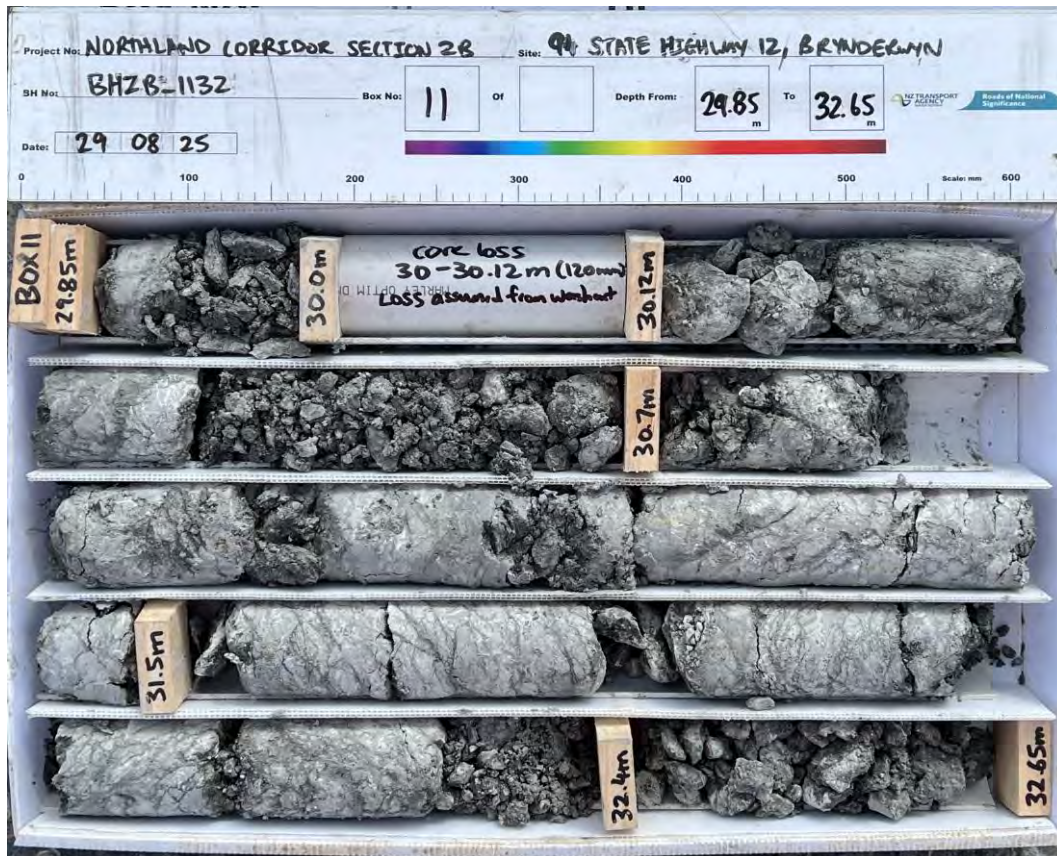
BH2B_1132

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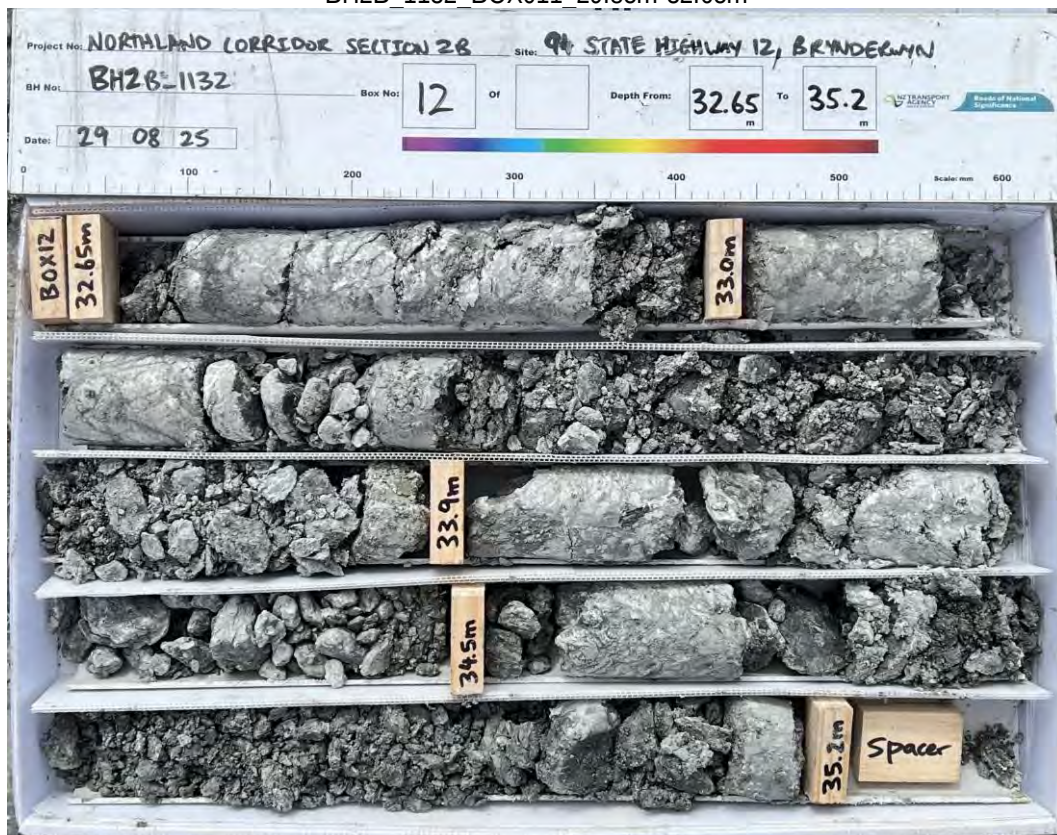
MZ

Date Photographed:

26/08/2025-21/10/2025



BH2B_1132_BOX011_29.85m-32.65m



BH2B_1132_BOX012_32.65m-35.2m

Borehole Reference:

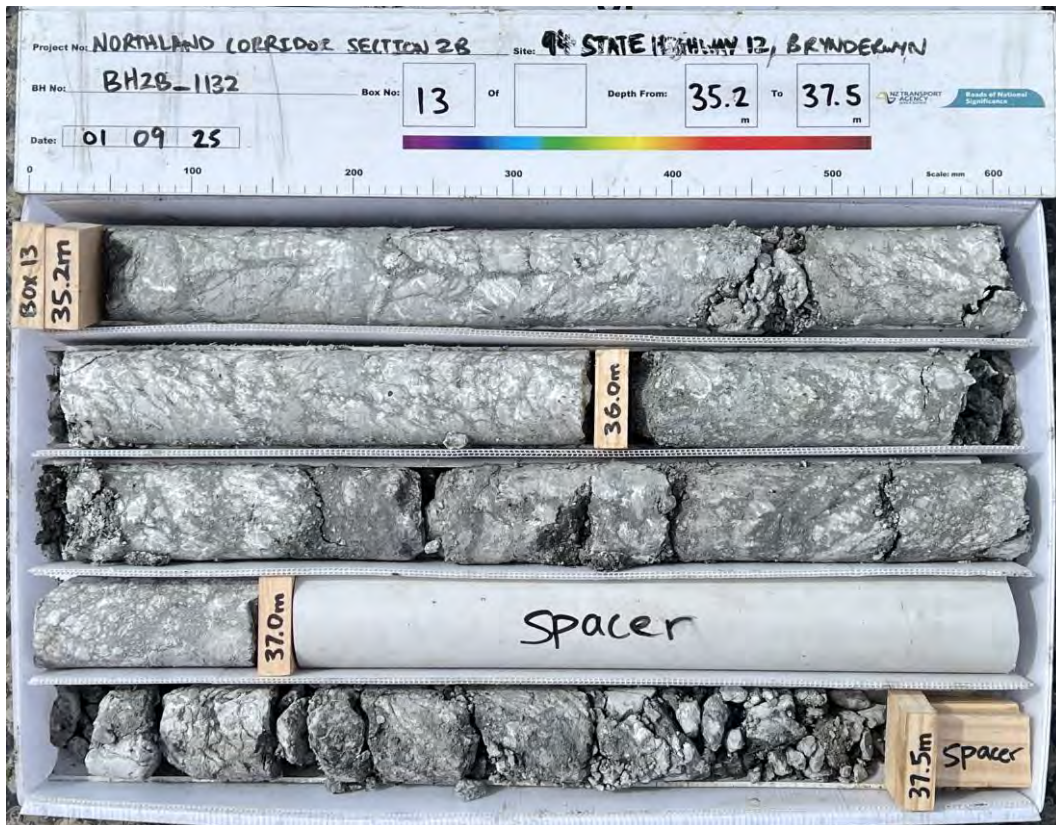
BH2B_1132

Photographed By:

MZ

Date Photographed:

26/08/2025-21/10/2025



BH2B_1132_BOX013_35.2m-37.5m



BH2B_1132_BOX014_37.5m-40m

BOREHOLE INFORMATION		CO-ORDINATES:		Date started:		Logged:	
Method:	Rotary Core Wireline	Easting:	1727712.11	Date completed:	02/10/2025	Input:	B.Fleetwood
Equipment:	CAT 308 8 ton Digger Rig	Northing:	6006453.02	Inclination:	90°	Reviewed:	C. Parkes
Contractor:	ProDrill NZ	Ground level:	105.27m (NZVD2016)	Azimuth:	N/A	Verified:	A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
1	HA	105	0.00m		TS	0.00m: Clayey SILT with minor amorphous organics; dark brown [TOPSOIL].								
					F	0.20m: Silty CLAY with trace sand; intermixed orange brown and grey. Firm to stiff, moist, high plasticity. Sand, fine to medium [FILL].								
						0.50m: Clayey SILT with minor sand; dark brown with light brown streaks. Firm, moist, low plasticity. Sand is fine to medium.								
						0.70m: Clayey SILT; orange brown. Stiff, moist, low plasticity.								
					TA	0.90m: Organic SILT with trace gravel; light brown with black streaks. Firm, moist to wet, low plasticity. Gravel is fine [RECENT (HOLOCENE) ALLUVIUM].								
						1.80m: Clayey SILT with minor sand; light brown and orange. Stiff, moist, low plasticity. Sand is fine to medium.		1.5m: ISHSV 112/30 kPa 1.5m: SPT 0, 0, 0, 1 N = 1	100					
						1.95m: CORE LOSS (650 mm) - Core loss possibly associated with fine content washout.			89					
2	HQ3	103	2.60m		TA	2.60m: Fine to coarse GRAVEL with some silt and clay; grey and orange. Loose, moist, poorly graded. Gravel is sub-rounded, possibly greywacke. Fine fraction has been washed out during drilling.								
						3.20m: Slightly weathered to moderately weathered, light grey to dark grey, silty calcareous SANDSTONE and calcareous SILTSTONE, extremely weak to very weak, relatively intact. Pervasively sheared, no preferred orientation, extremely closely spaced to closely spaced relict discontinuities and incipient fractures with very weak tensile strength, joint surfaces infilled or coated with silt, weak HCl reaction. Material remolds to clayey silt with minor sand. [NORTHLAND ALLOCHTHON MELANGE MATRIX].	SW	3m: ISHSV UTP 3m: SPT 2, 2// 3, 4, 4, 5 N = 16	78					
					NAM	4.15m: CORE LOSS (350 mm)								
						4.50m: Slightly weathered to moderately weathered, light grey to dark grey, silty calcareous SANDSTONE and calcareous SILTSTONE, extremely weak to very weak, relatively intact. Pervasively sheared, no preferred orientation, extremely closely spaced to closely spaced incipient fractures, extremely weak tensile strength, weak HCl reaction.	SW	4.5m: SPT 2, 4// 4, 4, 4, 4 N = 16	89	0	0			
								5.50m: HCl: Some	100	86	0			
								6m: SPT 2, 6// 7, 6, 6, 7 N = 26	100	0	0			
3	HQ3	99	6.45m			6.45m: Slightly weathered, light grey to dark grey, silty calcareous SANDSTONE and calcareous SILTSTONE, extremely weak to very weak, tectonic overprint - deformed. Pervasively sheared, no preferred orientation, extremely closely spaced to closely spaced relict discontinuities and incipient fractures, extremely weak tensile strength, weak HCl reaction.	SW	7.5m: SPT 2, 5// 6, 6, 6, 7 N = 25	89	0	0			

Remarks:			Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 80mm.	2. One vibrating wire piezometer was installed on 02/10/2025. BH2B_1133_PZ01 was installed at 21m bgl, Serial No. 378271.	3. An additional borehole, BH1133A was completed 10.50m from BH1133 to inform geological conditions to supplement drilling completed on this borehole as drilling was stopped at 43m due to the rigs cable running out. Refer BH2B_113A for depths 40.0-63.73m.	Date/Time	Hole Depth	Water Level
			2025-09-24 16:30	6.45m	1.70mbgl
			2025-09-25 07:30	6.45m	1.60mbgl
			2025-09-25 17:00	15.00m	1.70mbgl
			2025-09-26 07:30	15.00m	1.70mbgl
			2025-09-26 11:45	21.00m	2.30mbgl
			2025-09-29 07:30	21.00m	1.10mbgl
			2025-09-29 17:00	26.70m	5.10mbgl
			2025-09-30 07:00	26.70m	1.10mbgl

Water Level Readings:		
DateTime	Hole Depth	Water Level
2025-09-30 17:00	34.50m	2.60mbl
2025-10-01 07:30	34.50m	1.10mbl
2025-10-01 17:00	42.00m	2.60mbl
2025-10-02 07:00	42.00m	1.20mbl
2025-10-02 15:00	45.00m	2.10mbl

NZ TRANSPORT AGENCY WIKIKA WIKIKA Roads of National Significance Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010 <td colspan="2">Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: 2941 State Highway 1, Kaiwaka Project Reference: Aurecon WSP JV</td> <td colspan="2">BH2B_1133</td>		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: 2941 State Highway 1, Kaiwaka Project Reference: Aurecon WSP JV		BH2B_1133										
Sheet 3 of 6														
BOREHOLE INFORMATION Method: Rotary Core Wireline Equipment: CAT 308 8 ton Digger Rig Contractor: ProDrill NZ		CO-ORDINATES: NZTM2000 Easting: 1727712.11 Northing: 6006453.02 Ground level: 105.27m (NZVD2016)		Date started: 24/09/2025 Date completed: 02/10/2025 Inclination: 90° Azimuth: N/A		Logged: B.Fleetwood Input: B.Fleetwood Reviewed: C. Parkes Verified: A.George								
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
6	HQ3	SPT C	89				SW	16.5m: SPTC 22, 28 for 45mm// N = 50+	0	0	0		16.25m: JT, 75°, Ro, Un	
			17										16.72m: JT, 70°, Sm, Pl, Cn, <1 mm aperture	
			88										17.13m: JT, 80°, Sm, Pl, Cn, <1 mm aperture	
			18										17.60-17.70m: CZ, Material recovered as clasts up to 45 mm, sub-rounded, apparent dip 50 degrees.	
7	HQ3	SPT C	87			19.50m: Slightly weathered, light grey, calcareous SILTSTONE, very weak to weak; extremely closely spaced to close spaced discontinuities, pervasively sheared, strong HCl reaction. Drilling induced breaks along defects, material recovered as angular gravel.	SW	18m: SPTC 20, 30 for 60mm// N = 50+	0	0	0		18.85m: JT, 60°, Sm, Pl, Cn	19.50-21.00m: Fracture zone, Material recovered as angular clasts up to 50 mm, likely defect controlled breakages, multiple very close defects. 19.50m: JT, 65°, Sm, Pl, Cn, <1 mm aperture
			19											
			86											
			20											
8	HQ3		85		NAL		SW	21.95m: HCl:Some	100	0	0		21.06-21.11m: CZ, Material recovered as rounded clasts up to 30 mm, preferred orientation at 60 degrees. 21.38m: JT, 70°, Sm, Pl 21.42m: JT, 40°, Sm, Pl 21.50m: JT, 50°, Sm, Pl 21.56m: IS, 50°, Silt and Clay, <3 mm aperture	21.82-21.90m: Fracture Zone, Material recovered as angular siltstone, defect controlled
			21										22.25-22.50m: Fracture Zone, Material recovered as angular clasts up to 30 mm, preferred orientation 30 degrees, break are drilling induced. 22.66m: JT, 60°, Sm, Pl, Calcite, 1 mm aperture	
			84										22.70-22.85m: CZ, Material recovered as silt and clasts up to 60 mm, many extremely to closely spaced defects. 23.00-23.14m: CZ, Material recovered as silt and rounded clasts up to 20 mm, preferred orientation 70 degrees. 23.20m: JT, 60°, Sm, Pl, Silt	
			22										23.65-23.75m: CZ, Material recovered as silt and clasts up to 10 mm, no preferred orientation, material disintegrated. 23.69m: JT, 80°, Sm, Pl, Calcite	
8	HQ3		83			22.50m: Slightly weathered, light grey to dark grey, silty calcareous SANDSTONE and calcareous SILTSTONE, very weak to weak, tectonic overprint - deformed. Pervasively sheared, no preferred orientation, extremely closely spaced to closely spaced discontinuities and incipient fractures, extremely weak tensile strength, joint surfaces infilled with silt, weak HCl reaction.	SW		100	9	7			
			82											
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 80mm. 2. One vibrating wire piezometer was installed on 02/10/2025. BH2B_1133_PZ01 was installed at 21m bgl, Serial No. 378271. 3. An additional borehole, BH1133A was completed 10.50m from BH1133 to inform geological conditions to supplement drilling completed on this borehole as drilling was stopped at 43m due to the rigs cable running out. Refer BH2B_113A for depths 40.0-63.73m.												Water Level Readings: Date/Time Hole Depth Water Level		
Shear Vane (ISHSV) Serial No. 3331, calibration constant 1.693.														

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Method: Rotary Core Wireline
Equipment: CAT 308 8 ton Digger Rig
Contractor: ProDrill NZ

CO-ORDINATES:	NZTM2000
Easting:	1727712.11
Northing:	6006453.02
Ground level:	105.27m (NZVD2016)

Date started:	24/09/2025
Date completed:	02/10/2025
Inclination:	90°
Azimuth:	N/A

Logged:	B.Fleetwood
Input:	B.Fleetwood
Reviewed:	C. Parkes
Verified:	A.George

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 80mm.
2. One vibrating wire piezometer was installed on 02/10/2025. BH2B_1133_PZ01 was installed at 21m bgl, Serial No. 378271.
3. An additional borehole, BH1133A was completed 10.50m from BH1133 to inform geological conditions to supplement drilling completed on this borehole as drilling was stopped at 43m due to the rigs cable running out. Refer BH2B_1133A for depths 40.0-63.73m.

Shear Vane (ISHSV) Serial No. 3331, calibration constant 1.693.

DateTime	Hole Depth	Water Level
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BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: CAT 308 8 ton Digger Rig
Contractor: ProDrill NZ

CO-ORDINATES: NZTM2000
Easting: 1727712.11
Northing: 6006453.02
Ground level: 105.27m (NZVD2016)

Date started: 24/09/2025
Date completed: 02/10/2025
Inclination: 90°
Azimuth: N/A

Logged: B.Fleetwood
Input: B.Fleetwood
Reviewed: C. Parkes
Verified: A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
14	HQ3	65				40.00m: Moderately weathered, light bluish grey to dark grey, calcareous SHEARED SILTSTONE and FAULT BRECCIA, extremely weak to weak, tectonic overprint - deformed. Pervasively sheared mudstone, siltstone and sandstone with a mélange matrix. Tectonically deformed, moderately degraded, subangular to subrounded clasts, clasts up to 40 mm, no preferred orientation, moderate HCl reaction [NORTHLAND ALLOCHTHON MELANGE MATRIX].	MW						41.80-41.90m: SZ, Material recovered with sheared texture, preferred orientation 50 degrees.	
	HQ3	64	41					100	0	0				
15	HQ3	63	42		NAM	42.65m: Slightly weathered, bluish grey and dark grey, fine SANDSTONE and SHEARED SILTSTONE, weak to very weak. SANDSTONE has calcite veins, 2 mm aperture. Extremely closely spaced to close spaced discontinuities, pervasively sheared zones with foliation, sheared matrix, moderate HCl reaction. On recovery, material is broken and breaks apart during handling.	SW							
	HQ3	62	43					100	0	0				
16	HQ3	61	44			44.24m: CORE LOSS (560 mm)								
	HQ3	61	44					100	0	0				
		45			NAM	44.80m: Slightly weathered, dark grey, calcareous SILTSTONE and BRECCIA, extremely weak to weak, tectonic overprint - deformed. Pervasively sheared, no preferred orientation, weak HCl reaction. Terminated at 45.00 m. Target depth.	SW							
		60												
		46												
		59												
		47												
		58												

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 80mm.
- One vibrating wire piezometer was installed on 02/10/2025. BH2B_1133_PZ01 was installed at 21m bgl, Serial No. 378271.
- An additional borehole, BH1133A was completed 10.50m from BH1133 to inform geological conditions to supplement drilling completed on this borehole as drilling was stopped at 43m due to the rigs cable running out. Refer BH2B_113A for depths 40.0-63.73m.

Water Level Readings:

Date/Time	Hole Depth	Water Level
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Borehole Reference: BH2B_1133

Photographed By: SH

Date Photographed:

25/09/2025-01/10/2025



BH2B_1133_BOX001_0m-2.28m



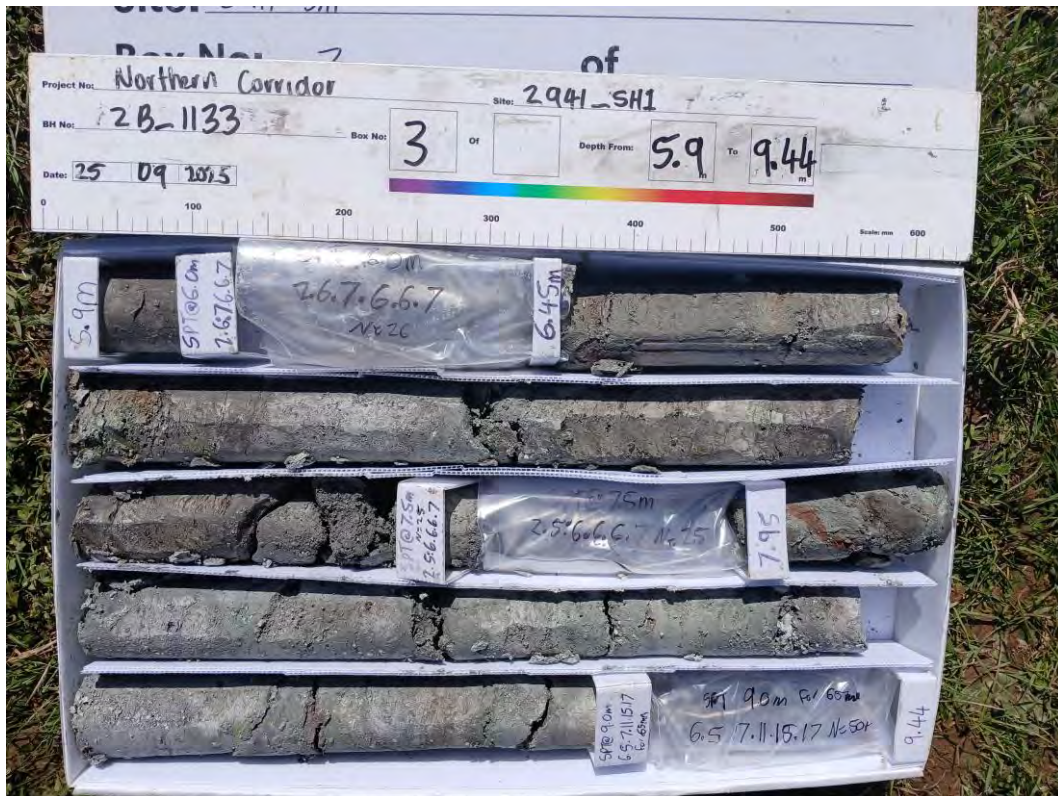
BH2B_1133_BOX002_2.28m-5.9m

Borehole Reference: BH2B_1133

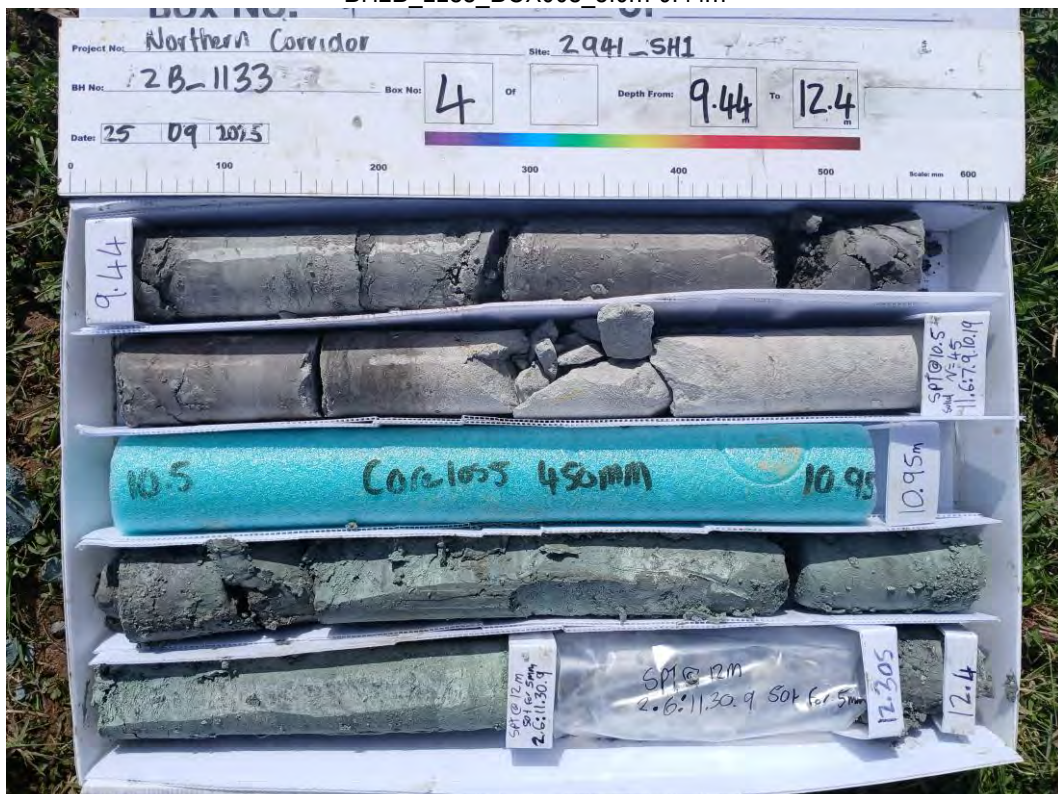
Photographed By: SH

Date Photographed:

25/09/2025-01/10/2025



BH2B_1133_BOX003_5.9m-9.44m



BH2B_1133_BOX004_9.44m-12.4m

Borehole Reference: BH2B_1133

Photographed By: SH

Date Photographed:

25/09/2025-01/10/2025



BH2B_1133_BOX005_12.4m-15.4m



BH2B_1133_BOX006_15.4m-18.7m

Borehole Reference: BH2B_1133

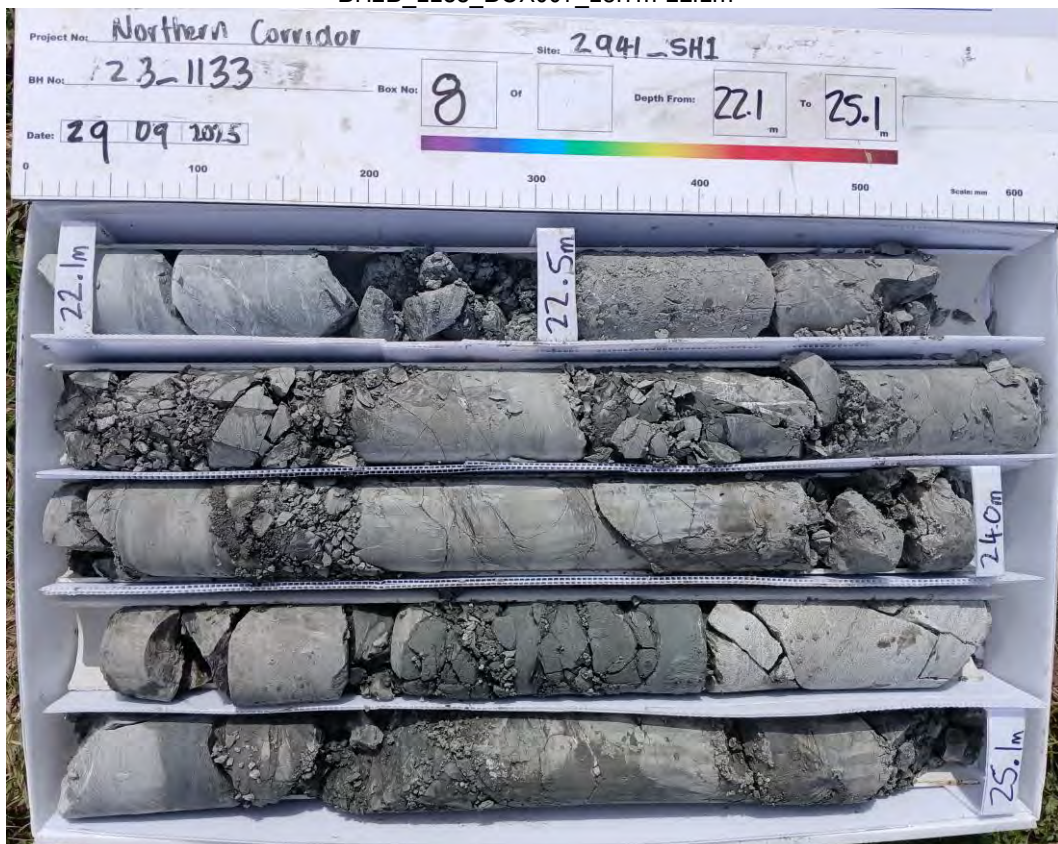
Photographed By: SH

Date Photographed:

25/09/2025-01/10/2025



BH2B_1133_BOX007_18.7m-22.1m



BH2B_1133_BOX008_22.1m-25.1m

Borehole Reference: BH2B_1133

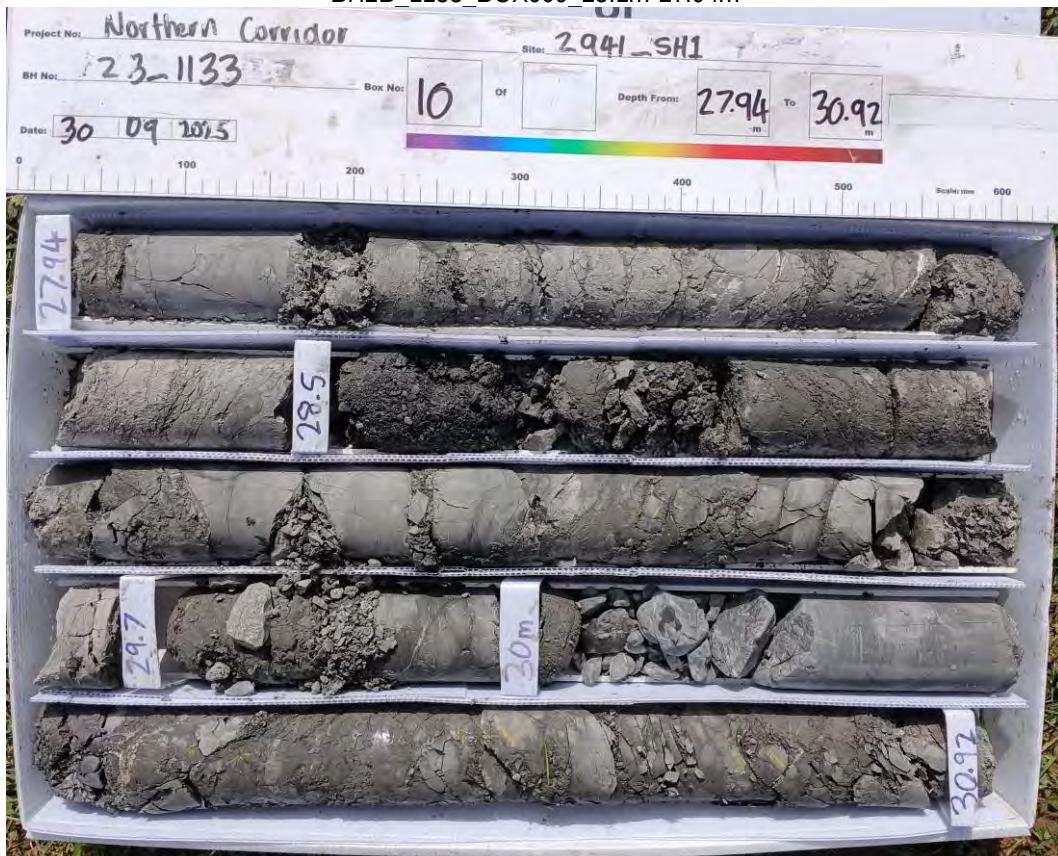
Photographed By: SH

Date Photographed:

25/09/2025-01/10/2025



BH2B_1133_BOX009_25.1m-27.94m



BH2B_1133_BOX010_27.94m-30.92m

Borehole Reference:

BH2B_1133

Photographed By:

SH

Date Photographed:

25/09/2025-01/10/2025



BH2B_1133_BOX011_30.92m-33.78m



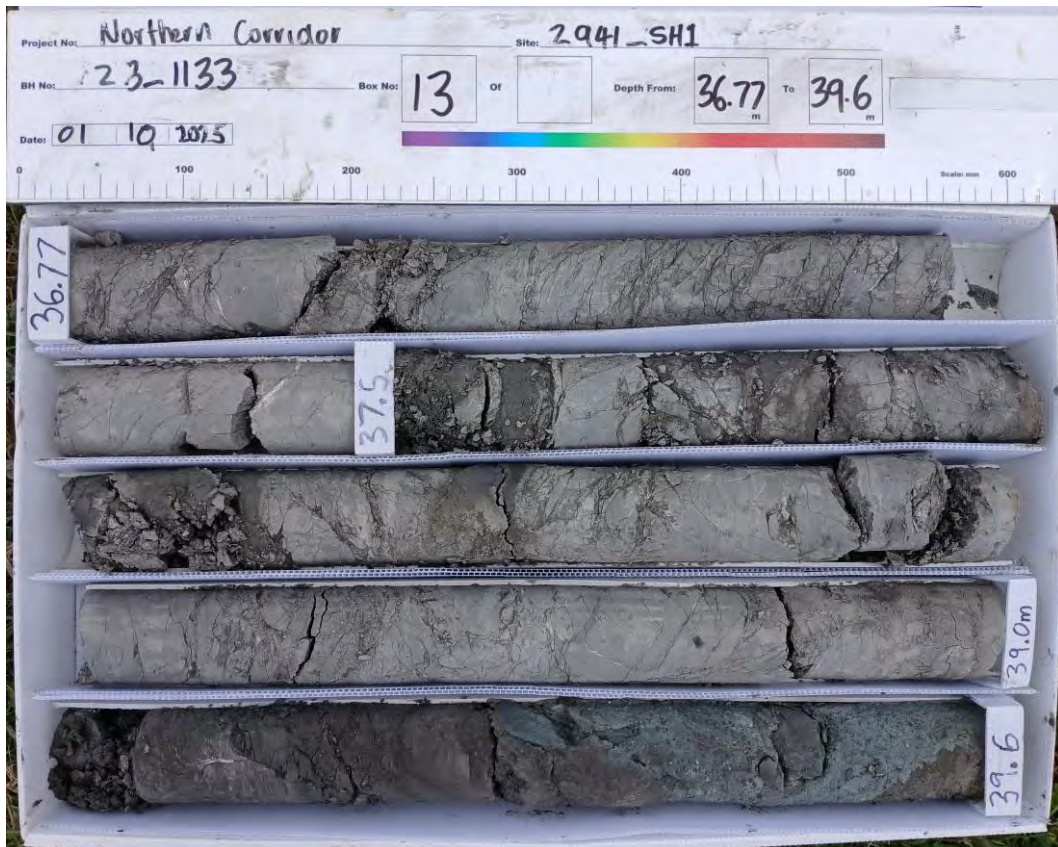
BH2B_1133_BOX012_33.78m-36.77m

Borehole Reference: BH2B_1133

Photographed By: SH

Date Photographed:

25/09/2025-01/10/2025



BH2B 1133 BOX013 36.77m-39.6m



BH2B_1133_BOX014_39.6m-41.75m

Borehole Reference:

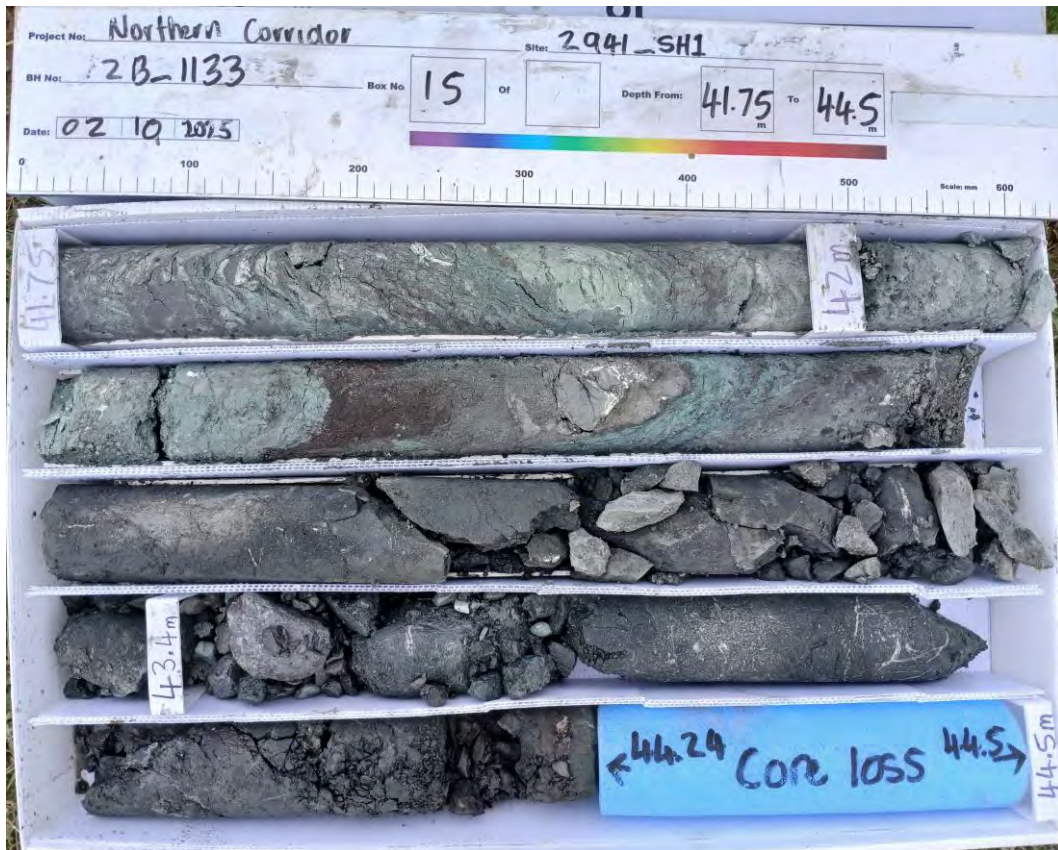
BH2B_1133

Photographed By:

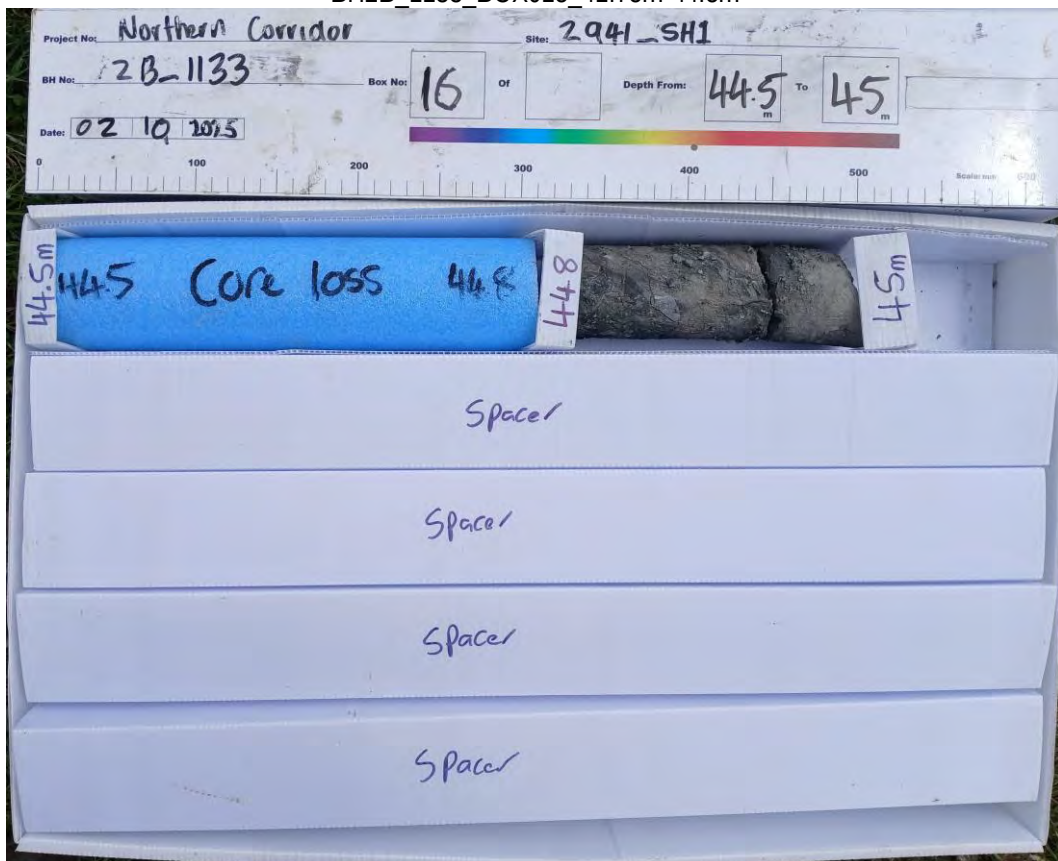
SH

Date Photographed:

25/09/2025-01/10/2025



BH2B_1133_BOX015_41.75m-44.5m



BH2B_1133_BOX016_44.5m-45m

Date/Time	Hole Depth	Water Level
2025-11-11 07:30	30.00m	3.20mbgl
2025-11-11 16:40	54.00m	5.20mbgl
2025-11-12 07:30	54.00m	3.40mbgl
2025-11-12 14:00	63.73m	3.20mbgl

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan Drilling (NI) Ltd

CO-ORDINATES:	NZTM2000
Easting:	1727719.93
Northing:	6006445.96
Ground level:	105.12m (NZVD2016)

Date started:	07/11/2025
Date completed:	12/11/2025
Inclination:	90°
Azimuth:	N/A

Logged:	B.Griffiths
Input:	B.Griffiths
Reviewed:	B.O'Loughlin
Verified:	A.George

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 74mm. 2. Borehole backfilled upon completion of drilling. 3. BH2B_1133A was completed 10.50m from BH2B_1133 as an additional borehole to inform geological conditions to supplement drilling completed on BH2B_1133 as drilling was stopped at 43m due to the rigs cable running out. 4. Borehole terminated due to Melange soils heaving and collapsing around drilling rods.		Water Level Readings: <table><tr><th>Date/Time</th><th>Hole Depth</th><th>Water Level</th></tr><tr><td>2025-11-11 07:30</td><td>30.00m</td><td>3.20mbgl</td></tr><tr><td>2025-11-11 16:40</td><td>54.00m</td><td>5.20mbgl</td></tr><tr><td>2025-11-12 07:30</td><td>54.00m</td><td>3.40mbgl</td></tr><tr><td>2025-11-12 14:00</td><td>63.73m</td><td>3.20mbgl</td></tr></table>			Date/Time	Hole Depth	Water Level	2025-11-11 07:30	30.00m	3.20mbgl	2025-11-11 16:40	54.00m	5.20mbgl	2025-11-12 07:30	54.00m	3.40mbgl	2025-11-12 14:00	63.73m	3.20mbgl
Date/Time	Hole Depth	Water Level																	
2025-11-11 07:30	30.00m	3.20mbgl																	
2025-11-11 16:40	54.00m	5.20mbgl																	
2025-11-12 07:30	54.00m	3.40mbgl																	
2025-11-12 14:00	63.73m	3.20mbgl																	

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan Drilling (NI) Ltd

CO-ORDINATES:

CO-ORDINATES:	NZTM2000
Easting:	1727719.93
Northing:	6006445.96
Ground level:	105.12m (NZVD2016)

Date started:	07/11/2025
Date completed:	12/11/2025
Inclination:	90°
Azimuth:	N/A

Logged:	B.Griffiths
Input:	B.Griffiths
Reviewed:	B.O'Loughlin
Verified:	A.George

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 74mm.
2. Borehole backfilled upon completion of drilling.
3. BH2B_1133A was completed 10.50m from BH2B_1133 as an additional borehole to inform geological conditions to supplement drilling completed on BH2B_1133 as drilling was stopped at 43m due to the rigs cable running out.
4. Borehole terminated due to Melange soils heaving and collapsing around drilling rods.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-11-11 07:30	30.00m	3.20mbgl
2025-11-11 16:40	54.00m	5.20mbgl
2025-11-12 07:30	54.00m	3.40mbgl
2025-11-12 14:00	63.73m	3.20mbgl

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BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan Drilling (NI) Ltd

CO-ORDINATES: NZTM2000
Easting: 1727719.93
Northing: 6006445.96
Ground level: 105.12m (NZVD2016)

Date started: 07/11/2025
Date completed: 12/11/2025
Inclination: 90°
Azimuth: N/A

Logged: B.Griffiths
Input: B.Griffiths
Reviewed: B.O'Loughlin
Verified: A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
6	HQ3	49				56.85m: ...Mosaic pack breccia zone. Dipping 20 degrees. Clast supported, fine to coarse gravel, subangular (90%). Matrix of calcite and quartz (10%). Incipient fractures with moderate tensile strength - breaks on handling.	UW		97	93	90			
		57												
		48												
	HQ3								100	80	80		57.40m: BPJT, 50°, Sm, Pl, Vn Calcite	
		58											57.95m: DB	
		47											58.20m: CZ, 60°, Fine to coarse gravels, Sandstone, subangular (90%). Silty fine sand matrix (10%).	
7														
	HQ3								97	67	67		59.00m: BPJT, 45°, Sm, Un, Cn	
		59											59.35m: JT, 40°, Sm, Pl, Cn	
		46											59.45-60.00m: DB	
		60											60.00m: HCl: Weak	
		45											60.30m: VE, 70°, Calcite, 3mm thick	
	HQ3								100	93	93		60.70m: VE, 70°, Calcite, 3mm thick	
		61				60.85-63.40m: ...Mosaic pack breccia zone. Dipping 30 - 50 degrees. Clast supported, fine to coarse gravel, subangular (80%). Matrix of calcite and quartz (20%). Incipient fractures with high tensile strength.								
		44												
8														
	HQ3								100	100	100			
		62												
		43												
		63												
9	HQ3								100	100	100		63.00m: HCl: Weak	
		42												
						Terminated at 63.73 m. Terminated Deeper due to unfavourable ground conditions.								

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 31mm and vertical accuracy +/- 74mm.
- Borehole backfilled upon completion of drilling.
- BH2B_1133A was completed 10.50m from BH2B_1133 as an additional borehole to inform geological conditions to supplement drilling completed on BH2B_1133 as drilling was stopped at 43m due to the rigs cable running out.
- Borehole terminated due to Melange soils heaving and collapsing around drilling rods.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-11-11 07:30	30.00m	3.20mbgl
2025-11-11 16:40	54.00m	5.20mbgl
2025-11-12 07:30	54.00m	3.40mbgl
2025-11-12 14:00	63.73m	3.20mbgl

Borehole Reference:

BH2B_1133A

Photographed By:

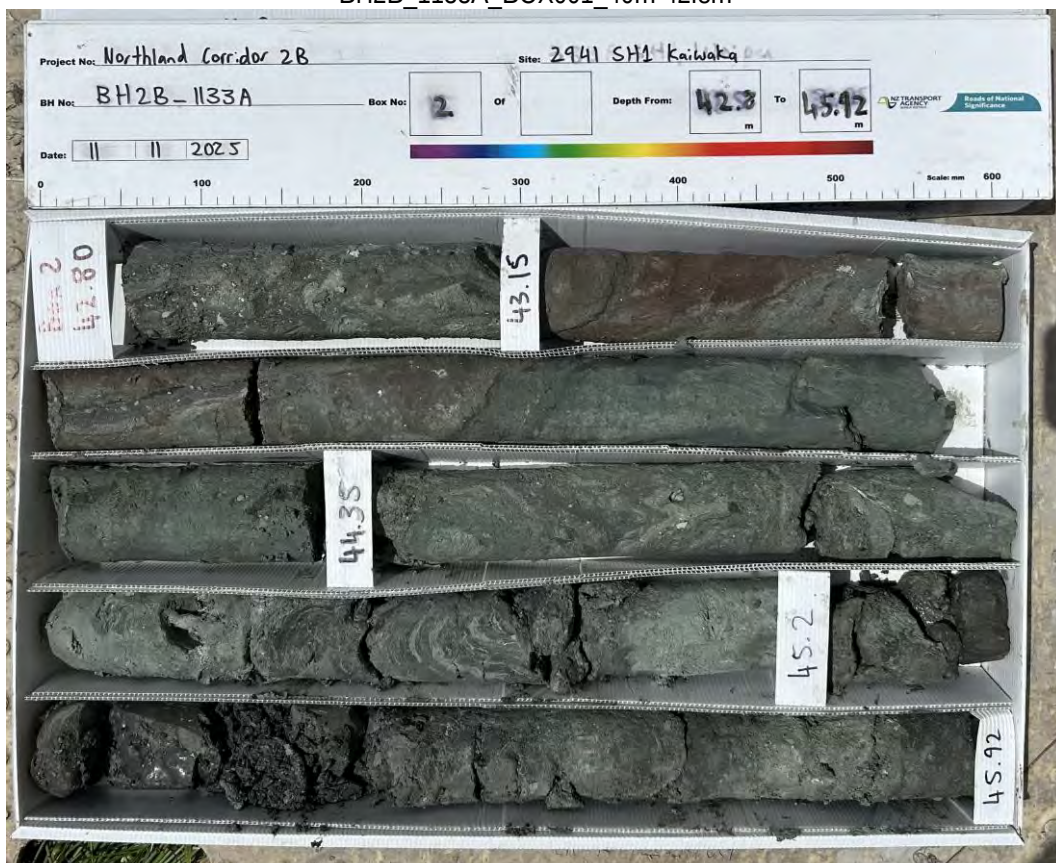
BTG

Date Photographed:

10/11/2025-11/11/2025



BH2B_1133A_BOX001_40m-42.8m



BH2B_1133A_BOX002_42.8m-45.92m

Borehole Reference:

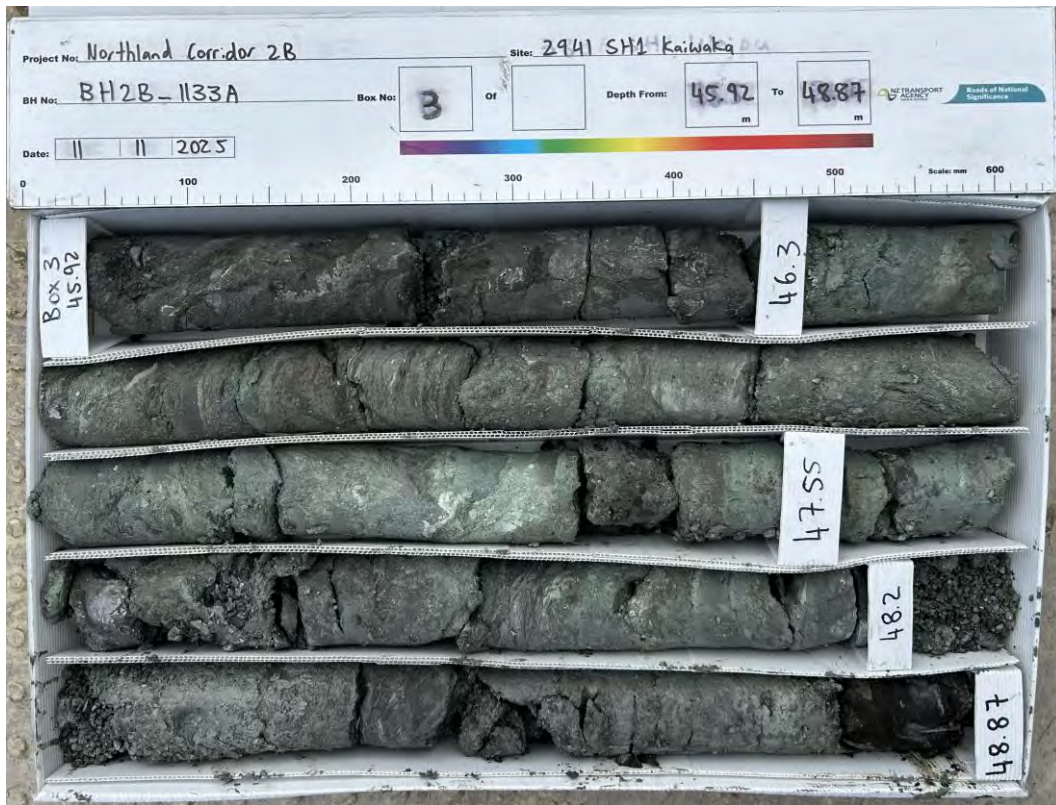
BH2B_1133A

Photographed By:

BTG

Date Photographed:

10/11/2025-11/11/2025



BH2B_1133A_BOX003_45.92m-48.87m



BH2B_1133A_BOX004_48.87m-51.8m

Borehole Reference:

BH2B_1133A

Photographed By:

BTG

Date Photographed:

10/11/2025-11/11/2025



BH2B_1133A_BOX005_51.8m-54.63m



BH2B_1133A_BOX006_54.63m-57.5m

Borehole Reference:

BH2B_1133A

Photographed By:

BTG

Date Photographed:

10/11/2025-11/11/2025



BH2B_1133A_BOX007_57.5m-60.3m



BH2B_1133A_BOX008_60.3m-63m

Borehole Reference: BH2B_1133A

Photographed By: BTG

Date Photographed: 10/11/2025-11/11/2025



BH2B_1133A_BOX009_63m-63.73m

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: CAT 308 8 ton Digger Rig
Contractor: Pro-Drill (Auck) Ltd

CO-ORDINATES: NZTM2000
Easting: 1727513.72
Northing: 6006070.62
Ground level: 136.777m (NZVD2016)

Date started: 07/10/2025
Date completed: 15/10/2025
Inclination: 90°
Azimuth: N/A

Logged: CS, LM
Input: L. Mackinnon
Reviewed: N. Crampton
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS	WS	MVS	VCS	EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
1	HA	136	1		TS	0.00m: Silty CLAY with minor rootlets; black and dark greyish brown. Stiff; moist; low plasticity. [TOPSOIL]	RS	0.5m: ISHSV 83/25 kPa 1m: ISHSV 84/28 kPa	100									1.70m: Strong HCl reaction.	
					NAS	0.30m: Clayey SILT; light grey mottled brown, orange and white. Stiff; moist; high plasticity; remoulds in hand. [RESIDUAL SOIL] 1.00m: ...Medium to coarse sand. 1.20-1.50m: ...Core loss.													
					NAM	1.50m: Moderately weathered, grey, pervasively sheared muddy LIMESTONE; Extremely weak. (Clayey SILT; dark bluish grey. Moist; hard; low plasticity). [NORTHLAND ALLOCHTHON MELANGE MATRIX]. 1.95m: CORE LOSS (650mm) due to washout.													
2	HQ3	134	3		NAM	2.60m: Moderately weathered, dark bluish grey, pervasively sheared, muddy LIMESTONE; Extremely weak. No obvious fabric. Breaks upon handling. (Clayey SILT; dark bluish grey. Moist; hard; low plasticity).	MW	1.5m: ISHSV UTP 1.5m: SPT 2, 5// 5, 15, 30 for 35mm N = 50+ 3m: SPTC 15, 35 for 65mm// N = 50+	100	0								2.50-10.00m: Core typically recovered as silty fine to coarse, angular gravel (broken on handling). 2.90m: Strong HCl reaction.	
3	HQ3	133	4		NAM		MW	4.5m: SPTC 50// N = 50+	110	0								4.58-5.00m: 1.09m recovery, core swelling in barrel.	
4	HQ3	132	5		NAM		MW		109	0								5.50-6.00m: 0.6m recovery, core swelling in barrel.	
5	HQ3	131	6		NAM		MW		120	0								7.00m: Strong HCl reaction	
6	HQ3	130	7		NAM		MW		100	0								7.30-8.20m: 0.99 recovery, core swelling in barrel.	
7	HQ3	129			NAM		MW		110	0								7.40m: Strong HCl reaction	

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 73mm and vertical accuracy +/- 74mm.
- A standpipe was installed on 15/10/2025 with a screened interval between 9 to 12m bgl. A vibrating wire piezometer was installed at 11.50m bgl. within the open standpipe on 11/11/2025, Serial No. 378306.
- CS logged from 0.0m to 33m; LM logged from 33.0 to 40.0m.
- Artesian groundwater noted at 12.0m on 08/10/2025 AM. Artesian head measured at 0.5m above ground level.

Shear Vane (ISHSV) Serial No. 3946, calibration constant 1.403.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-10-07 16:05	12.00m	2.20mbgl
2025-10-08 08:05	12.00m	-0.50mbgl
2025-10-08 15:50	20.80m	1.70mbgl
2025-10-09 08:30	20.80m	0.70mbgl
2025-10-09 16:00	30.00m	1.70mbgl
2025-10-10 07:50	30.00m	0.20mbgl
2025-10-10 12:15	33.50m	1.60mbgl
2025-10-13 08:30	33.50m	0.50mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	07/10/2025	Logged:	CS, LM
Method:	Rotary Core Wireline	Easting:	1727513.72	Date completed:	15/10/2025	Input:	L. Mackinnon
Equipment:	CAT 308 8 ton Digger Rig	Northing:	6006070.62	Inclination:	90°	Reviewed:	N. Crampton
Contractor:	Pro-Drill (Auck) Ltd	Ground level:	136.777m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

[illegible]

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 73mm and vertical accuracy +/- 74mm.
2. A standpipe was installed on 15/10/2025 with a screened interval between 9 to 12m bgl. A vibrating wire piezometer was installed at 11.50m bgl, within the open standpipe on 11/11/2025, Serial No. 378306.
3. CS logged from 0.0m to 33m; LM logged from 33.0 to 40.0m.
4. Artesian groundwater noted at 12.0m on 08/10/2025 AM. Artesian head measured at 0.5m above ground level.

Water Level Readings:		
DateTime	Hole Depth	Water Level
2025-10-13 16:45	39.00m	1.20mbgl
2025-10-14 07:50	39.00m	0.20mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	07/10/2025	Logged:	CS, LM
Method:	Rotary Core Wireline	Easting:	1727513.72	Date completed:	15/10/2025	Input:	L. Mackinnon
Equipment:	CAT 308 8 ton Digger Rig	Northing:	6006070.62	Inclination:	90°	Reviewed:	N. Crampton
Contractor:	Pro-Drill (Auck) Ltd	Ground level:	136.777m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
7	HQ3		120			17.00m: ...bluish grey.			105	0		VMS VCS MWS CS VCS ECS	16.00-17.00m: 1.05m recovery, core swelling in barrel. 16.10-16.50m: SZ, distinct fabric dips 20-30°. Sheared dark grey and grey siltstone. Angular calcite clasts up to 10mm.	
	HQ3		119			17.70m: ...Fabric dips 40°.			110	0			17.00-17.40m: CZ, silty fine gravel, subangular to angular. Fabric no preferred orientation, pervasively sheared. Upper contact uncertain, bottom contact 20°. 17.00-18.00m: 1.1m recovery, core swelling in barrel.	
	HQ3		118						120	0			18.00-19.00m: 1.2m recovery, core swelling in barrel. 18.40m: Strong HCl reaction.	
8	HQ3		117		NAM	20.00-20.60m: ...Shear fabric dips 50° with blocks of angular siltstone up to 10mm.	UW		116	0			19.00-20.00m: 1.16m recovery, core swelling in barrel.	
	HQ3		116						100	0			20.50-20.58m: CZ, silty fine angular gravel. Fabric no preferred orientation. Upper and lower contacts 50°. 20.80-21.80m: 1.06m recovery, core swelling in barrel.	
	HQ3		115			21.40m: ...Convoluted fabric. 21.70m: ...Fabric dips 40°.			106	0			21.80-22.50m: 0.8m recovery, core swelling in barrel. 22.04-22.08m: CZ, fine angular gravel. Calcite clasts <3mm. Upper and lower contact 40°.	
9	HQ3		114			22.55m: ...30mm band of dark grey sheared siltstone, dips 40°.			114	0			22.50-23.50m: 1.14m recovery, core swelling in barrel.	
10	HQ3		113			23.53m: ...Convoluted fabric.			100	0			23.50m: Strong HCl reaction.	

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 73mm and vertical accuracy +/- 74mm.
2. A standpipe was installed on 15/10/2025 with a screened interval between 9 to 12m bgl. A vibrating wire piezometer was installed at 11.50m bgl, within the open standpipe on 11/11/2025, Serial No. 378306.
3. CS logged from 0.0m to 33m; LM logged from 33.0 to 40.0m.
4. Artesian groundwater noted at 12.0m on 08/10/2025 AM. Artesian head measured at 0.5m above ground level.

Shear Vane (ISHSV) Serial No. 3946, calibration constant 1.403.

Water Level Readings:

DateTime	Hole Depth	Water Level

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: CAT 308 8 ton Digger Rig
Contractor: Pro-Drill (Auck) Ltd

CO-ORDINATES: NZTM2000
Easting: 1727513.72
Northing: 6006070.62
Ground level: 136.777m (NZVD2016)

Date started: 07/10/2025
Date completed: 15/10/2025
Inclination: 90°
Azimuth: N/A

Logged: CS, LM
Input: L. Mackinnon
Reviewed: N. Crampton
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WWS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
10	HQ3	112	25			24.20-24.30m: ...Small block of muddy limestone. Lower contact 0-10°.			108	0				24.00-25.30m: 1.4m recovery, core swelling in barrel. 24.00m: Strong HCl reaction. 24.30-24.45m: CZ, silty fine angular gravel, calcite clasts <4mm. Fabric no preferred orientation. Upper/lower contact 30°. 24.65-25.00m: CZ, grey clay/silt with calcite clasts <20mm. Fabric no preferred orientation. Top contact 20°, bottom contact uncertain.	
	HQ3	111	26						100	0				26.00m: Strong HCl reaction.	
	HQ3	110	27						114	0				26.30-27.00m: 0.8m recovery, core swelling in barrel.	
11	HQ3	109	28		NAM	27.40-27.70m: ...Dark grey, sheared mudstone band. Upper contact 45° dip, lower contact 10° dip.	UW		108	0				27.00-28.00m: 1.08m recovery, core swelling in barrel.	
	HQ3	108	29			28.65m: ...30mm dark grey, sheared siltstone band. 40° dip.			104	0				28.00-29.10m: 1.14m recovery, core swelling in barrel.	
	HQ3	107	30			29.00m: ...Fabric dips 50°. 29.20m: ...Fabric dips 30°.			103	0				29.10-30.00m: 0.93m recovery, core swelling in barrel.	
12	HQ3	106	31			30.40m: ...Dark grey to black, sheared siltstone band, 20mm thick, dips 20°.			119	0				30.00-30.70m: 0.83m recovery, core swelling in barrel. 30.10-30.30m: CZ, fine angular gravel, minor silt. Fabric dips 50°. Upper/lower contacts dip 50°.	
	HQ3	105				31.30m: ...Fabric dips 20°.			98	0				30.90-31.10m: CZ, silty gravel, light and dark grey with calcite specks, fabric dips 10°.	
13	HQ3	105				31.72m: ...Dark grey, sheared mudstone band, 30mm, dips 0-10°.			126	0				31.50-32.20m: 0.88m recovery, core swelling in barrel. 31.80-31.88m: CZ, fine angular gravel. Fabric no preferred orientation. Upper/lower contacts	

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 73mm and vertical accuracy +/- 74mm.
- A standpipe was installed on 15/10/2025 with a screened interval between 9 to 12m bgl. A vibrating wire piezometer was installed at 11.50m bgl, within the open standpipe on 11/11/2025, Serial No. 378306.
- CS logged from 0.0m to 33m; LM logged from 33.0 to 40.0m.
- Artesian groundwater noted at 12.0m on 08/10/2025 AM. Artesian head measured at 0.5m above ground level.

Shear Vane (ISHSV) Serial No. 3946, calibration constant 1.403.

Water Level Readings:

Date/Time	Hole Depth	Water Level

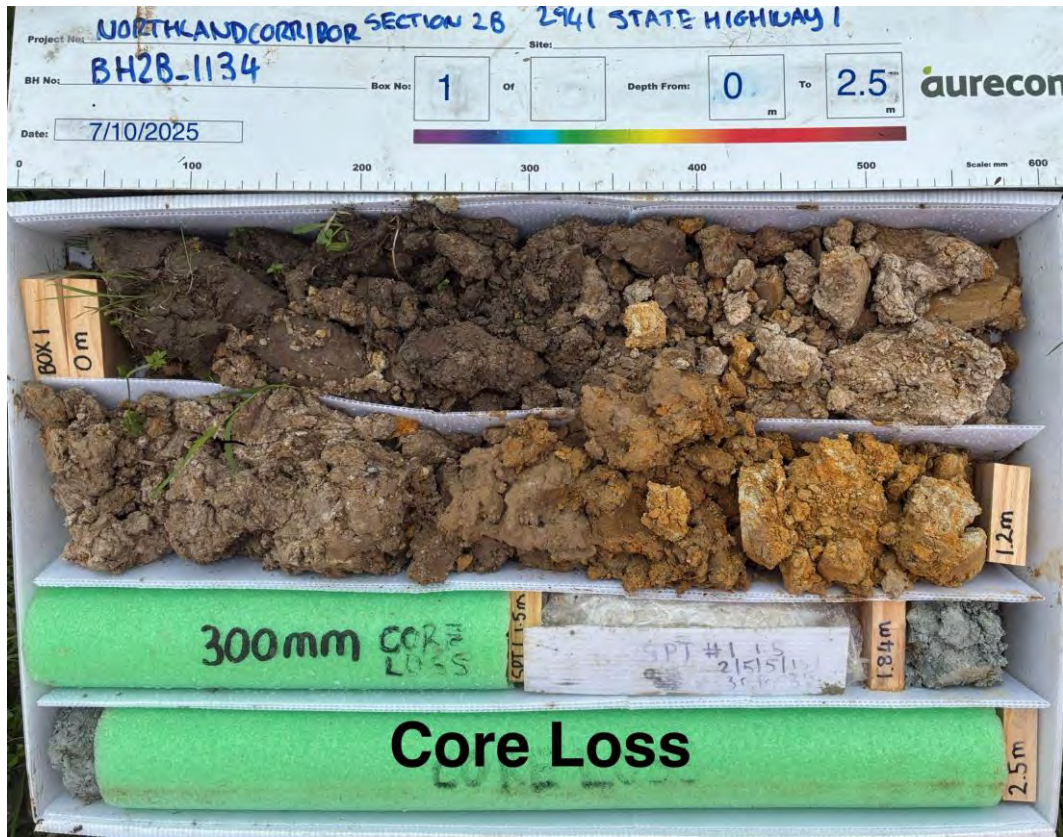
Water Level Readings:		
Date/Time	Hole Depth	Water Level

Borehole Reference: BH2B_1134

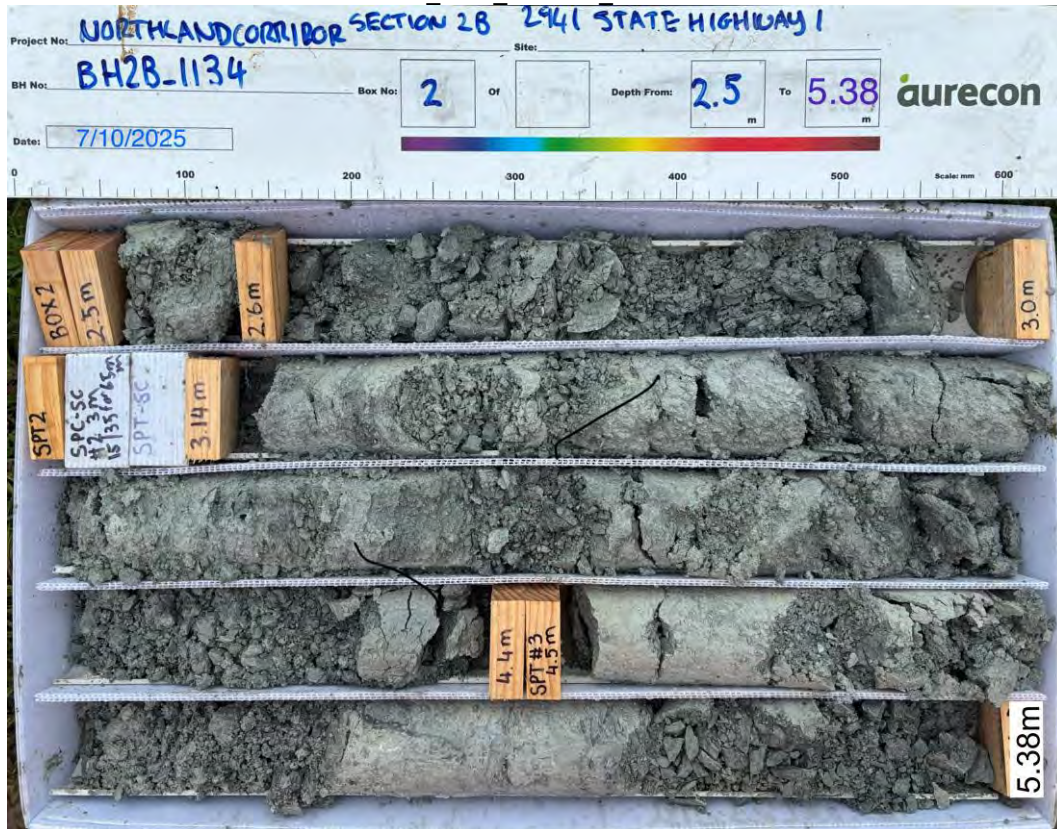
Photographed By:

Date Photographed:

06/10/2025-20/11/2025



BH2B_1134_BOX001_0m-2.5m



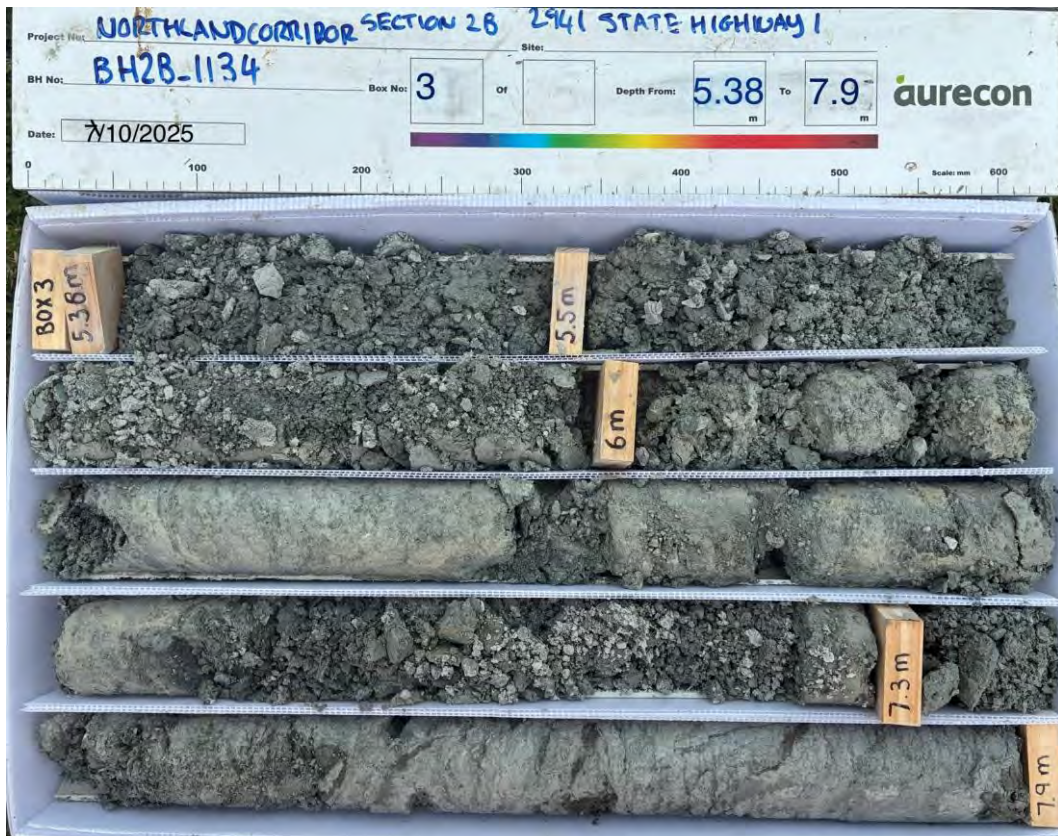
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Borehole Reference: BH2B_1134

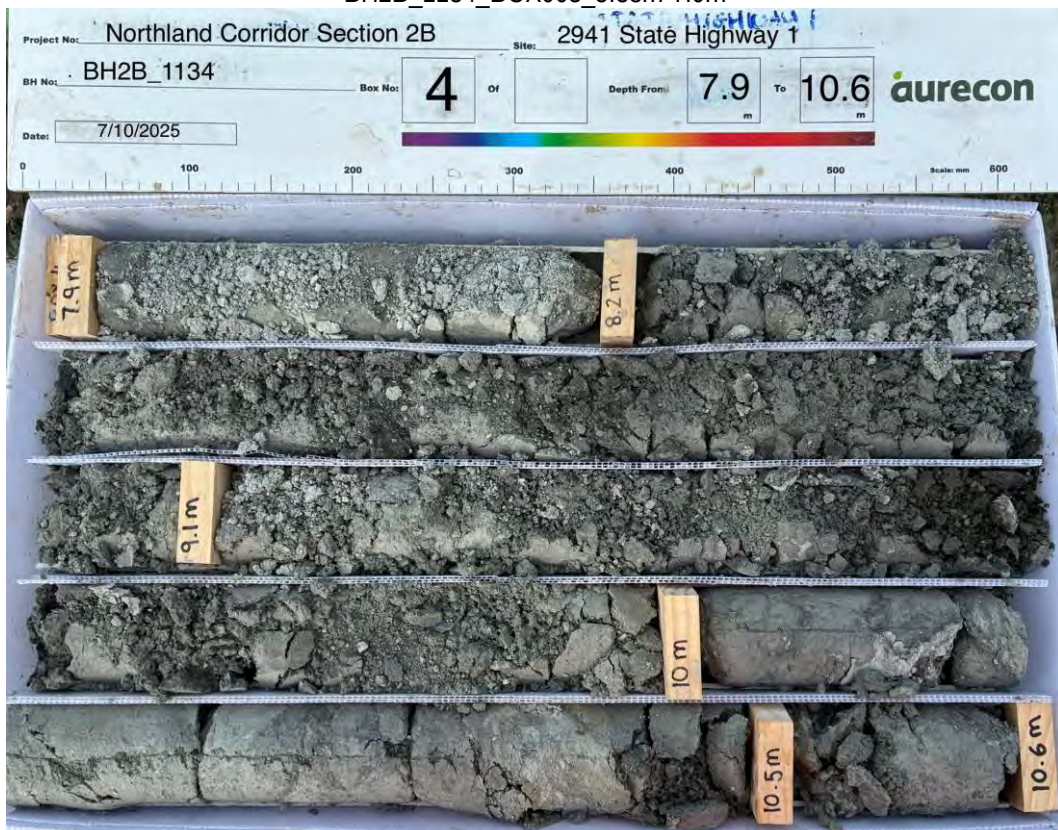
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Date Photographed:

06/10/2025-20/11/2025



BH2B_1134_BOX003_5.38m-7.9m



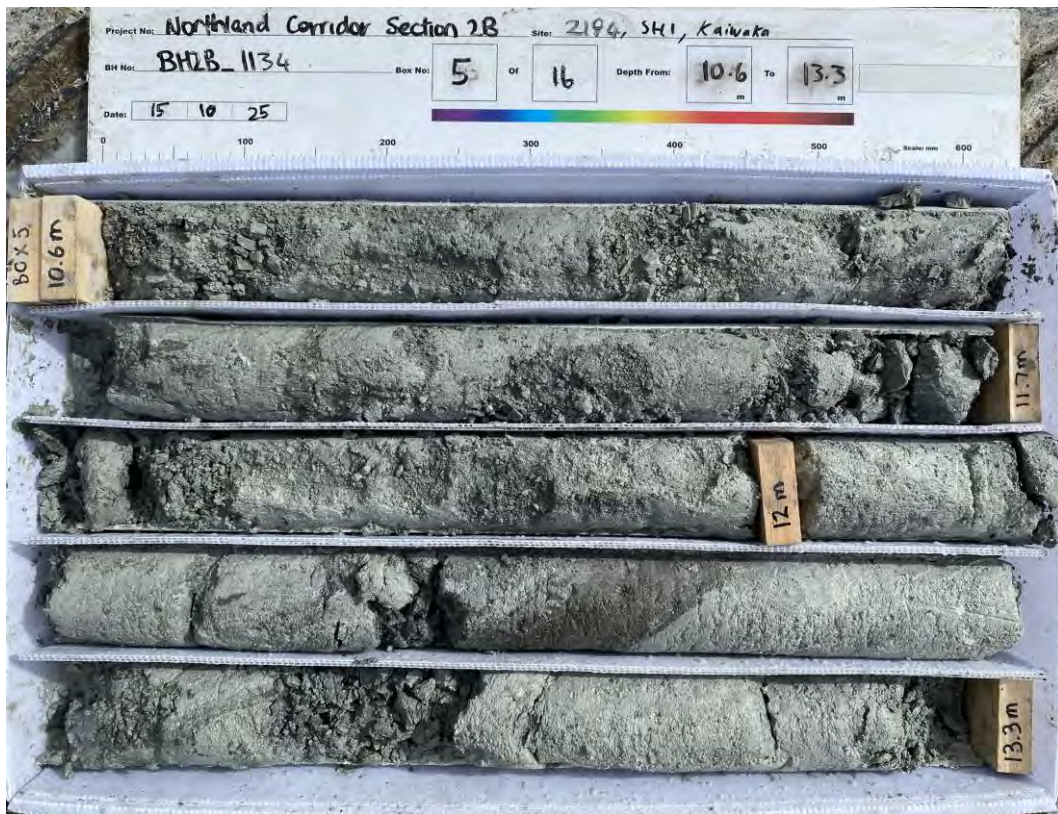
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Borehole Reference: BH2B_1134

Photographed By:

Date Photographed:

06/10/2025-20/11/2025



BH2B_1134_BOX005_10.6m-13.3m



BH2B_1134_BOX006_13.3m-15.92m

Borehole Reference: BH2B_1134

Photographed By:

Date Photographed:

06/10/2025-20/11/2025



BH2B 1134_BOX007_15.92m-18.2m



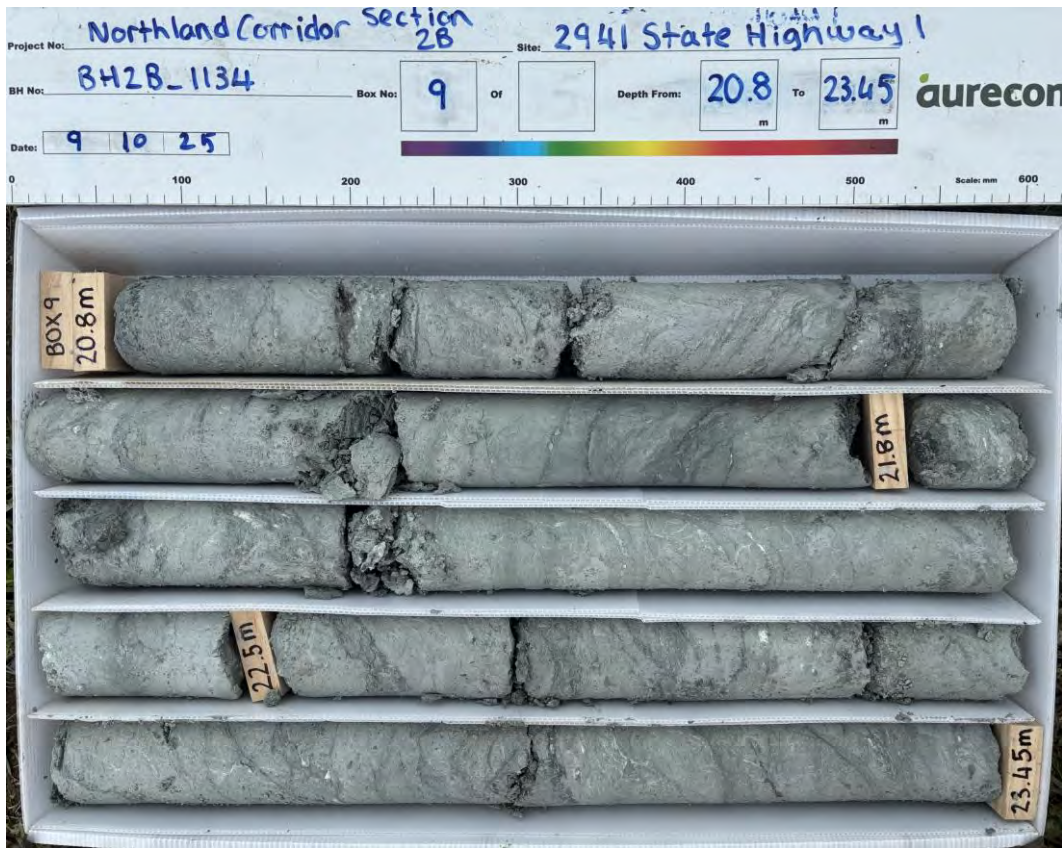
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Borehole Reference: BH2B_1134

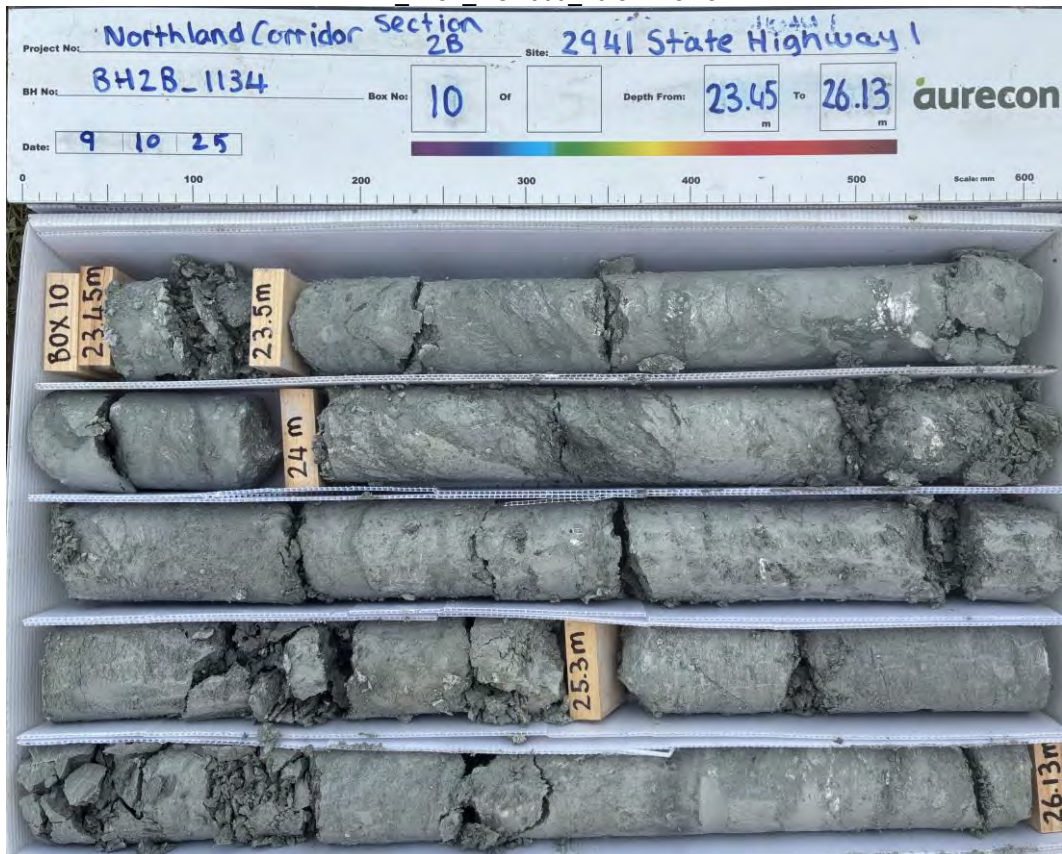
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Date Photographed:

06/10/2025-20/11/2025



BH2B_1134_BOX009_20.8m-23.45m



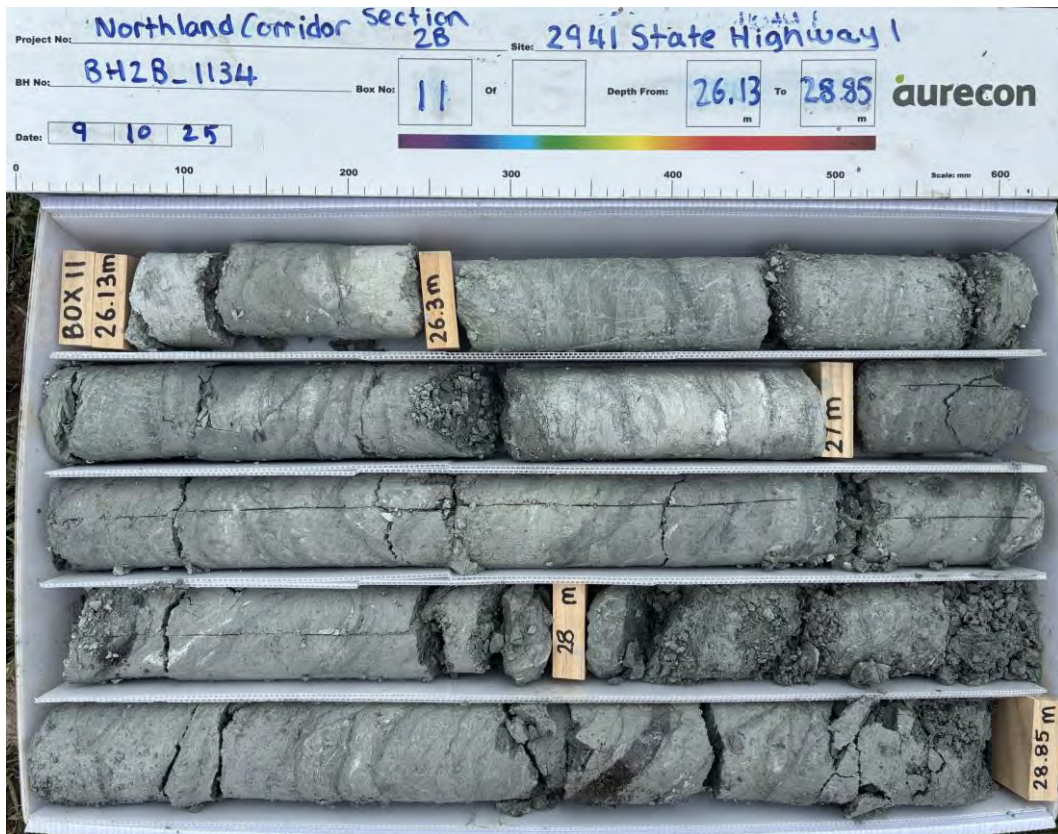
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Borehole Reference: BH2B_1134

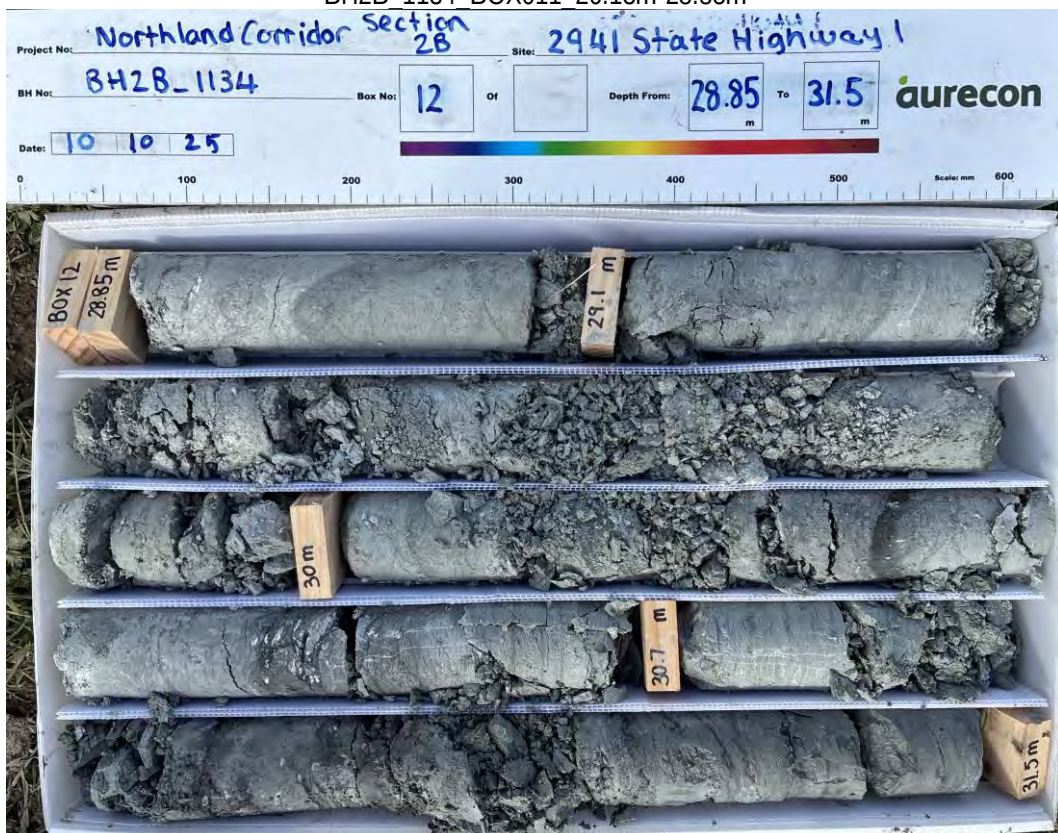
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Date Photographed:

06/10/2025-20/11/2025



BH2B_1134_BOX011_26.13m-28.85m



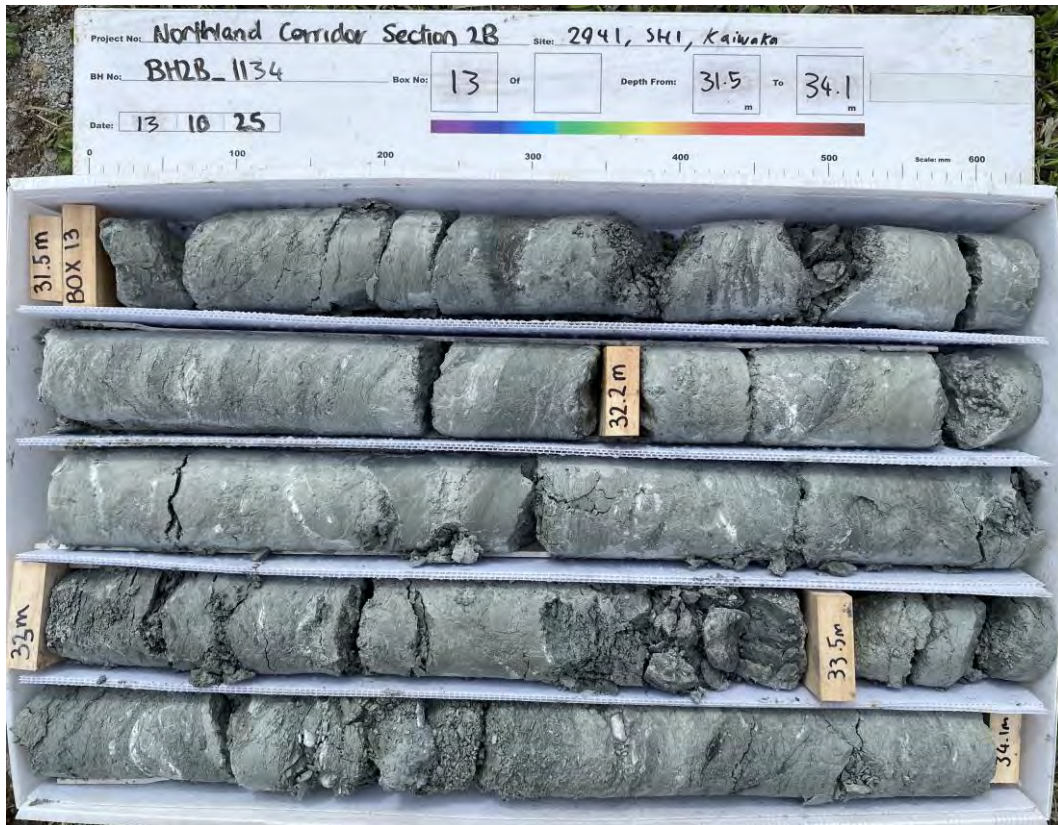
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Borehole Reference: BH2B_1134

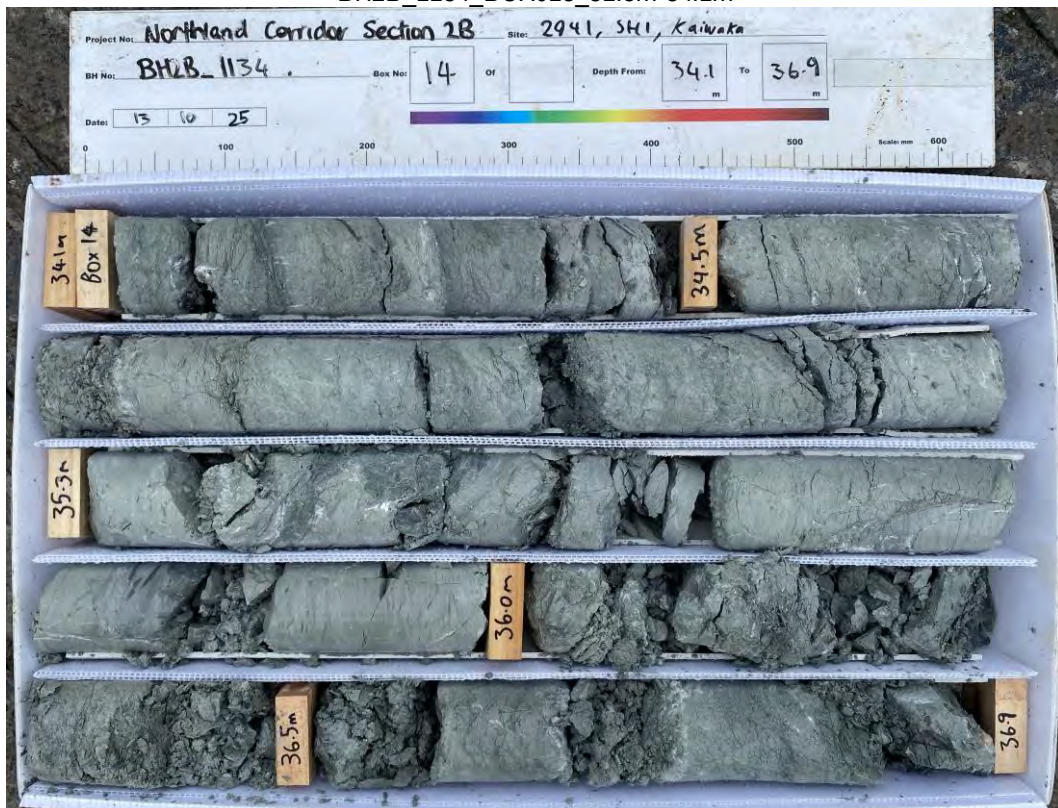
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Date Photographed:

06/10/2025-20/11/2025



BH2B_1134_BOX013_31.5m-34.1m



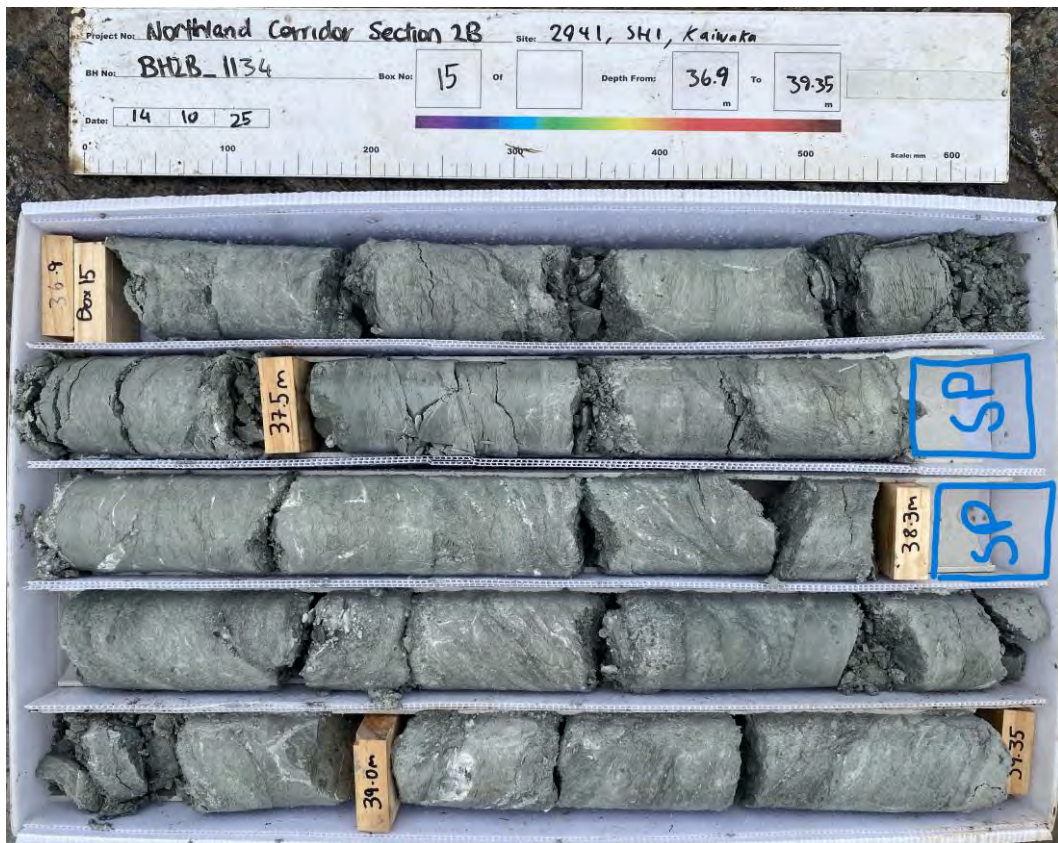
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Borehole Reference: BH2B_1134

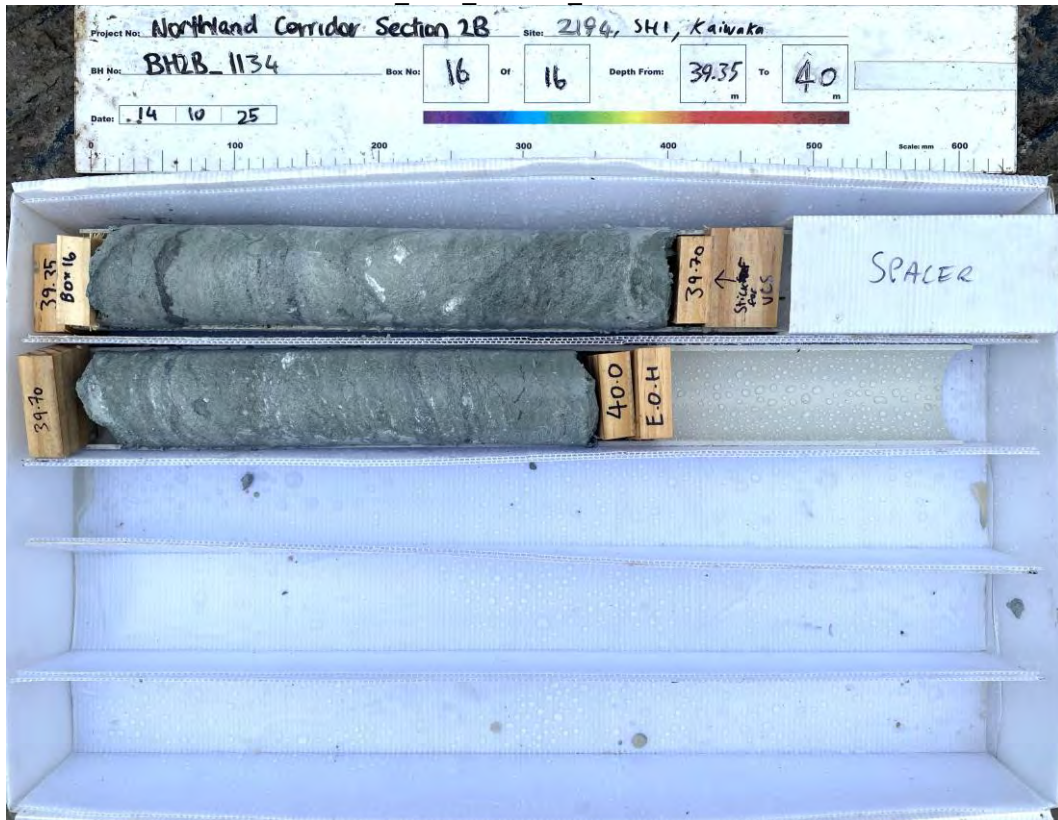
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Date Photographed:

06/10/2025-20/11/2025

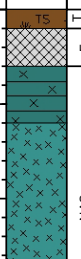
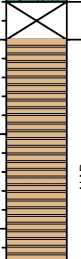
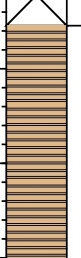
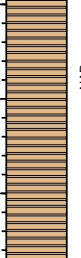
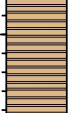


BH2B_1134_BOX015_36.9m-39.35m



BH2B_1134_BOX016_39.35m-40m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/09/2025	Logged: M. Zhang/J. Despoja
Method: Rotary Core Wireline		Easting: 1727490.25mE,		Date Completed: 10/09/2025	Input: M. Zhang/J. Despoja
Equipment: CAT 308 8 ton Digger Rig		Northing: 6004660.81mN,		Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 41.55m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	HA	41	1		TS F NAS	SILT, with some clay, with some rootlets; dark brown. Soft, moist, low plasticity; rootlets less than 3mm thick. [TOPSOIL]. Gravelly SILT; light greyish brown. Soft, moist, low plasticity; gravel, fine to medium, sub-rounded to sub-angular; slightly weathered siltstone [FILL (UNDIFFERENTIATED)]. Silty CLAY; light brownish grey. Soft, moist; high plasticity [NORTHLAND ALLOCHTHON SOILS]. SILT, with some clay; light greyish brown. Very stiff, moist; low plasticity.	RS	0.5m SV BH SV 17/28kPa 1m SV BH SV 144/28kPa 1.5m SV BH SV 130/44kPa 1.8m SV	100	-	-			
2	W	39	2		NAD	1.70m: Light bluish grey, with some fine to medium, sub-rounded to angular gravel. Inferred gravel transition into weathered rock. 1.80-2.0m CORE LOSS (200mm). Loss from washbore. Highly weathered, bluish grey, banded dark grey with occasional chocolate brown mottles, pervasively sheared, calcareous MUDSTONE; extremely weak. Shear fabric is indistinct (breaks down to a Silty CLAY with minor fine angular gravel, stiff, low plasticity) [NORTHLAND ALLOCHTHON DEGRADED ZONE]. 2.45m - 2.65m: Shear fabric dips at 60°.	HW	UTP 2m SPT 1, 2/3, 3, 3, 3 N= 12 3m SPT 2, 3/4, 3, 3, 3 N= 13	0	-	-		2.00m - 4.50m: HCl test, strong reaction	
3	HQ3	38	4		NAD	3.45-3.77m CORE LOSS (320mm). Loss assumed from washout of weathered rock. 3.87m: Bluish grey and mottled reddish brown. 4.85m: Dark grey with grey mottles.	HW	4.5m SPT 1, 3/6, 4, 5, 6 N= 21	41	-	-			
3	HQ3	36	6		NAD	Moderately weathered, grey, banded dark grey with occasional greenish grey mottles, pervasively sheared, calcareous MUDSTONE; very weak. Shear fabric is indistinct (breaks down to a Clayey SILT with minor fine angular gravel, very stiff, low plasticity). 5.90m - 6.00m: Shear fabric dips at 60-70°.	MW	6m SPT 5, 8/9, 10, 10, 10 N= 39	100	100	0		5.00m - 10.00m: HCl test, strong reaction	
3	SPT	34	7		NAD	7.15m - 7.25m: Shear fabric dips at 50-60°.		7.5m SPT 4, 7/8, 7, 6, 8 N= 29	100	100	0			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 47mm and vertical accuracy +/- 65mm.
- A standpipe piezometer installed on 10/09/2025 with a screened interval between 4 to 7m bgl. One vibrating wire piezometer BH2B_1135_PZ01 was installed at 7m bgl within the open standpipe on 16/09/2025, Serial No. 378266.
- Shear Vane Serial No. 1378, calibration constant 1.383.
- No shear vane was conducted at 3m due to presence of gravel within matrix.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
2/09/2025 5:03:00 pm	4.00	0.50
3/09/2025 7:45:00 am	4.00	1.20

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/09/2025	Logged: M. Zhang/J. Despoja
Method: Rotary Core Wireline		Easting: 1727490.25mE,		Date Completed: 10/09/2025	Input: M. Zhang/J. Despoja
Equipment: CAT 308 8 ton Digger Rig		Northing: 6004660.81mN,		Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 41.55m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
4	HQ3	33			NAD	[CONT] Moderately weathered, grey, banded dark grey with occasional greenish grey mottles, pervasively sheared, calcareous MUDSTONE; very weak. Shear fabric is indistinct (breaks down to a Clayey SILT with minor fine angular gravel, very stiff, low plasticity). 8.25m - 8.90m: Shear fabric dips at 45-60°.	MW		100	96	0			
	SPT	9						9m SPT 5, 8//8, 9, 10, 10 N= 37	68	-	-			
	HQ3	32				9.45-10.36m CORE LOSS (990mm). Loss assumed from washout of weathered rock. Evidence of core spin throughout.			13	13	0			
	SPT	31			NAD		MW	10.5m SPT 6, 10//10, 12, 12, 13 N= 47	66	-	-			
5	HQ3	30			NAM	Slightly weathered, light bluish grey, banded dark grey, with occasional greenish grey and chocolate brown bands, pervasively sheared, calcareous MUDSTONE; very weak. Shear fabric is indistinct [NORTHLAND ALLOCHTHON MELANGE MATRIX]. 11.66m - 11.89m: Dark greenish grey staining.	SW		100	100	0		11.00m - 14.00m: HCl test, strong reaction	
	SPT	12						12m SPT 7, 12//11, 7, 7, 8 N= 33	62	-	-		11.46m: JT, 30°, SM, UN, clean	
	HQ3	29							100	100	0		11.65-11.68m: CZ, possibly drilling induced, recovered as fine to medium, angular gravel	
	HQ3	13							100	100	0			
6	SPT	28					SW	13.5m SPT 5, 10//12, 12, 14, 12 for 60mm N = 50+	86	-	-			
	HQ3	14				13.94-14.15m CORE LOSS (210mm). Loss assumed from washout of weathered rock.			52	52	0			
	HQ3	27				Slightly weathered, light bluish grey, banded dark grey, with occasional greenish grey and chocolate brown bands, pervasively sheared, calcareous MUDSTONE; very weak. Shear fabric is indistinct. 14.60m - 15.00m: Shear fabric dips at 60-70°.			100	96	0			
	SPT	15				14.90m - 15.00m: Greenish grey with laminated chocolate brown bands.	SW	15m SPT 6, 8//8, 10, 20, 12 for 20mm N = 50+	75	-	-		15.00m - 18.00m: HCl test, strong reaction	
	HQ3	26				15.30m - 15.85m: Bluish grey, mottled yellowish brown and brown. Oxidised zone.			100	83	0			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 47mm and vertical accuracy +/- 65mm.
- A standpipe piezometer installed on 10/09/2025 with a screened interval between 4 to 7m bgl. One vibrating wire piezometer BH2B_1135_PZ01 was installed at 7m bgl within the open standpipe on 16/09/2025, Serial No. 378266.
- Shear Vane Serial No. 1378, calibration constant 1.383.
- No shear vane was conducted at 3m due to presence of gravel within matrix.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
3/09/2025 5:00:00 pm	14.40	0.00
4/09/2025 7:56:00 am	14.40	0.50

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 02/09/2025	Logged: M. Zhang/J. Despoja
Method: Rotary Core Wireline	Easting: 1727490.25mE,	Date Completed: 10/09/2025	Input: M. Zhang/J. Despoja	
Equipment: CAT 308 8 ton Digger Rig	Northing: 6004660.81mN,	Inclination: 90	Reviewed: B. O'Loughlin	
Contractor: Pro-Drill (Auck) Ltd	Ground level: 41.55m (NZVD2016)	Azimuth: N/A	Verified: A. George	

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL					
6	HQ3				NAM	[CONT] Slightly weathered, light bluish grey, banded dark grey, with occasional greenish grey and chocolate brown bands, pervasively sheared, calcareous MUDSTONE; very weak. Shear fabric is indistinct.	SW	16.9m SPT 6, 8//8, 8, 8, 15 N= 39	100	83	0	WS VS MS MWS CS VCS ECS							
	SC	25		0		-			-										
		17																	
	HQ3	24		100		100			0										
7	HQ3							Slightly weathered, light grey, grey, banded dark grey, displaced bedding structure, sheared, intermixed calcareous MUDSTONE (dark grey) and SILTSTONE (light grey); very weak. Thinly laminated; shear fabric dips at 30-40°; closely spaced incipient joints throughout.		18m SPT 8, 12//15, 15, 20 N= 50	100				100	0			
	SC	18		0		-		-											
		23																	
	HQ3	23		100		100		0											
8	HQ3							18.38m - 18.50m: Carbonaceous laminae (2mm thick), very closely spaced, sub-vertical orientation.		19.9m SPT 8, 10//14, 16, 20 N= 50	100				100	0			
	SC	22		0		-		-											
		20																	
	HQ3	21		100		100		0											
9	SPT					18.77m - 18.82m: Calcitic clasts (65mm diameter). Slightly weathered, whitish grey, pervasively incipient fractured, silty LIMESTONE (IMPURE); weak. Breaks down to a sandy silt matrix and fine to medium gravel-sized clasts.		21m SPT 5, 6//12, 13, 18, 7 for 30mm N = 50+	94	-	-								
		22																	
		21																	
	HQ3	21		100	100	0													
	SPT					19.30m - 19.50m: Unweathered, whitish grey, banded grey, sheared Silty LIMESTONE; very weak. (200mm).		22.9m SPT 8, 8//8, 6, 5, 4 N= 23	62	-	-								
		20																	
		22		100	100	0													
		19																	
		23																	
	HQ3	18		100	100	0													
19.92-20.20m: CZ, 60°, recovered as sandy fine to coarse gravel throughout 19.88m - 24.00m: FCI test, strong reaction throughout 20.60-20.68m: CZ, 60°, recovered as sandy fine to coarse gravel 20.85-20.95m: CZ, 60°, recovered as sandy fine to coarse gravel 22.95m - 24.00m: Core swell (150mm)																			

REMARKS:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 47mm and vertical accuracy +/- 65mm.
2. A standpipe piezometer installed on 10/09/2025 with a screened interval between 4 to 7m bgl. One vibrating wire piezometer BH2B_1135_PZ01 was installed at 7m bgl within the open standpipe on 16/09/2025, Serial No. 378266.
3. Shear Vane Serial No. 1378, calibration constant 1.383.
4. No shear vane was conducted at 3m due to presence of gravel within matrix.

Water Level Readings:

DateTime	Hole Depth (m)	Water Level (m)
8/09/2025 9:15:00 am	19.88	0.30

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/09/2025		Logged: M. Zhang/J. Despoji	
Method: Rotary Core Wireline		Easting: 1727490.25mE,		Date Completed: 10/09/2025		Input: M. Zhang/J. Despoji	
Equipment: CAT 308 8 ton Digger Rig		Northing: 6004660.81mN,		Inclination: 90		Reviewed: B. O'Loughlin	
Contractor: Pro-Drill (Auck) Ltd		Ground level: 41.55m (NZVD2016)		Azimuth: N/A		Verified: A. George	

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
9	SPT	17				Slightly weathered, brownish grey, with bands of brown, reddish brown, and bluish grey, pervasively sheared, calcareous SILTSTONE and MUDSTONE; very weak. Shear fabric dips at 60-70°.		24m SPT 12, 13/18, 16, 16 N = 50	96	-	-		24.00m - 25.20m: HCl test, moderate reaction on calcareous Siltstone. Strong reaction on calcareous Mudstone	
	HQ3	25							100	100	0		24.38m - 25.50m: Core swell (200mm)	
10	SPT	16				25.20m - 25.50m: Pervasively sheared SILTSTONE block. 25.50m - 25.80m: Shear fabric dips at 20-30°.		25.5m SPT 9, 14/15, 18, 17 for 65mm N = 50+	100	-	-		25.20m - 25.50m: HCl test, no reaction	
	HQ3	26							100	100	0			
11	HQ3	15				Slightly weathered, greyish brown, with bands of reddish brown, pervasively sheared, calcareous MUDSTONE; very weak; intermixed with minor bands of pervasively sheared, siltstone; bluish grey (10%). Shear fabric dips at 50-60°.	SW	27m SPT 12, 17/20, 20, 10 for 30mm N = 50+	100	100	0		26.40m - 27.00m: Core swell (650mm) 26.45m - 27.00m: HCl test, strong reaction throughout	
	SPT	27							100	-	-		27.00m - 29.95m: HCl test, strong reaction throughout	
													27.33m - 28.50m: Core swell (350mm)	
12	HQ3	14				Slightly weathered, bluish grey, with bands of reddish brown, pervasively sheared, calcareous SILTSTONE and MUDSTONE; very weak. Breaks down to a Silty fine gravel or a Gravelly silt. Shear fabric dips at 60-70°. 27.63m - 27.93m: Shear fabric dips at 45-55°.		28.5m SPT 11, 14/18, 20, 12 for 40mm N = 50+	76	-	-		29.22m - 30.00m: Core swell (520mm)	
	SPT	13							100	100	0			
13	HQ3	12				29.50m - 29.95m: Shear fabric dips at 50-60°.		30m SPT 13, 16/21, 23, 6 for 20mm N = 50+	100	100	0		29.95m - 32.00m: HCl test, strong reaction throughout 30.00m - 30.32m: Core swell (50mm)	
	SPT	30							100	-	-		30.57m - 31.50m: Core swell (270mm)	
													30.70m - 31.00m: HCl test, moderate HCl reaction on clasts in brecciated fabric	
14	HQ3	11				Slightly weathered, brownish grey and reddish brown, pervasively sheared, calcareous MUDSTONE; very weak; intermixed with lenses of pervasively sheared fine to coarse gravel-sized clasts of silty limestone and calcareous siltstone. Shear fabric dips at 45-55°. 30.70m - 31.00m: Brecciated fabric, intermixed with fine to coarse gravel-sized calcareous siltstone clasts. 30.95m - 31.20m: Brecciated fabric, intermixed with fine to coarse gravel-sized, silty limestone clasts.		31.5m SPT 14, 20/27, 23 for 65mm N = 50+	100	100	0			
	SPT	10							97	-	-			
									100	100	0			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 47mm and vertical accuracy +/- 65mm.
- A standpipe piezometer installed on 10/09/2025 with a screened interval between 4 to 7m bgl. One vibrating wire piezometer BH2B_1135_PZ01 was installed at 7m bgl within the open standpipe on 16/09/2025, Serial No. 378266.
- Shear Vane Serial No. 1378, calibration constant 1.383.
- No shear vane was conducted at 3m due to presence of gravel within matrix.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
8/09/2025 4:00:00 pm	27.33	5.80
9/09/2025 10:20:00 am	27.33	6.10

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/09/2025	Logged: M. Zhang/J. Despoja
Method: Rotary Core Wireline		Easting: 1727490.25mE,		Date Completed: 10/09/2025	Input: M. Zhang/J. Despoja
Equipment: CAT 308 8 ton Digger Rig		Northing: 6004660.81mN,		Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 41.55m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
13	HQ3	9			NAM	Slightly weathered, bluish grey with bands of reddish brown, calcareous SILTSTONE and MUDSTONE; very weak; intermixed with pervasively sheared, fine to coarse gravel-sized clasts of silty limestone. Shear fabric dips at 80-85°.	SW	33m SPT 9, 12/15, 15, 20 N= 50	100	100	0	WS MS CS VCS EC	32.00m - 33.80m: HCl test, strong reaction throughout	
	SPT	33				33.00m - 33.38m: Shear fabric dips at 60-70°.			75	-	-			
	HQ3	8				Slightly weathered, dark brownish grey, mottled grey and bands of reddish brown, pervasively sheared, SILTSTONE and MUDSTONE; very weak to extremely weak. Breaks down to a Clayey SILT with some gravel; fine to coarse, angular, siltstone gravel.			100	100	0		33.38m - 34.82m: HCl test, no reaction throughout	
	HQ3	34							90	90	0			
14	SPT	7				34.36m - 34.40m: Shear fabric dips at 30-40°.		34.5m SPT 13, 20/21, 21, 8 for 15mm N = 50+	100	-	-		34.50m - 34.82m: Core swell (105mm)	
		35				End Of Hole: 34.82m								
		6												
		36												
		5												
		37												
		4												
		38												
		3												
		39												
		2												

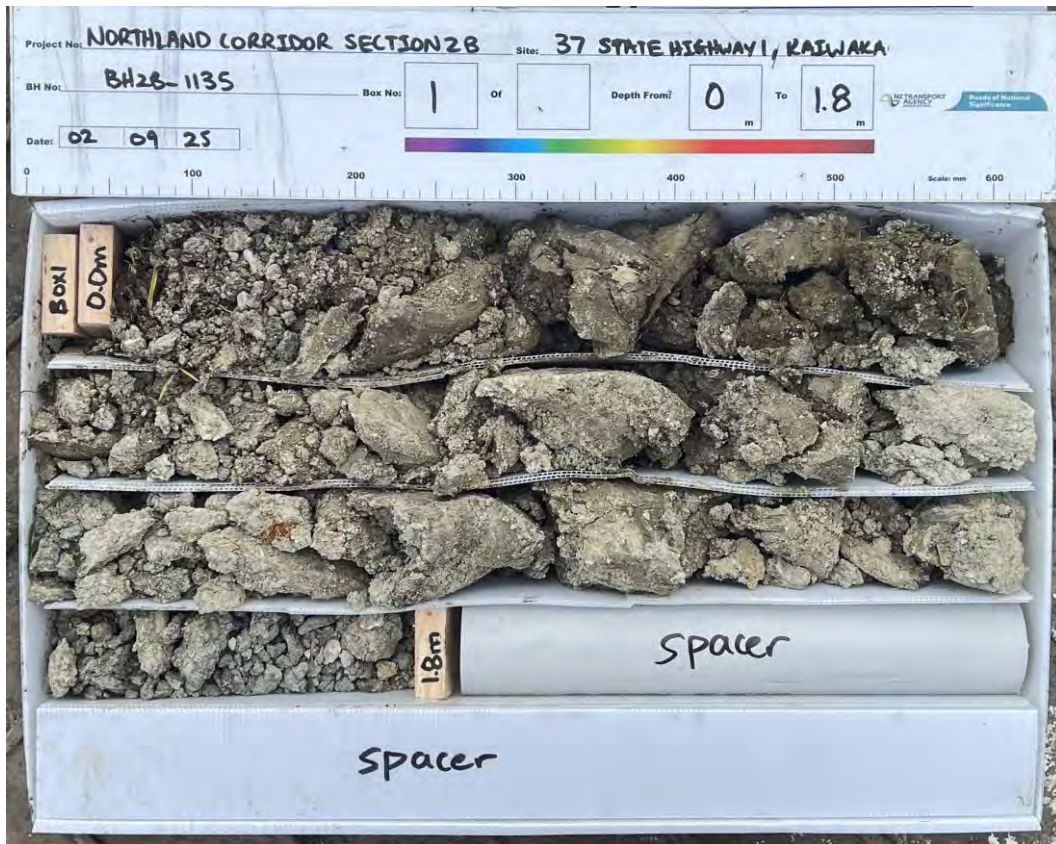
REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 47mm and vertical accuracy +/- 65mm.		DateTime	Hole Depth (m)	Water Level (m)
2. A standpipe piezometer installed on 10/09/2025 with a screened interval between 4 to 7m bgl. One vibrating wire piezometer BH2B_1135_PZ01 was installed at 7m bgl within the open standpipe on 16/09/2025, Serial No. 378266.		9/09/2025 4:45:00 pm	34.82	7.20
3. Shear Vane Serial No. 1378, calibration constant 1.383.				
4. No shear vane was conducted at 3m due to presence of gravel within matrix.				

Borehole Reference: BH2B_1135

Photographed By: JD

Date Photographed:

02/09/2025-10/09/2025



BH2B_1135_BOX001_0m-1.8m



BH2B_1135_BOX002_1.8m-4.95m

Borehole Reference: BH2B_1135

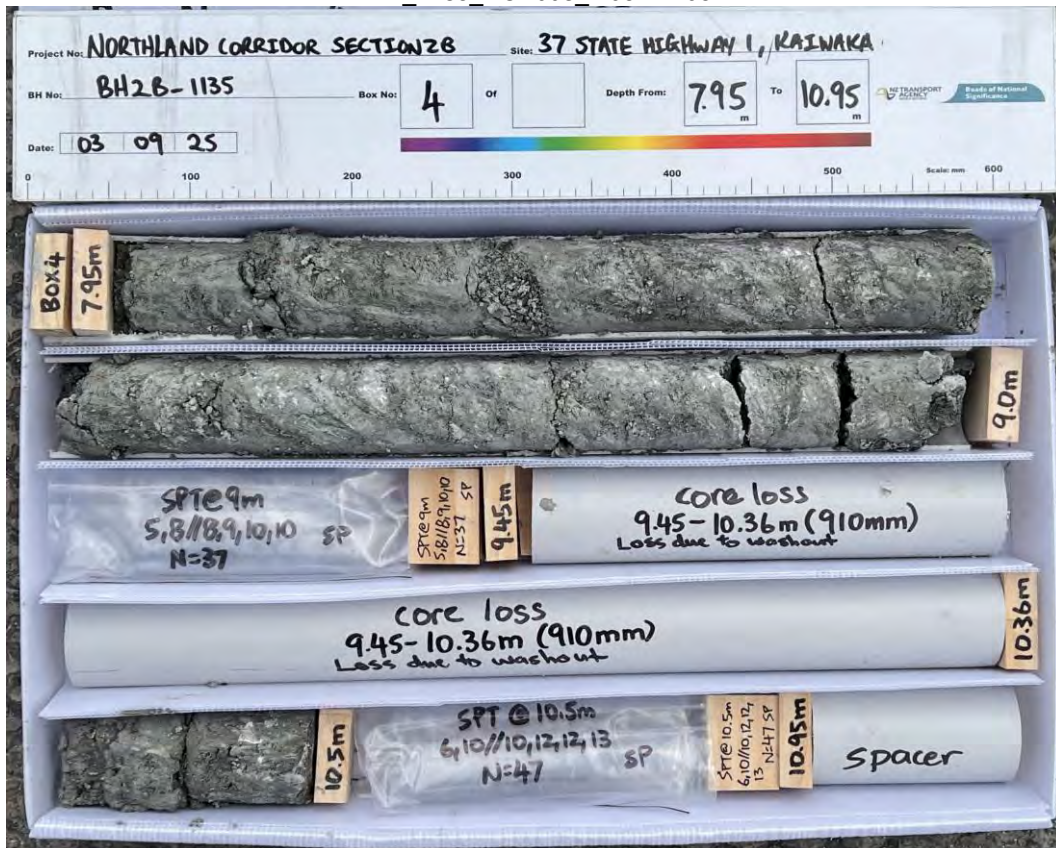
Photographed By: JD

Date Photographed:

02/09/2025-10/09/2025



BH2B_1135_BOX003_4.95m-7.95m



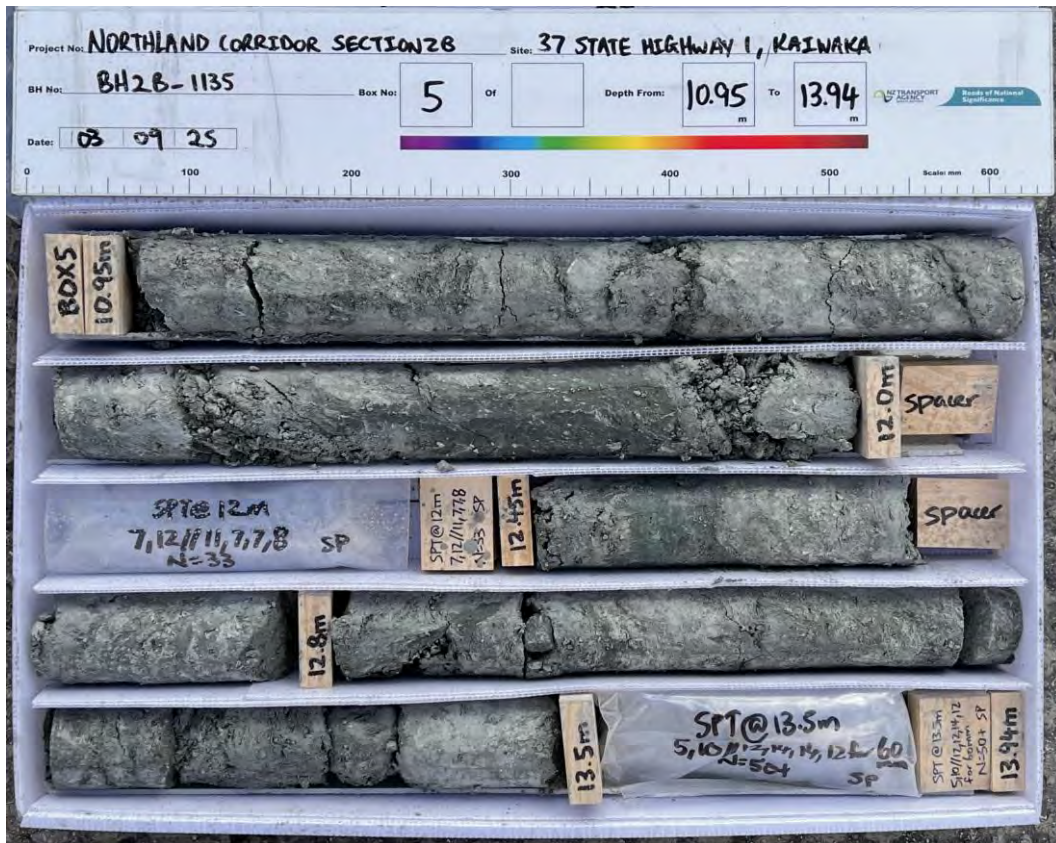
BH2B_1135_BOX004_7.95m-10.95m

Borehole Reference: BH2B_1135

Photographed By: JD

Date Photographed:

02/09/2025-10/09/2025



BH2B_1135_BOX005_10.95m-13.94m



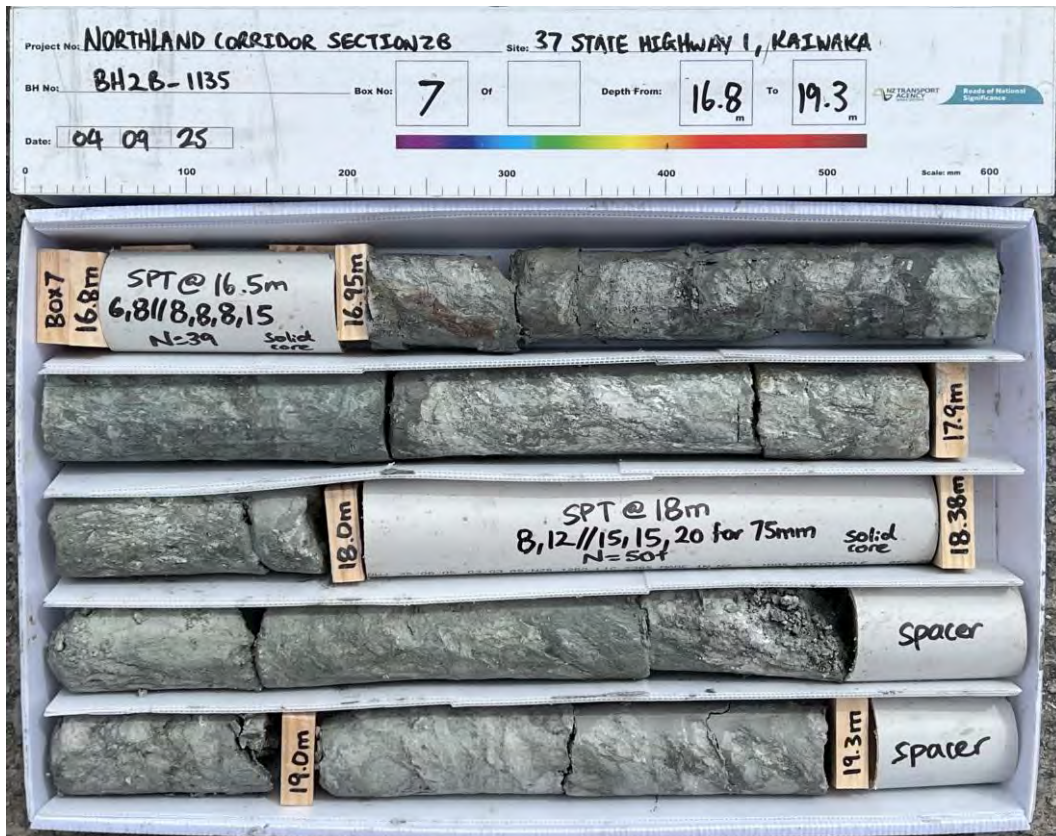
BH2B_1135_BOX006_13.94m-16.8m

Borehole Reference: BH2B_1135

Photographed By: JD

Date Photographed:

02/09/2025-10/09/2025



BH2B_1135_BOX007_16.8m-19.3m



BH2B_1135_BOX008_19.3m-21.95m

Borehole Reference:

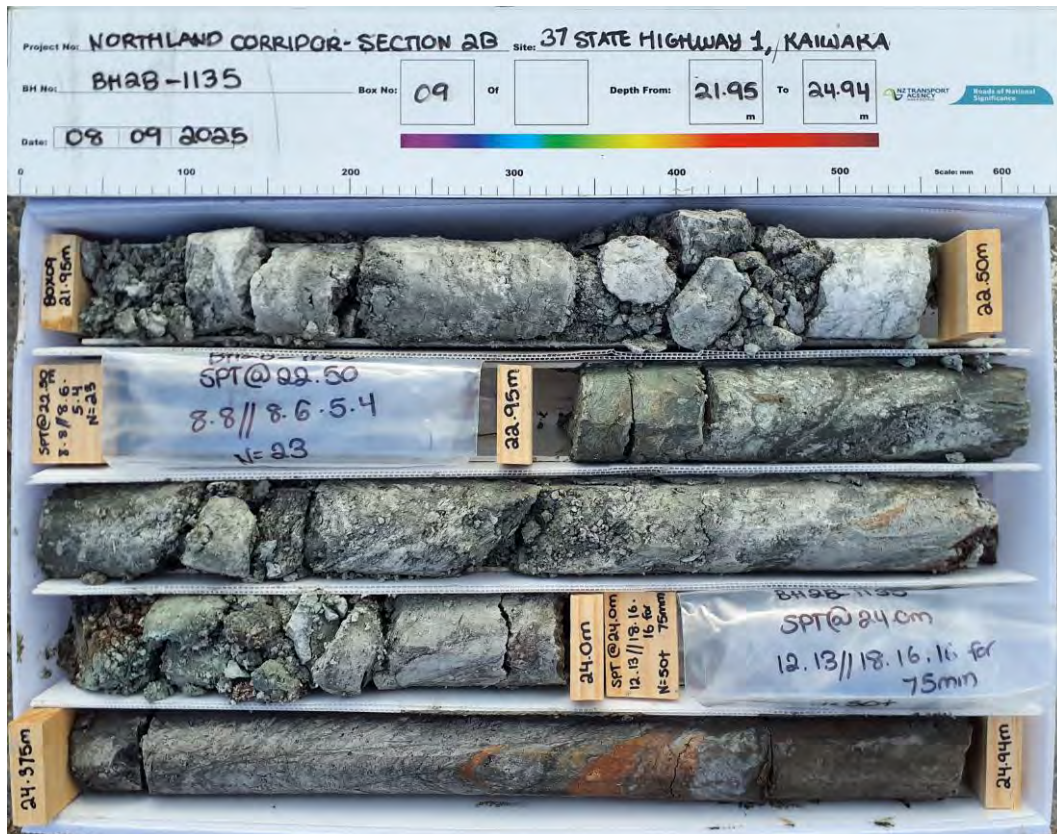
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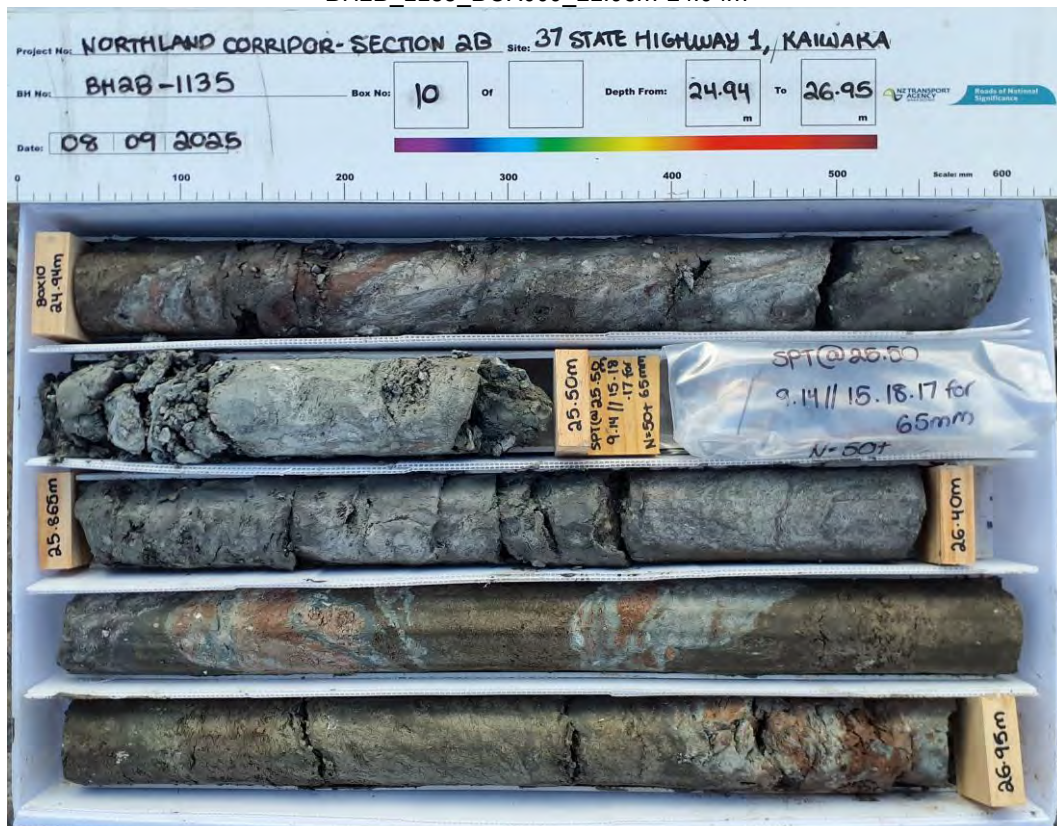
JD

Date Photographed:

02/09/2025-10/09/2025



BH2B_1135_BOX009_21.95m-24.94m



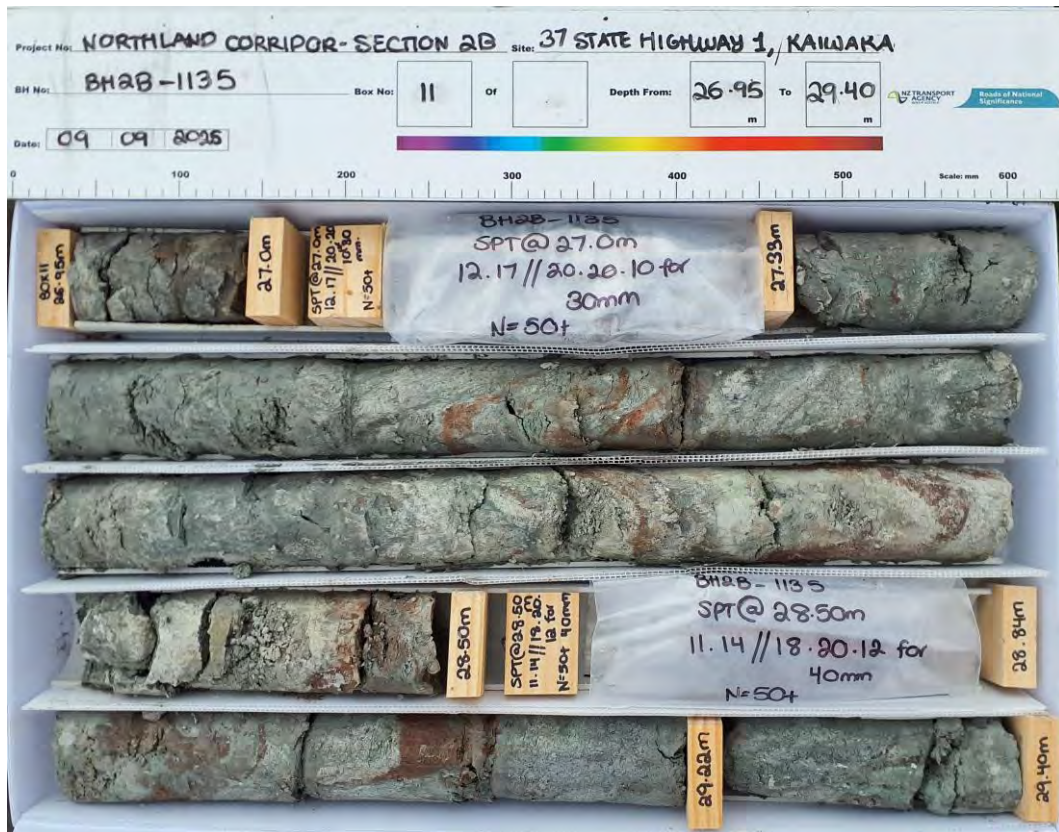
BH2B_1135_BOX010_24.94m-26.95m

Borehole Reference: BH2B_1135

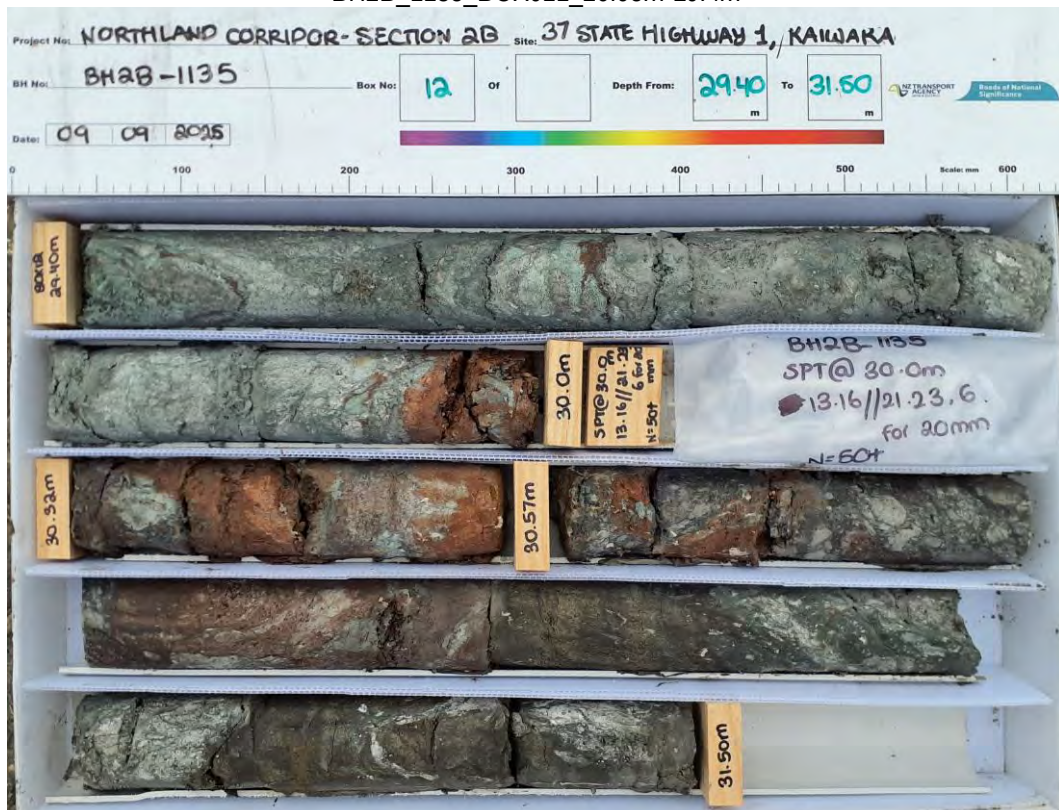
Photographed By: JD

Date Photographed:

02/09/2025-10/09/2025



BH2B_1135_BOX011_26.95m-29.4m



BH2B_1135_BOX012_29.4m-31.5m

Borehole Reference:

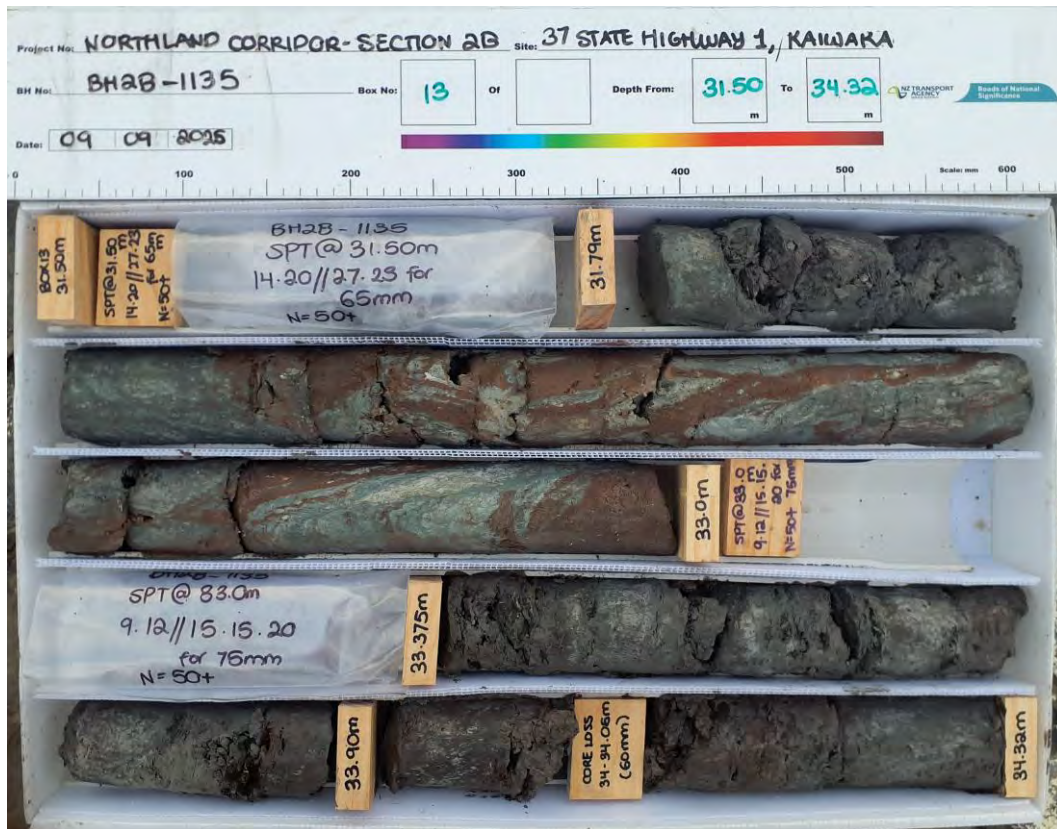
BH2B_1135

Photographed By:

JD

Date Photographed:

02/09/2025-10/09/2025



BH2B_1135_BOX013_31.5m-34.32m



BH2B_1135_BOX014_34.32m-34.82m

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BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Techdrill 250 HD
Contractor: Drill Force NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727785.95
Northing: 6009471.75
Ground level: 148.01m (NZVD2016)

Date started: 11/11/2025
Date completed: 21/11/2025
Inclination: 90°
Azimuth: N/A

Logged: A. Pola / J. Oliveira
Input: A. Pola / J. Oliveira
Reviewed: C. Parkes
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WMS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
3	HQ3	140							100						
	HQ3								100						
	HQ3								100						
	HQ3								100						
4	SPT	139	9			8.65m: ...Seam of white weak gravels.		9m: SPT 1, 0// 1, 2, 1, 2 N = 6	100						
	HQ3								100						
	HQ3	138	10			9.65m: ...Light brown mottled orange brown. Low plasticity.			100						
	HQ3					9.95m: ...Stiff.	CW		94						
5	SPT	137	11					10.5m: SPT 1, 2// 3, 3, 3, 6 N = 15	100						
	HQ3														
	HQ3	136	12			11.31m: ...Very stiff			79						
	SPT	136	12		WPR	11.87m: CORE LOSS: (130mm) Core assumed washed out									
6	HQ3	135	13			12.00m: Clayey SILT with minor sand; red brown mottled light brown. Stiff, moist, low plasticity. Minor highly weathered GREYWACKE SILTSTONE gravels. Relict beds with manganese oxide staining. Sand, fine.	CW	12m: SPT 1, 3// 6, 5, 6, 10 N = 27	100						
	HQ3								100						
	HQ3	134	14			12.95m: ...Soft			60						
	SPT	134	14			13.20m: CORE LOSS: (300mm) Core assumed washed out									
7	HQ3	133	15			13.50m: Clayey SILT with minor sand and gravels; red brown mottled light brown. Stiff, moist, low plasticity. Minor highly weathered GREYWACKE SILTSTONE gravels. Relict beds with manganese oxide staining. Sand, fine.	CW	13.5m: SPT 3, 5// 6, 8, 10, 12 N = 36	100						
	HQ3								100						
	HQ3					14.28-14.33m: ...Zone of moderately weathered GREYWACKE SILTSTONE. Recovered as coarse angular gravel.			27						
	HQ3					14.33m: CORE LOSS: (220mm) Core assumed washed out									
8	SPT	133	15			14.55m: Clayey SILT with minor sand; red brown mottled light brown. Stiff, moist, low plasticity. Minor highly weathered GREYWACKE SILTSTONE gravels. Relict beds with manganese oxide staining. Sand, fine.	CW	15m: SPT 2, 4// 6, 7, 8, 13 N = 34	100						
	HQ3								100						
	HQ3								100						
	HQ3								100						

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 90mm.
2. One vibrating wire piezometer was installed on 21/11/2025. BH2B_1136_PZ01 was installed at 20.95m bgl, Serial No. 378293.
3. AP logged from 0.0 to 19.82; JO logged from 19.82 to 54.0.
4. RQD, SCR and defect spacing were assessed ignoring Incipient Fractures with high tensile strength within Waipapa Group Greywacke. Incipient Fractures with low tensile strength have been included in RQD, SCR and defect spacing assessment in accordance with logging guidance.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-11-17 10:30	19.62m	12.67mbgl
2025-11-17 16:30	27.00m	3.47mbgl
2025-11-18 07:40	27.00m	11.29mbgl
2025-11-19 08:46	37.50m	11.06mbgl
2025-11-20 07:45	43.50m	12.23mbgl
2025-11-20 16:25	54.00m	4.56mbgl

Logged:	A. Pola / J. Oliveira
Input:	A. Pola / J. Oliveira
Reviewed:	C. Parkes
Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG VWS MWS CS VCS ECS	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
6	HQ3	132			WPR		CW	16.5m: SPT 3, 4// 6, 7, 9, 19 N = 41	100					
	SPT								100					
	HQ3	131	17						100	100	0			
	HQ3								93	93	0			
7	SPT	130	18		WPH	16.90m: Highly weathered, light grey and orange brown, GREYWACKE SILTSTONE. Very weak. Relict incipient fractures, low tensile strength, very closely spaced. Manganese oxide and iron oxide staining along relict joints. Core disintegrates under firm blow of hammer. [HIGHLY WEATHERED GREYWACKE] 17.25-17.55m: ...Clayey SILT, stiff	HW	18m: SPT 1, 3// 10, 15, 19 for 70mm N = 50+	100					
	HQ3													
	HQ3													
	SPT								100					
	HQ3	129	19						100	100	0			
	SPT								0					
	HQ3	128	20						100	100	100			
	SPT	127	21						0					
8	HQ3	126	22		WPM	21.20m: Moderately weathered, light grey and light brown, GREYWACKE SANDSTONE. Weak. Pervasive incipient fractures with low tensile strength, very closely spaced. Iron oxide staining along incipient fracture surfaces. Core disintegrates under firm blow of hammer and during handling. [MODERATELY WEATHERED GREYWACKE]	MW	21m: SPTC 15, 20// 50 for 60mm N = 50+	100	81	81			
	SPT													
	HQ3													
	SPT													
9	HQ3	125	23		WPM	21.90m: Moderately weathered, light grey and light brown, GREYWACKE SILTSTONE. Weak. Pervasive incipient fractures with low tensile strength, very closely spaced with truncating trends generally at 15-20° and 60-80°. Iron oxide staining along incipient fracture surfaces. Core disintegrates under firm blow of hammer and during handling.	MW		100	100	100			
	SPT													
	HQ3													
	SPT													
9	HQ3					23.00-23.47m: ...Very fine sandstone, transition from siltstone.							23.00m: VE, 80-85°, highly weathered quartz vein up to 5mm wide.	
						23.73m: Moderately weathered, grey and brown, GREYWACKE SANDSTONE. Weak. Pervasive incipient fractures with low tensile strength, very closely spaced with truncating trends generally at 15-20° and 60-80°. Iron oxide staining along incipient fracture surfaces. Core disintegrates under firm blow of hammer and during handling.	MW						23.73m: JT, 35°, PI, FeO Cg 3mm wide.	

DateTime	Hole Depth	Water Level
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NZ TRANSPORT AGENCY WIKIKA KOTIRANI ROADS OF NATIONAL SIGNIFICANCE Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: Zone 2, SH1 Shoulder Brynderwyns Project Reference: Aurecon WSP JV										BH2B_1136		
Sheet 4 of 7														
BOREHOLE INFORMATION Method: Rotary Core Wireline Equipment: Techdrill 250 HD Contractor: Drill Force NZ Ltd					CO-ORDINATES: NZTM2000 Easting: 1727785.95 Northing: 6009471.75 Ground level: 148.01m (NZVD2016)					Date started: 11/11/2025 Date completed: 21/11/2025 Inclination: 90° Azimuth: N/A			Logged: A. Pola / J. Oliveira Input: A. Pola / J. Oliveira Reviewed: C. Parkes Verified: A. George	
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
9	HQ3	124			WPM	25.00-25.32m: ...Rock recovered mainly as fine to coarse sand and fine to coarse gravel amongst high density of steep and subvertical truncating incipient fractures.	MW		100	58	58	WVS WS MWS US CS ECS	24.72m: JT, 45°, Pl, FeO and MnO Vn. 24.98-25.19m: JT, 60°-80°, Un, sand and clay infill 1-2mm. 25.05m: JT, 60°, Pl, FeO Sn and crushed in-situ rock infill 1-3mm.	
		123	25											
	HQ3	122	26			27.15-27.78m: ...Light grey and light brown.			100	80	80		26.37-26.62m: SZ, 70°, Pl, crushed quartz and in-situ rock (breccia) infill 30mm. Crushed infill comprises mix of clay, sand and fine gravel up to 6mm. 26.70m: JT, 75-80°, Pl, clay Cg up to 2mm wide.	
		121	27											
10	HQ3	120	28			27.80-28.10m: ...Rock recovered as fine to coarse sand and fine to coarse gravel within crush zone. 28.35-28.50m: ...Rock recovered as fine to coarse sand and fine to coarse gravel within crush zone.			100	40	25		27.97-28.10m: CZ, 75-80°, Pl, sand and gravel infill (breccia?). Sand is fine to coarse and gravel is fine to coarse in-situ rock. 28.35-28.50m: CZ, 60°, Pl, crushed in situ rock comprising fine to coarse gravel. 28.65m: CZ, 80° to subvertical, Un, crushed in-situ rock (breccia) infill up to 20mm wide. 28.92m: VE, 80° to subvertical, Un (Irregular), quartz vein up to 8mm wide. Strong weathering halo. 29.21-29.56m: SZ, 80°, Pl, crushed in-situ rock infill 26mm wide. Branching out along margins of shear zone.	
		119	29											
11	HQ3	118	30			29.71-29.90m: ...Zone very fractured, very low tensile strength of incipient fractures. Rock recovered as fine to coarse angular gravel.			100	63	57		30.45m: JT, 80-85°, Un, FeO and Mn 2mm. 30.97m: JT, 50°, Pl, FeO Cg 1mm.	
		117	31											
12	HQ3					30.80m: ...Light grey and light brown. 31.10-31.40m: ...Rock recovered as fine to coarse angular gravel.			100	77	67		31.58m: JT, 5°, Un, FeO Sn, clay Vn. 31.74m: JT, 60°, Pl, FeO Cg up to 2mm.	
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 90mm. 2. One vibrating wire piezometer was installed on 21/11/2025. BH2B_1136_PZ01 was installed at 20.95m bgl, Serial No. 378293. 3. AP logged from 0.0 to 19.82; JO logged from 19.82 to 54.0. 4. RQD, SCR and defect spacing were assessed ignoring Incipient Fractures with high tensile strength within Waipapa Group Greywacke. Incipient Fractures with low tensile strength have been included in RQD, SCR and defect spacing assessment in accordance with logging guidance.												Water Level Readings: Date/Time Hole Depth Water Level		
Shear Vane (ISHSV + IBHSV) Serial No. 3733, calibration constant 1.507.														

 	
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 NZ TRANSPORT AGENCY WIRIKA TOTORANI Roads of National Significance Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: Zone 2, SH1 Shoulder Brynderwyns Project Reference: Aurecon WSP JV		BH2B_1136											
				Sheet 6 of 7											
BOREHOLE INFORMATION Method: Rotary Core Wireline Equipment: Techdrill 250 HD Contractor: Drill Force NZ Ltd		CO-ORDINATES: NZTM2000 Easting: 1727785.95 Northing: 6009471.75 Ground level: 148.01m (NZVD2016)		Date started: 11/11/2025 Date completed: 21/11/2025 Inclination: 90° Azimuth: N/A											
				Logged: A. Pola / J. Oliveira Input: A. Pola / J. Oliveira Reviewed: C. Parkes Verified: A. George											
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL	
14	HQ3		106			40.00-42.30m: ...Bedding evident within rockmass, alternating light brown and greyish brown layers generally between 15-70 +mm thick.						WVS WS MWS CS UCS ECS			
	HQ3		107	41	WPM		MW		100	96	96		41.78m: CZ(?), 15-20°, Un, fine to medium gravel infill up to 20mm(?) wide.		
15	HQ3		106	42									42.10m: JT, 20°, Un, Ro, FeO and Mn Sn. 42.20-42.75m: Pervasive incipient fractures with low tensile strength, very closely spaced with truncating trends generally at 15-20° and 60-80°. Iron oxide staining along incipient fracture surfaces.		
	HQ3		105	43		43.20m: Slightly weathered, light grey, GREYWACKE SANDSTONE/SILTSTONE. Weak to moderately strong. Pervasive incipient fractures with low tensile strength, very closely spaced with truncating trends generally at 15-20° and 60° to subvertical. Iron oxide staining along incipient fracture surfaces. Core disintegrates under firm blow of hammer and during handling. [SLIGHTLY WEATHERED GREYWACKE] 43.55-46.40m: ...Zone very fractured, very low tensile strength of incipient fractures.			103	53	49				
	HQ3		104	44	WPU		SW						43.55-46.40m: Pervasive incipient fractures with low tensile strength, very closely spaced with truncating trends generally at 15-20° and 60-80°. Iron oxide staining along incipient fracture surfaces.		
16	HQ3		103	45									45.10m: JT, 20°, Pl, Ro, FeO Sn and well defined weathering halo up to 8mm wide.		
	HQ3		102	46					100	0	0		45.88m: JT, 60-70°, Un, FeO Sn. Sigmoidal habit with truncating branches.		
17	HQ3		101	47	WPM	46.40m: Moderately weathered, brown and light brown, GREYWACKE SANDSTONE/SILTSTONE. Weak to moderately strong. Pervasive incipient fractures with low tensile strength, very closely spaced with truncating trends generally at 15-20° and 60-80°. Iron oxide staining along incipient fracture surfaces. Core disintegrates under firm blow of hammer and during handling. [MODERATELY WEATHERED GREYWACKE]	MW						46.88m: JT, 50°, Un, Ro, FeO Sn. Joint positioned at center of truncating fractures at similar dip.		
	HQ3				WPU	47.08m: Slightly weathered, grey and light grey, GREYWACKE SANDSTONE/SILTSTONE. Weak to moderately strong. Pervasive incipient fractures with low tensile strength, very closely spaced with truncating trends generally at 15-20° and 50-70°. Iron oxide staining along incipient fracture surfaces. Core disintegrates under firm blow of hammer and during handling. [SLIGHTLY WEATHERED GREYWACKE] 47.85-48.30m: ...Zone very fractured, very low tensile strength of incipient fractures.	SW		100	39	39		47.08-48.30m: Pervasive incipient fractures with low tensile strength, very closely spaced with truncating trends generally at 15-20° and 50-70° to subvertical. Iron oxide staining along incipient fracture surfaces.		
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 90mm. 2. One vibrating wire piezometer was installed on 21/11/2025. BH2B_1136_PZ01 was installed at 20.95m bgl, Serial No. 378293. 3. AP logged from 0.0 to 19.82; JO logged from 19.82 to 54.0. 4. RQD, SCR and defect spacing were assessed ignoring Incipient Fractures with high tensile strength within Waipapa Group Greywacke. Incipient Fractures with low tensile strength have been included in RQD, SCR and defect spacing assessment in accordance with logging guidance.														Water Level Readings: Date/Time Hole Depth Water Level	
Shear Vane (ISHSV + IBHSV) Serial No. 3733, calibration constant 1.507.															

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started: 11/11/2025	Logged: A. Pola / J. Oliveira
Method: Rotary Core Wireline		Easting: 1727785.95		Date completed: 21/11/2025	Input: A. Pola / J. Oliveira
Equipment: Techdrill 250 HD		Northing: 6009471.75		Inclination: 90°	Reviewed: C. Parkes
Contractor: Drill Force NZ Ltd		Ground level: 148.01m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
17	HQ3	100	49		WPU	49.50m: ...Pervasive deformed/sheared quartz veins.	SW		100	31	31		48.34-48.80m: FT, 50-65°, Pl. Well defined weathering halo along fault zone between 48.5m to 48.62m. Breccia comprising crushed in-situ rock (Sandy SILT) up to 30mm wide. Sheared/elongated in-situ rock immediately underlying breccia up to 41mm wide.	
18	HQ3	98	50						103	53	53		49.86-50.21m: FT, 50-60°, Pl. Well defined weathering halo along fault zone at 50.15m. Breccia comprising crushed in-situ rock (Sandy SILT) up to 15mm wide.	
		97	51			50.40m: Slightly weathered; light brown and grey; BRECCIA; weak to moderately strong; angular to subangular clasts of fine GREYWACKE SANDSTONE and subordinate GREYWACKE SILTSTONE; chaotic breccia fabric with potential disrupted sedimentary textures locally preserved; closely to very closely spaced truncating incipient fractures at 15-20° and 50-70° with low to moderate tensile strength; fractures and vein surfaces locally stained with FeO. [GREYWACKE FAULT BRECCIA]							51.00-54.05m: Pervasive incipient fractures with low tensile strength, very closely spaced with truncating trends generally at 15-20° and 50-70°. Iron oxide staining along incipient fracture surfaces.	
19	HQ3	96	52		WPFZ		SW		97	37	27			
		95	53						100	32	28		52.93m: JT, 35°, Pl, Ro, FeO Sn.	
		94	54			Terminated at 54.05 m. Target depth.								
		93	55											

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 90mm.
- One vibrating wire piezometer was installed on 21/11/2025. BH2B_1136_PZ01 was installed at 20.95m bgl, Serial No. 378293.
- AP logged from 0.0 to 19.82; JO logged from 19.82 to 54.0.
- RQD, SCR and defect spacing were assessed ignoring Incipient Fractures with high tensile strength within Waipapa Group Greywacke. Incipient Fractures with low tensile strength have been included in RQD, SCR and defect spacing assessment in accordance with logging guidance.

Shear Vane (ISHSV + IBHSV) Serial No. 3733, calibration constant 1.507.

Water Level Readings:

Date Time Hole Depth Water Level

Borehole Reference:

BH2B_1136

Photographed By:

AP

Date Photographed:

10/11/2025-19/11/2025



BH2B_1136_BOX001_0m-3m



BH2B_1136_BOX002_3m-6m

Borehole Reference: BH2B_1136

Photographed By: AP

Date Photographed:

10/11/2025-19/11/2025



BH2B_1136_BOX003_6m-9m



BH2B_1136_BOX004_9m-12m

Borehole Reference:

BH2B_1136

Photographed By:

AP

Date Photographed:

10/11/2025-19/11/2025



BH2B_1136_BOX005_12m-15m



BH2B_1136_BOX006_15m-18m

Borehole Reference:

BH2B_1136

Photographed By:

AP

Date Photographed:

10/11/2025-19/11/2025



BH2B_1136_BOX007_18m-20.84m



BH2B_1136_BOX008_20.84m-23.53m

Borehole Reference:

BH2B_1136

Photographed By:

AP

Date Photographed:

10/11/2025-19/11/2025



BH2B_1136_BOX009_23.53m-26.27m



BH2B_1136_BOX010_26.27m-29.11m

Borehole Reference:

BH2B_1136

Photographed By:

AP

Date Photographed:

10/11/2025-19/11/2025



BH2B_1136_BOX011_29.11m-31.79m



BH2B_1136_BOX012_31.79m-34.72m

Borehole Reference:

BH2B_1136

Photographed By:

AP

Date Photographed:

10/11/2025-19/11/2025



BH2B_1136_BOX013_34.72m-37.6m



BH2B_1136_BOX014_37.6m-40.27m

Borehole Reference:

BH2B_1136

Photographed By:

AP

Date Photographed:

10/11/2025-19/11/2025



BH2B_1136_BOX015_40.27m-43.2m



BH2B_1136_BOX016_43.2m-46.03m

Borehole Reference:

BH2B_1136

Photographed By:

AP

Date Photographed:

10/11/2025-19/11/2025



BH2B_1136_BOX017_46.03m-48.73m



BH2B_1136_BOX018_48.73m-51.37m

Borehole Reference: BH2B_1136

Photographed By: AP

Date Photographed:

10/11/2025-19/11/2025



BH2B_1136_BOX019_51.37m-54.05m

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan Drilling (NI) Ltd

CO-ORDINATES: NZTM2000
Easting: 1727923.49
Northing: 6010263.26
Ground level: 83.7985m (NZVD2016)

Date started: 29/09/2025
Date completed: 07/10/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Whitten / B.
Input: C. Whitten
Reviewed: B. O'Loughlin
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
1	HA	83	1		TS	0.00m: Clayey SILT with minor sand and trace rootlets; dark brown. Moist; soft; low plasticity; sand is fine [TOPSOIL]. 0.15m: Silty CLAY with trace sand; brownish orange. Moist; firm; high plasticity; sand is fine [COLLUVIUM (UNDIFFERENTIATED)]. 0.30m: ...Mottled light grey.								0.00-13.00m: HWT casing installed due to hole collapse.	
	SPT	82	2			1.00m: ...Very stiff; with trace rootlets. 1.50m: ...Light grey mottled orange. 2.00m: ...Orange mottled light grey. 2.10m: ...With minor rootlets. 2.40-2.45m: ...Minor sand. 2.60m: ...Banded orange and light grey. 2.70m: ...Light grey mottled orange.		1m: ISHSV 122/55 kPa	100						
	HQ3	81	3			3.00m: ...Stiff. 3.45m: ...Clayey SILT. 3.80m: ...Firm; orange mottled grey. 4.00m: ...Stiff; light grey mottled orange.	RS	1.5m: ISHSV 121/47 kPa 1.5m: SPT 0, 0/ 1, 1, 1, 1 N = 4 3m: IBHSV 63/9 kPa 3m: SPT 0, 1/ 1, 0, 1, 1 N = 3	91		81				
2	SPT	80	4		QC										
	HQ3	79	5					4.5m: IBHSV 94/44 kPa U: 4.50 m 5m: SPT 0, 1/ 1, 2, 1, 2 N = 6	100		40				
	SPT	78	6			5.50m: ...Trace clasts of sandstone, angular to sub-angular, up to 15 mm, extremely weak.					67				
	HQ3	77	7			6.05m: Sandy SILT with minor clay; light grey streaked dark brown and orange; remnant fabric. Moist; soft; low plasticity; sand is fine to medium. 6.20m: ...Light brownish grey. 6.45m: ...Greenish orange and grey.					100				
3	SPT	76				7.50m: Clayey SILT with minor sand and gravel; grey mottled greyish brown; remnant fabric. Moist; firm; high plasticity; sand is fine to medium; gravel is medium to coarse, angular to sub-angular, extremely weak, Sandstone, with brown staining on faces. [BASAL LANDSLIDE DEBRIS]	CW	6m: SPT 0, 0/ 0, 0, 1, 2 N = 3	89						
	HQ3										100				
	SPT							7.5m: SPT 0, 0/ 2, 1, 2, 2 N = 7	100						

Remarks:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 56.5mm and vertical accuracy +/- 82.5mm.
2. Two vibrating wire piezometers were installed on 07/10/2025. BH2B_1137_PZ01 was installed at 22.5m bgl, Serial No. 378320. BH2B_1137_PZ02 was installed at 59m bgl, Serial No. P252806.
3. Falling/rising head testing undertaken with data logger at borehole depth 25.60m on 30/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 70m on 06/10/2025.
4. ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
5. Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).

Shear Vane (IBHSV + ISHSV) Serial No. 3303, calibration constant 1.569.

Water Level Readings:		
Date/Time	Hole Depth	Water Level
2025-09-29 17:00	9.45m	0.10mbgl
2025-09-30 07:47	9.45m	2.12mbgl
2025-09-30 17:00	25.60m	3.25mbgl
2025-10-01 08:40	25.60m	5.47mbgl
2025-10-01 17:00	40.50m	1.95mbgl
2025-10-02 07:45	40.50m	6.65mbgl
2025-10-02 16:40	55.50m	3.90mbgl
2025-10-03 07:30	55.50m	18.81mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan Drilling (NI) Ltd

CO-ORDINATES:

CO-ORDINATES:	NZTM2000
Easting:	1727923.49
Northing:	6010263.26
Ground level:	83.7985m (NZVD2016)

Date started:	29/09/2025
Date completed:	07/10/2025
Inclination:	90°
Azimuth:	N/A

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS		TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
3	HQ3		75		QC	8.30m: ...Minor clay; grey and light grey. 8.40m: ...Greenish grey.	CW	9m: SPT 0, 0// 2, 9, 19, 20 for 40mm N = 50+	100	100	100				
4	HQ3	SPT	74		WPH	8.60m: ...Some clay and minor sand. 8.80m: ...Some gravel. 9.00-9.15m: ...Silty fine to coarse SAND; greenish brown. 9.15m: ...Sandy SILT 9.30m: ...Dark brown. 9.35m: Highly weathered; light greenish grey streaked brownish orange; GREYWACKE SANDSTONE. Very weak to weak; recovered as fine to coarse GRAVEL with some sand; gravel is angular, moderately weathered, weak; sand is fine to coarse [HIGHLY WEATHERED WAIPAPA TERRANE GREYWACKE]. 9.45-9.50m: ...Recovered as sandy SILT.	HW	10.5m: SPTC 50 for 65mm// N = 50+	100	100	100		10.60-17.45m: Fault Zone		
5	HQ3	SPT	73		WPM	10.25m: 10.25-10.5 m: CORELOSS (250 mm), wash out at end of run. 10.50-10.60m: ...No recovery - solid cone SPT. 10.60m: Moderately weathered; grey; brecciated fine grained GREYWACKE SANDSTONE. Weak; indistinctly bedded; fractured; very closely spaced joints, stained brownish orange. Recovered as fine to coarse GRAVEL with some sand; gravel is angular, moderately weathered, weak; sand is fine to coarse. [MODERATELY WEATHERED GREYWACKE] 11.30-11.50m: ...CORELOSS (200 mm), wash out in highly fractured zone. 11.50-11.85m: ...Bluish grey; weak to moderately strong; fragmented; recovered as fine to coarse GRAVEL, angular to sub-angular. 11.85m: ...Dark bluish grey; highly fractured; closely spaced, weak joints, stained brownish orange.	MW	12m: SPTC 6, 44 for 40mm// N = 50+	96	11	0		11.90m: JT, 25°, Ro, Pl, Sn FeO 12.40m: JT, 65°, Ro, Un, Sn FeO 12.41m: JT, 80°, Ro, Un, Sn FeO 12.45-12.50m: JT, 80-90°, Ro, Un, Sn FeO 12.60m: JT, 55°, Ro, Pl, Sn FeO 12.65m: JT, 50°, Ro, Pl, Sn FeO 12.85m: JT, 45°, Ro, Pl, Sn FeO 13.05m: JT, 30°, Sm, Pl, Sn FeO 13.20-13.30m: JT, 75°, Sm, Pl, Sn FeO 13.35m: JT, 30°, Sm, Pl, Sn FeO 13.68-13.80m: Jl, 65°, Ro, Pl, Cg quartz 13.95m: JT, 70°, Pl, Sn FeO 14.20m: JT, 35°, Ro, Pl, Sn FeO 14.22m: JT, 20°, Ro, Un, Sn FeO 14.40m: JT, 10°, Ro, Un, Sn FeO 14.45m: VE x3, 10-20°, Un, quartz and chlorite?, 2-15 mm 14.65-14.80m: VE, 70-90°, Un, quartz, 2-5 mm 14.80-14.95m: JT, 70°, Un, Sn FeO 14.80m: JT set x2, 20°, Ro, Un, Sn FeO 14.95-15.00m: JT, 65°, Sm, Un, Sn Feo and Vn zeolite 15.20m: JT, 70°, Un, Sn FeO 15.30m: JT, 30°, Un, Sn FeO 15.31m: JT, 70°, Un, Sn FeO 15.50-15.60m: FZ 60°, Pl, Sn FeO 15.60-15.80m: VE x2, 60-90°, quartz and zeolite, 5-25 mm 15.85m: JT, 15°, Ro, Un, Sn FeO		
6	HQ3	SPT	72		WPU	12.65-12.75m: ...Brecciated GREYWACKE SANDSTONE, very weak crackle breccia (clast supported) recovered as fine to coarse GRAVEL - disintegrated on handling. 12.80m: ...Bluish grey mottled brownish grey. 13.10m: Slightly weathered; bluish grey; fine grained GREYWACKE SANDSTONE. Weak to moderately strong; indistinctly bedded; very closely spaced joints, stained brownish orange. [SLIGHTLY WEATHERED GREYWACKE] 13.50-13.70m: ...Recovered as medium to coarse GRAVEL, angular; occasional greenish grey mineralisation (chlorite?). 13.85-13.90m: ...Recovered as sandy fine to coarse GRAVEL. 13.90m: ...Moderately strong; jointing typically 20-30° and 45-60°; closely spaced, stained brown; some veining (quartz and chlorite?). 14.40m: ...Closely spaced incipient fractures, moderate tensile strength.	SW		71	26	17				
6	HQ3	SPT	71		WPU	12.65-12.75m: ...Brecciated GREYWACKE SANDSTONE, very weak crackle breccia (clast supported) recovered as fine to coarse GRAVEL - disintegrated on handling. 12.80m: ...Bluish grey mottled brownish grey. 13.10m: Slightly weathered; bluish grey; fine grained GREYWACKE SANDSTONE. Weak to moderately strong; indistinctly bedded; very closely spaced joints, stained brownish orange. [SLIGHTLY WEATHERED GREYWACKE] 13.50-13.70m: ...Recovered as medium to coarse GRAVEL, angular; occasional greenish grey mineralisation (chlorite?). 13.85-13.90m: ...Recovered as sandy fine to coarse GRAVEL. 13.90m: ...Moderately strong; jointing typically 20-30° and 45-60°; closely spaced, stained brown; some veining (quartz and chlorite?). 14.40m: ...Closely spaced incipient fractures, moderate tensile strength.	SW		100	45	23				
6	HQ3	SPT	70		WPU	12.65-12.75m: ...Brecciated GREYWACKE SANDSTONE, very weak crackle breccia (clast supported) recovered as fine to coarse GRAVEL - disintegrated on handling. 12.80m: ...Bluish grey mottled brownish grey. 13.10m: Slightly weathered; bluish grey; fine grained GREYWACKE SANDSTONE. Weak to moderately strong; indistinctly bedded; very closely spaced joints, stained brownish orange. [SLIGHTLY WEATHERED GREYWACKE] 13.50-13.70m: ...Recovered as medium to coarse GRAVEL, angular; occasional greenish grey mineralisation (chlorite?). 13.85-13.90m: ...Recovered as sandy fine to coarse GRAVEL. 13.90m: ...Moderately strong; jointing typically 20-30° and 45-60°; closely spaced, stained brown; some veining (quartz and chlorite?). 14.40m: ...Closely spaced incipient fractures, moderate tensile strength.	SW		100	55	35				
6	HQ3	SPT	69		WPU	12.65-12.75m: ...Brecciated GREYWACKE SANDSTONE, very weak crackle breccia (clast supported) recovered as fine to coarse GRAVEL - disintegrated on handling. 12.80m: ...Bluish grey mottled brownish grey. 13.10m: Slightly weathered; bluish grey; fine grained GREYWACKE SANDSTONE. Weak to moderately strong; indistinctly bedded; very closely spaced joints, stained brownish orange. [SLIGHTLY WEATHERED GREYWACKE] 13.50-13.70m: ...Recovered as medium to coarse GRAVEL, angular; occasional greenish grey mineralisation (chlorite?). 13.85-13.90m: ...Recovered as sandy fine to coarse GRAVEL. 13.90m: ...Moderately strong; jointing typically 20-30° and 45-60°; closely spaced, stained brown; some veining (quartz and chlorite?). 14.40m: ...Closely spaced incipient fractures, moderate tensile strength.	SW		100	38	38				
6	HQ3	SPT	68		WPU	12.65-12.75m: ...Brecciated GREYWACKE SANDSTONE, very weak crackle breccia (clast supported) recovered as fine to coarse GRAVEL - disintegrated on handling. 12.80m: ...Bluish grey mottled brownish grey. 13.10m: Slightly weathered; bluish grey; fine grained GREYWACKE SANDSTONE. Weak to moderately strong; indistinctly bedded; very closely spaced joints, stained brownish orange. [SLIGHTLY WEATHERED GREYWACKE] 13.50-13.70m: ...Recovered as medium to coarse GRAVEL, angular; occasional greenish grey mineralisation (chlorite?). 13.85-13.90m: ...Recovered as sandy fine to coarse GRAVEL. 13.90m: ...Moderately strong; jointing typically 20-30° and 45-60°; closely spaced, stained brown; some veining (quartz and chlorite?). 14.40m: ...Closely spaced incipient fractures, moderate tensile strength.	SW		100	81	76				

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 56.5mm and vertical accuracy +/- 82.5mm.
- Two vibrating wire piezometers were installed on 07/10/2025. BH2B_1137_P201 was installed at 22.5m bgl, Serial No. 378320. BH2B_1137_P202 was installed at 59m bgl, Serial No. P252806.
- Falling/rising head testing undertaken with data logger at borehole depth 25.60m on 30/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 70m on 06/10/2025.
- ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
- Incipient points ignored when assessing deflecting spacing within Waipapa Formation (Greywacke Sandstone).

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-10-03 14:00	60.00m	13.10mbgl
2025-10-06 10:00	60.00m	16.20mbgl
2025-10-06 17:15	70.00m	14.00mbgl
2025-10-07 07:40	70.00m	15.40mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	29/09/2025	Logged:	C. Whitten / B. Griffiths
Method:	Rotary Core Wireline	Easting:	1727923.49	Date completed:	07/10/2025	Input:	C. Whitten
Equipment:	Hanjin/D&B 10	Northing:	6010263.26	Inclination:	90°	Reviewed:	B. O'Loughlin
Contractor:	McMillan Drilling (NI) Ltd	Ground level:	83.7985m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG				STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL	
9			HQ3			WPFZ	25.40-25.50m: ...Crush Zone; recovered as fine to medium GRAVEL with some sand and minor clay. Well graded; gravel is angular, sand is fine to coarse. 25.50-25.90m: ...Recovered as cobbly fine to coarse GRAVEL; angular. 25.90m: ...Greenish grey; brownish orange staining along joints. 26.10-26.20m: ...Recovered as fine to coarse GRAVEL, angular to sub-angular. 26.20m: Unweathered, dark grey, fine grained GREYWACKE SANDSTONE. Strong; moderately widely spaced primary joints commonly 60-75°, occasionally orthogonal; pervasive veining, quartz; disseminated pyrite mineralisation within veins and rock mass; micro-faulted veining. Closely spaced incipient fractures with high tensile strength. [UNWEATHERED GREYWACKE] 27.00-28.50m: ...Closely spaced jointing.	SW		100	65	45	VWS	VMS	CS	VCS	ECS	24.00m: JT, 50°, Sm, Pl, Vn zeolite 24.05m: JT, 65°, Pl 24.30m: JT, 50°, Un, Vn zeolite 24.35m: JT, 60°, Pl, Vn zeolite 24.50m: JT, 65°, Pl, Sn FeO 24.80-24.90m: VE, 10-20°, Pl, quartz, 80-100 mm 24.95m: JT, 75°, Ro, Pl, Vn zeolite 25.25-25.35m: JT, 60°, Sm, Pl, Cg zeolite 25.40-25.50m: CZ, 55°, recovered as fine to coarse gravel with minor clay/silt. 25.95m: JT, 70°, Ro, Pl, Vn zeolite 26.10m: JT, 60°, Ro, Pl, Sn FeO 26.65m: JT, 55°, Ro, Pl, Vn zeolite 26.70m: VE x3, 30-45°, Un, quartz, 2-10 mm 27.15m: JT, 20°, Pl, Cn 27.18m: JT, 20°, Un, Sn FeO 27.30m: JT, 12°, Sm, Un, Cn with pyrite 27.40-27.45m: JT, 75°, Pl 27.43m: JT, 10°, Sm, Pl, Sn FeO 27.85-28.15m: DB?, 80°, Ro, separated along Ji/VE 29.65m: JT, 60°, Sm, Pl, Vn zeolite with pyrite 29.87-29.93m: VE, 10-30°, Un, quartz 30.15m: VE, 40-55°, Pl, quartz, 50 mm 30.25-30.85m: JT, 85-90°, Un, healed quartz and brecciated sandstone, 2-4 mm 31.40m: VE, 45°, Un, quartz, 5-15 mm	
		HQ3	59																
		HQ3	25																
		HQ3	58																
		HQ3	26																
10			HQ3			WPU	28.50m: ...Incipient fractures, commonly planar, with occasional pyrite mineralisation.	UW		100	100	100							
		HQ3	57																
		HQ3	27																
		HQ3	56																
		HQ3	28																
		HQ3	55																
11			HQ3				29.95m: ...Very strong; distinct foliation/ fabric dipping 40-55°; micro-faulted incipient fractures.			100	100	100							
		HQ3	54																
		HQ3	30																
		HQ3	53				31.50m: ...Rare pyrite veneer along incipient fractures, <1 mm, micro-faulted.												
		HQ3	52																

Remarks:

- Remarks:**
- 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 56.5mm and vertical accuracy +/- 82.5mm.
 - 2. Two vibrating wire piezometers were installed on 07/10/2025. BH2B_1137_PZ01 was installed at 22.5m bgl, Serial No. 378320. BH2B_1137_PZ02 was installed at 59m bgl, Serial No. P252806.
 - 3. Falling/rising head testing undertaken with data logger at borehole depth 25.60m on 30/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 70m on 06/10/2025
 - 4. ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
 - 5. Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).

Water Level Readings:

[illegible]

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan Drilling (NI) Ltd

CO-ORDINATES:

CO-ORDINATES:	NZTM2000
Easting:	1727923.49
Northing:	6010263.26
Ground level:	83.7985m (NZVD2016)

Date started:	29/09/2025
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Date completed: 07/10/2025
Inclination: 90°
Azimuth: N/A

Logged:

Input:	C. Whitten
Reviewed:	B. O'Loughlin
Verified:	A. George

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL	
11													VWS	WWS	MS	CS	VCS	EGS		
		HQ3								100	100	100								
				51																
	12						33.00-34.50m: ...Occasional zeolite veins.													
		HQ3								100	100	100								
				50																
				34																
				49																
		HQ3								100	100	100								
				35																
				48																
				36		WPU	36.00m: ...Foliation/ fabric dipping 30-40°.	UW												
	13																			
		HQ3								100	100	100								
				47																
				37																
				46																
				38																
		HQ3								100	97	93								
				45																
	14																			
		HQ3					39.00m: ...Foliation/ fabric dipping 50-60°.													
				39																
				44						100	80	80								

Remarks:

- Remarks:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 56.5mm and vertical accuracy +/- 82.5mm.
 2. Two vibrating wire piezometers were installed on 07/10/2025. BH2B_1137_PZ01 was installed at 22.5m bgl, Serial No. 378320. BH2B_1137_PZ02 was installed at 59m bgl, Serial No. P252806.
 3. Falling/rising head testing undertaken with data logger at borehole depth 25.60m on 30/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 70m on 06/10/2025.
 4. IBSHV = in-situ hand shear vane, IBSHV = in barrel hand shear vane.
 5. Incipient points ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).

Water Level Readings:

DateTime	Hole Depth	Water Level

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan Drilling (NI) Ltd

CO-ORDINATES:

CO-ORDINATES:	NZTM2000
Easting:	1727923.49
Northing:	6010263.26
Ground level:	83.7985m (NZVD2016)

Date started: 29/09/2025

Date completed: 07/10/2025

Inclination: 90°

Azimuth: N/A

Logged:

Input: Griffiths
C. Whitten

Reviewed:

Reviewed: B. O'Leary
Verified: A. George

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL	
14		HQ3					40.10-40.50m: ...Drilling induced core damage (catcher installed incorrectly); recovered as cobbly fine to coarse, GRAVEL, angular.						VWS	WWS	MS	CS	VCS	ECs	40.10-40.50m: Drilling Breaks	
43		HQ3					40.50-41.10m: ...Foliation/ fabric approximately 30-50°.												40.60-40.90m: JT set x3, 60°, Pl, Cn	
41		HQ3							100	100	100								41.10-41.45m: VE x8, 25-45°, Un, quartz, 2-25 mm	
																			41.15-42.40m: JT set x7, 60°, Pl, Cn	
																			41.20m: VE, 40-45°, Un, quartz, 5-20 mm	
42		HQ3																	41.40-41.60m: JT, 75°, Un	
15		HQ3					42.00m: ...Foliation/ fabric approximately 50-60°.													
41		HQ3					42.70-43.00m: ...Pervasive veining, orientated at 15-40°, quartz with trace pyrite mineralisation.		100	94	87									
43		HQ3																		
40		HQ3					43.50m: ...Incipient fractures with moderate to high tensile strength, oriented 40-50° and 60-75°; foliation/ fabric approximately 50-70°, cross cut by persistent veining orientated at 10-60°; micro-faulting and folding.												43.57m: VE, 55°, Un, quartz, 10-20 mm	
																			43.70-44.00m: JT x4, 60-70°, Pl, Cn	
44		HQ3							100	100	100								44.25m: JT set x2, 25-30°, Pl, healed quartz	
39		HQ3																	44.60-44.85m: JT, 70°, Ro, Pl, Cn	
45		HQ3																	45.10-46.85m: JT set x10, 65-70°, Pl-Un, Cn	
46		HQ3							100	100	100									
37		HQ3					46.55m: ...Moderately widely spaced jointing.													
47		HQ3					46.95-47.25m: ...Pervasive incipient fractures, with occasional zeolite coating. Moderate to high tensile strength.												47.15m: 50mm CZ, fine silty angular gravel	
36		HQ3					47.05-47.15m: ...Crush Zone												47.48m: VE, 25-30°, Un, quartz, 120 mm	
47		HQ3					47.25m: ...Very closely spaced incipient fractures.		100	98	97								47.70m: VE, 10-20°, Un, quartz, 10-20 mm	
47		HQ3																		

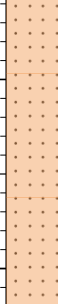
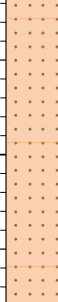
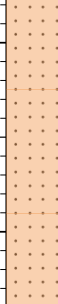
Remarks:

- Remarks:
- 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 56.5mm and vertical accuracy +/- 82.5mm.
 - 2. Two vibrating wire piezometers were installed on 07/10/2025. BH2B_1137_PZ01 was installed at 22.5m bgl, Serial No. 378320. BH2B_1137_PZ02 was installed at 59m bgl, Serial No. P252806.
 - 3. Falling/rising head testing undertaken with data logger at borehole depth 25.60m on 30/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 70m on 06/10/2025.
 - 4. IBSHV = in-situ hand shear vane, IBSHV = in barrel hand shear vane.
 - 5. Incipient points ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).

Water Level Readings:

DateTime	Hole Depth	Water Level

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 29/09/2025	Logged: C. Whitten / B. Griffiths
Method:	Rotary Core Wireline	Easting: 1727923.49	Date completed: 07/10/2025	Input: C. Whitten
Equipment:	Hanjin/D&B 10	Northing: 6010263.26	Inclination: 90°	Reviewed: B. O'Loughlin
Contractor:	McMillan Drilling (NI) Ltd	Ground level: 83.7985m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL																																									
17	HQ3	HQ3	35	49		WPU	49.60m: ...Pervasive veining, 1-2 mm, quartz.	UW		100	100	100	VMS MS MS CS VCS EGS	48.40m: JT set x7, 20-30°, Ro, PI																																										
																48.70m: JT, 70°, Un, Ro, 3mm, silt infill																																								
																	48.86m: VE, 70°, quartz, 10 mm																																							
																		49.10m: VE x3, 40°, Un, quartz, 10-25 mm																																						
																			49.80m: JT, 40°, PI, healed siltstone																																					
																				50.10-50.50m: JT x4, 45-65°, Ro, Un																																				
																					50.50-51.10m: JT, 80°, Ro, Un, Vn zeolite																																			
																						50.65-50.90m: DB x5, 35-45°, Ro, Un																																		
																							51.45-51.60m: JT, 85°, Ro, Un, Vn zeolite																																	
																								51.65-52.50m: FZ, 45-60°, recovered as crush zone and greywacke breccia with silt infil and polished surfaces.																																
																									52.50-53.70m: JT set x12, 45-65°, PI, occasional Vn zeolite with pyrite																															
																										53.20-53.30m: JT, 60°, PI, healed, siltstone																														
																											53.50-53.90m: JT, 85°, Un, Vn pyrite, <1 mm																													
																												54.05m: JT set x2, 20°, PI, healed quartz?																												
																													54.25m: VE, 20-35°, Un, quartz, 15-30 mm																											
																														54.60m: JT, 50°, PI, silt infil																										
																															55.00m: JT set x3, 40°, Ro, Un																									
55.50m: JT set x2, 70°, Ro, Un																																																								
	18	HQ3	32	52		WPFZ	51.65m: Crush zone, recovered as fine to coarse, angular GRAVEL with some fine to coarse sand and minor clay. [GREYWACKE FAULT ZONE] 51.75-52.50m: ...Fault zone; brecciated; highly fractured GREYWACKE SILTSTONE, recovered as fine to medium angular gravel within dark grey silt/ clay matrix. Polished surfaces.	UW		100	42	42	VMS MS MS CS VCS EGS																																											
																52.50m: Unweathered, dark grey, fine grained GREYWACKE SANDSTONE. Strong; moderately widely spaced primary joints commonly 60-75°, occasionally orthogonal; pervasive veining, quartz; disseminated pyrite mineralisation within veins and rock mass; micro-faulted veining. Closely spaced incipient fractures with high tensile strength. [UNWEATHERED GREYWACKE]																																								
																	54.00m: ...Fabric dipping 10-20°.																																							
																		54.50m: ...Faint grey and dark grey banding, 10 mm thick. Closely spaced joints.																																						
																			54.75m: ...Fabric approximately 50-70°.																																					
																				55.10m: ...Fabric dipping 40-45°.																																				
																					55.50m: Unweathered; dark grey; GREYWACKE SANDSTONE/SILTSTONE. Strong to very strong. Indistinctly bedded; closely spaced joints. Incipient fractures with high tensile strength. Prehnite and quartz veining.																																			
																						19	HQ3									31	53		WPU	52.50m: Unweathered, dark grey, fine grained GREYWACKE SANDSTONE. Strong; moderately widely spaced primary joints commonly 60-75°, occasionally orthogonal; pervasive veining, quartz; disseminated pyrite mineralisation within veins and rock mass; micro-faulted veining. Closely spaced incipient fractures with high tensile strength. [UNWEATHERED GREYWACKE]	UW		100	100	100	VMS MS MS CS VCS EGS	54.05m: JT set x2, 20°, PI, healed quartz?													
																								54.25m: VE, 20-35°, Un, quartz, 15-30 mm																																
																									54.60m: JT, 50°, PI, silt infil																															
																										55.00m: JT set x3, 40°, Ro, Un																														
																											55.50m: JT set x2, 70°, Ro, Un																													
																												20																	HQ3	28					UW					

Remarks:	
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- References:**
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 56.5mm and vertical accuracy +/- 82.5mm.
 2. Two vibrating wire piezometers were installed on 07/10/2025. BH2B_1137_PZ01 was installed at 22.5m bgl, Serial No. 378320. BH2B_1137_PZ02 was installed at 59m bgl, Serial No. P252806.
 3. Falling/rising head testing undertaken with data logger at borehole depth 25.60m on 30/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 70m on 06/10/2025
 4. ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
 5. Incipient points ignored when assessing defecting section within Waipapa Formation (Grewyacke Sandstone).

Water Level Readings:

[illegible]

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 29/09/2025	Logged: C. Whitten / B. Griffiths
Method: Rotary Core Wireline		Easting: 1727923.49	Date completed: 07/10/2025	Input: C. Whitten
Equipment: Hanjin/D&B 10		Northing: 6010263.26	Inclination: 90°	Reviewed: B. O'Loughlin
Contractor: McMillan Drilling (NI) Ltd		Ground level: 83.7985m (NZVD2016)	Azimuth: N/A	Verified: A. George

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSCS Controller, with a horizontal accuracy +/- 56.5mm and vertical accuracy +/- 82.5mm.
- Two vibrating wire piezometers were installed on 07/02/2025. BH2B, 1137_PZ01 was installed at 22.5m bgl, Serial No. 378320. BH2B, 1137_PZ02 was installed at 59m bgl, Serial No. P252806.
- Falling/rising head testing undertaken with data logger at borehole depth 25.60m on 30/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 70m on 06/10/2025.
- ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
- Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Grewacke Sandstone)

[illegible]

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started: 29/09/2025	Logged: C. Whitten / B. Griffiths
Method: Rotary Core Wireline		Easting: 1727923.49		Date completed: 07/10/2025	Input: C. Whitten
Equipment: Hanjin/D&B 10		Northing: 6010263.26		Inclination: 90°	Reviewed: B. O'Loughlin
Contractor: McMillan Drilling (NI) Ltd		Ground level: 83.7985m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
												VWS	WS	MWS	VCS	EGS		
23	HQ3					64.00m: ...Fabric approximately 10-20°.												
		19																
	HQ3		65						100	100	100							
24	HQ3		18			65.80m: ...Fabric approximately 30-40°.												
			66															
	HQ3		17			66.50m: ...Light grey to light bluish grey.			100	100	100							
25	HQ3		16														67.75m: VE, 70°, St, quartz, 5-10 mm	
			68						100	100	100							
	HQ3		15														69.30m: JT set x3, 70°, Ro, Pl, Cn	
			69															
			14						100	100	100						69.80m: JT, 80°, Ro, Un	
			70			Terminated at 70.00 m. Target depth.												
			13															
			71															
			12															

Borehole Reference:

BH2B_1137

Photographed By:

BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX001_0m-3m



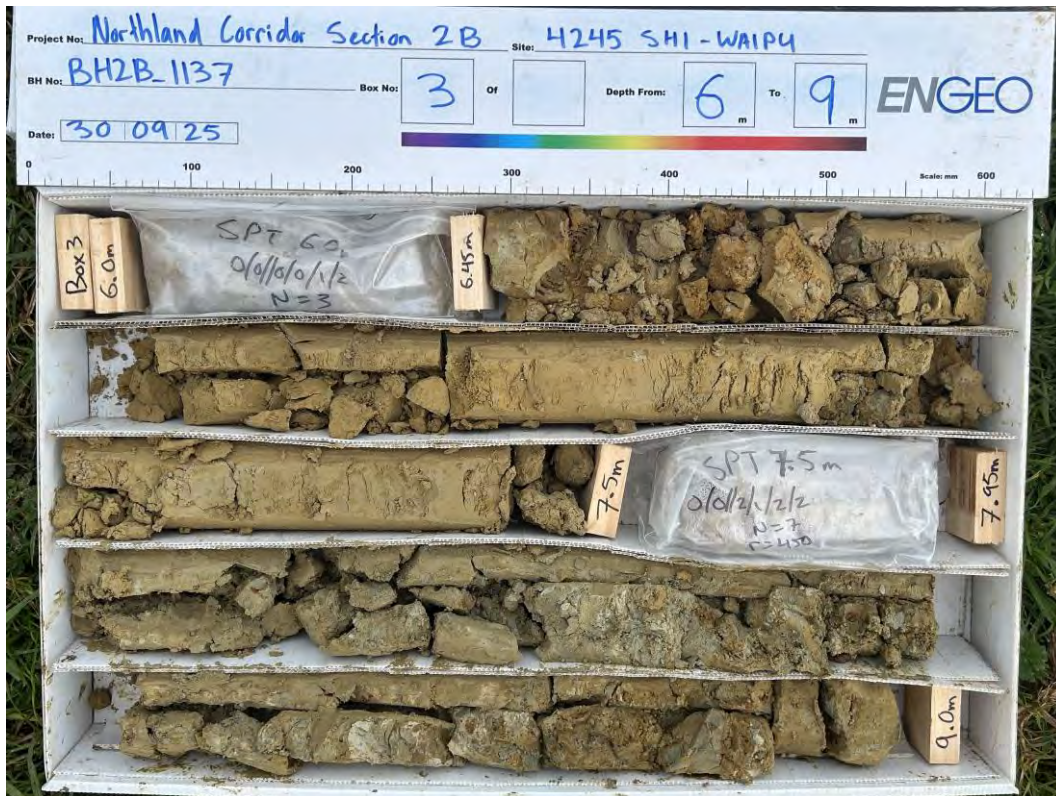
BH2B_1137_BOX002_3m-6m

Borehole Reference: BH2B_1137

Photographed By: BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX003_6m-9m



BH2B_1137_BOX004_9m-12m

Borehole Reference: BH2B_1137

Photographed By: BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX005_12m-14.8m



BH2B_1137_BOX006_14.8m-17.65m

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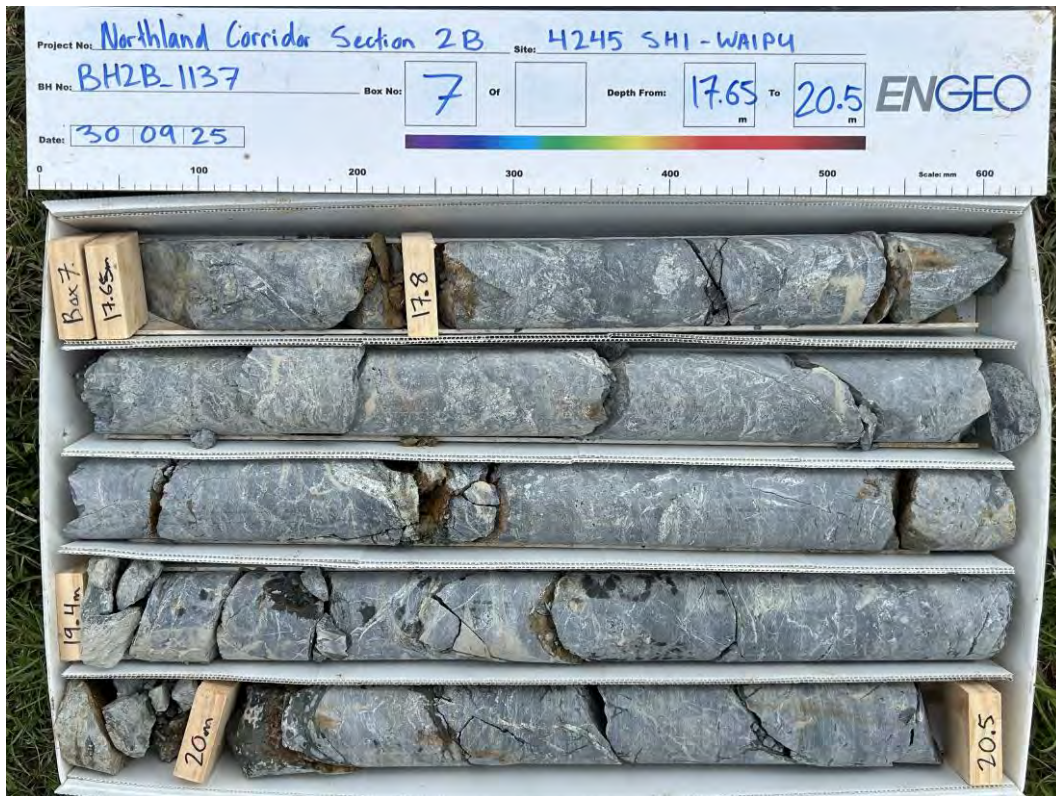
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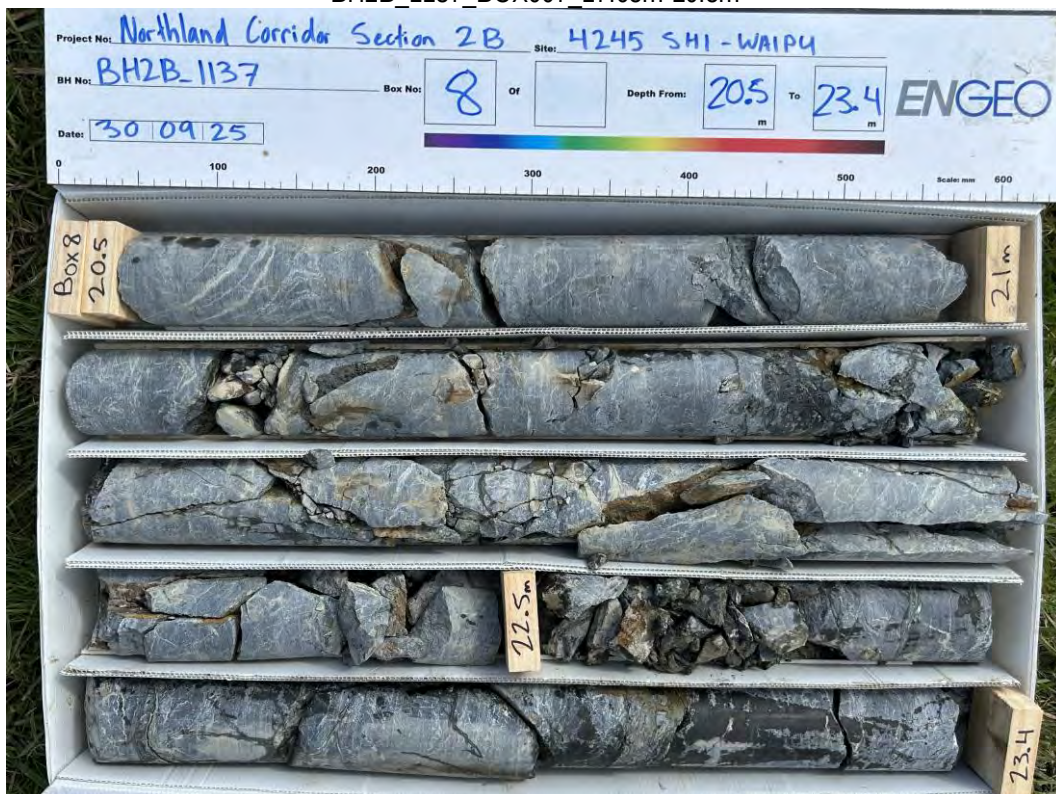
BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX007_17.65m-20.5m



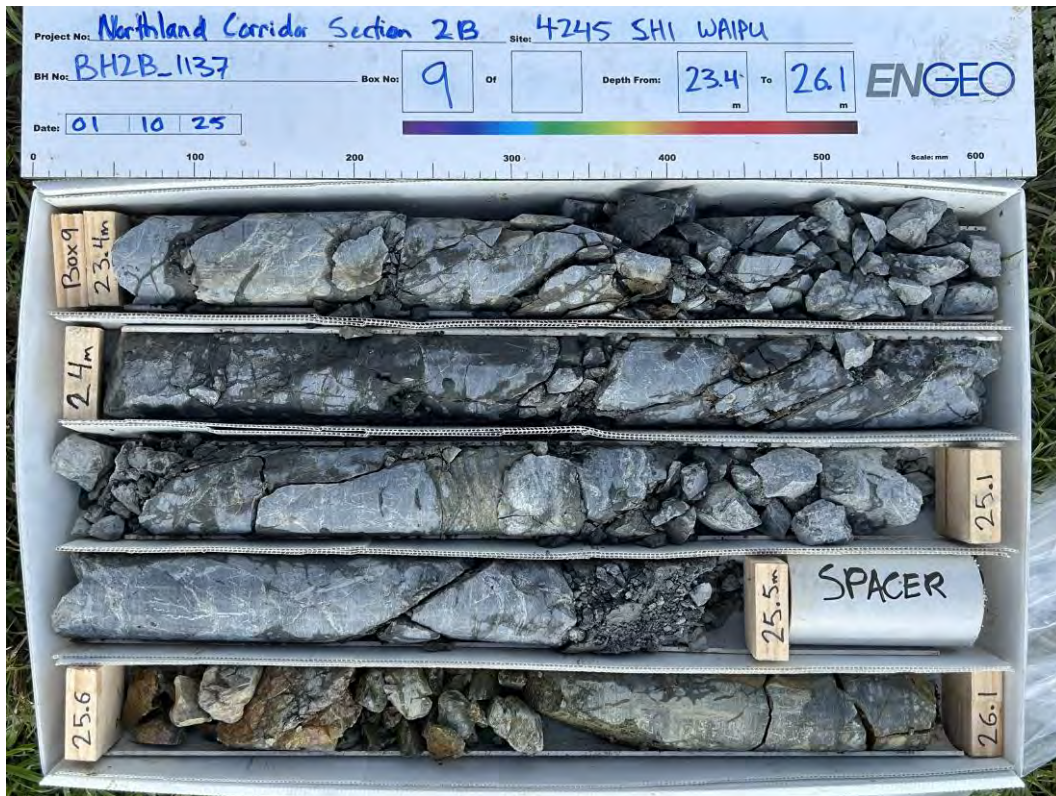
BH2B_1137_BOX008_20.5m-23.4m

Borehole Reference: BH2B_1137

Photographed By: BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX009_23.4m-26.1m



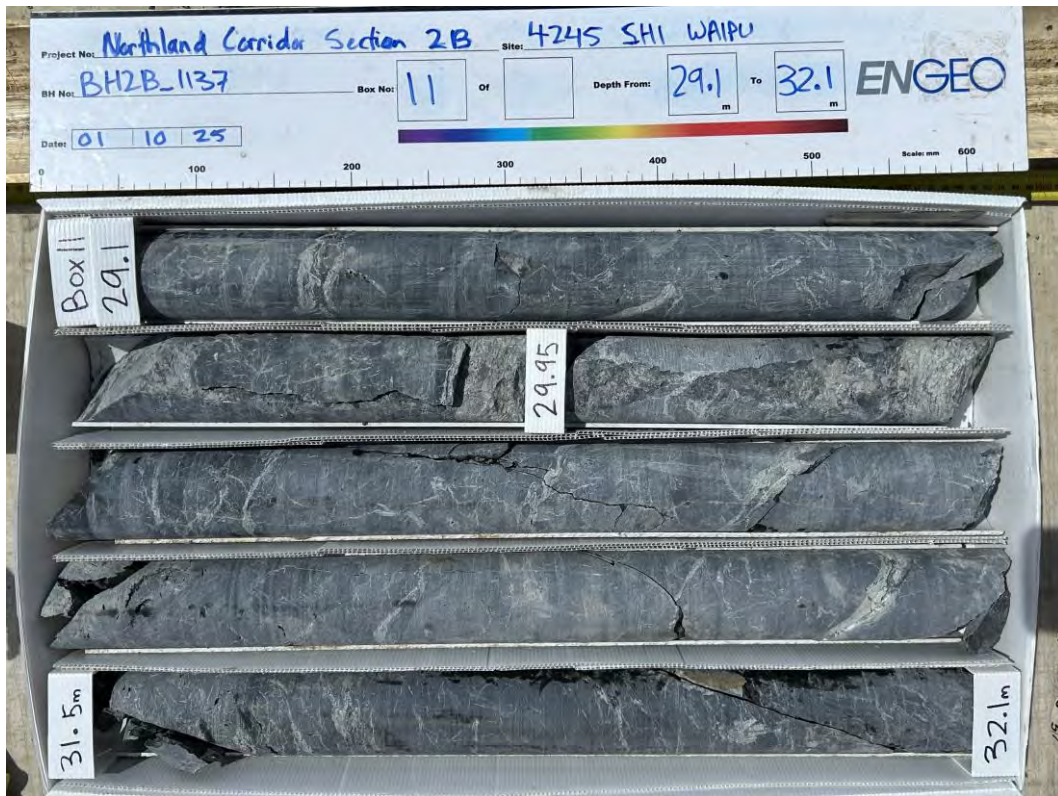
BH2B_1137_BOX010_26.1m-29.1m

Borehole Reference: BH2B_1137

Photographed By: BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX011_29.1m-32.1m



BH2B_1137_BOX012_32.1m-34.75m

Borehole Reference:

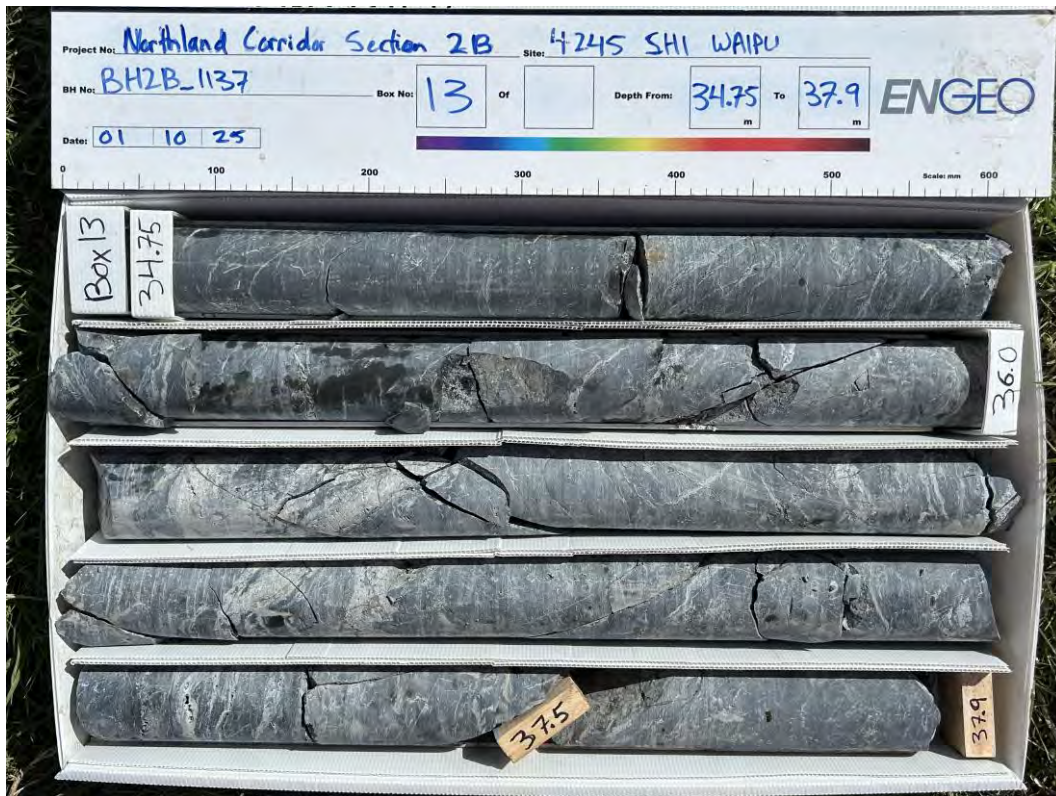
BH2B_1137

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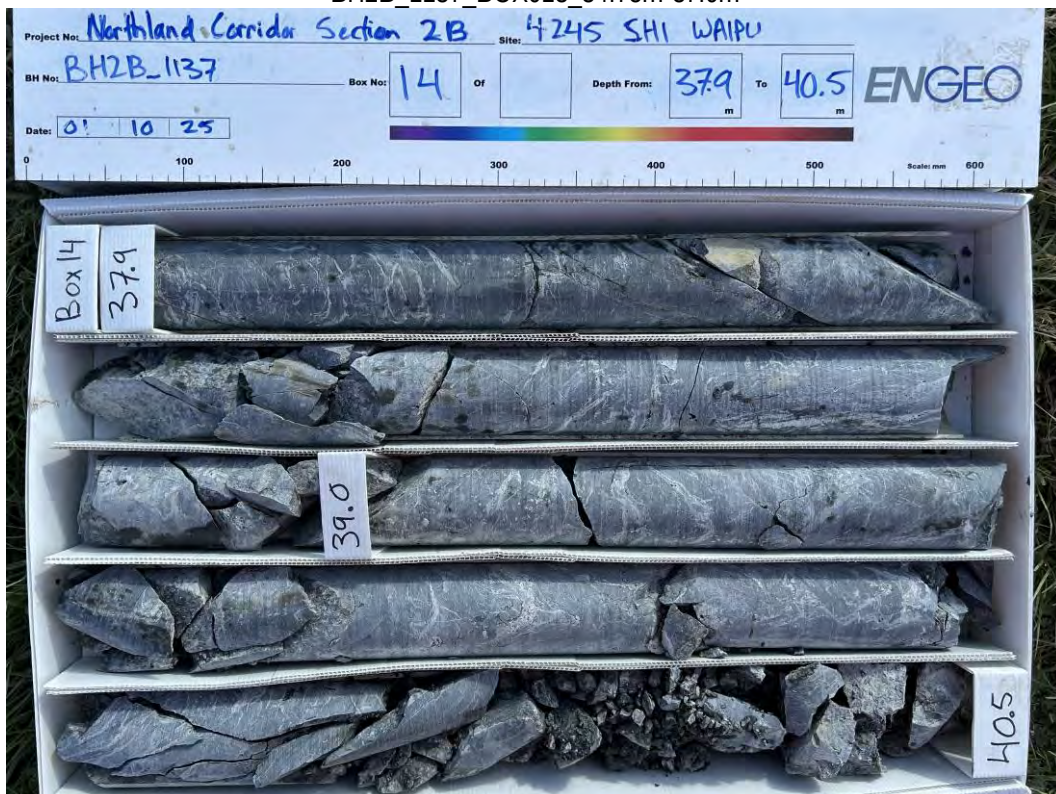
BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX013_34.75m-37.9m



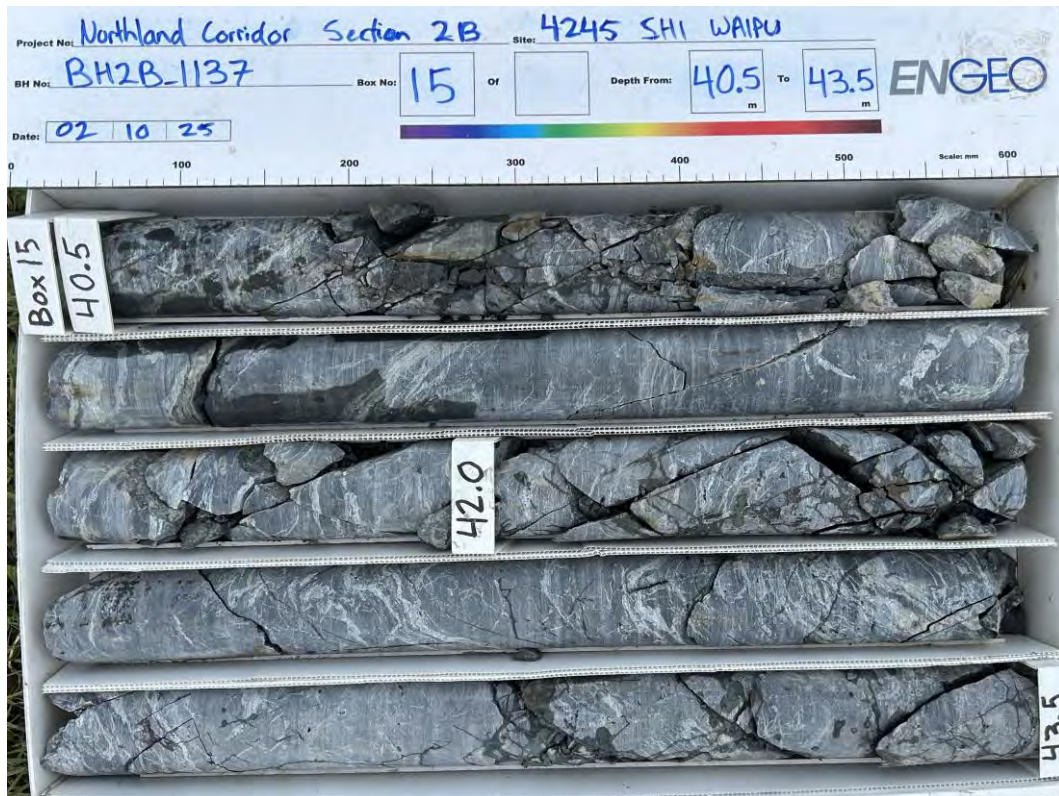
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Borehole Reference: BH2B_1137

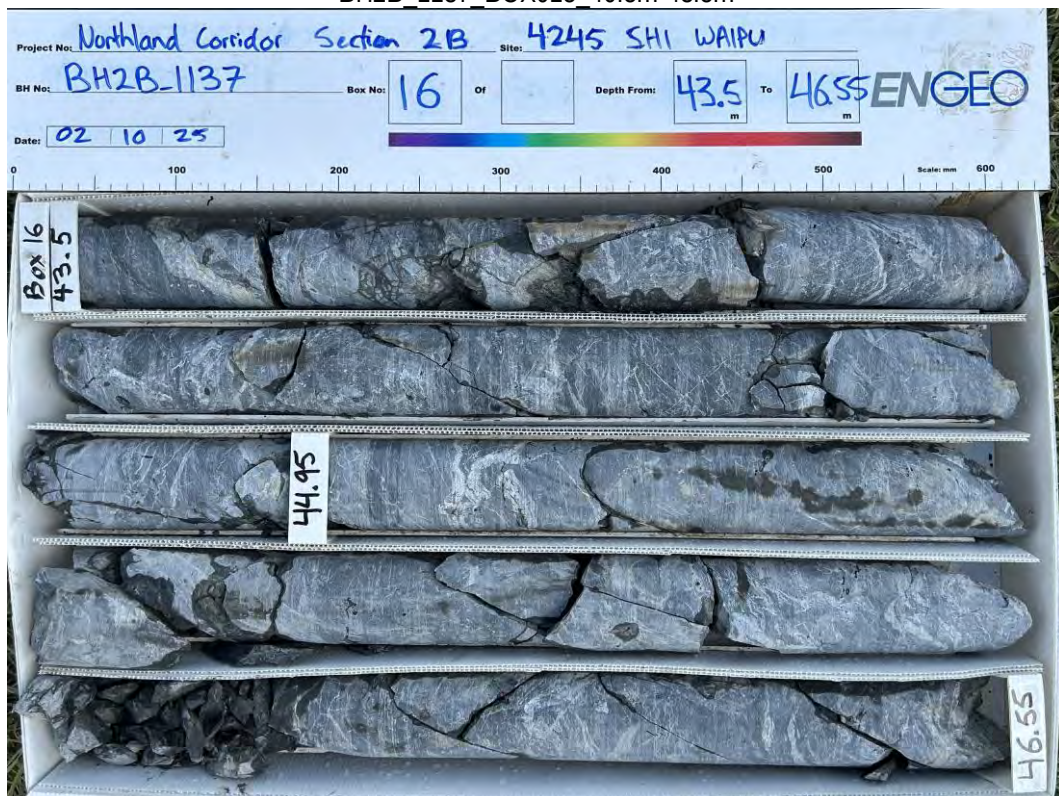
Photographed By: BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX015_40.5m-43.5m



BH2B_1137_BOX016_43.5m-46.55m

Borehole Reference:

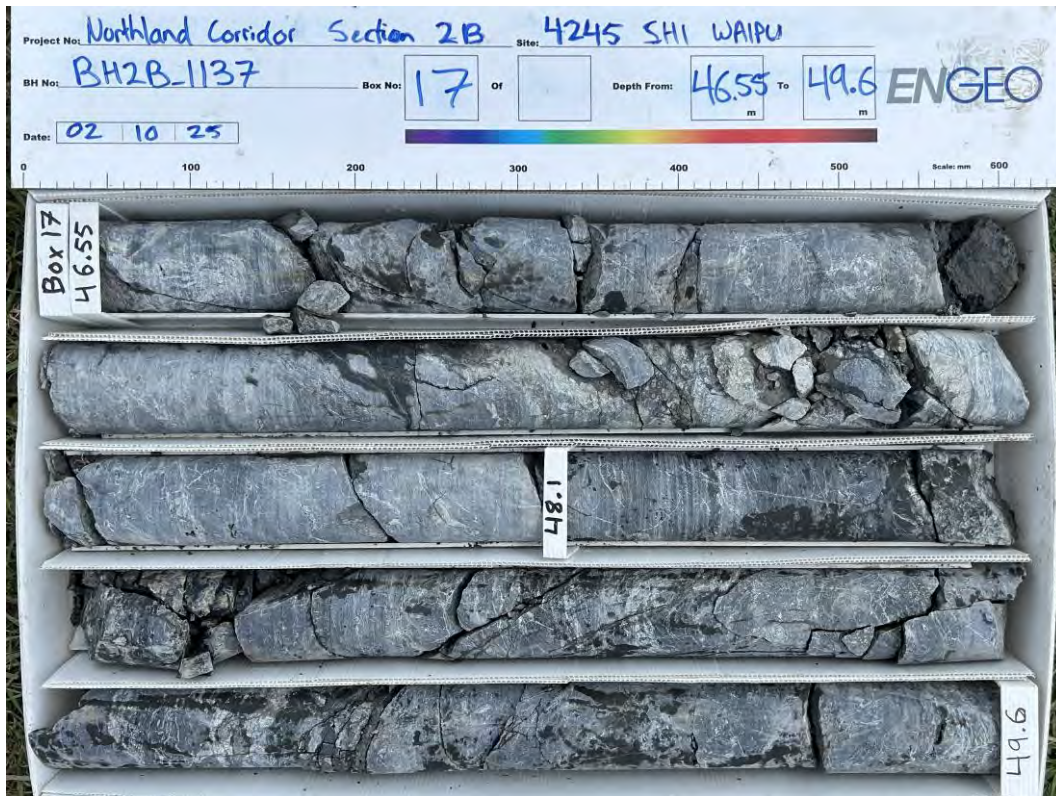
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Photographed By:

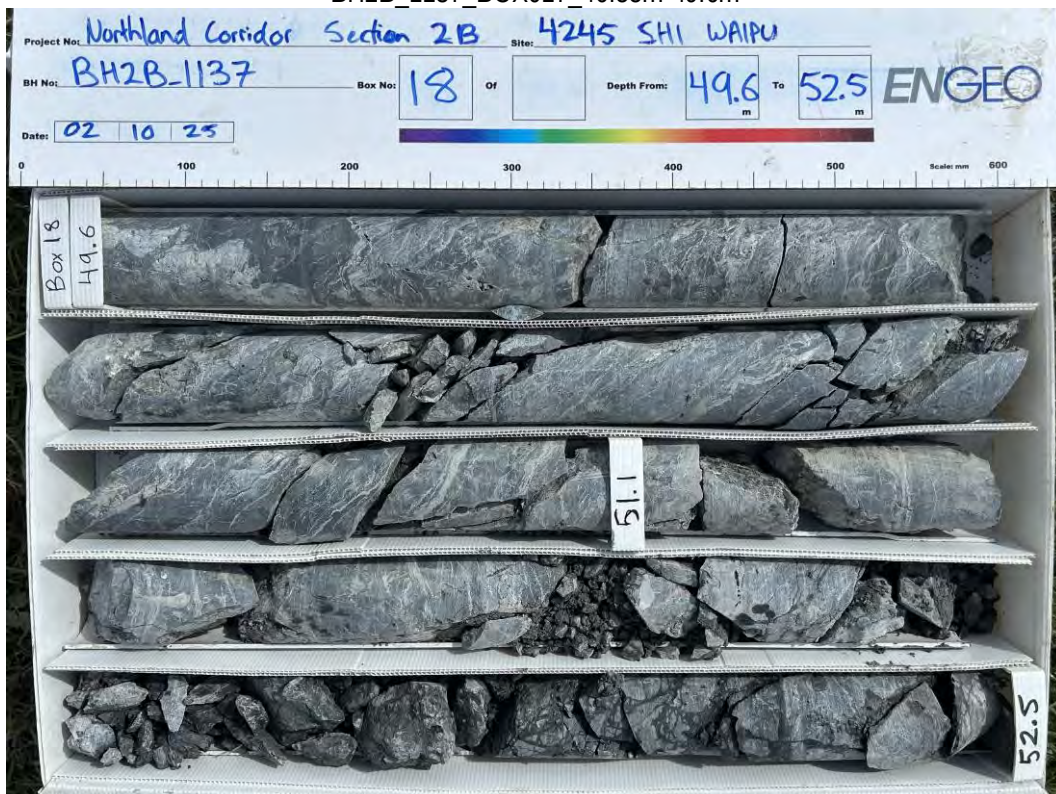
BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX017_46.55m-49.6m



BH2B_1137_BOX018_49.6m-52.5m

Borehole Reference:

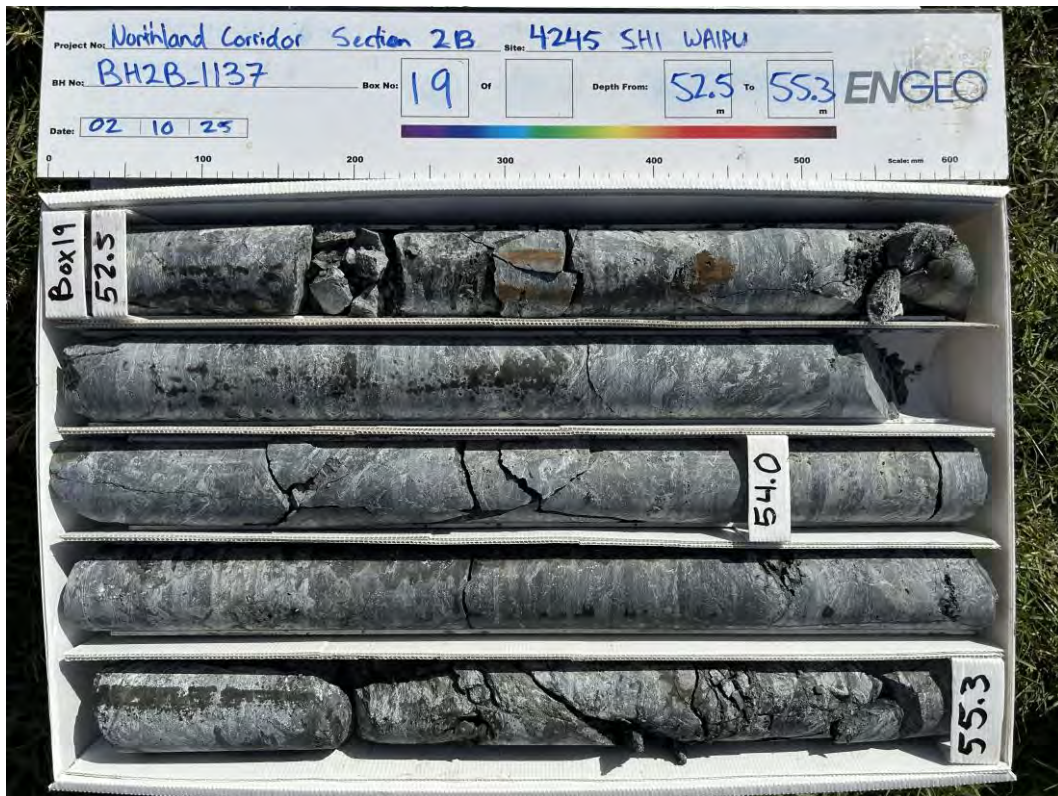
BH2B_1137

Photographed By:

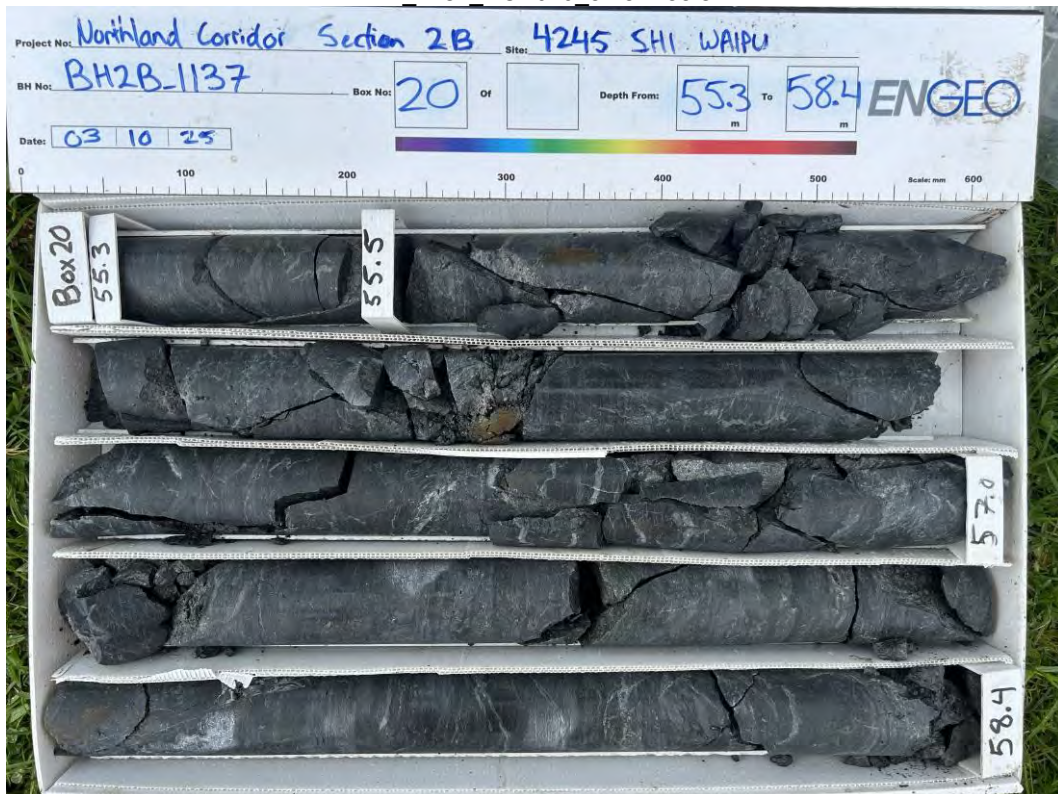
BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX019_52.5m-55.3m



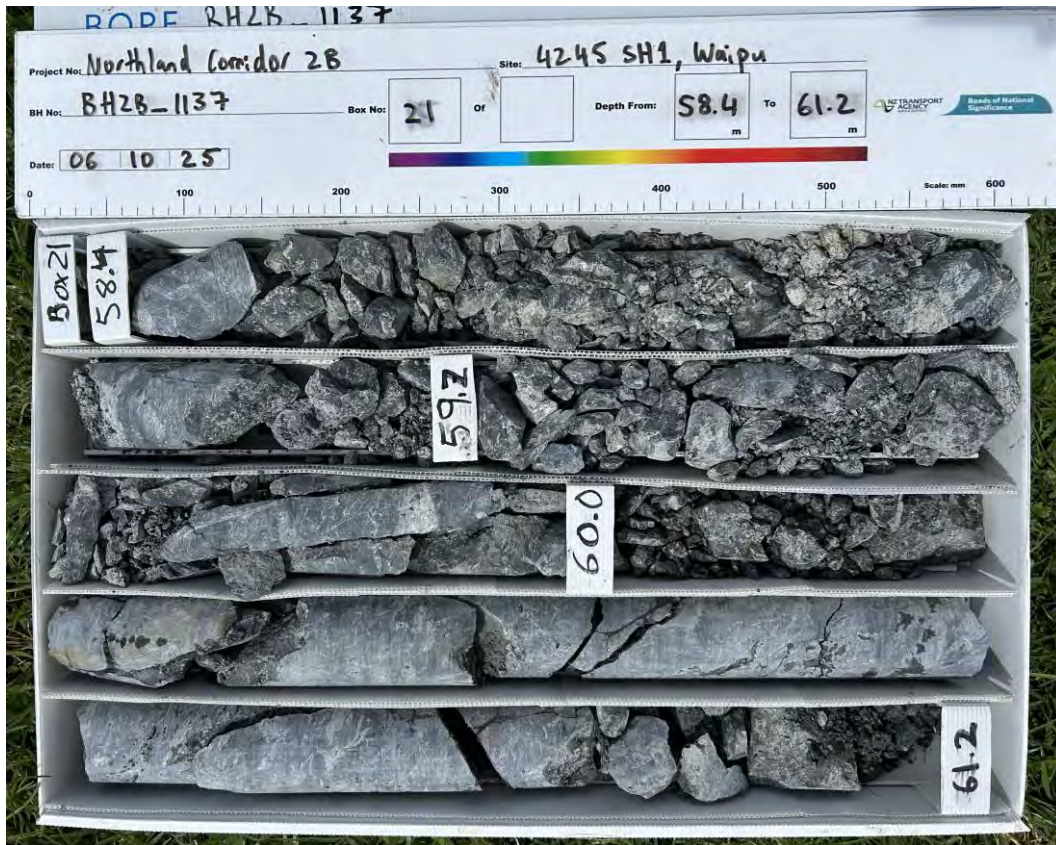
BH2B_1137_BOX020_55.3m-58.4m

Borehole Reference: BH2B_1137

Photographed By: BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX021_58.4m-61.2m



BH2B_1137_BOX022_61.2m-63.87m

Borehole Reference:

BH2B_1137

Photographed By:

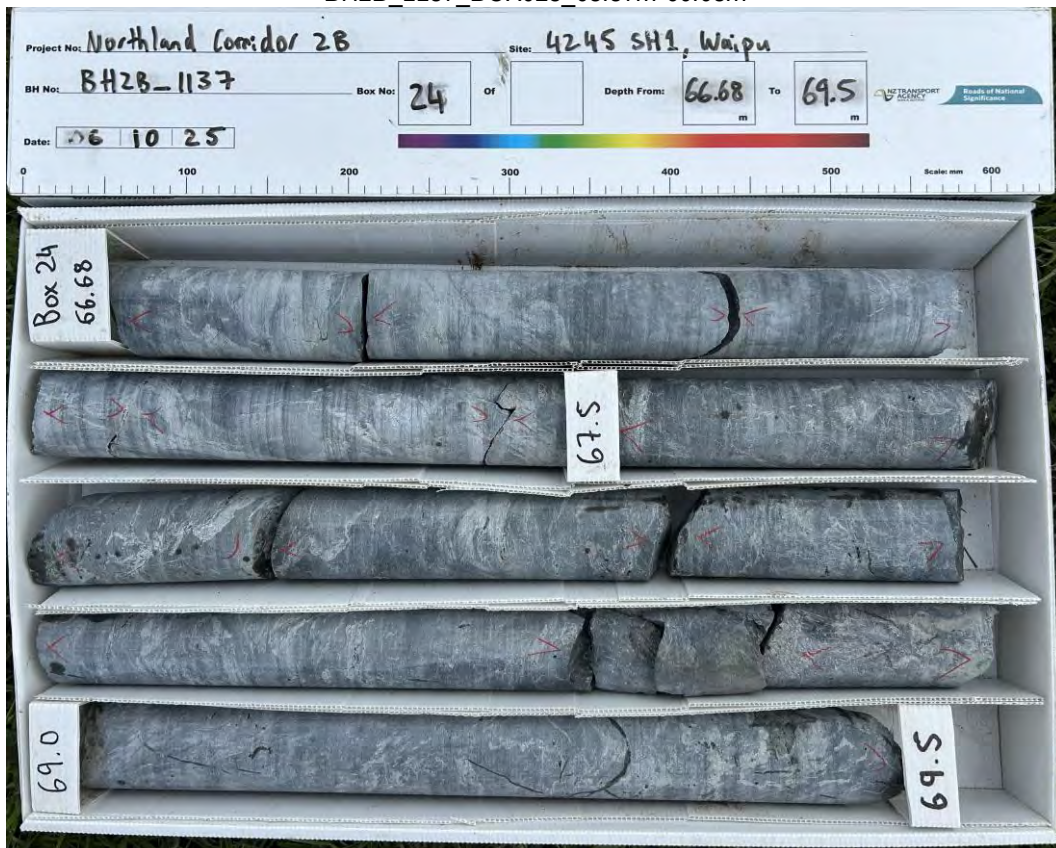
BTG, CW

Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX023_63.87m-66.68m



BH2B_1137_BOX024_66.68m-69.5m

Borehole Reference: BH2B_1137

Photographed By: BTG, CW

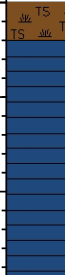
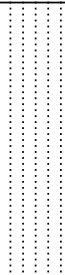
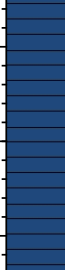
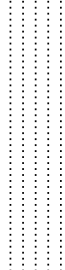
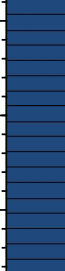
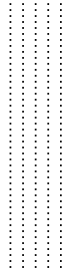
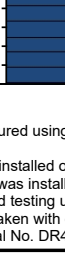
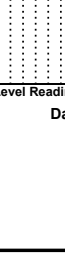
Date Photographed:

29/09/2025-06/10/2025



BH2B_1137_BOX025_69.5m-70m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 10/09/2025	Logged: C. Mariscal/D. Bake
Method: Rotary Core Wireline		Easting: 1727951.88mE,		Date Completed: 18/09/2025	Input: D. Baker
Equipment: Hanjin / D&B 10		Northing: 6010816.85mN,		Inclination: 90	Reviewed: B. Simons
Contractor: McMillan Drilling Ltd		Ground level: 56.87m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	HA	56	1		TS	Organic silty CLAY with some rootlets; dark brown. Firm to stiff, moist, high plasticity. [TOPSOIL].	RS	0.5m SV BH SV 124/65kPa	100	0	0		0.00m - 18.00m: HWT casing installed	
						CLAY; yellowish brown mottled orange. Firm to very stiff, moist, high plasticity [OLDER (PLEISTOCENE) ALLUVIUM].		1m SV BH SV 186/104kPa						
						1.30m: Yellowish brown spotted light brown to white.								
						CLAY; brownish orange mottled light brown and light grey. Very stiff, moist, high plasticity; MnO and FeO staining.		1.5m SV BH SV 133/68kPa	100	0	0			
								1.5m SPT 1, 1/2, 2, 2, 3 N= 9						
									100	0	0			
						2.50m - 3.00m: Push tube sample.		2.5m SV BH SV 30/ 15kPa	100	0	0			
						3.00m: Firm.		3m SPT 1, 1/1, 1, 2, 1 N= 5	100	0	0			
						4.00m: Brownish red-orange striated black; relict laminated sub-horizontal bedding, MnO and FeO staining.			100	0	0			
2	SPT	53	4		TP	4.50m: Stiff.	RS	4.5m SPT 1, 0/1, 0, 1, 1 N= 3	100	0	0			
								4.5m SV CB SV 77/ 21kPa						
									100	0	0			
									100	0	0			
						6.00m: Greenish light brown and orange. Stiff.		6m SPT 0, 1/1, 1, 1, 1 N= 4	100	0	0			
3	HQ3	51	6		TP		RS	6m SV CB SV 80/ 18kPa						
									100	0	0			
4	U54	49	7		TP		RS		100	0	0			

REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 80mm.		DateTime	Hole Depth (m)	Water Level (m)
2. A standpipe was installed on 18/09/2025 with a screened interval between 9.5 to 15.5m bgl. One vibrating wire piezometer BH2B_1139_PZ01 was installed at 15.0m bgl, within the open standpipe on 16/10/2025, Serial No. 378277.				
3. Falling/rising head testing undertaken with data logger at borehole depth 21.64m on 12 to 14/09/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 33.15m on 16/09/2025.				
4. Shear Vane Serial No. DR4938, calibration constant 1.486				

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 10/09/2025	Logged: C. Mariscal/D. Bake
Method: Rotary Core Wireline		Easting: 1727951.88mE,	Date Completed: 18/09/2025	Input: D. Baker
Equipment: Hanjin / D&B 10		Northing: 6010816.85mN,	Inclination: 90	Reviewed: B. Simons
Contractor: McMillan Drilling Ltd		Ground level: 56.87m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
3	SPT					Sandy CLAY; greenish light brown and orange mottled black. Stiff, moist, high plasticity; sand, fine; relict thinly bedded, sub-vertical bedding.		8m SPT 1, 1/1, 2, 4, 3 N= 10	100	0	0			
	HQ3	48	9						100	0	0			
	SPT								100	0	0			
4	HQ3	47	10			10.10m - 10.20m: Striated black and grey banding.	RS	9m SPT 1, 2/1, 3, 3, 4 N= 11 9m SV CB SV 71/ 27kPa	100	0	0			
	SPT	46	11			CLAY; yellowish brown to orange mottled black. Stiff, moist, high plasticity.			100	0	0			
	HQ3	45	12			11.85m - 12.00m: CORE LOSS (150mm). Fines assumed washed out. 12.00m - 12.50m: Push tube sample.			86	0	0			
5	U54					12.50m: Very stiff.		12.5m SPT 3, 3/4, 3, 6, 7 N= 20 12.5m SV CB SV 142/50kPa	100	0	0			
	SPT	44	13			13.05m: Mottled white.			100	0	0			
	HQ3	43	14			Clayey SILT; greyish brown mottled orange. Stiff, moist, low plasticity.			100	0	0			
	SPT					Organic CLAY; dark brown to black. Soft, moist, high plasticity. 14.65-15.0m: CORE LOSS (350mm). Fines assumed washed out. Organic CLAY; dark brown to black. Very soft to firm, wet, high plasticity. 15.45-15.75m: CORE LOSS (300mm). Fines assumed washed out. Organic Sandy SILT, with trace gravel; brownish black spotted white. Very soft, wet, low plasticity;		13.5m SPT 1, 2/3, 3, 3, 3 N= 12 15m SPT 0, 1/0, 0, 0, 0 N= 0 15m SV CB SV 47/ 12kPa	100	0	0			
	HQ3	42	15						67	0	0			
	SPT								100	0	0			
	HQ3	41							71	47	47			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 80mm.
- A standpipe was installed on 18/09/2025 with a screened interval between 9.5 to 15.5m bgl. One vibrating wire piezometer BH2B_1139_PZ01 was installed at 15.0m bgl, within the open standpipe on 16/10/2025, Serial No. 378277.
- Falling/rising head testing undertaken with data logger at borehole depth 21.64m on 12 to 14/09/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 33.15m on 16/09/2025.
- Shear Vane Serial No. DR4938, calibration constant 1.486

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
10/09/2025 4:40:00 pm	12.95	2.00
11/09/2025 8:10:00 am	12.95	2.30

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 10/09/2025		Logged: C. Mariscal/D. Bake	
Method: Rotary Core Wireline		Easting: 1727951.88mE,		Date Completed: 18/09/2025		Input: D. Baker	
Equipment: Hanjin / D&B 10		Northing: 6010816.85mN,		Inclination: 90		Reviewed: B. Simons	
Contractor: McMillan Drilling Ltd		Ground level: 56.87m (NZVD2016)		Azimuth: N/A		Verified: A. George	

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
5	HQ3				RU	gravel, coarse, angular. Slightly weathered, light grey mottled grey and speckled white, CALCAREOUS SILTSTONE. Moderately strong, indistinctly bedded, MnO staining on joint surfaces [SLIGHTLY WEATHERED RUARANGI FORMATION].		16.5m SPT 32, 18 for 10mm N = 50+	71	47	47	WCS	15.95m - 17.00m: HCl test: strong reaction	
6	HQ3	40	17			17.00m - 17.10m: Brecciated fabric, angular greywacke siltstone clasts (approx. 50%) up to 30mm clast supported in silty limestone matrix. Inferred fault-controlled contact.			100	58	58	WCS	17.13-17.28m: CS, recovered as fine to medium angular gravel clast supported in clay matrix	
	HQ3					Slightly weathered, dark greenish grey mottled olive green, GREYWACKE SILTSTONE. Very weak, very closely to closely spaced 1-2mm quartz veins generally dipping at 40-80°, very closely spaced incipient joints generally dipping at 5-80°, low tensile strength, breaks on handling [SLIGHTLY WEATHERED GREYWACKE].			100	20	0	ECS	17.28-17.60m: DB, 10°-80°, RG, UN, drilling induced broken core, preferential breakage along very closely spaced incipient joints, dark grey stain/less than 1mm silt	
	HQ3	39	18			17.60m: Moderate tensile strength.		18m SPT 50 for 50mm N = 50+	100	30	0	VCS	17.60-18.05m: JT, 20°-80°, RG, UN, x5, less than 1mm silt	
	HQ3					18.35m: Low tensile strength, breaks on handling.			100	12	12	CS	18.05-18.10m: DB, drilling induced broken core	
	HQ3	38	19			19.10m: Moderate tensile strength.			100	10	0	CS	18.10-18.35m: JT, 40°-90°, RG, UN, x4, less than 1mm silt	
	HQ3					19.20m: Low tensile strength.			100	20	0	VCS	18.35-19.10m: DB, 10°-90°, RG, UN, drilling induced broken core, preferential breakage along very closely spaced incipient joints, dark grey stain/less than 1mm silt	
	HQ3	37	20					19.5m SPT 50 for 40mm N = 50+	100	75	0	CS	19.20-21.64m: DB, 10°-90°, RG, UN, drilling induced broken core, preferential breakage along very closely spaced incipient joints, dark grey stain/less than 1mm silt	
	HQ3								100	66	0	VCS		
	HQ3	36	21						100	17	0	CS	21.64-21.94m: drilling induced broken core	
	HQ3					Slightly weathered, dark grey and grey, fine GREYWACKE SANDSTONE. Weak, closely spaced incipient joints generally dipping 45-80°, moderate-high tensile strength.			100	100	0	VCS	22.03-22.50m: FZ, 10°-90°, RG, PL, less than 1mm silt	
	HQ3	35	22			22.65m: Very closely spaced incipient joints generally dipping 20-50°, moderate tensile strength.			100	71	0	CS	22.50m: VN, UN, 1-3mm, quartz/zeolite, ductile deformation fabric	
	HQ3								100	100	0	VCS	22.58-22.63m: DB, drilling induced broken core	
	HQ3	34	23			23.40m - 24.00m: Brecciated fabric.			100	100	0	CS	22.72-22.80m: JT, 45°-80°, RG, UN, x4, less than 1mm silt	
	HQ3					23.70m: Very closely spaced incipient joints generally dipping 20-70°, moderate to high tensile strength.			100	86	70	CS	22.95-23.25m: JT, 40°-60°, RG, PL, x7, less than 1mm silt	
	HQ3	33							100	86	70	WCS	23.10m: JT, 20°, UN, silt, 1mm	
	HQ3								100	100	0	CS	23.30-23.50m: JT, 80°, RG, UN	
	HQ3								100	100	0	CS	23.34m: VN, 40°, zeolite, 4mm	
	HQ3								100	100	0	CS	23.40m: JT, 20°, RG, UN	
	HQ3								100	100	0	CS	23.45m: JT, 60°, RG, PL	
	HQ3								100	100	0	CS	23.50m: JT, 45°, RG, UN, dark green stain	
	HQ3								100	100	0	CS	23.60-23.70m: DB, drilling induced broken core	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 80mm.
- A standpipe was installed on 18/09/2025 with a screened interval between 9.5 to 15.5m bgl. One vibrating wire piezometer BH2B_1139_PZ01 was installed at 15.0m bgl, within the open standpipe on 16/10/2025, Serial No. 378277.
- Falling/rising head testing undertaken with data logger at borehole depth 21.64m on 12 to 14/09/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 33.15m on 16/09/2025.
- Shear Vane Serial No. DR4938, calibration constant 1.486

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
12/09/2025 12:49:00 pm	21.64	0.82
15/09/2025 8:00:00 am	21.64	5.10

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 10/09/2025	Logged: C. Mariscal/D. Bake
Method: Rotary Core Wireline		Easting: 1727951.88mE,	Date Completed: 18/09/2025	Input: D. Baker
Equipment: Hanjin / D&B 10		Northing: 6010816.85mN,	Inclination: 90	Reviewed: B. Simons
Contractor: McMillan Drilling Ltd		Ground level: 56.87m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
9	HQ3					[CONT] Slightly weathered, dark grey and grey, fine GREYWACKE SANDSTONE. Weak, closely spaced incipient joints generally dipping 45-80°, moderate-high tensile strength. 24.17m - 24.31m: Extremely closely spaced quartz veins (40%), 1-10mm, dipping 0-90°. 24.56m - 24.80m: Low tensile strength. 24.80m: Low to moderate tensile strength.							24.17-24.32m: VN, UN, up to 10mm, approx. 50% of rock mass, quartz and zeolite (olive green), ductile deformation fabric 24.37m JT, 10°, RG, PL, dark green stain 24.43-24.50m: DB, drilling induced broken core 24.56-24.80m: DB, 20°-90°, RG, UN, dark green stain, drilling induced broken core, preferential breakage along very closely spaced incipient joints, dark grey stain/less than 1mm clay 24.80-24.91m: JT, 65°, RG, PL, dark grey stain, less than 1mm silt 24.93m JT, 30°, RG, UN, less than 1mm silt 24.99m JT, 30°, SM, PL, less than 1mm silt 25.00-25.15m: DB, drilling induced broken core 25.25-25.45m: JT, 50°, SM, PL, x3, dark grey stain 25.60-25.70m: JT, 80°-90°, RG, UN, dark grey stain 25.61-25.62m: CS, crushed seam, recovered as fine to medium gravel 25.71m VN, 20°, 15mm, quartz/zeolite 25.72m IS, 20°, infilled seam, 5mm, sandy CLAY 25.73-26.50m: FZ, 20°-90°, RG, UN, 26.50-26.57m: DB, drilling induced broken core 26.61-26.88m: 40°-60°, RG, UN, x4, less than 1mm silt 26.80-27.45m: VN, (1-5%), 1-2mm, quartz, ductile deformation fabric 26.88-27.19m: JT, 40°-80°, RG, UN, x6, dark grey stain, less than 1mm silt 27.20-27.30m: JT, 70°, RG, UN, less than 1mm pyrite 27.24-27.43m: JT, 25°-40°, RG, UN, x3, dark green stain, less than 1mm silt 27.50-27.60m: JT, 65°, RG, UN, clean 27.60-28.00m: JT, 20°-80°, RG, UN, x10, dark green stain, less than 1mm silt, core inferred broken further and disturbed during drilling 28.20-28.25m: DB, drilling induced broken core 28.25m VN, 35°, UN, 3-6mm, quartz 28.30m VN, 35°, UN, 10mm, quartz 28.30-28.60m: JT, 45°-80°, RG, UN, x5, less than 1mm silt, core inferred broken further and disturbed during drilling 28.60-28.72m: JT, 50°, RG, UN, x3, less than 1mm silt 28.72-28.80m: drilling induced broken core 28.78m JT, UN, clay, 1mm 28.80-29.30m: JT, 45°-80°, RG, UN, x5, less than 1mm silt, core inferred broken further and disturbed during drilling 29.30-29.40m: CS, recovered as fine to medium angular gravel clast supported in a clay matrix 29.44-29.60m: JT, 40°-60°, RG, PL, dark grey stain 29.60-29.85m: drilling induced broke core, inferred breaking along 29.85-30.00m: JT, 40°-70°, RG, UN, less than 1mm silt 30.14m VN, 40°, quartz, 6mm 30.18-30.45m: CS, x2, 70-140mm, recovered as fine to medium angular gravel 30.45-30.95m: DB, 30°-80°, RG, UN, drilling induced broken core, preferential breakage along very closely spaced incipient joints, dark grey stain/less than 1mm silt 31.00m JT, 75° 31.10-31.27m: CS, recovered as fine to coarse angular gravel 31.35-31.45m: DB, drilling induced broken core 31.50-31.82m: JT, 30°-60°, RG, UN, x3, less than 1mm silt / clean 31.65-31.80m: VN, 20°-90°, x4, quartz, ductile deformation fabric 31.84-32.00m: JT, 60°-80°, RG, UN, less than 1mm silt 31.95-32.05m: DB, drilling induced broken core	
	HQ3		32						100	86	70			
	HQ3		25						100	100	0			
	HQ3								100	100	0			
	HQ3		31						100	50	0			
	HQ3		26						100	0	0			
	HQ3								100	0	0			
	HQ3		30						100	83	0			
	HQ3		27						100	100	0			
10	HQ3					Slightly weathered, grey and dark grey with pale grey, fine GREYWACKE SANDSTONE. Very weak. Very closely spaced incipient joints, generally 20-80°, low tensile strength. 27.07m - 27.10m: Brecciated fabric.	SW						28.20-28.25m: DB, drilling induced broken core 28.25m VN, 35°, UN, 3-6mm, quartz 28.30m VN, 35°, UN, 10mm, quartz 28.30-28.60m: JT, 45°-80°, RG, UN, x5, less than 1mm silt, core inferred broken further and disturbed during drilling 28.60-28.72m: JT, 50°, RG, UN, x3, less than 1mm silt 28.72-28.80m: drilling induced broken core 28.78m JT, UN, clay, 1mm 28.80-29.30m: JT, 45°-80°, RG, UN, x5, less than 1mm silt, core inferred broken further and disturbed during drilling 29.30-29.40m: CS, recovered as fine to medium angular gravel clast supported in a clay matrix 29.44-29.60m: JT, 40°-60°, RG, PL, dark grey stain 29.60-29.85m: drilling induced broke core, inferred breaking along 29.85-30.00m: JT, 40°-70°, RG, UN, less than 1mm silt 30.14m VN, 40°, quartz, 6mm 30.18-30.45m: CS, x2, 70-140mm, recovered as fine to medium angular gravel 30.45-30.95m: DB, 30°-80°, RG, UN, drilling induced broken core, preferential breakage along very closely spaced incipient joints, dark grey stain/less than 1mm silt 31.00m JT, 75° 31.10-31.27m: CS, recovered as fine to coarse angular gravel 31.35-31.45m: DB, drilling induced broken core 31.50-31.82m: JT, 30°-60°, RG, UN, x3, less than 1mm silt / clean 31.65-31.80m: VN, 20°-90°, x4, quartz, ductile deformation fabric 31.84-32.00m: JT, 60°-80°, RG, UN, less than 1mm silt 31.95-32.05m: DB, drilling induced broken core	
	HQ3		29						100	66	0			
	HQ3		28						100	75	0			
	HQ3								100	16	0			
	HQ3		28						100	50	0			
	HQ3		29						100	33	0			
	HQ3								100	76	0			
	HQ3		30						100	100	0			
	HQ3		27						100	22	0			
11	HQ3					Slightly weathered, grey and dark grey, fine GREYWACKE SANDSTONE. Very weak. Very closely spaced incipient joints generally dipping 10-80°, moderate tensile strength. 27.60m: Low to moderate tensile strength. 28.10m: Carbonaceous layers (>1%) up to 1mm. 28.50m: Low tensile strength, breaks on handling. 29.45m: Moderate tensile strength. 30.55m: Low tensile strength, breaks on handling. 30.90m: Moderate tensile strength.							28.20-28.25m: DB, drilling induced broken core 28.25m VN, 35°, UN, 3-6mm, quartz 28.30m VN, 35°, UN, 10mm, quartz 28.30-28.60m: JT, 45°-80°, RG, UN, x5, less than 1mm silt, core inferred broken further and disturbed during drilling 28.60-28.72m: JT, 50°, RG, UN, x3, less than 1mm silt 28.72-28.80m: drilling induced broken core 28.78m JT, UN, clay, 1mm 28.80-29.30m: JT, 45°-80°, RG, UN, x5, less than 1mm silt, core inferred broken further and disturbed during drilling 29.30-29.40m: CS, recovered as fine to medium angular gravel clast supported in a clay matrix 29.44-29.60m: JT, 40°-60°, RG, PL, dark grey stain 29.60-29.85m: drilling induced broke core, inferred breaking along 29.85-30.00m: JT, 40°-70°, RG, UN, less than 1mm silt 30.14m VN, 40°, quartz, 6mm 30.18-30.45m: CS, x2, 70-140mm, recovered as fine to medium angular gravel 30.45-30.95m: DB, 30°-80°, RG, UN, drilling induced broken core, preferential breakage along very closely spaced incipient joints, dark grey stain/less than 1mm silt 31.00m JT, 75° 31.10-31.27m: CS, recovered as fine to coarse angular gravel 31.35-31.45m: DB, drilling induced broken core 31.50-31.82m: JT, 30°-60°, RG, UN, x3, less than 1mm silt / clean 31.65-31.80m: VN, 20°-90°, x4, quartz, ductile deformation fabric 31.84-32.00m: JT, 60°-80°, RG, UN, less than 1mm silt 31.95-32.05m: DB, drilling induced broken core	
	HQ3		29						100	25	0			
	HQ3		26						100	62	20			
	HQ3		31						100	83	85			
	HQ3								100	83	85			
	HQ3		25						100	83	85			
	HQ3								100	83	85			
	HQ3								100	83	85			
	HQ3								100	83	85			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 80mm.
- A standpipe was installed on 18/09/2025 with a screened interval between 9.5 to 15.5m bgl. One vibrating wire piezometer BH2B_1139_PZ01 was installed at 15.0m bgl, within the open standpipe on 16/10/2025, Serial No. 378277.
- Falling/rising head testing undertaken with data logger at borehole depth 21.64m on 12 to 14/09/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 33.15m on 16/09/2025.
- Shear Vane Serial No. DR4938, calibration constant 1.486

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
15/09/2025 4:30:00 pm	26.50	5.00
16/09/2025 8:00:00 am	26.50	3.70

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan Drilling Ltd

CO-ORDINATES: NZTM2000
Easting: 1727951.88mE,
Northing: 6010816.85mN,
Ground level: 56.87m (NZVD2016)

Date Started: 10/09/2025
Date Completed: 18/09/2025
Inclination: 90
Azimuth: N/A

Logged: C. Mariscal/D. Bake
Input: D. Baker
Reviewed: B. Simons
Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
11	HQ3					[CONT] Slightly weathered, grey and dark grey, fine GREYWACKE SANDSTONE. Very weak. Very closely spaced incipient joints generally dipping 10-80°, moderate tensile strength.			100	100	0	VCS	32.00m: 32.15-32.47m: JT, 30°-60°, RG, UN, x3, less than 1mm silt	
12	HQ3		24		WPU	32.85m - 32.91m: Brecciated fabric, angular sandstone clasts, 1-20mm, clast supported in mudstone matrix.			100	100	0	CS	32.50-32.55m: DB, 70°, SM, UN, clay, 1mm, drilling induced broken core 32.55-32.63m: JT 32.63-32.69m: CS, recovered as fine to coarse angular gravel 32.73m: JT, 70°, SM, UN, dark grey stain	
12	HQ3		33						100	85	55	MWS		
12	HQ3		23						100	25	0	ECS	33.20-33.29m: CS, recovered as fine to medium angular gravel 33.29-33.40m: JT, 80°, RG, UN, less than 1mm silt 33.51-34.10m: JT, 40°-80°, RG, UN, x10, less than 1mm silt, core inferred broken further and disturbed during drilling	
12	HQ3		34						100	86	0	VCS		
12	HQ3		35						100	85	0		34.10-34.40m: DB, drilling induced broken, breakage along incipient joints	
12	HQ3		22			34.40-34.50m: CORE LOSS (100mm) [GREYWACKE FAULT ZONE]. Slightly weathered, grey and dark grey, GREYWACKE FAULT BRECCIA. Very weak. Very closely spaced incipient joints generally dipping 60-80°, low tensile strength. [GREYWACKE FAULT ZONE]. 35.20m: Breaks on handling.			75	17	0	CS	34.56m: IS, 20°, clay, 8mm 34.60m: JT, 10°, RG, PL, less than 1mm silt 34.63m: JT, 70°, RG, UN, less than 1mm clay 34.74-34.80m: DB, drilling induced broken core 34.80-35.20m: FZ, 30°-90°, RG, UN, less than 1mm silt in fractures 34.85m: VN, (5%), 3mm, quartz, ductile deformation fabric	
13	HQ3		35		WPFZ				100	100	0	ECS	35.30-35.50m: JT, 70°-90°, RG, UN, x4, 1mm clay 35.50-36.75m: SZ, brecciated fabric, fine to coarse angular siltstone/sandstone gravel clast supported in stiff sandy clay matrix	
13	HQ3		21						100	0	0	VCS		
13	HQ3		36						100	0	0	ECS		
13	HQ3		20			Slightly weathered, grey, fine GREYWACKE SANDSTONE. Very weak. Extremely to very closely spaced incipient joints generally dipping 40-60°, low tensile strength, breaks on handling [SLIGHTLY WEATHERED GREYWACKE]. 37.00m: Moderate tensile strength.			100	28	0	ECS	36.80-36.92m: DB, drilling induced broken, breakage along very closely spaced incipient joints 36.95-37.00m: JT, 80°-90°, SM, UN, less than 1mm silt 36.98m: JT, 60°, RG, UN, 1mm clay 37.23-37.28m: DB, drilling induced broken core 37.28m: JT, 40°, RG, UN, 1mm silt 37.35-37.40m: DB, drilling induced broken core 37.40-37.49m: CS, recovered as fine to medium angular gravel clast supported in sandy clay matrix	
13	HQ3		37						100	50	0	VCS	37.52m: JT, 20°, RG, PL, dark grey stain 37.58m: JT, 50°, RG, PL, dark grey stain 37.66m: JT, 50°, RG, UN, clay, 1mm 37.74-38.20m: JT, 70°, RG, UN, clay, 1mm 37.80-38.25m: DB, 20°-80°, RG, UN, drilling induced broken core, breakage along very closely spaced incipient joints, less than 1mm clay	
13	HQ3		38			37.90m: Low tensile strength, breaks on handling.			100	100	28	CS	38.35-38.39m: VN, 30°, quartz with chlorite inclusions, 40mm 38.47m: JT, 35°, RG, UN, less than 1mm clay 38.50-39.40m: DB, 20°-80°, RG, UN, drilling induced broken core, preferential breakage along very closely spaced incipient joints, dark grey stain/less than 1mm clay	
13	HQ3		39						100	66	0	VCS		
13	HQ3		19						100	100	51	CS	39.40-39.50m: JT, 30°-40°, SM, PL, x5, up to 1mm silty clay 39.50-39.65m: DB, 20°-70°, RG, UN, drilling induced broken core, preferential breakage along very closely spaced incipient joints, dark grey stain/less than 1mm clay	
14	HQ3		18			39.65m: High tensile strength.			100	0	0	VCS		
14	HQ3		17						100	0	0		39.75m: JT, 60°, RG, UN, 1mm clay 39.80-40.07m: JT, 75°, RG, UN, dark grey stain,	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 80mm.
- A standpipe was installed on 18/09/2025 with a screened interval between 9.5 to 15.5m bgl. One vibrating wire piezometer BH2B_1139_PZ01 was installed at 15.0m bgl, within the open standpipe on 16/10/2025, Serial No. 378277.
- Falling/rising head testing undertaken with data logger at borehole depth 21.64m on 12 to 14/09/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 33.15m on 16/09/2025.
- Shear Vane Serial No. DR4938, calibration constant 1.486

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
16/09/2025 4:30:00 pm	33.15	0.50
17/09/2025 7:30:00 am	33.15	4.70

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 10/09/2025	Logged: C. Mariscal/D. Bake
Method:	Rotary Core Wireline	Easting:	1727951.88mE,	Date Completed: 18/09/2025	Input: D. Baker
Equipment:	Hanjin / D&B 10	Northing:	6010816.85mN,	Inclination: 90	Reviewed: B. Simons
Contractor:	McMillan Drilling Ltd	Ground level:	56.87m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
14	HQ3				WPU	Slightly weathered, grey, fine GREYWACKE SANDSTONE. Very weak. Very closely spaced incipient joints generally dipping 40-60°, high tensile strength. End Of Hole: 40.40m	SW		100	100	73	CS MWS	less than 1mm silt 40.07m JT, 35°, RG, UN, dark grey stain, less than 1mm silt 40.30-40.40m: JT, 60°, RG, UN, dark grey stain, less than 1mm silt 40.35m JT, 20°, RG, UN, dark grey stain, less than 1mm silt	
		16	41											
		15	42											
		14	43											
		13	44											
		12	45											
		11	46											
		10	47											
		9												

REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 80mm.		Date/Time	Hole Depth (m)	Water Level (m)
2. A standpipe was installed on 18/09/2025 with a screened interval between 9.5 to 15.5m bgl. One vibrating wire piezometer BH2B_1139_PZ01 was installed at 15.0m bgl, within the open standpipe on 16/10/2025, Serial No. 378277.		17/09/2025 4:00:00 pm	40.40	2.90
3. Falling/rising head testing undertaken with data logger at borehole depth 21.64m on 12 to 14/09/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 33.15m on 16/09/2025.				
4. Shear Vane Serial No. DR4938, calibration constant 1.486				

Borehole Reference:

BH2B_1139

Photographed By:

CM

Date Photographed:

11/09/2025-29/03/2026



BH2B 1139 BOX001 0m-3m



BH2B_1139_BOX002_3m-6.45m

Borehole Reference:

BH2B_1139

Photographed By:

CM

Date Photographed:

11/09/2025-29/03/2026



BH2B_1139_BOX003_6.45m-9.75m



BH2B_1139_BOX004_9.75m-13.05m

Borehole Reference:

BH2B_1139

Photographed By:

CM

Date Photographed:

11/09/2025-29/03/2026



BH2B_1139_BOX005_13.05m-16.4m



BH2B_1139_BOX006_16.4m-18.8m

Borehole Reference:

BH2B_1139

Photographed By:

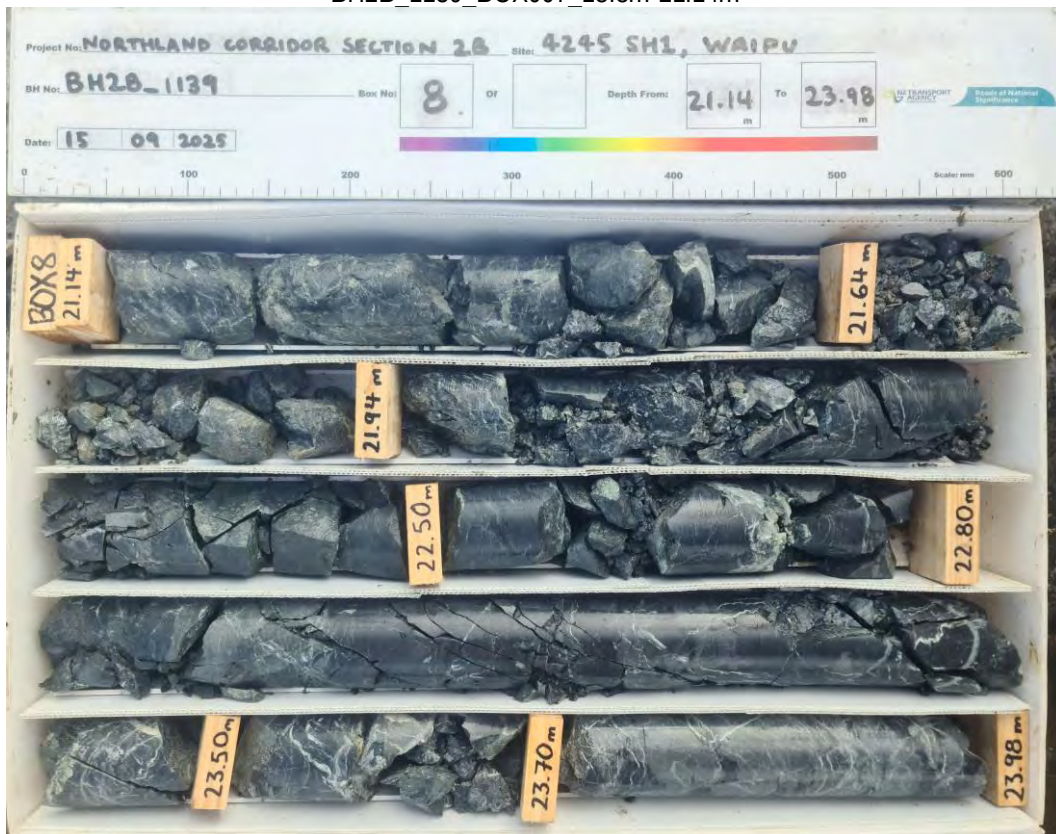
CM

Date Photographed:

11/09/2025-29/03/2026



BH2B_1139_BOX007_18.8m-21.14m



BH2B_1139_BOX008_21.14m-23.98m

Borehole Reference:

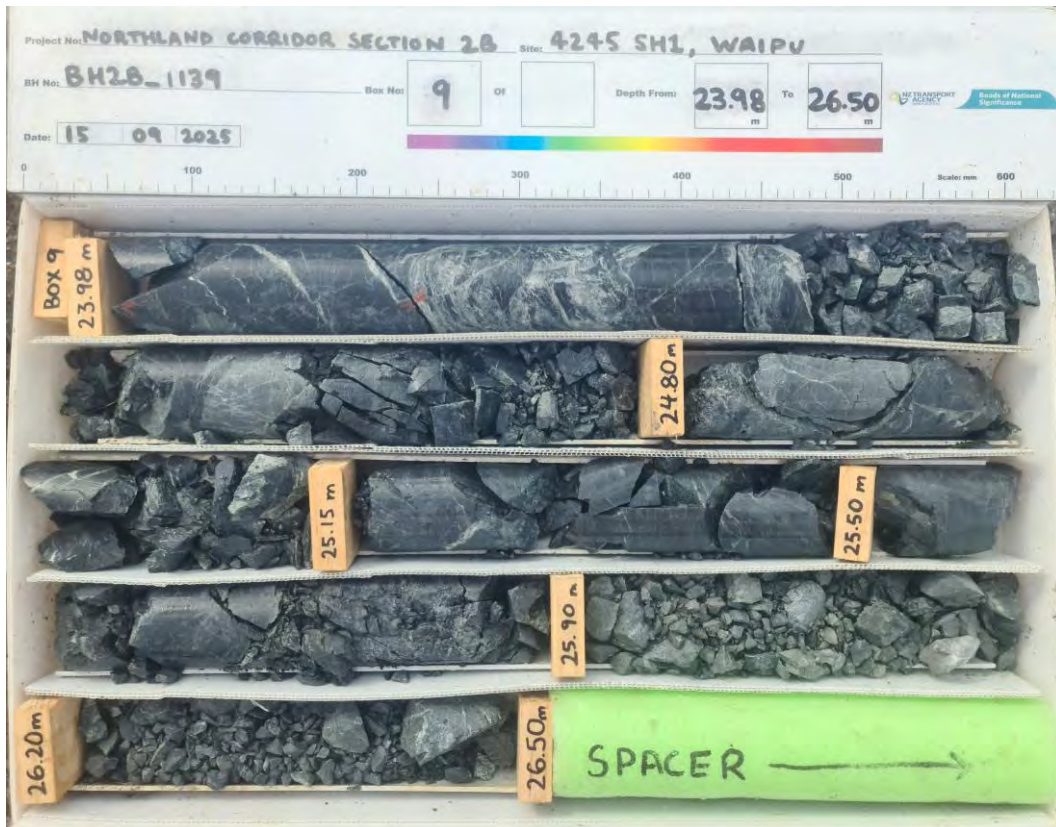
BH2B_1139

Photographed By:

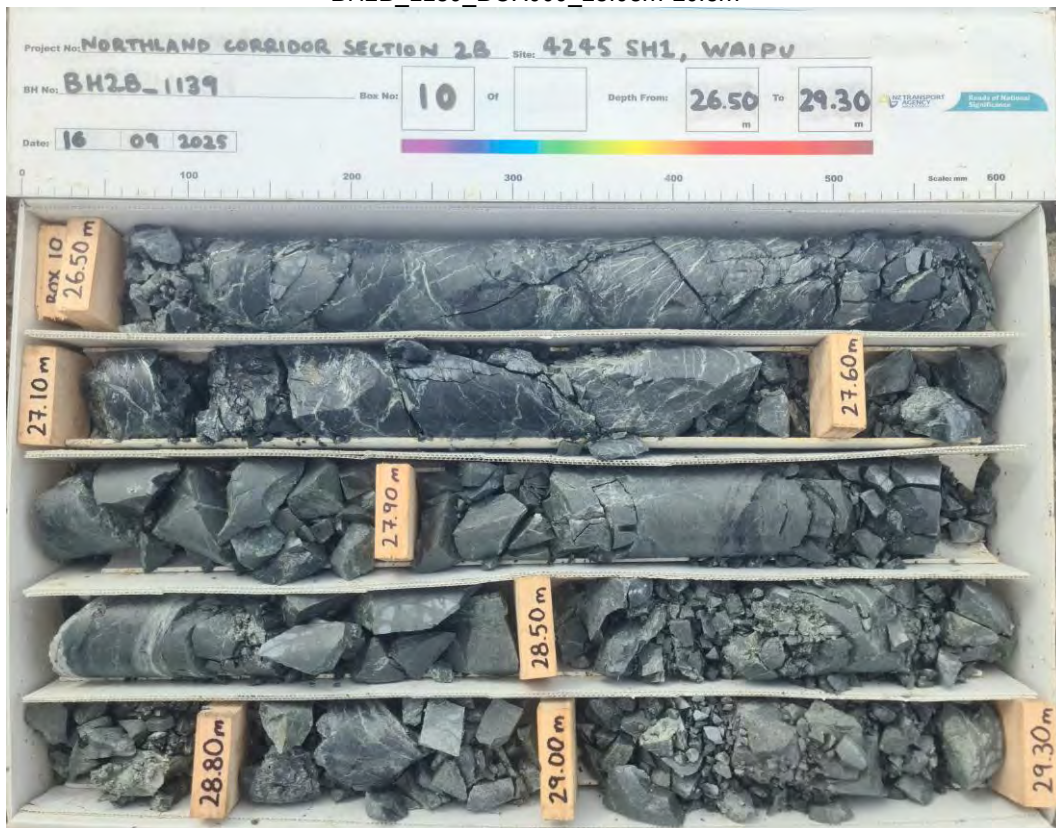
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Date Photographed:

11/09/2025-29/03/2026



BH2B_1139_BOX009_23.98m-26.5m



BH2B_1139_BOX010_26.5m-29.3m

Borehole Reference:

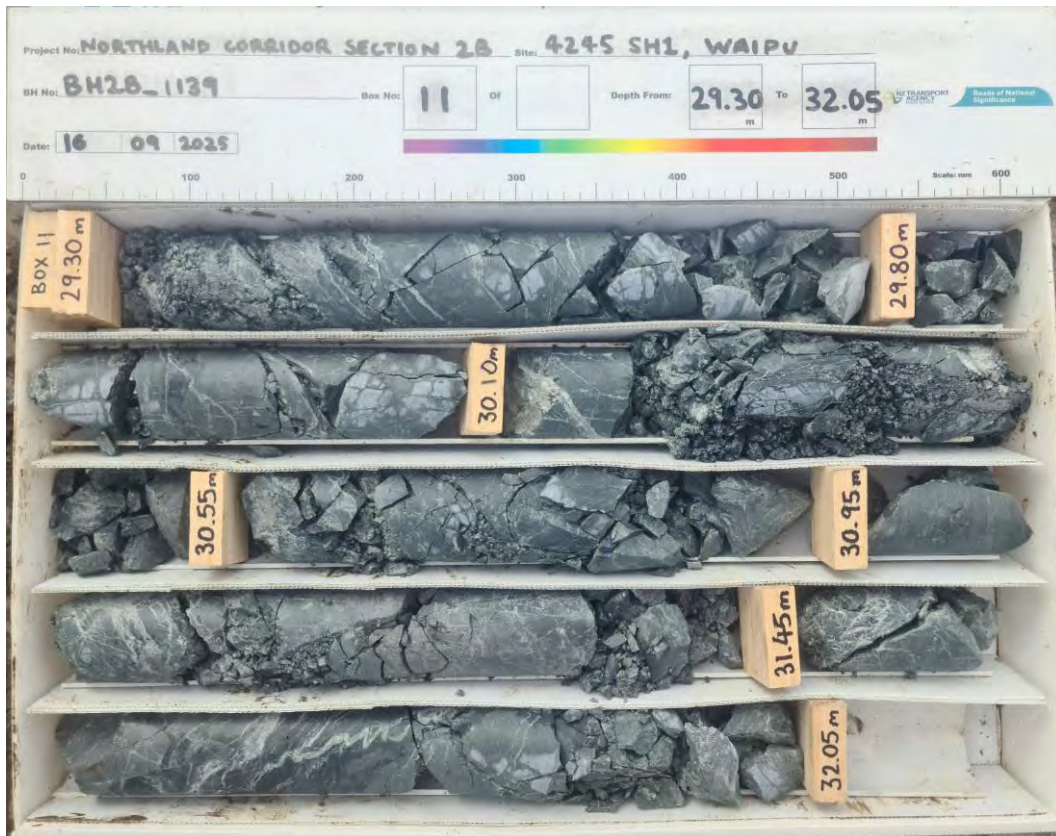
BH2B_1139

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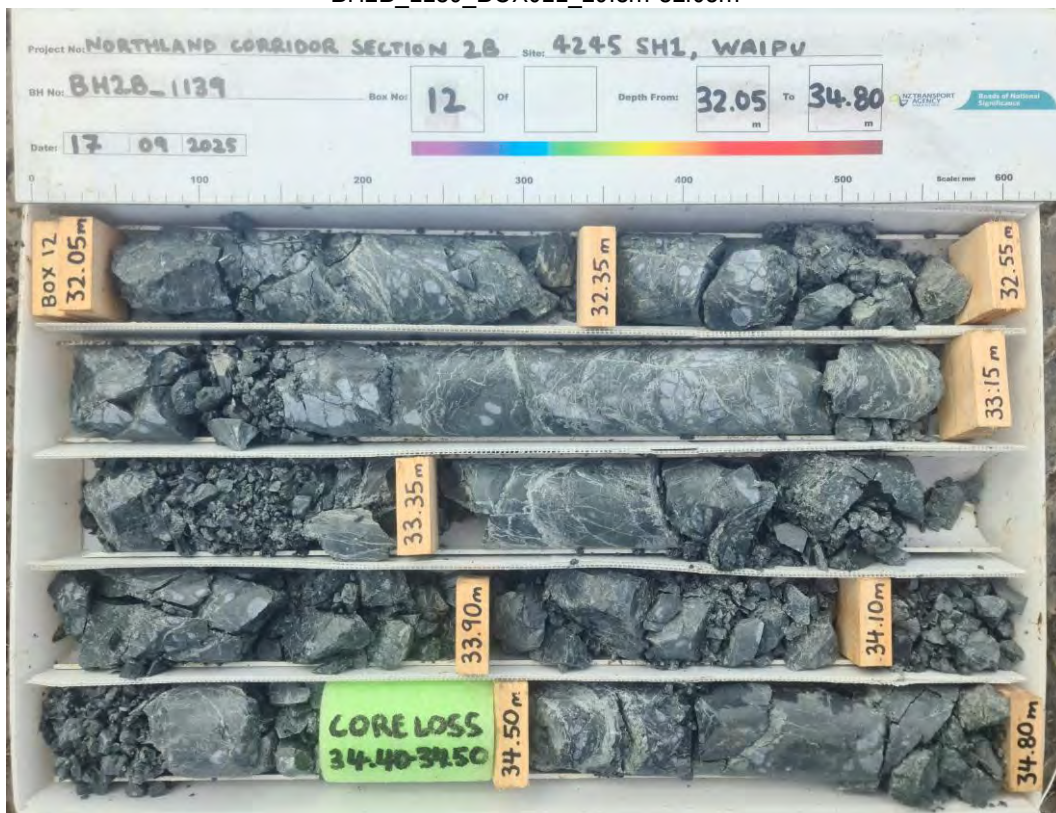
CM

Date Photographed:

11/09/2025-29/03/2026



BH2B_1139_BOX011_29.3m-32.05m



BH2B_1139_BOX012_32.05m-34.8m

Borehole Reference:

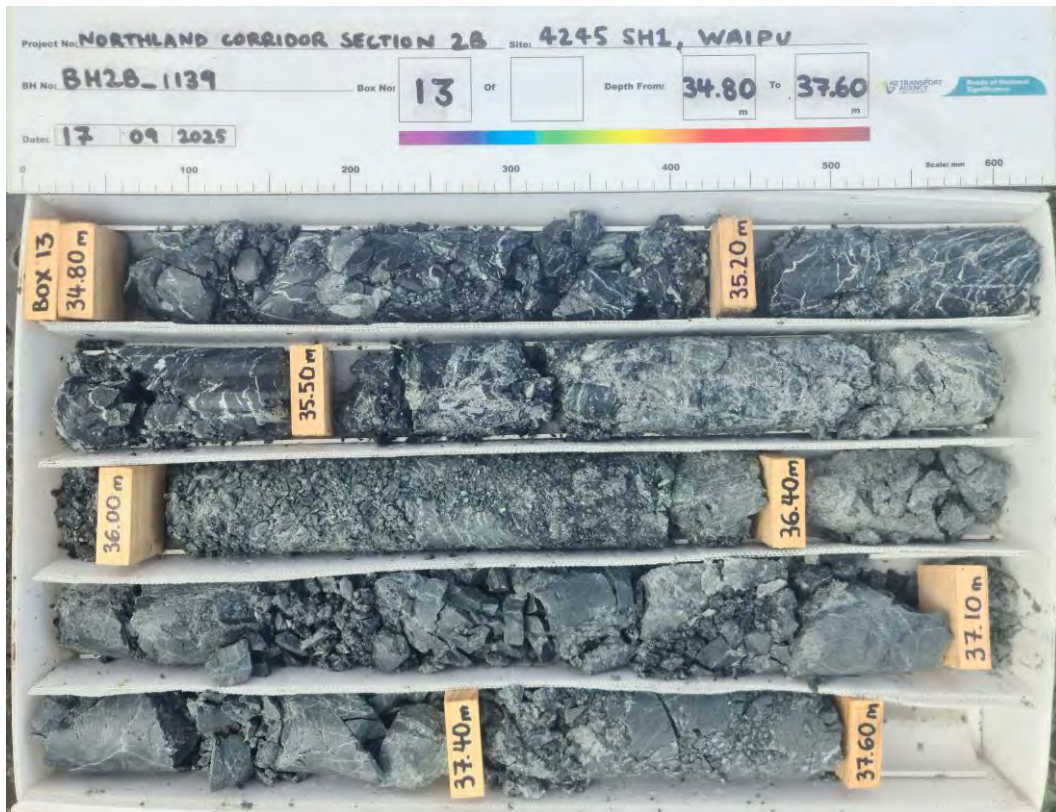
BH2B_1139

Photographed By:

CM

Date Photographed:

11/09/2025-29/03/2026



BH2B_1139_BOX013_34.8m-37.6m



BH2B_1139_BOX014_37.6m-40.4m

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan Drilling Ltd

CO-ORDINATES: NZTM2000
Easting: 1727863.84
Northing: 6012434.66
Ground level: 21.8865m (NZVD2016)

Date started: 09/09/2025
Date completed: 11/09/2025
Inclination: 90°
Azimuth: N/A

Logged: B.Fleetwood
Input: B.Fleetwood
Reviewed: B.Simons
Verified: A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
1	HA	21	1		TS	0.00m: Organic clayey SILT with trace sand; dark brown. Firm, moist, low plasticity [TOPSOIL].									
					F	0.20m: Clayey SILT with minor sand; orange brown and grey. Stiff, moist, low plasticity. Sand, fine to coarse [FILL].									
						0.60m: Clayey SILT with minor sand and organics; dark brown. Firm, moist, low plasticity. Sand, fine to medium.			100						
						0.80m: Silty CLAY with minor sand and trace organics; grey, mottled orange and dark brown. Very stiff, moist, high plasticity. Sand, fine to medium [RECENT (HOLOCENE) ALLUVIUM].		1m: ISHSV 137/37 kPa							
					TA	1.50m: Silty CLAY; dark grey. Very stiff, moist, high plasticity.		1.5m: ISHSV 176/54 kPa 1.5m: SPT 0, 1/ 2, 1, 2, 1 N = 6	69						
2	HQ3	20	2			2.00-2.50m: ...Becomes light grey with grey streaks.			76						
						2.75m: CORE LOSS (250mm)									
						3.00m: PUSH TUBE		3m: ISHSV 113/42 kPa U: 3.00-3.50 m	100						
					TA	3.50m: Silty CLAY; orange with light grey streaks. Stiff, moist, high plasticity.		3.5m: SPT 0, 0/ 2, 1, 1, 2 N = 6	89						
						3.90m: Silty CLAY; dark brown. Firm to stiff, moist, high plasticity.			45						
3	HQ3	17	4			4.30m: CORE LOSS (200mm)									
						4.50m: Silty CLAY; orange and light grey. Stiff, moist, high plasticity.		4.5m: SPT 1, 1/ 1, 1, 2, 1 N = 5	100						
					TA				100						
						6.20m: Silty CLAY; bluish grey. Soft to stiff, wet, high plasticity [OLDER (PLEISTOCENE) DEPOSITS].		6m: IBHSV 81/20 kPa 6m: SPT 0, 0/ 0, 0, 0, 0 N = 0	89						
					TP				100						
3	U54	14				7.25m: Silty CLAY with minor sand; bluish grey. Soft to stiff, wet, high plasticity. Sand, fine to medium.									
						7.50m: PUSH TUBE		7.5m: IBHSV 51/12 kPa U: 7.50-8.00 m	100						

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 70mm and vertical accuracy +/- 50mm.
- One vibrating wire piezometer was installed on 11/09/2025. BH2B_1140_PZ01 was installed at 15m bgl, Serial No. 378286.
- An additional borehole, BH2B_1140A was completed 2.6m from BH2B_1140 for downhole iVane testing.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-09-09 17:00	10.95m	1.40mbgl
2025-09-10 08:00	10.95m	1.55mbgl
2025-09-10 17:00	25.50m	4.30mbgl
2025-09-11 07:15	25.50m	4.30mbgl
2025-09-11 15:00	30.00m	2.20mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan Drilling Ltd

CO-ORDINATES: NZTM2000
Easting: 1727863.84
Northing: 6012434.66
Ground level: 21.8865m (NZVD2016)

Date started: 09/09/2025
Date completed: 11/09/2025
Inclination: 90°
Azimuth: N/A

Logged: B.Fleetwood
Input: B.Fleetwood
Reviewed: B.Simons
Verified: A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
3	SPT					8.00m: Silty CLAY; bluish grey. Soft to firm, wet, high plasticity.		8m: SPT 0, 0// 0, 0, 0, 0 N = 0	100					
	HQ3								100					
	SPT		9					9m: IBHSV 41/7 kPa 9m: SPT 0, 0// 0, 0, 0, 0 N = 0	100					
	HQ3		10		TP				100					
	SPT		11					10.5m: IBHSV 34/10 kPa 10.5m: SPT 0, 0// 0, 0, 0, 0 N = 0	89					
4	HQ3		11			12.00m: PUSH TUBE			100					
	HQ3		12						100					
	U54							U: 12.00 m	100					
	SPT		9					12.5m: SPT 0, 0// 0, 0, 0, 1 N = 1	100					
	HQ3		13		TP				100					
5	SPT		8			13.25m: Clayey SILT with some sand; bluish grey. Firm, moist, low plasticity.		13.5m: IBHSV 44/8 kPa 13.5m: SPT 0, 0// 0, 0, 3, 3 N = 6	89					
	HQ3		14			13.80m: Fine to coarse SAND; whitish grey. Medium dense, moist, well graded. 13.95m: CORE LOSS (1050mm), inferred granular material.			0					
	HQ3		15			15.00m: Fine to medium GRAVEL, grey. Loose, moist, poorly graded. Gravel, subangular to angular, siltstone. (Finer material likely washed out during drilling).		15m: SPT 3, 4// 5, 3, 2, 1 N = 11	67					
	SPT				TP	15.45m: Silty CLAY; bluish grey. Soft to firm, moist, high plasticity.								
	HQ3		6											

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 70mm and vertical accuracy +/- 50mm.
- One vibrating wire piezometer was installed on 11/09/2025. BH2B_1140_PZ01 was installed at 15m bgl, Serial No. 378286.
- An additional borehole, BH2B_1140A was completed 2.6m from BH2B_1140 for downhole iVane testing.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-09-09 17:00	10.95m	1.40mbgl
2025-09-10 08:00	10.95m	1.55mbgl
2025-09-10 17:00	25.50m	4.30mbgl
2025-09-11 07:15	25.50m	4.30mbgl
2025-09-11 15:00	30.00m	2.20mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan Drilling Ltd

CO-ORDINATES:

CO-ORDINATES:	NZTM2000
Easting:	1727863.84
Northing:	6012434.66
Ground level:	21.8865m (NZVD2016)

Date started: 09/09/2025

Date completed: 11/09/2025

Inclination: 90°

Azimuth: N/A

Logged:	B.Fleetwood
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Input:	B.Fleetwood
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Reviewed: B.Simons

Verified: A.George

[illegible]

Remarks:

- Remarks:**
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 70mm and vertical accuracy +/- 50mm.
 2. One vibrating wire piezometer was installed on 11/09/2025. BH2B 1140_P201 was installed at 15m bgl. Serial No. 378286.
 3. An additional borehole, BH2B 1140A was completed 2.6m from BH2B 1140 for downhole iVane testing.

Shear Vane (ISHSV + IBHSV) Serial No. 3331, calibration constant 1.693.

Water Level Readings:

WaterTime	Hole Depth	Water Level
2025-09-09 17:00	10.95m	1.40mbgl
2025-09-10 08:00	10.95m	1.55mbgl
2025-09-10 17:00	25.50m	4.30mbgl
2025-09-11 07:15	25.50m	4.30mbgl
2025-09-11 15:00	30.00m	2.20mbgl

Borehole Reference: BH2B_1140

Photographed By: SH

Date Photographed:

10/09/2025-11/09/2025



BH2B_1140_BOX001 0m-3.5m



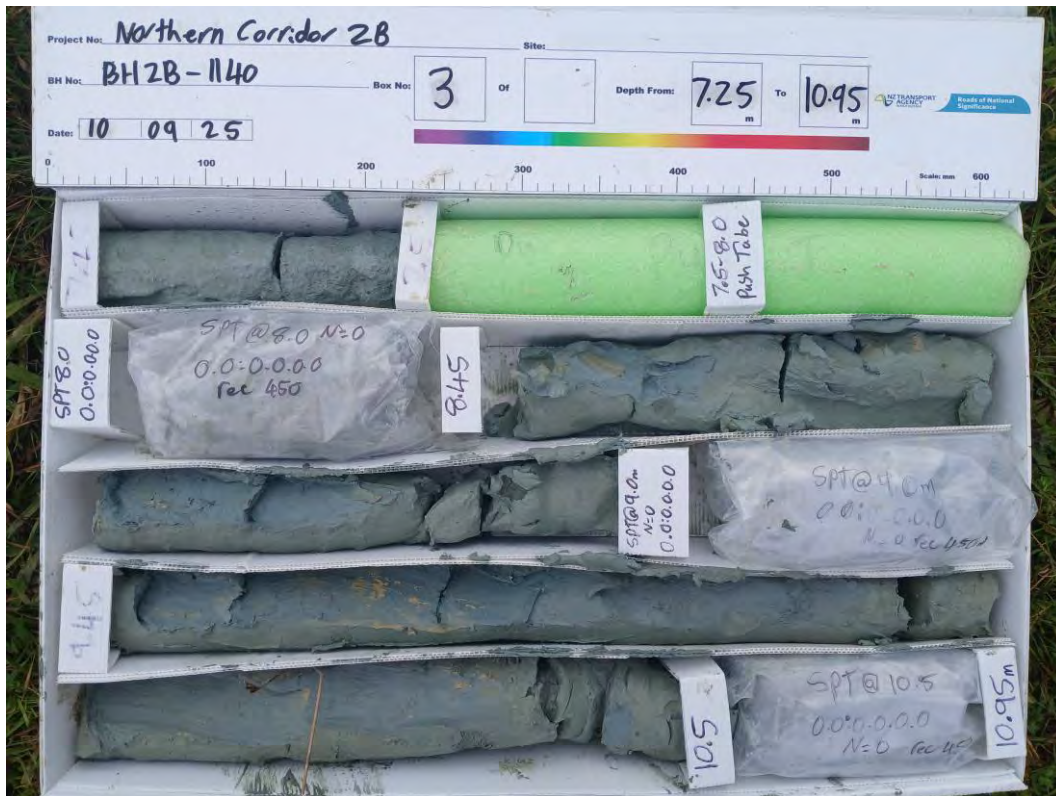
BH2B_1140_BOX002 3.5m-7.25m

Borehole Reference: BH2B_1140

Photographed By: SH

Date Photographed:

10/09/2025-11/09/2025



BH2B_1140_BOX003_7.25m-10.95m



BH2B_1140_BOX004_10.95m-13.95m

Borehole Reference: BH2B_1140

Photographed By: SH

Date Photographed:

10/09/2025-11/09/2025



BH2B_1140_BOX005_13.95m-18.5m



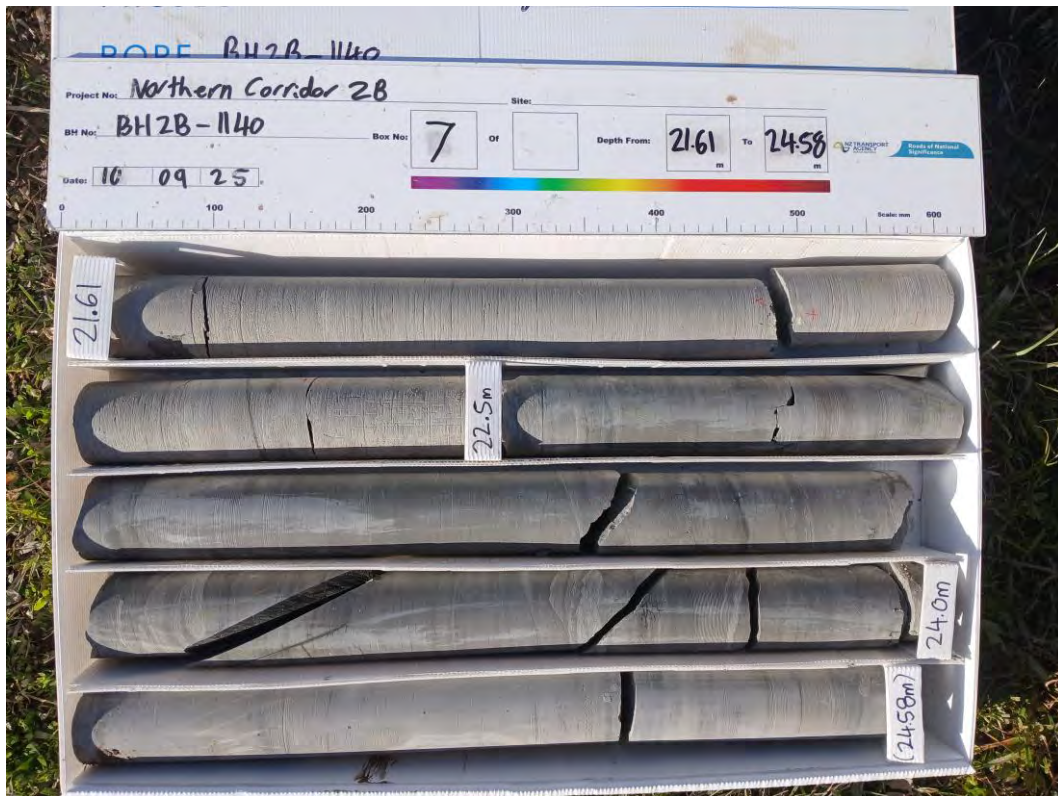
BH2B_1140_BOX006_18.5m-21.61m

Borehole Reference: BH2B_1140

Photographed By: SH

Date Photographed:

10/09/2025-11/09/2025



BH2B_1140_BOX007_21.61m-24.58m



BH2B_1140_BOX008_24.58m-27.54m

Borehole Reference: BH2B_1140

Photographed By: SH

Date Photographed:

10/09/2025-11/09/2025



BH2B_1140_BOX009_27.54m-30m

BOREHOLE INFORMATION		CO-ORDINATES:		Date started:		Logged:	
Method:	Rotary Core Wireline	Easting:	NZTM2000	Date completed:	03/10/2025	Input:	C. Mariscal
Equipment:	Hanjin / D&B 10	Northing:	1727867.00	Inclination:	10/10/2025	Reviewed:	C. Mariscal
Contractor:	McMillan Drilling Ltd	Ground level:	6014388.88	Azimuth:	90°	Verified:	S. MacKay
			15.326m (NZVD2016)			A. George	

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
												WVS	WS	MWS	VCS	EGS		
1	HA	15			TS	0.00m: CLAY with some organics; brown. Wet, very soft, high plasticity. Organics are rootlets [TOPSOIL].												
						0.50m: CLAY; brown, mottled light brown. Wet, very soft, high plasticity [TAURANGA GROUP - HOLOCENE ALLUVIUM].		0.5m: ISHSV 55/6 kPa	100	0	0							
		1						1m: ISHSV 64/17 kPa										
		14				1.50-1.95m: ...With trace rootlets and fibrous plant materials.		1.5m: ISHSV 36/17 kPa 1.5m: SPT 0, 0// 0, 0, 0, 0 N = 0	100	0	0							
		2																
2	HQ3	13				2.25m: CLAY with some organics and silt; dark brown, black dark orange. Wet, firm, high plasticity. Organics are fibrous black organic materials.			100	0	0							
		3				3.00-3.50m: ...PUSH TUBE		3m: IBHSV 39/6 kPa	90	0	0							
		12																
						3.50m: Sandy CLAY with some organics; dark brown. Wet, very soft, low plasticity. Sand is fine. Organics are fibrous plant materials. 3.85m: ...Light greenish grey, high plasticity.		3.5m: SPT 0, 0// 0, 0, 0, 0 N = 0	100	0	0							
3	U54	11			TA				100	0	0							
		4																
		10				4.50m: CLAY; light bluish grey. Moist, very soft, high plasticity.		4.5m: IBHSV 8/3 kPa 4.5m: SPT 0, 0// 0, 0, 0, 0 N = 0	100	0	0							
		5																
3	HQ	9				6.00-6.50m: ...PUSH TUBE		6m: IBHSV 39/6 kPa U: 6.00-6.50 m	100	0	0							
		6						6.5m: SPT 0, 0// 0, 0, 0, 2 N = 2	100	0	0							
		7																
		8						7.5m: IBHSV 36/8 kPa 7.5m: SPT 0, 0// 0, 0, 0, 0 N = 0	100	0	0							

Remarks:			Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 37mm and vertical accuracy +/- 66mm.			DateTime	Hole Depth	Water Level
2. Two vibrating wire piezometers were installed on 10/10/2025. BH2B_1142_PZ01 was installed at 7.75m bgl, Serial No. 378259. BH2B_1142_PZ02 was installed at 16.75m bgl, Serial No. 378294. The hole was backfilled with a sand pack instead of grout.			2025-10-03 12:00	13.95m	3.10mbgl
			2025-10-06 08:55	13.95m	0.80mbgl
			2025-10-06 16:47	16.30m	3.10mbgl
			2025-10-07 07:00	16.30m	3.10mbgl
			2025-10-07 17:00	22.30m	0.00mbgl
			2025-10-08 07:35	22.30m	0.50mbgl
			2025-10-08 16:40	30.00m	2.10mbgl
			2025-10-09 06:20	30.00m	2.70mbgl

Shear Vane (IBHSV + ISHSV) Serial No. 1378, calibration constant 1.383.

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan Drilling Ltd

CO-ORDINATES: NZTM2000
Easting: 1727867.00
Northing: 6014388.88
Ground level: 15.326m (NZVD2016)

Date started: 03/10/2025
Date completed: 10/10/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Mariscal
Input: C. Mariscal
Reviewed: S. MacKay
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS	WS	MWS	VCS	EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
3	HQ3	7							100	0	0								
	SPT	6				9.45m: ...With trace silt and fine sand.		9m: IBHSV 41/6 kPa 9m: SPT 0, 0// 0, 0, 0, 0 N = 0	100	0	0								
4	HQ3	5				10.50-12.50m: ...With trace organics, dark brown. Firm. Organics are disseminated through the core.		10.5m: IBHSV 33/14 kPa 10.5m: SPT 0, 0// 0, 0, 0, 0 N = 0	100	0	0								
	SPT	4																	
	HQ3	3				12.00-12.50m: ...PUSH TUBE		12m: IBHSV 33/11 kPa	100	0	0								
	U54	3																	
	SPT	2				12.50m: Clayey SAND; brown, light bluish grey. Wet, very loose, fine SAND. Clay is highly plastic.		12.5m: SPT 0, 0// 0, 0, 1, 2 N = 3	100	0	0								
	HQ3	2				12.95m: ...Fine to medium SAND.			100	0	0								
5	SPT	1				13.50m: Gravely fine to medium SAND; dark bluish grey, spotted white and black. Wet, very loose. Gravel is fine to medium, sub-angular sandstone.		13.5m: IBHSV 3/0 kPa 13.5m: SPT 2, 2// 3, 4, 3, 3 N = 13	80	0	0								
		1				13.95m: CORE LOSS (750mm) washed out due to soft clay matrix.												13.95m: Driller had difficulty retrieving the core. Sub-angular coarse gravel to cobble SILTSTONE were recovered when pulling out the drill bit. The rig operator observed that the matrix could be a very soft clay. Skipped SPT at 15m to install casing. Driller noted hole collapse, cuttings retrieved when clearing the hole.	
	HQ3	0				14.70m: Sandy fine to coarse GRAVEL with trace cobbles; grey. Wet, very loose. GRAVEL is angular to sub-angular sandstone. Sand is fine to coarse, sub-angular. Cobbles are angular to sub-angular SANDSTONE. Fines assumed washed out.			67	0	0								
6																			

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 37mm and vertical accuracy +/- 66mm.
2. Two vibrating wire piezometers were installed on 10/10/2025. BH2B_1142_PZ01 was installed at 7.75m bgl, Serial No. 378259. BH2B_1142_PZ02 was installed at 16.75m bgl, Serial No. 378294. The hole was backfilled with a sand pack instead of grout.

Shear Vane (IBHSV + ISHSV) Serial No. 1378, calibration constant 1.383.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-10-03 12:00	13.95m	3.10mbgl
2025-10-06 08:55	13.95m	0.80mbgl
2025-10-06 16:47	16.30m	3.10mbgl
2025-10-07 07:00	16.30m	3.10mbgl
2025-10-07 17:00	22.30m	0.00mbgl
2025-10-08 07:35	22.30m	0.50mbgl
2025-10-08 16:40	30.00m	2.10mbgl
2025-10-09 06:20	30.00m	2.70mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	03/10/2025	Logged:	C. Mariscal
Method:	Rotary Core Wireline	Easting:	1727867.00	Date completed:	10/10/2025	Input:	C. Mariscal
Equipment:	Hanjin / D&B 10	Northing:	6014388.88	Inclination:	90°	Reviewed:	S. MacKay
Contractor:	McMillan Drilling Ltd	Ground level:	15.326m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
6	HQ3	-0.3	-1		TA	16.30m: Medium to coarse GRAVEL with some cobbles; light grey, dark grey. Wet, very loose. GRAVEL is sub-angular to rounded sandstone. Cobbles are sub-angular to rounded sandstone.		16.7m: SPT 3, 3// 2, 2, 2, 1 N = 7	100	0	0	VMS VSS MWS CS VCS ECs	16.20m: 70% water return when drilling 16.20m to 16.30m. 16.30m: Attempted to recover core but the core keeps on slipping from the split tube. 50% water return when drilling 16.30m to 16.40m.	
	HQ3	-1.3				100		0	0					
	SPT	17				100		0	0					
	HQ3	-2				0		0						
	SPT	18				9		0	0					
	HQ3	-3				57		0	0					
7	HQ3	-4			RU	18.00m: Medium to coarse GRAVEL with some cobbles; light grey, dark grey. Wet, very loose. GRAVEL is sub-angular to rounded sandstone. Cobbles are sub-angular to rounded sandstone.		18m: SPT 6, 2// 1, 1, 2, 1 N = 5	100	0	0		18.00m: HWT casing at 18m.	
	SPT	19				100		0	0					
	HQ3	-5				100		0	0					
	SPT	20				100		0	0					
	HQ3	-6				100		0	0					
	SPT	21				100		0	0					
8	HQ3	-7			SW	18.45m: Clayey medium to coarse GRAVEL; light bluish grey, spotted black. Wet, very loose. GRAVEL is angular sandstone. Clay is highly plastic.		19.5m: SPT 0, 0// 0, 0, 2, 2 N = 4	100	0	0		22.07-22.30m: Strong HCl reaction on SANDSTONE 22.30-22.40m: No HCl reaction on GRAVEL 22.40-22.50m: Strong HCl reaction on SILTSTONE 22.65m: 40% water return when drilling 22.65m to 22.95m 22.65-22.75m: re-drill 22.65-24.00m: Strong HCl reaction on INTERBEDDED SANDSTONE and SILTSTONE 22.95m: 30-40% water return when drilling 22.95m to 23.70m 23.20m: JI, 80°, PI, calcite, 1mm 23.55m: JI, 80°, PI, calcite, 1mm 23.70m: 50% water return when drilling 23.70m to 24.00m 23.83-24.25m: CZ, 20°, recovered as very	
	SPT	19				100		0	0					
	HQ3	-8				100		0	0					
	SPT	20				100		0	0					
	HQ3	-9				100		0	0					
	SPT	21				100		0	0					

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 37mm and vertical accuracy +/- 66mm.
2. Two vibrating wire piezometers were installed on 10/10/2025. BH2B_1142_PZ01 was installed at 7.75m bgl. Serial No. 378259. BH2B_1142_PZ02 was installed at 16.75m bgl, Serial No. 378294. The hole was backfilled with a sand pack instead of grout.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-10-03 12:00	13.95m	3.10mbgl
2025-10-06 08:55	13.95m	0.80mbgl
2025-10-06 16:47	16.30m	3.10mbgl
2025-10-07 07:00	16.30m	3.10mbgl
2025-10-07 17:00	22.30m	0.00mbgl
2025-10-08 07:35	22.30m	0.50mbgl
2025-10-08 16:40	30.00m	2.10mbgl
2025-10-09 06:20	30.00m	2.70mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan Drilling Ltd

CO-ORDINATES: NZTM2000
Easting: 1727867.00
Northing: 6014388.88
Ground level: 15.326m (NZVD2016)

Date started: 03/10/2025
Date completed: 10/10/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Mariscal
Input: C. Mariscal
Reviewed: S. MacKay
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
8	SP TC							24m: SPTC 17, 33// N = 50+	0	0	0				
9	HQ3	-9				24.25m: Unweathered, grey and dark grey INTERBEDDED SANDSTONE (20%) and SILTSTONE (80%); weak. Well cemented. Thinly bedded, steeply inclined. SANDSTONE is fine. SILTSTONE is very thinly laminated, interlaminated with fine SANDSTONE.	SW		100	67	67			weak SILTSTONE with trace of coarse angular gravel 24.15m: 50% water return when drilling 24.15m to 24.75m 24.15-26.90m: Strong HCl reaction on INTERBEDDED SANDSTONE and SILTSTONE 24.75m: 40% water return when drilling 24.75m to 25.65m 24.80m: JT, 35°, Ro, Pl, Cn	
	HQ3	-10	25						100	81	81			25.35-25.54m: CZ, 35°, recovered as angular coarse gravel and cobbles 25.65m: 40% water return when drilling 25.65m to 26.65m 26.10-26.40m: JT, 70-90°, Ro, Un, Cn	
	HQ3	-11	26				UW		100	70	70			26.65m: 100% water return when drilling from 26.65m onwards 26.90-29.60m: Strong HCl reaction on INTERBEDDED SANDSTONE and SILTSTONE	
	HQ3	-12	27						100	100	100				
	HQ3	-13	28			27.66m: Unweathered, dark grey, grey INTERBEDDED SANDSTONE (40%) and SILTSTONE (60%); weak. Well cemented. Thickly bedded, steeply inclined. SANDSTONE is fine.			100	100	100				
10	HQ3	-14	29				UW		100	64	64			29.10-29.50m: CZ, 80°, crumbles on handling 29.11-29.49m: JT, 80°, Ro, Un, Cn	
11	HQ3	-15	30			Terminated at 30.00 m. Target depth.			100	100	100				
		-16	31												

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 37mm and vertical accuracy +/- 66mm.
2. Two vibrating wire piezometers were installed on 10/10/2025. BH2B_1142_PZ01 was installed at 7.75m bgl, Serial No. 378259. BH2B_1142_PZ02 was installed at 16.75m bgl, Serial No. 378294. The hole was backfilled with a sand pack instead of grout.

Shear Vane (IBHSV + ISHSV) Serial No. 1378, calibration constant 1.383.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-10-03 12:00	13.95m	3.10mbgl
2025-10-06 08:55	13.95m	0.80mbgl
2025-10-06 16:47	16.30m	3.10mbgl
2025-10-07 07:00	16.30m	3.10mbgl
2025-10-07 17:00	22.30m	0.00mbgl
2025-10-08 07:35	22.30m	0.50mbgl
2025-10-08 16:40	30.00m	2.10mbgl
2025-10-09 06:20	30.00m	2.70mbgl

Borehole Reference: BH2B_1142

Photographed By: CM

Date Photographed:

02/10/2025-07/10/2025



BH2B_1142_BOX001_0m-2.75m



BH2B_1142_BOX002_2.75m-6m

Borehole Reference:

BH2B_1142

Photographed By:

CM

Date Photographed:

02/10/2025-07/10/2025



BH2B_1142_BOX003_6m-9m



BH2B_1142_BOX004_9m-12.25m

Borehole Reference: BH2B_1142

Photographed By: CM

Date Photographed:

02/10/2025-07/10/2025



BH2B_1142_BOX005_12.25m-15.5m



BH2B_1142_BOX006_15.5m-18.78m

Borehole Reference: BH2B_1142

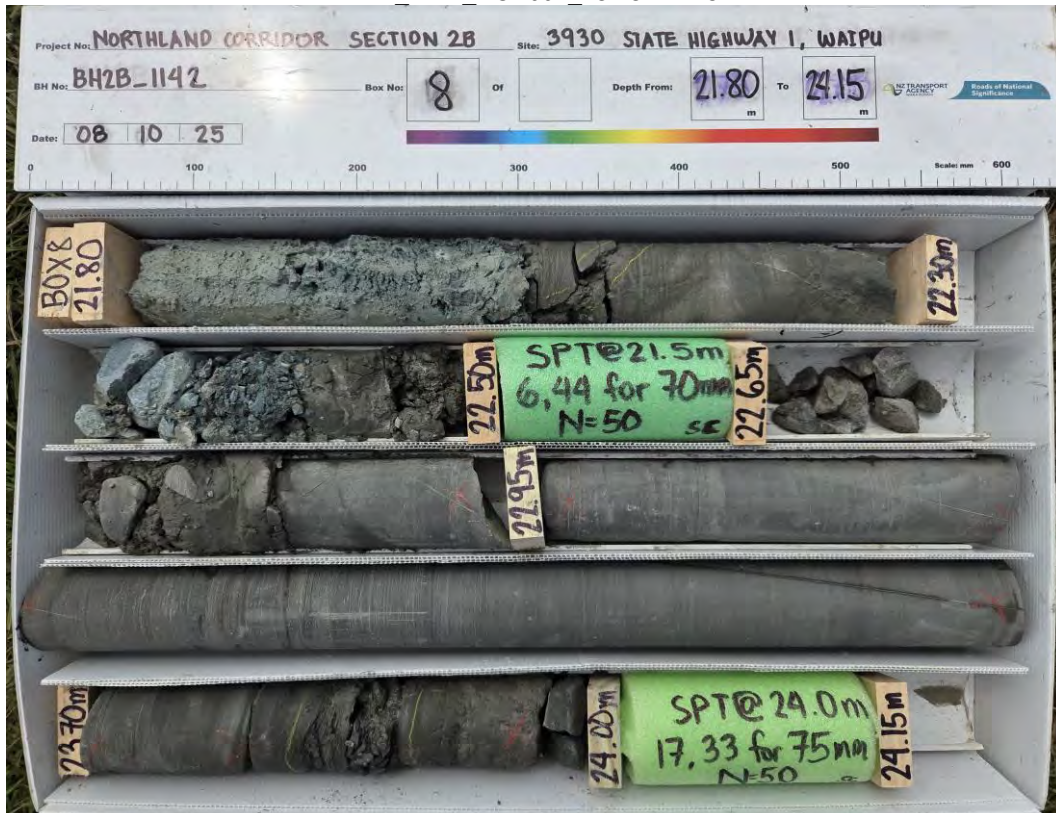
Photographed By: CM

Date Photographed:

02/10/2025-07/10/2025



BH2B_1142_BOX007_18.78m-21.8m



BH2B_1142_BOX008_21.8m-24.15m

Borehole Reference:

BH2B_1142

Photographed By:

CM

Date Photographed:

02/10/2025-07/10/2025



BH2B_1142_BOX009 24.15m-26.9m



BH2B_1142_BOX010 26.9m-29.6m

Borehole Reference: BH2B_1142

Photographed By: CM

Date Photographed: 02/10/2025-07/10/2025



BH2B_1142_BOX011_29.6m-30m

		Client: New Zealand Transport Agency		Project: Northland Corridor, Alternative to Brynderwyn Hills		BH2B_1143													
Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010		Location: Zone 4, 3838 State Highway 1, Waipu		Project Reference: Aurecon WSP JV		Sheet 1 of 4													
BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 23/10/2025		Logged: B.Griffiths/M.Zhang													
Method: Rotary Core Wireline		Easting: 1728057.40mE,		Date Completed: 28/10/2025		Input: M.Zhang													
Equipment: Hanjin / D&B 10		Northing: 6016492.08mN,		Inclination: 90		Reviewed: C. Parkes													
Contractor: McMillan Drilling (N I) Ltd		Ground level: 9.37m (NZVD2016)		Azimuth: N/A		Verified: A. George													
CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL					
1	HA	9	0.0		TS	SILT, trace clay, with minor rootlets; dark brown. Firm, moist, low plasticity; rootlets less than 2mm thick. [TOPSOIL].													
						CLAY, with some silt; brownish grey. Very stiff, moist, high plasticity; trace rootlets; [RECENT (HOLOCENE) ALLUVIUM].		0.5m SV BH SV 140/88kPa	100	-	-								
						Sandy SILT; light grey. Soft, moist, low plasticity; sand, fine.		1m SV BH SV 81/39kPa											
	SPT	1		TA	CLAY, with minor silt; light brown, minor orangish brown streaking. Firm, moist, high plasticity.		1.5m SV BH SV 91/39kPa 1.5m SPT 0, 0/0, 0, 0, 0 N= 0	100	-	-									
					1.50m: Grey, with brownish grey mottles.														
					CLAY, trace silt and organics, grey. Very soft, moist, highly plasticity. Organics are disseminated fibrous wood fragments up to 4mm thick.			100	-	-									
	HQ3	7			1.5					2.9m SV CB SV 39/ 18kPa									
								3.00m - 3.50m: U54 sample (500mm).		3.5m SPT 0, 0/0, 0, 0, 0 N= 0	100	-	-						
											100	-	-						
	U54	6			2.0					4.5m SPT 0, 0/0, 0, 0, 0 N= 0	100	-	-						
2	SPT	5		TA	4.70m: Decomposed wood fragment (5mm diameter).		5.9m SV CB SV 53/ 18kPa	100	-	-									
							6.5m SPT 0, 0/0, 0, 0, 0 N= 0	88	-	-									
					Silty CLAY; trace organics, bluish grey. Firm, moist, high plasticity. Organics are disseminated fibrous wood fragments up to 3mm.			100	-	-									
	HQ3	4			3.0					7.4m SV CB SV 123/53kPa 7.5m SPT 0, 0/0, 0, 0, 1 N= 1	100	-	-						
								6.00m - 6.50m: U54 sample (500mm).											
	U54	3			3.5			CLAY, trace silt and organics, grey, with orangish brown streaking. Stiff, moist, highly plasticity. Organics are disseminated fibrous wood fragments up to 2mm thick.											
	SPT	7			4.0			7.50m: Very stiff, grey.											
3																			
REMARKS:		Water Level Readings:																	
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 63.5mm.														DateTime		Hole Depth (m)		Water Level (m)	
2. A standpipe was installed on 28/10/2025 with a screen interval between 2.50 to 4.50m bgl. One vibrating wire piezometer BH2B_1143_PZ01 was installed at 4.2m bgl, within the open standpipe on 09/12/2025, Serial No. P250899.																			
3. Shear Vane Serial No. 3352, calibration constant 1.75.																			

BOREHOLE INFORMATION	CO-ORDINATES: NZTM2000	Date Started: 23/10/2025	Logged: B.Griffiths/M.Zhang
Method: Rotary Core Wireline	Easting: 1728057.40mE,	Date Completed: 28/10/2025	Input: M.Zhang
Equipment: Hanjin / D&B 10	Northing: 6016492.08mN,	Inclination: 90	Reviewed: C. Parkes
Contractor: McMillan Drilling (N I) Ltd	Ground level: 9.37m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
3	HQ3	1	9			9.00m: Bluish grey.		9m SPT 0, 0/0, 0, 0, 0 N= 0	100	-	-			
	SPT	0	0						100	-	-			
	HQ3	10	-1			10.40m: With minor fine sand.		10.4m SV CB SV 84/ 18kPa	100	-	-			
	U54	11				Silty fine to medium SAND; grey. Very loose, moist; poorly graded.			100	-	-			
	SPT	-2			TA	PEAT with some clay and silt, dark brown. Very soft, moist, high plasticity. Firm and fibrous (H5), organics comprised of rootlets and disseminated fibrous wood fragments up to 20mm thick.		11m SPT 0, 0/0, 0, 0, 0 N= 0	100	-	-			
4	HQ3	12				12.00m - 12.50m: U54 sample (500mm).		11.9m SV CB SV 49/ 18kPa	100	-	-			
	U54	-3							100	-	-			
	SPT	13				Organic Silty CLAY, grey. Very soft, moist, high plasticity. Organics are disseminated fibrous wood fragments up to 3mm thick.		12.9m SPT 0, 0/0, 0, 0, 0 N= 0	100	-	-			
	HQ3	14				Clayey SILT, trace organics; dark grey. Firm, moist, high plasticity. Organics are disseminated fibrous wood fragments up to 3mm thick.		13.4m SV CB SV 67/ 18kPa	100	-	-			
	SPT	15						13.9m SPT 0, 0/1, 0, 1, 2 N= 4	100	-	-			
	HQ3	-5				Silty fine SAND; dark grey. Loosely packed, moist; uniformly graded.			100	-	-			
	SPT	16				Clayey SILT; dark grey. Firm, moist, high plasticity.			100	-	-			
5	HQ3	17				14.5-15.0m: CORE LOSS (500mm). Loss assumed from washout of clayey silt matrix during drilling.								
	SPT	18				Silty fine SAND; dark grey. Very loose, moist; uniformly graded, some shells (1-5mm diameter) [ESTUARINE DEPOSITS].		15m SPT 0, 0/0, 0, 0, 1 N= 1	100	-	-			
	HQ3	19			TE	SILT, with some sand, some shells, trace of organics; dark grey. Firm, moist, low plasticity. Shells are 1-10mm diameter. Weak HCl reaction on shells. Organics are disseminated fibrous wood fragments up to 2mm thick from 15.80m.			100	-	-			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 63.5mm.
- A standpipe was installed on 28/10/2025 with a screen interval between 2.50 to 4.50m bgl. One vibrating wire piezometer BH2B_1143_PZ01 was installed at 4.2m bgl, within the open standpipe on 09/12/2025, Serial No. P250899.
- Shear Vane Serial No. 3352, calibration constant 1.75.

Water Level Readings:

DateTime

Hole Depth (m)

Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 23/10/2025	Logged: B.Griffiths/M.Zhang
Method: Rotary Core Wireline		Easting: 1728057.40mE,		Date Completed: 28/10/2025	Input: M.Zhang
Equipment: Hanjin / D&B 10		Northing: 6016492.08mN,		Inclination: 90	Reviewed: C. Parkes
Contractor: McMillan Drilling (N I) Ltd		Ground level: 9.37m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
5	HQ3	-7				Clayey SILT, with some shells; dark grey. Firm, moist, highly plasticity.			100	-	-		16.00m - 18.50m: HCl test on matrix, no reaction. Weak reaction on shells	
	SPT		17		TE	Gravelly fine SAND, with some silt, with trace shells; light grey, poorly graded; gravel, fine, subrounded, moderately weathered, Sandstone.		16.5m SPT 0, 0/0, 0, 0, 0 N= 0	100	-	-			
	HQ3	-8				17.3-18.0m: CORE LOSS (700mm). Loss assumed from washout of sand matrix during drilling.			33	-	-			
	SPT		18			CLAY, with trace silt and sand; grey. Firm, moist, high plasticity; sand, fine [RECENT (HOLOCENE) ALLUVIUM].		18m SPT 1, 1/1, 0, 1, 0 N= 2	100	-	-			
6	HQ3	-9				19.15m - 19.20m: Silty fine SAND; grey. Loose, moist.			100	-	-		20.00m - 22.00m: HCl test on matrix, no reaction	
	SPT		20		TA	Organic SILT, with some clay, dark brown. Firm, moist, low plasticity. Organics are disseminated fibrous wood fragments up to 5mm thick.		19.5m SV CB SV 32/14kPa	100	-	-			
	HQ3	-11				Fine to medium SAND, with trace silt; grey. Very loose, moist; uniformly graded.		19.5m SPT 0, 0/0, 0, 1, 2 N= 3	100	-	-			
	HQ3	-12				Gravelly fine to coarse SAND; grey. Loose, moist; well graded; gravel, fine, subangular to angular, slightly weathered, grey, Greywacke Sandstone.			20	-	-			
	SPT		21			20.6-21.0m: CORE LOSS (400mm). Loss assumed from washout of sand matrix during drilling.		21m SPT 1, 3/2, 3, 3, 2 N= 10	33	-	-		22.95m - 23.39m: potential washout of fine to coarse sand matrix during drilling, recovered as predominately gravel	
	HQ3	-13				Gravelly fine to coarse SAND; grey. Medium dense, moist; well graded; gravel, fine, subangular to angular, slightly weathered, grey, Greywacke Sandstone.			100	-	-			
	HQ3	-13			TA	21.86m: Trace silt.			100	-	-			
	HQ3	-13				22.20m - 22.31m: Interbedded SILTSTONE and fine SANDSTONE cobble.			100	-	-			
	SPT		22			22.36m - 22.39m: SILTSTONE gravel.		22.5m SPT 3, 5/6, 5, 5, 7 N= 23	66	-	-		23.80m: HCl test on matrix, no reaction	
	HQ3	-14				22.39m - 22.45m: SILTSTONE cobble.			100	-	-			
8	HQ3	-14			NAM	Slightly weathered; grey, banded dark grey and chocolate brown, pervasively sheared, Intermixed MUDSTONE and SILTSTONE; very weak. Shear fabric dips at 10-30°. Closely spaced incipient joints of low tensile strength, with silt infill throughout;	SW		100	100	-			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 63.5mm.
- A standpipe was installed on 28/10/2025 with a screen interval between 2.50 to 4.50m bgl. One vibrating wire piezometer BH2B_1143_PZ01 was installed at 4.2m bgl, within the open standpipe on 09/12/2025, Serial No. P250899.
- Shear Vane Serial No. 3352, calibration constant 1.75.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
23/10/2025 4:30:00 pm	21.45	1.30
24/10/2025 7:03:00 am	21.45	4.70

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 23/10/2025	Logged: B.Griffiths/M.Zhang
Method: Rotary Core Wireline		Easting: 1728057.40mE,		Date Completed: 28/10/2025	Input: M.Zhang
Equipment: Hanjin / D&B 10		Northing: 6016492.08mN,		Inclination: 90	Reviewed: C. Parkes
Contractor: McMillan Drilling (N I) Ltd		Ground level: 9.37m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
8	SC	-15				[NORTHLAND ALLOCHTHON MELANGE MATRIX].	SW	24m SPT 15, 35 for 70mm N = 50+	0	-	-			
	HQ3	-16							100	100	-			
	SC	-17				Slightly weathered; grey, brownish grey, banded dark grey, mottled greenish grey, calcareous, pervasively sheared, MUDSTONE; very weak; with minor limestone clasts up to 30mm throughout. Closely spaced incipient joints with silt infill.		25.5m SPT 11, 16/22, 28 for 70mm N = 50+	0	-	-		25.40m: HCl test on matrix, strong reaction	
	HQ3	-18				26.15m - 26.38m: Fine SANDSTONE cobble.	SW		100	40	-		26.30m: JT, 45°, RG, PL, silt infill (1mm)	
9	HQ3	-19							100	100	-		26.70m: HCl test on matrix, strong reaction	
	SC	-20				Slightly weathered; dark grey, calcareous, pervasively sheared, MUDSTONE; very weak.		27m SPT 10, 13/18, 24, 8 for 15mm N = 50+	0	-	-		27.32m - 27.64m: CORE SWELL (320mm)	
	HQ3	-21				27.76m: Grey, mottled bluish grey.	SW		127	127	-			
		-22				28.5-29.0m: CORE LOSS (500mm). Loss assumed from washout of clayey silt matrix during drilling.								
10	HQ3	-23				Unweathered; dark grey, greenish grey, moderately thick, Calcareous SILTSTONE; weak. Dislocated bedding fabric typically dipping at 30°, 1-2mm offset.	UW		67	33	-		29.00-29.10m: FZ, 20°, drilling induced, recovered as fine to medium, angular siltstone gravel, minor silt, low plasticity 29.17-29.22m: HB	
		-24											29.35m: HCl test on matrix, strong reaction	
		-25											29.61-29.64m: FZ, 10°, drilling induced along weak incipient fractures, recovered as fine to medium, angular siltstone gravel, minor silt, low plasticity	
		-26				Slightly weathered; grey, mottled brown, calcareous, pervasively sheared, MUDSTONE; very weak.	SW		103	103	-		29.77-29.95m: FZ, 30°-40°, breakage along very closely spaced incipient joints during drilling, recovered as fine to coarse, angular siltstone gravel, trace clay, low plasticity	
		-27				31.15m - 31.28m: Slightly weathered, grey SILTSTONE cobble, weak.								
		-28				End Of Hole: 31.50m								

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 63.5mm.
- A standpipe was installed on 28/10/2025 with a screen interval between 2.50 to 4.50m bgl. One vibrating wire piezometer BH2B_1143_PZ01 was installed at 4.2m bgl, within the open standpipe on 09/12/2025, Serial No. P250899.
- Shear Vane Serial No. 3352, calibration constant 1.75.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
24/10/2025 12:46:00 pm	31.50	3.10
28/10/2025 9:26:00 am	31.50	6.70

Borehole Reference:

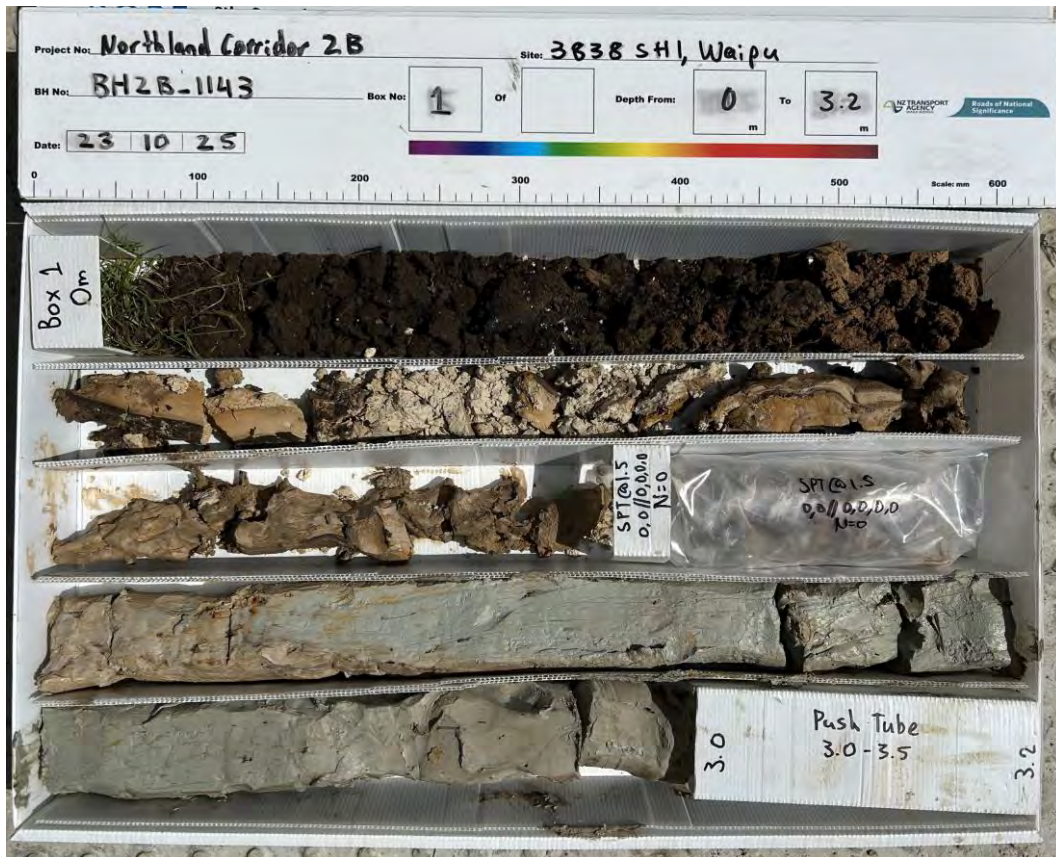
BH2B_1143

Photographed By:

BTG

Date Photographed:

22/10/2025-23/10/2025



BH2B_1143_BOX001_0m-3.2m



BH2B_1143_BOX002_3.2m-6.5m

Borehole Reference: BH2B_1143

Photographed By: BTG

Date Photographed:

22/10/2025-23/10/2025



BH2B_1143_BOX003_6.5m-10.05m



BH2B_1143_BOX004_10.05m-13.3m

Borehole Reference:

BH2B_1143

Photographed By:

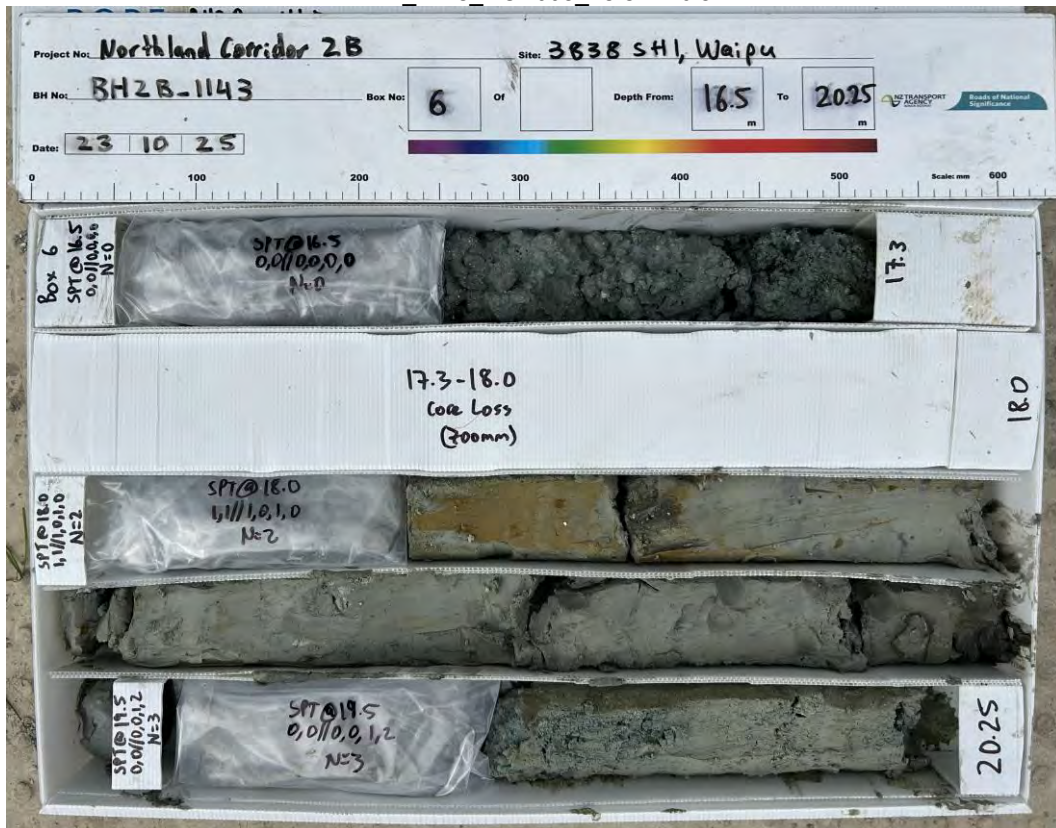
BTG

Date Photographed:

22/10/2025-23/10/2025



BH2B_1143_BOX005_13.3m-16.5m



BH2B_1143_BOX006_16.5m-20.25m

Borehole Reference:

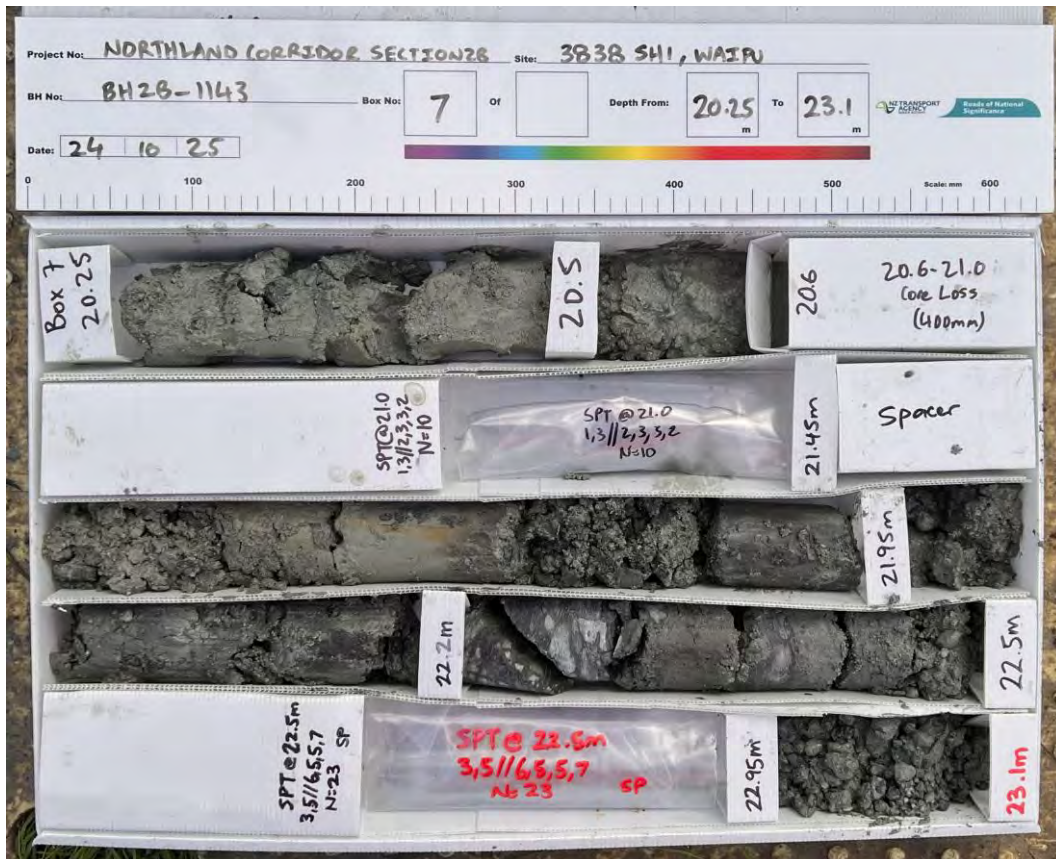
BH2B_1143

Photographed By:

BTG

Date Photographed:

22/10/2025-23/10/2025



BH2B_1143_BOX007_20.25m-23.1m



BH2B_1143_BOX008_23.1m-26m

Borehole Reference:

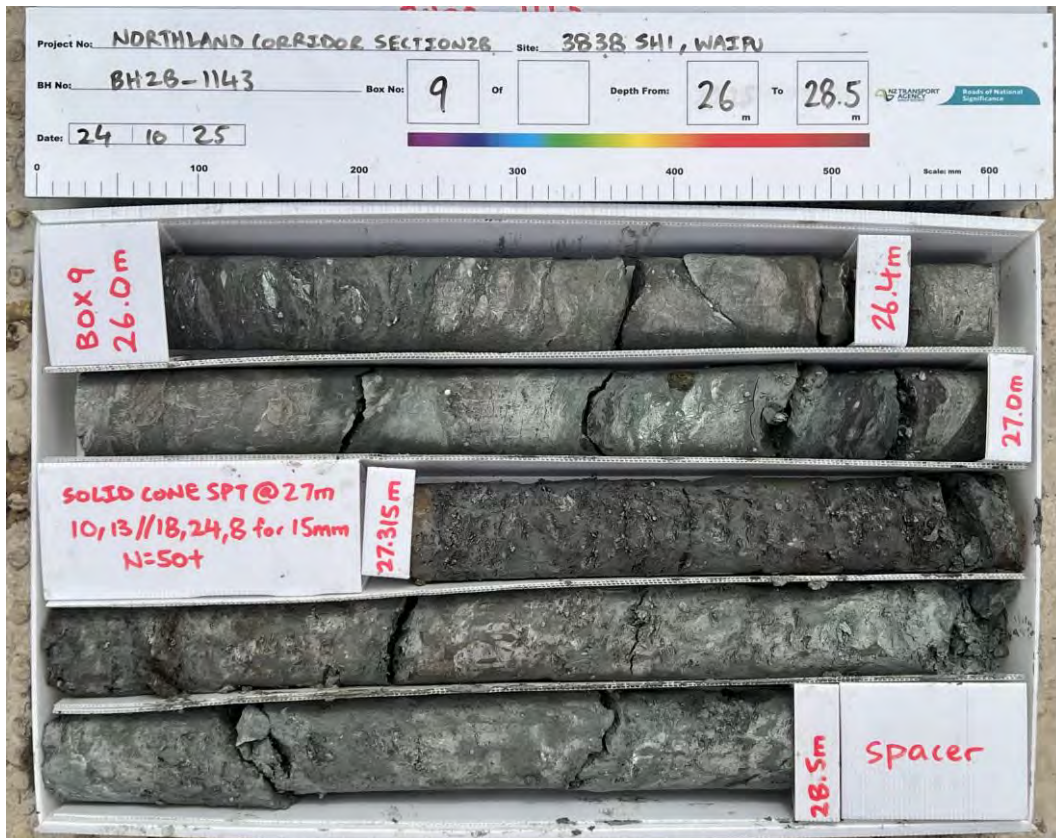
BH2B_1143

Photographed By:

BTG

Date Photographed:

22/10/2025-23/10/2025



BH2B_1143_BOX009_26m-28.5m



BH2B_1143_BOX010_28.5m-31.5m

Logged:	C. Whitten, J. Despojo
Input:	C. Whitten
Reviewed:	R. van Dam
Verified:	S. Nelis

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSCS Controller, with a horizontal accuracy +/- 40mm and vertical accuracy +/- 84mm.
- Two vibrating wire piezometers were installed on 08/09/2025. BH2B_1144_PZ01 was installed at 20m bgl, Serial No. 378355. BH2B_1144_PZ02 was installed at 75m bgl, Serial No. P250936.
- Terminal/Straddle packer testing undertaken between 40.50 to 53.0 m on 28/08/2025 and between 69.0-75.0m on 03/09/2025.
- Geophysical profiling was undertaken on 05/09/2025, comprising optical and acoustic televiever.
- ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
- Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).
- Terminated deeper than original target depth (60 m) due to desion variation.

Water Level Readings:		
Date/Time	Hole Depth	Water Level
2025-08-20 08:00	11.30m	3.49mbgl
2025-08-20 15:00	15.23m	3.20mbgl
2025-08-21 11:00	15.23m	9.82mbgl
2025-08-21 18:00	22.50m	2.00mbgl
2025-08-22 09:00	22.50m	6.90mbgl
2025-08-22 14:30	27.00m	27.00mbgl
2025-08-22 17:00	27.00m	3.36mbgl
2025-08-25 10:00	27.00m	15.21mbgl

BOREHOLE INFORMATION			CO-ORDINATES: NZTM2000		Date started: 19/08/2025		Logged: C. Whitten, J. Despojo	
Method:	Rotary Core Wireline		Easting:	1727595.24	Date completed:	08/09/2025	Input:	C. Whitten
Equipment:	TechDrill 250 HD		Northing:	6007655.58	Inclination:	90°	Reviewed:	R. van Dam
Contractor:	Drill Force NZ Ltd		Ground level:	290.81m (NZVD2016)	Azimuth:	N/A	Verified:	S. Nelis

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
3	HQ3				WPH	8.50-8.93m: ...Crush zone; highly fractured; black and brown staining on defect surfaces. Recovered as clayey fine to coarse GRAVEL; angular to subangular, very weak.	HW	9m: SPT 4, 4// 8, 8, 11, 13 N = 40	100	47	30		8.00-8.30m: JT set x4, 40-50°, Ro, Pl, Sn MnO, <1 mm aperture 8.01-8.30m: JT set x2, 30°, Ro, Pl, Sn MnO, <1 mm aperture 8.15-8.30m: JT, 75-85°, RO, Un, Sn MnO, <1 mm aperture 8.45-9.00m: JT set x6, 65-70°, Ro, Pl, Sn FeO, <1 mm aperture 8.50-8.93m: FZ, JI throughout, weak tensile strength, Sn FeO 8.50-9.00m: JT set x6, 40-50°, Ro, Pl, Sn MnO, <1 mm aperture	
	SPT		9			9.15m: ...Light pink.			100					
	HQ3					9.35m: ...Brownish orange mottled light grey and black.								
	SPT		10			9.45m: CORE LOSS (750 mm), wash out at start of run in suspected fractured zone.	HW	10.5m: SPT 3, 4// 4, 5, 7, 6 N = 22	29	0	0		10.50-10.95m: CZ, recovered as SILT, with some clay, minor sand and gravel	
	HQ3					10.20m: Highly weathered, light greyish orange, GREYWACKE SANDSTONE. Extremely weak. Moderately to highly fractured; brownish orange staining on defect surfaces.								
	SPT		11			10.40m: ...Light pinkish orange. 10.50-10.95m: ...Crushed zone recovered as SILT with some clay minor sand and gravel; light brownish orange mottled black and white. Stiff; moist; low plasticity; relic shear fabric, slickensides on some defect surfaces.			78					
4	HQ3					10.95m: 10.95-11.3 m: CORE LOSS (350 mm), wash out at start of run after SPT.	HW	12m: SPT 5, 8// 11, 10, 11, 15 N = 47	67	47	34		11.30-11.50m: CZ, recovered as SILT, with some clay, minor sand and gravel 11.42m: JT, 10°, Sil, St, Sn FeO/MnO, <1 mm aperture 11.50-11.70m: JI, 80-90°, Sm, Un, Sn FeO/MnO 11.50m: JT, 8°, Ro, Pl, Sn FeO/MnO, <1 mm aperture 11.52m: JT, 20°, Ro, Un, Sn FeO/MnO, <1 mm aperture 11.60-11.73m: JT, 65°, Ro, Un, Sn FeO/MnO, <1 mm aperture 11.60-12.00m: JI multiple sets, 60° and 80°, Pl, Sn FeO 12.45-12.85m: JI throughout, 0-90°, Un-Pl, Sn FeO, >0 mm 12.60-12.70m: JI set x3, 15-20°, Ro, Un, Sn FeO, >0 mm 12.76m: JT, 25°, Ro, St, Sn FeO/MnO, <1 mm aperture 12.80m: JT, 30°, Ro, Pl, Sn FeO/MnO, <1 mm aperture 13.00-13.13m: JT, 65°, Ro, Pl, Sn FeO/MnO 13.05m: JT set x2, 50°, Ro, Pl, Sn FeO/MnO 13.17-13.37m: JT, 75°, Ro, Pl, Sn FeO 13.35-13.50m: JI set x2, 80-85°, Ro, Pl-Un, Sn FeO 13.40m: JT, 45°, Ro, Un, Sn FeO/MnO 13.44m: JT, 10°, Ro, Un, Sn FeO 14.10-14.25m: JI, 80-90°, Pl, healed quartz, <1 mm 14.15m: JT, 20°, Ro, Pl, Sn FeO 14.30-14.50m: JI set x2, 75°, Pl, healed FeO, <1 mm; persistent incipient jointing, 0-90° (50-60° dominant), Sn FeO 14.30-14.75m: JI set x3, 80-90°, Un-Pl, healed FeO, <1 mm 14.75-15.00m: JT, 70°, Un, healed FeO, <1 mm	
	SPT		12			11.30m: Highly weathered, light greyish orange GREYWACKE SANDSTONE. Very weak. highly fractured; joints, sub-horizontal to sub-vertical, brown FeO/MnO staining. 11.30-11.50m: ...Crushed zone recovered as SILT with some clay minor sand and gravel; light brownish orange mottled black and white. Stiff; moist; low plasticity; relic shear fabric, slickensides on some defect surfaces. 11.40-11.50m: ...Some white mineralisation (zeolite?) along some defects.			100					
	HQ3					13.95-14.10m: ...Recovered as: sandy SILT with minor clay; light brownish yellow. Stiff; moist; low plasticity; sand is fine.			100	90	78			
	SPT		13			14.20m: ...Fractured; occasional white mineralisation (zeolite?), on defect surfaces, <2 mm.			100	58	37			
	HQ3					14.65-14.75m: ...White mineralisation (zeolite?) along defects.			100					
	SPT		14			15.00-15.26m: ...No recovery - solid cone SPT.			100	20	0			
5	HQ3					15.23m: ...Moderately fractured; stained brown and black along defects.	HW	15m: SPTC 15, 21// 50 N = 50+	100	91	67			
	SPT		15			15.50-16.50m: ...Trace white mineralisation (zeolite?) along some defects.			0					
	HQ3								100	74	74			
	SPT		16											
	HQ3													

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 40mm and vertical accuracy +/- 84mm. 2. Two vibrating wire piezometers were installed on 08/09/2025. BH2B_1144_PZ01 was installed at 20m bgl, Serial No. 378355. BH2B_1144_PZ02 was installed at 75m bgl, Serial No. P250936. 3. Terminal/Straddle packer testing undertaken between 40.50 to 53.0 m on 28/08/2025 and between 69.0-75.0m on 03/09/2025. 4. Geophysical profiling was undertaken on 05/09/2025, comprising optical and acoustic televiwer. 5. ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane. 6. Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone). 7. Terminated deeper than original target depth (60 m) due to design variation.	Water Level Readings:		
Date/Time	Hole Depth	Water Level	
2025-08-25 18:15	36.00m	1.31mbgl	
2025-08-26 08:40	36.00m	7.15mbgl	
2025-08-26 17:00	45.00m	6.28mbgl	
2025-08-27 08:30	45.00m	11.50mbgl	
2025-08-27 17:20	53.00m	10.16mbgl	
2025-08-28 09:15	53.00m	18.40mbgl	
2025-08-28 16:30	53.00m	8.16mbgl	
2025-08-29 09:00	53.00m	16.14mbgl	

Shear Vane (ISHSV + IBHSV) Serial No. 3453, calibration constant 1.47.

BOREHOLE INFORMATION		CO-ORDINATES:	NZTM2000	Date started:	19/08/2025	Logged:	C. Whitten, J. Despojo
Method:	Rotary Core Wireline	Easting:	1727595.24	Date completed:	08/09/2025	Input:	C. Whitten
Equipment:	TechDrill 250 HD	Northing:	6007655.58	Inclination:	90°	Reviewed:	R. van Dam
Contractor:	Drill Force NZ Ltd	Ground level:	290.81m (NZVD2016)	Azimuth:	N/A	Verified:	S. Nelis

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
5	HQ3	SPT	274	17	WPH	16.50-16.76m: ...No recovery - solid cone SPT.	HW	16.5m: SPTC 2, 9/ 26, 24 for 35mm N = 50+	100	84	74			
						MW	0						16.86-17.50m: JT set x4, 40-50°, Ro, Pl-Un, Sn FeO/MnO 16.96-17.26m: JT set x2, 70°, Pl, Sn FeO/MnO 17.16-17.56m: JI set x2, 80-90°, Un, Sn FeO/MnO	
								100	77	60			17.50-17.60m: JT, 60°, Pl, Sn MnO, FeO weathering halo <10 mm around defect 17.63-17.83m: JT set x3, 70-75°, Ro, Pl, Sn FeO 17.80-18.00m: JT set x3, 70°, Pl; JT set x6, 15-20°, Un; Sn FeO 18.00-18.15m: JT set x2, 15-20°, Ro, St, Sn FeO 18.10m: JT, 40°, Pl, Sn FeO 18.40-18.65m: JT set x2, 45°, Ro, Un, Sn FeO/MnO 18.65-18.85m: JT set x5, 25-30°; JT set x4, 55-60°; Pl, Sn FeO/MnO 18.90-19.50m: JT set x4, 80-90°, Un, Sn FeO/MnO, some Cg quartz, <1 mm aperture 18.90m: JT, 40°, Pl, infill clay, 30 mm wide, Sn MnO on defect faces 19.20m: JT, 50°, Pl, Sn FeO/MnO, some Cg zeolite 19.30-19.40m: CZ, recovered as silty fine to coarse GRAVEL with some sand 19.70-19.85m: JT, 75°, Pl, healed quartz, Sn FeO, 2-3 mm	
6	HQ3		273	18	WPM	17.80m: Moderately weathered, light bluish grey, GREYWACKE SANDSTONE. Moderately strong. Highly fractured; dark brown FeO/MnO staining on defect surfaces. 18.20-18.70m: ...Extremely closely spaced, incipient jointing, weak tensile strength, occasional white mineral infill (quartz).	MW							20.00-20.50m: Persistent incipient jointing, moderate tensile strength, 0-90° (dominant 80-90°), Pl-Un, Sn FeO, some healed quartz 20.00m: JT set x2, 60°, Ro, Pl, Sn FeO 20.40-20.50m: CZ, recovered as silty fine to coarse SAND with minor gravel 20.50-21.00m: JT set x6, 80°, Ro, Pl, Sn FeO/MnO, some Cg zeolite
													20.90-21.00m: Persistent incipient jointing, low tensile strength 21.00-21.10m: JT set x3, 15°, Un, Sn FeO 21.00m: JT, 80°, Ro, Pl, Sn FeO 21.25-21.45m: JT, 70°, Pl, Sn FeO 21.30-21.70m: JT set x3, 70°, Ro, Pl, Sn FeO/MnO 21.45m: JT, 45°, Ro, Pl, Sn FeO/MnO 21.70-22.20m: JT, 80-90°, Un, Sn FeO 21.80m: JT, 65°, Ro, Un, Sn FeO	
													22.10m: ...Speckled black (manganese oxide?).	
													22.35-22.50m: ...Crush Zone; recovered as silty fine to coarse gravel with some sand; brown. Well graded; silt is low plasticity; gravel is fine to medium, angular, weak to moderately strong.	
													22.50m: Slightly weathered, bluish grey streaked white and orange, GREYWACKE SANDSTONE. Moderately strong to strong. Highly fractured; incipient fractures with moderate tensile strength; closely to very closely spaced joints, planar rough to stepped rough, commonly with white mineral infill (<1-3 mm), stained dark brown and brownish orange. Core breaks along incipient fractures under firm blow of geological hammer. [SLIGHTLY WEATHERED GREYWACKE] 22.50m: ...Very closely to extremely closely spaced, incipient fractures with low to moderate tensile strength, some stained brown; pervasive veining, zeolite and quartz, <1-10mm thick. 23.85-24.00m: ...Very closely spaced, recovered as fine to coarse GRAVEL: angular.	
7	HQ3	HQ3	271	20	WPU	19.20-19.45m: ...Fragmented; some zeolite mineralisation. 19.30-19.40m: ...Crush Zone; recovered as silty fine to coarse gravel with some sand; brown. Well graded; silt is low plasticity; gravel is fine to medium, angular, weak to moderately strong. 19.60-20.40m: ...Fragmented; incipient fractures with moderate tensile strength, sub-horizontal to sub-vertical, stained reddish brown, joints are very steeply inclined to sub-vertical, undulating to planar, with FeO staining. 20.40-20.50m: ...Crush Zone; recovered as silty fine to coarse sand with minor gravel. Well graded; silt is low plasticity; gravel is fine to medium, angular, weak to moderately strong. 20.50m: ...Highly fractured.	SW							22.85m: JT, 20°, Sm, Pl, Sn FeO 22.95-23.00m: JT set x2, 20° & 60°, Ro, Pl, Sn FeO 23.05m: JT, 70°, Ro, Pl, Sn FeO 23.20m: JT, 50°, Sm, Pl, Sn FeO 23.40-23.75m: JT set x6, 30-85°, Ro, Pl, Sn FeO
													23.88-24.00m: JT set x3, 60-85°, Sm, Pl, Sn	

Remarks:	
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1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 40mm and vertical accuracy +/- 84mm.
2. Two vibrating wire piezometers were installed on 08/09/2025. BH2B_1144_PZ01 was installed at 20m bgl. Serial No. 378355. BH2B_1144_PZ02 was installed at 75m bgl. Serial No. P250936.
3. Terminal/Straddle plate testing undertaken between 40.50 to 53.0 m on 28/08/2025 and between 69.0-75.0m on 03/09/2025.
4. Geophysical profiling was undertaken on 05/09/2025, comprising optical and acoustic televiwer.
5. ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
6. Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).
7. Terminated deeper than original target depth (60 m) due to design variation.

Water Level Readings:

Water Date/Time	Hole Depth	Water Level
2025-08-29 14:30	58.50m	14.63mbgl
2025-09-01 11:00	58.50m	19.20mbgl
2025-09-01 18:00	61.90m	7.26mbgl
2025-09-02 08:00	61.90m	12.40mbgl
2025-09-02 18:00	70.70m	8.45mbgl
2025-09-03 08:00	70.70m	15.45mbgl
2025-09-03 18:00	75.04m	7.45mbgl
2025-09-04 08:00	75.04m	13.60mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 19/08/2025	Logged: C. Whitten, J. Despojo
Method: Rotary Core Wireline	Easting: 1727595.24	Date completed: 08/09/2025	Input: C. Whitten	
Equipment: TechDrill 250 HD	Northing: 6007655.58	Inclination: 90°	Reviewed: R. van Dam	
Contractor: Drill Force NZ Ltd	Ground level: 290.81m (NZVD2016)	Azimuth: N/A	Verified: S. Nelis	

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
8	HQ3				WPU	24.25-24.50m: ...Weak incipient fractures; recovered as coarse GRAVEL; angular.	SW		100	16	20	VMS MMS CS VCS EGS	FeO 24.15-24.15m: JT, 70°, Pl, Sn FeO 24.20-24.50m: JT set x3, 60-85°, Sm, Pl, Sn FeO 24.50-24.95m: JT set x4, 30-85°, Sm, Pl-Un, Sn FeO 25.33-26.35m: JT, 70°, Sm, Pl, Sn FeO 25.50m: JT set x3, 75-85°, Sm, Pl, Sn FeO 26.40-26.55m: JT set x2, 80°, Ro, Pl, Sn FeO and Vn zeolite 26.60-26.72m: JT set x3, 15°, Sm, Pl, greyish orange weathering penetration up to 120mm 26.76m: JT, 50°, Sm, Pl, Sn FeO and Vn clay, 2-3 mm 26.78-27.00m: JT set x3, 75-80°, Sm, Pl, Cg zeolite, 2 mm 27.00m: JT, 40°, Sm, Un, Sn FeO and Cg zeolite 27.25m: JT, 85°, Un 27.35-27.75m: JT set x3, 50-80°, Ro, Un, healed FeO and Cg zeolite, <2 mm 28.72-29.00m: JT set x4, 50-70°, Ro, Un, Sn FeO and Cg zeolite 29.20m: JT, 75°, Sm, Pl, Sn FeO and Cg zeolite 29.35-29.40m: JT set x2, 40-50°, Ro, Pl, Sn FeO and Vn silt 29.62m: JT, 60-70°, Sm, Un, Sn FeO and Cg zeolite 29.75-30.10m: JT set x5, 70-85°, Ro, Un, Sn FeO and Cg zeolite 30.12-30.15m: JT set x2, 45-60°, Sm, Un, Sn FeO and Cg zeolite 30.55-30.70m: JT set x3, 40-50°, Sm, Un, Sn FeO and Cg zeolite 30.84m: JT, 85°, Sm, Un, Sn FeO 31.40-31.50m: JT, 60-70°, Ro, Pl, Sn FeO 31.55m: JT, 50°, Un, Sn FeO 31.76m: JT, 70°, Sm, St, Sn FeO and Vn clay, 1 mm	
	HQ3	-266	25	100				65	18					
	HQ3	-265	26	100				80	52					
	HQ3	-264	27	100				50	20					
	HQ3	-263	28	100				100	98					
	HQ3	-262	29	100				100	100					
	HQ3	-261	30	100				83	83					
	HQ3	-260	31	100				87	68					
9	HQ3				WPU	26.55-26.90m: ...Weak to moderately strong. Brown weathering penetration up to 150mm around defects. 26.90m: ...Moderately fractured; very closely spaced, incipient fractures with moderate to high tensile strength.	SW		100	50	20			
	HQ3	-264	27	100				100	98					
10	HQ3				WPU	30.30-30.50m: ...Pervasive veining, zeolite, up to 20mm thick.	SW		100	100	100			
	HQ3	-263	28	100				100	100					
11	HQ3				WPU		SW		100	100	100			
	HQ3	-262	29	100				83	83					
11	HQ3				WPU		SW		100	83	83			
	HQ3	-261	30	100				87	68					
11	HQ3				WPU		SW		100	87	68			
	HQ3	-260	31	100				87	68					
11	HQ3				WPU		SW		100	87	68			
	HQ3	-259												

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 40mm and vertical accuracy +/- 84mm.
2. Two vibrating wire piezometers were installed on 08/09/2025. BH2B_1144_PZ01 was installed at 20m bgl, Serial No. 378355. BH2B_1144_PZ02 was installed at 75m bgl, Serial No. P250936.
3. Terminal/Straddle plate testing undertaken between 40.50 to 53.0 m on 28/08/2025 and between 69.0-75.0m on 03/09/2025.
4. Geophysical profiling was undertaken on 05/09/2025, comprising optical and acoustic televiwer.
5. ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
6. Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).
7. Terminated deeper than original target depth (60 m) due to design variation.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-09-04 15:00	82.50m	21.70mbgl
2025-09-05 07:30	82.50m	12.36mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: TechDrill 250 HD
Contractor: Drill Force NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727595.24
Northing: 6007655.58
Ground level: 290.81m (NZVD2016)

Date started: 19/08/2025
Date completed: 08/09/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Whitten, J.
Despojo
Input: C. Whitten
Reviewed: R. van Dam
Verified: S. Nelis

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
11	HQ3	258	33						100	100	93		31.80m: JT, 80°, Pl, Sn FeO 32.04-32.12m: JT set x2, 20-30°, Sm, Un, Sn FeO 32.22-32.22m: JT, 80°, Sm, Un, Sn FeO and Cg zeolite 32.40m: JT, 60°, Pl, Sn FeO 32.58m: JT, 20°, Pl, Sn FeO 32.85-32.95m: JT set x2, 30° & 70°, Sm, St 33.10m: JT, 85°, Ro, Pl, Sn FeO and Vn silt 33.38m: JT, 50°, Sm, Pl, Sn FeO 33.98m: JT, 40°, Sm, Pl, Sn FeO 34.28-34.30m: JT, 70-80°, Ro, Un, Sn FeO 34.35-34.50m: JT, 20°, Sm, Pl, Sn FeO 34.75m: JT, 60-80°, Ro, Pl, Sn FeO 35.18m: JT, 75°, Ro, Pl, Sn FeO 35.72m: JT, 45°, Ro, Pl, Sn FeO 36.20-36.35m: JT, 30°, Sm, Un, Sn FeO 36.88m: JT set x4, 50-85°, Ro, Pl, Sn FeO 37.00-37.10m: VE, Un, zeolite, 5-8 mm 37.40m: JT set x6, 10-20°, Ro, Pl, Sn FeO 38.20m: JT x2, 10° & 30°, Sm, Un, Sn FeO 38.65m: JT. 50°, Ro, Pl, Sn FeO 39.00-40.25m: HB (multiple), 60-75°, along healed joints, Cg calcite 39.00m: VE, 65°, Un, calcite, 3-10 mm,	
12	HQ3	257	34			34.65-35.10m: ...Sheared fabric, approximately 75-80°, sheared zones weak and break during handling.		C: 33.37-33.77 m	100	93	63			
13	HQ3	256	35		WPU		SW	C: 35.22-35.50 m	100	97	87			
14	HQ3	255	36			36.70-36.90m: ...Highly fractured; very closely spaced, incipient fractures with moderate tensile strength.			100	100	97			
	HQ3	254	37						97	97	97			
	HQ3	253	38											
	HQ3	252	39											
	HQ3	251				39.30m: Unweathered, light bluish grey, GREYWACKE SANDSTONE. Moderately strong to strong; very closely spaced, incipient fractures with moderate to high tensile strength, sub-horizontal to sub-vertical, calcite and zeolite mineralisation common along defect surfaces; pervasive veining, zeolite, calcite and quartz, <1-25mm thick.	UW		100	100	97			

Remarks:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 40mm and vertical accuracy +/- 84mm.
2. Two vibrating wire piezometers were installed on 08/09/2025. BH2B_1144_PZ01 was installed at 20m bgl, Serial No. 378355. BH2B_1144_PZ02 was installed at 75m bgl, Serial No. P250936.
3. Terminal/Straddle packer testing undertaken between 40.50 to 53.0 m on 28/08/2025 and between 69.0-75.0m on 03/09/2025.
4. Geophysical profiling was undertaken on 05/09/2025, comprising optical and acoustic televiewer.
5. ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
6. Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).
7. Terminated deeper than original target depth (60 m) due to design variation.

Shear Vane (ISHSV + IBHSV) Serial No. 3453, calibration constant 1.47.

Water Level Readings:

Date/Time	Hole Depth	Water Level

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	19/08/2025	Logged:	C. Whitten, J.
Method:	Rotary Core Wireline	Easting:	1727595.24	Date completed:	08/09/2025	Input:	Despojo
Equipment:	TechDrill 250 HD	Northing:	6007655.58	Inclination:	90°	Reviewed:	R. van Dam
Contractor:	Drill Force NZ Ltd	Ground level:	290.81m (NZVD2016)	Azimuth:	N/A	Verified:	S. Nelis

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG				STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
												VWS	WS	MWS	VCS	EGS	
14	HQ3		250														
	HQ3		41						100	100	100						
	HQ3		249			41.40-42.50m: ...Highly fractured; extremely closely spaced, incipient fractures with low tensile strength, joints at 60-85°; disintegrates to medium to coarse, angular gravel, during handling.											
15	HQ3		42														
	HQ3		248						95	77	95						
	HQ3		43														43.15-43.45m: CZ, 85°, Slk, Un, recovered as a sandy fine GRAVEL, crumbles when handled
	HQ3		247						100	0	0						
	HQ3		44		WPU	43.75-43.90m: ...Crush Zone; recovered as silty fine to coarse gravel with some sand; brown. Well graded; silt is low plasticity; gravel is fine to medium, angular, weak to moderately strong.	UW										43.75-44.20m: CZ, recovered as silty fine to coarse GRAVEL with some sand
16	HQ3		246						100	92	72						
	HQ3		45						100	0	0						
	HQ3								100	0	0						
	HQ3		245						100	83	69						
	HQ3		46						86	14	0						
17	HQ3		244														46.58-46.62m: JT x2, 40° & 60°, Ro, Pl, Vn zeolite
	HQ3		47						100	100	60						47.00-47.12m: JT set x3, 30-70°, Ro, Pl, Vn zeolite
	HQ3		243														47.24m: JT, 50°, Ro, Pl 47.30m: JI, 65°, Pl, Cg zeolite, 1 mm 47.55m: JT, 60°, Ro, Pl 47.65m: JT set x5, 20-30°, Ro, Pl 47.85-48.00m: JI x2, 70-80, Ro, Pl

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 40mm and vertical accuracy +/- 84mm.
- Two vibrating wire piezometers were installed on 08/09/2025. BH2B_1144_PZ01 was installed at 20m bgl, Serial No. 378355. BH2B_1144_PZ02 was installed at 75m bgl, Serial No. P250936.
- Terminal/Straddle packer testing undertaken between 40.50 to 53.0 m on 28/08/2025 and between 69.0-75.0m on 03/09/2025.
- Geophysical profiling was undertaken on 05/09/2025, comprising optical and acoustic televiwer.
- ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
- Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).
- Terminated deeper than original target depth (60 m) due to design variation.

Shear Vane (ISHSV + IBHSV) Serial No. 3453, calibration constant 1.47.

Water Level Readings:		
Date/Time	Hole Depth	Water Level

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: TechDrill 250 HD
Contractor: Drill Force NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727595.24
Northing: 6007655.58
Ground level: 290.81m (NZVD2016)

Date started: 19/08/2025
Date completed: 08/09/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Whitten, J.
Despojo
Input: C. Whitten
Reviewed: R. van Dam
Verified: S. Nelis

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG VWS WS MWS VCS VGS EGS	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
17														
18	HQ3	242	49						100	100	93		48.45-48.60m: JI x3, 50-70°, Un, Vn zeolite	
						49.45m: ...Pervasive veining, white and grey quartz, calcite and zeolite(?), 2-20mm thick.							49.10m: JI, 85°, Ro, Un	
	HQ3	241	50						100	100	100		49.45-49.50m: VE, 20-80°, Un, calcite, 5mm	
													50.65-50.80m: JI set x2, 70°, Pl, healed calcite	
	HQ3	240	51										51.40-51.55m: JI set x2, 60-70°, Pl, Cg zeolite	
19	HQ3	239	52		WPU	52.35-52.50m: ...Highly fractured; recovered as fine to coarse GRAVEL, angular.	UW		100	97	97		51.70-51.90m: VE x3, 50-90°, Un, calcite, 2-25 mm	
	HQ3	238	53						100	100	80		52.35-52.40m: CZ, with weak incipient joints, recovered as fine GRAVEL	
	HQ3					53.63-53.67m: ...Crush Zone; recovered as silty fine to coarse sand with some gravel; brown. Well graded; silt is low plasticity; gravel is fine, angular, weak to moderately strong.			100	100	100		53.32m: JT, 60°, Ro, Pl, Cg calcite	
	HQ3	237	54						100	100	100		53.63-53.70m: CZ, recovered as silty fine to coarse SAND with some gravel	
20							C: 54.20-54.40 m						53.65m: JT, 70°, Ro, Pl, Cg zeolite and calcite	
	HQ3	236	55						100	100	80		53.85-54.00m: JT set x2, 60°, Ro, Pl, Cg zeolite	
													54.75m: JI, 60°, Ro, Pl, Cg zeolite	
													55.15-55.40m: JI set x6, 50-85°, Ro, Pl, Vn calcite	
21	HQ3	235											55.65m: JI set x2, 70°, Ro, Pl, Vn calcite	

Remarks:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 40mm and vertical accuracy +/- 84mm.
2. Two vibrating wire piezometers were installed on 08/09/2025. BH2B_1144_PZ01 was installed at 20m bgl, Serial No. 378355. BH2B_1144_PZ02 was installed at 75m bgl, Serial No. P250936.
3. Terminal/Straddle packer testing undertaken between 40.50 to 53.0 m on 28/08/2025 and between 69.0-75.0m on 03/09/2025.
4. Geophysical profiling was undertaken on 05/09/2025, comprising optical and acoustic televiewer.
5. ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
6. Incipient joints ignored when assessing deflecting spacing within Waipapa Formation (Greywacke Sandstone).
7. Terminated deeper than original target depth (60 m) due to design variation.

Shear Vane (ISHSV + IBHSV) Serial No. 3453, calibration constant 1.47.

Water Level Readings:		
Date/Time	Hole Depth	Water Level

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 19/08/2025	Logged: C. Whitten, J. Despojo
Method: Rotary Core Wireline	Easting: 1727595.24	Date completed: 08/09/2025	Input: C. Whitten	
Equipment: TechDrill 250 HD	Northing: 6007655.58	Inclination: 90°	Reviewed: R. van Dam	
Contractor: Drill Force NZ Ltd	Ground level: 290.81m (NZVD2016)	Azimuth: N/A	Verified: S. Nelis	

[illegible]

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 40mm and vertical accuracy +/- 84mm.
2. Two vibrating wire piezometers were installed on 08/09/2025. BH2B_1144_PZ01 was installed at 20m bgl, Serial No. 378355. BH2B_1144_PZ02 was installed at 75m bgl, Serial No. P250936.
3. Terminal/Straddle plate testing undertaken between 40.50 to 53.0 m on 28/08/2025 and between 69.0-75.0m on 03/09/2025.
4. Geophysical profiling was undertaken on 05/09/2025, comprising optical and acoustic televiwer.
5. ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
6. Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).
7. Terminated deeper than original target depth (60 m) due to design variation.

Water Level Readings:

[illegible]

Logged:	C. Whitten, J. Despojo
Input:	C. Whitten
Reviewed:	R. van Dam
Verified:	S. Nelis

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL	
27	HQ	3				WPU	72.20m: ...Incipient fractures with low to moderate tensile strength. 72.35m: ...Incipient fractures with moderate to high tensile strength.	UW		100	83	0	VMS VMS MWS CS VCS ECS	72.35-73.60m: JI set x4, 60-75°, Ro, Pl, Vn calcite 72.40m: JI, 50°, Pl, healed quartz 72.70-73.70m: JI set x5, 45°, Pl, Cn or Cg quartz 72.80-72.90m: JI, 80°, Ro, Pl, Cn 72.90-73.20m: JI, 85°, Ro, Pl, Vn calcite, <1 mm 73.40m: JI, 35°, Un, Cn 73.60m: JI, 35°, Pl, Cn 73.70-75.00m: JI orthogonal, 45° & 65°, Pl, healed quartz or Vn calcite 74.60m: VE x3, 10-45°, Pl-Un, quartz, 3-15 mm wide 75.00-76.30m: JI set x5, 85-90°, Pl, Cn, >0 mm 75.05m: VE, 15°, Un, quartz, 10-20 mm 75.47m: VE, 15°, Pl-St, quartz, 2-20 mm, JI throughout vein, Vn calcite 75.70-76.20m: JI set x6, 70-80°, Pl, occasional Vn calcite and zeolite 76.25-76.50m: CZ, ECS joints, healed quartz and calcite 76.25m: JI, 30°, Pl, Cg quartz and Vn zeolite 76.30-75.00m: JI set x6, 80-90°, Pl, Cn 76.80-77.10m: JI set x5, 80°, Pl, Vn calcite 77.15-77.30m: CZ, 65° (top), Pl, brecciated, recovered as fine to coarse GRAVEL 77.30-78.00m: JI set x6, 75-80°, Pl, Vn calcite and zeolite 78.00-78.15m: JI, 80°, Pl, Cn 78.10-79.10m: JI set x9, 45°, Pl, Cn, occasional Cg quartz 79.78m: VE, 15°, Pl, quartz, 3-10 mm wide		
	HQ3	218	73		73.05m: ...Moderately fractured.		100		93	70						
28	HQ3				73.85-74.70m: ...Fragmented; persistent, incipient fractures with high tensile strength; orthogonal joints with moderate tensile strength, 50° and 65-70°.		100		94	78						
	HQ3	216	75		74.70m: ...Highly fractured. 75.00m: ...Greenish dark grey. 75.10-75.50m: ...Faint thin, gently inclined bedding of fine sandstone and fine to coarse sandstone. Moderately fractured; incipient fractures with moderate to high tensile strength. 75.50m: ...Occasional inclusions of argillite.		100		73	70						
29	HQ3				76.15-76.25m: ...Fine to coarse Greywacke Sandstone; with occasional quartz mineralisation, 2-8 mm. 76.25m: ...Healed shear zone? Very steeply inclined healed joints and shear surfaces, healed with calcite, quartz mineralisation common. 76.50m: ...Brecciated Greywacke Sandstone and Siltstone; pervasively veined (quartz and calcite); incipient jointing commonly at 35-40°.		100		92	92						
	HQ3	213	78		77.15-77.30m: ...Crush zone; disintegrates to fine to coarse, angular gravel under single firm blow of hammer.		100		100	100						
30	HQ3				78.00m: ...Brecciated; incipient fractures with high tensile strength; closely spaced, joints with low tensile strength, 40-45°, planar, common veneer of calcite and quartz.		100		100	100						
	HQ3	212	79		79.10-79.30m: ...Healed shear zone? Chlorite and quartz mineralisation common; extremely closely spaced, incipient fractures with low tensile strength. 79.50-81.00m: ...Very closely spaced, incipient fractures with moderate tensile strength; joints with low tensile strength, 75-80°.											

DateTime	Hole Depth	Water Level
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BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: TechDrill 250 HD
Contractor: Drill Force NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727595.24
Northing: 6007655.58
Ground level: 290.81m (NZVD2016)

Date started: 19/08/2025
Date completed: 08/09/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Whitten, J.
Input: Despojo
Reviewed: C. Whitten
Verified: R. van Dam
S. Nelis

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
30	HQ3	210	81		WPU	80.30m: ...Incipient fractures with low to moderate tensile strength; disintegrates to fine to coarse, angular gravel during handling. 81.00m: ...Very closely to extremely closely spaced, incipient fractures with moderate to high tensile strength; joints fractures with low tensile strength, 80-90°.	UW		100	100	100	WVS WS MWS VCS EGS		
31	HQ3	209	82						100	93	93		81.90m: JI set x5, 60-75°, Pl, Vn zeolite, <1 mm	
						Terminated at 82.50 m. Target depth.								
		208	83											
		207	84											
		206	85											
		205	86											
		204	87											
		203												

Remarks:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 40mm and vertical accuracy +/- 84mm.
2. Two vibrating wire piezometers were installed on 08/09/2025. BH2B_1144_PZ01 was installed at 20m bgl, Serial No. 378355. BH2B_1144_PZ02 was installed at 75m bgl, Serial No. P250936.
3. Terminal/Straddle packer testing undertaken between 40.50 to 53.0 m on 28/08/2025 and between 69.0-75.0m on 03/09/2025.
4. Geophysical profiling was undertaken on 05/09/2025, comprising optical and acoustic televiwer.
5. ISHSV = in-situ hand shear vane, IBHSV = in barrel hand shear vane.
6. Incipient joints ignored when assessing defecting spacing within Waipapa Formation (Greywacke Sandstone).
7. Terminated deeper than original target depth (60 m) due to design variation.

Shear Vane (ISHSV + IBHSV) Serial No. 3453, calibration constant 1.47.

Water Level Readings:		
Date/Time	Hole Depth	Water Level

Borehole Reference: BH2B_1144

Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX001_0m-3m



BH2B_1144_BOX002_3m-7.95m

Borehole Reference: BH2B_1144

Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX003_7.95m-12.45m



BH2B_1144_BOX004_12.45m-15.6m

Borehole Reference: BH2B_1144

Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX005_15.6m-18.6m



BH2B_1144_BOX006_18.6m-21.46m

Borehole Reference: BH2B_1144

Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX007_21.46m-24m



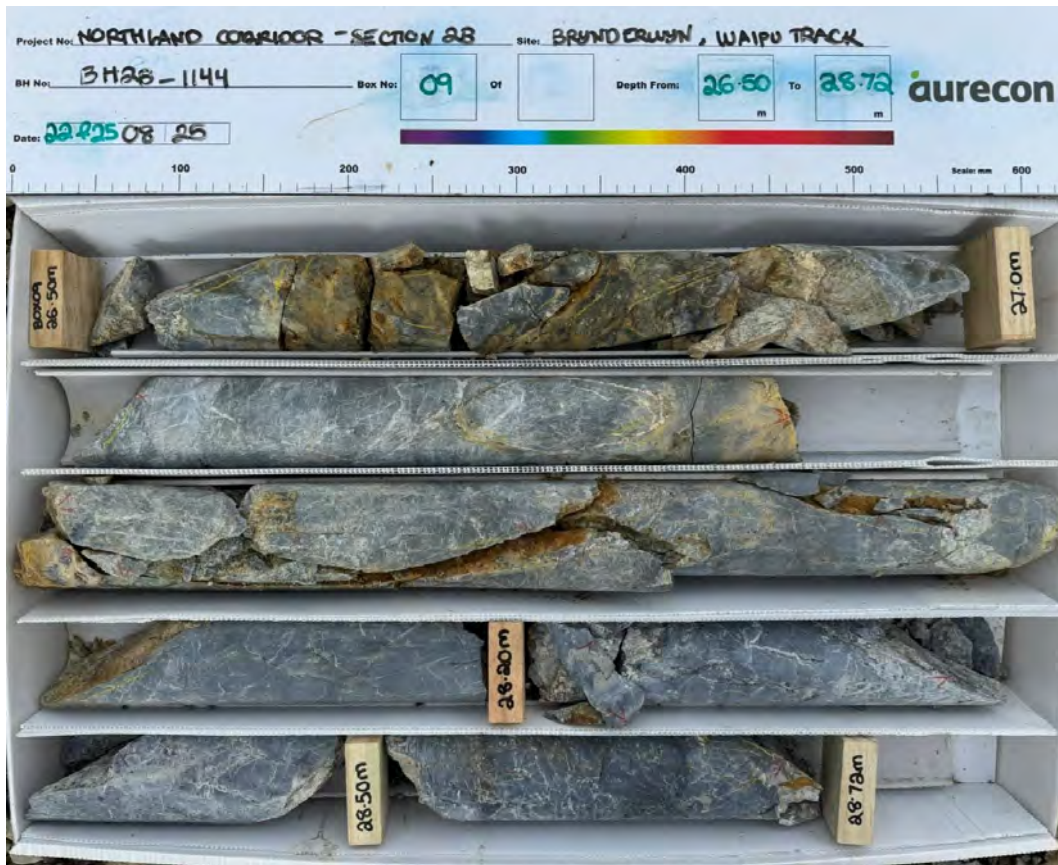
BH2B_1144_BOX008_24m-26.5m

Borehole Reference: BH2B_1144

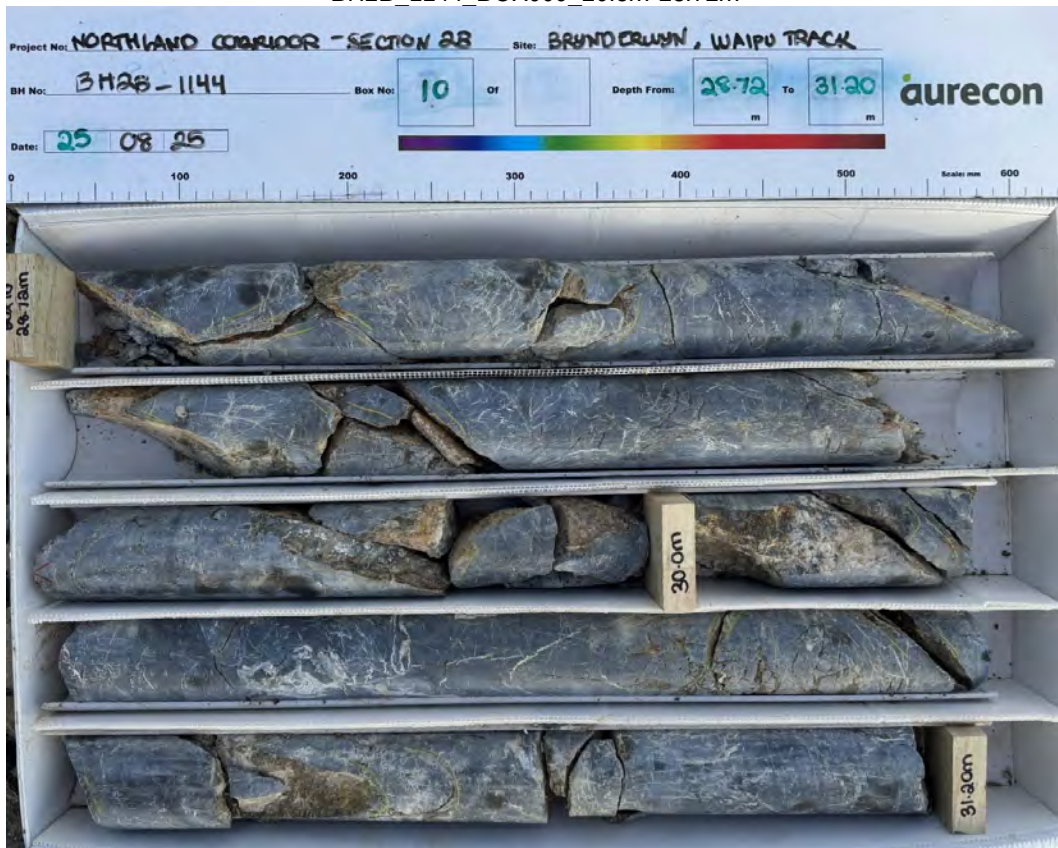
Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX009_26.5m-28.72m



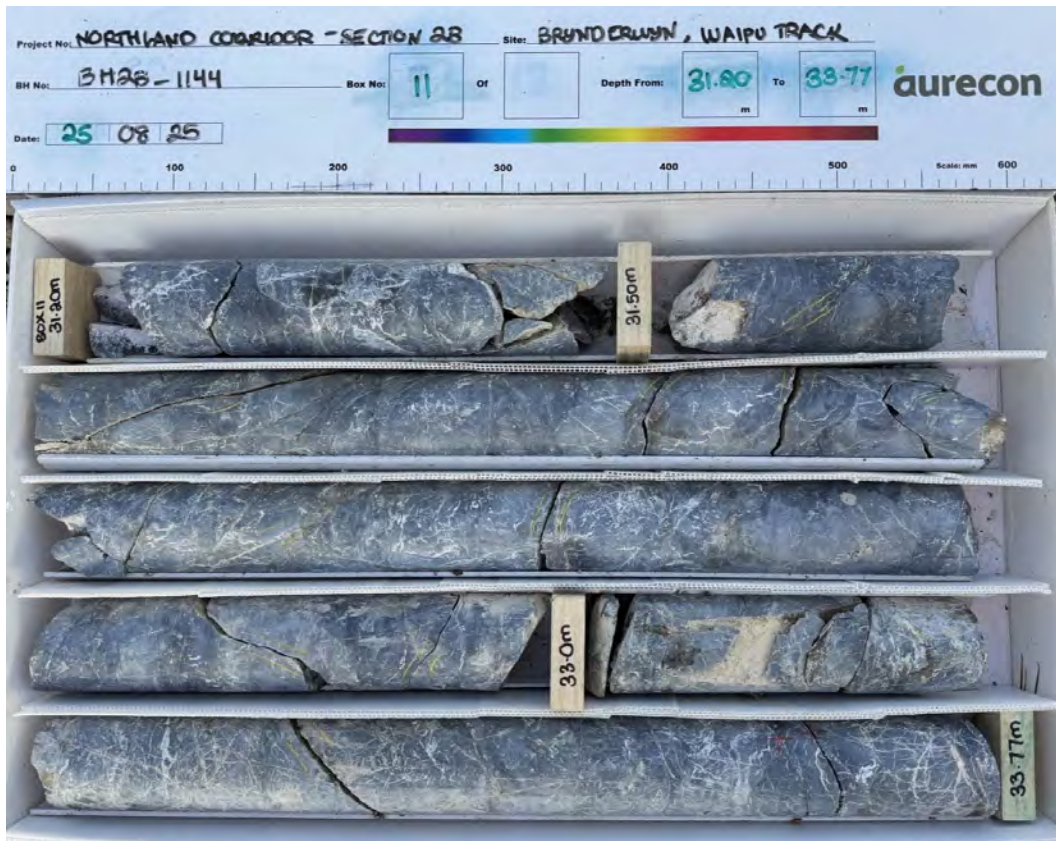
BH2B_1144_BOX010_28.72m-31.2m

Borehole Reference: BH2B_1144

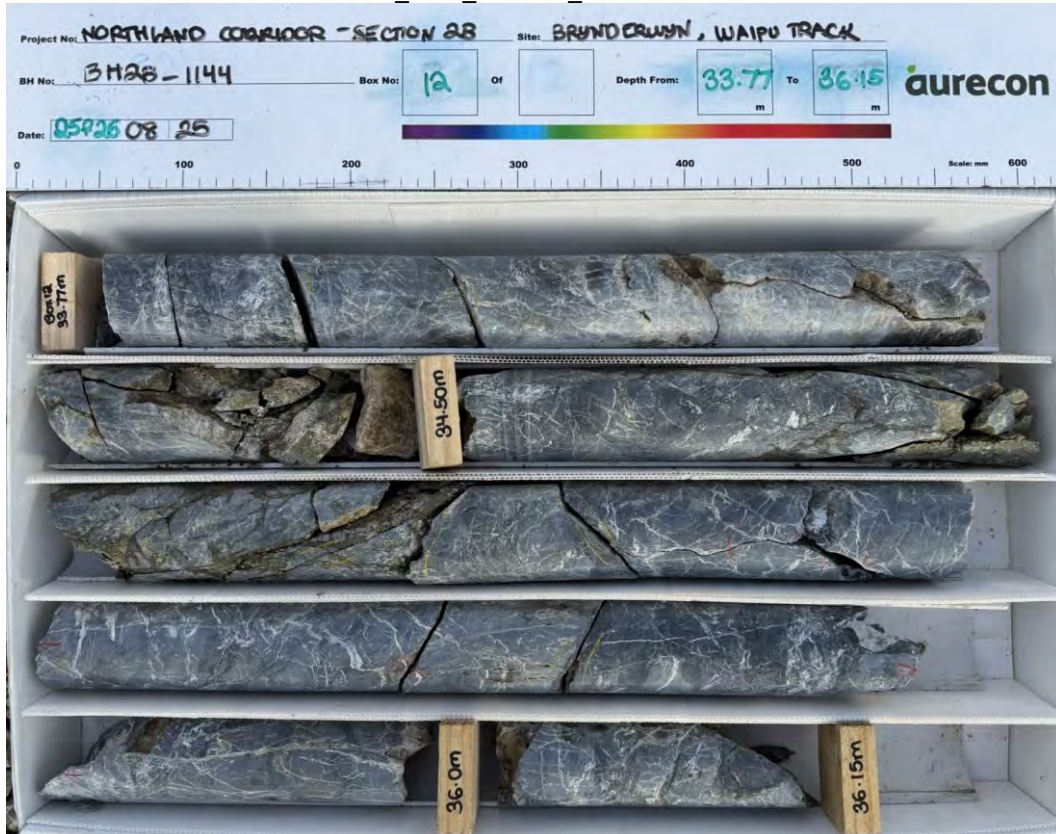
Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX011_31.2m-33.77m



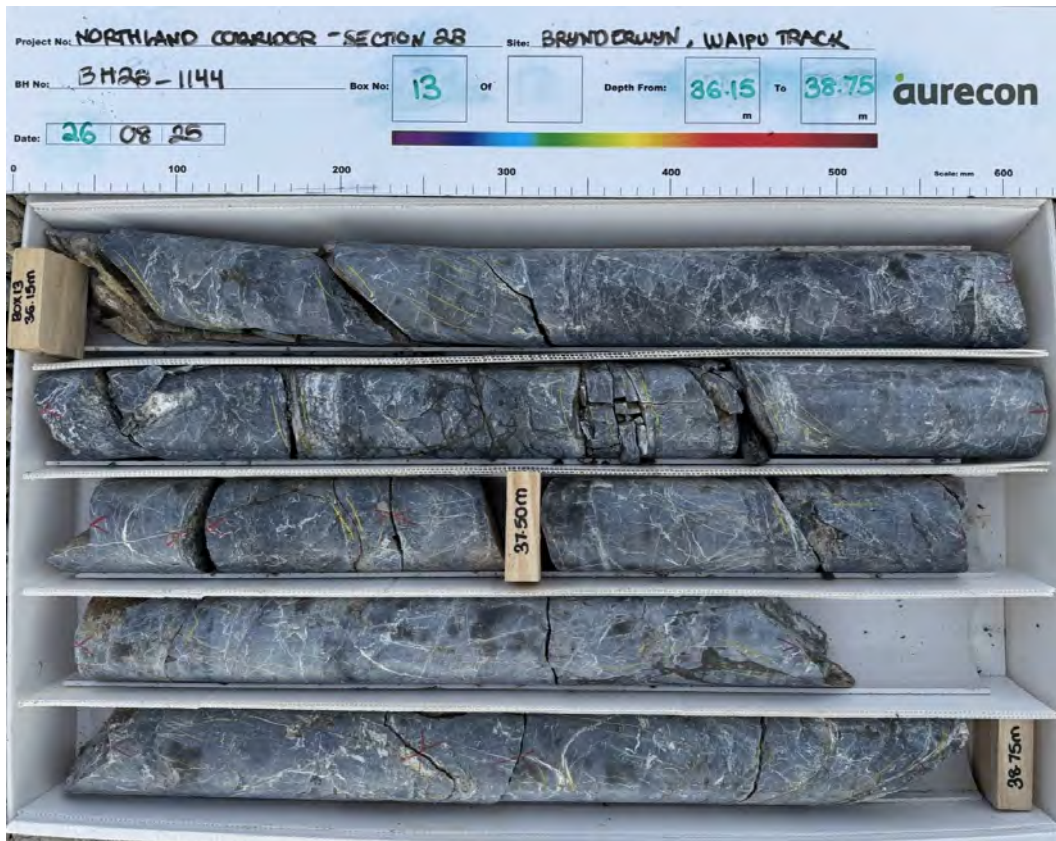
BH2B_1144_BOX012_33.77m-36.15m

Borehole Reference: BH2B_1144

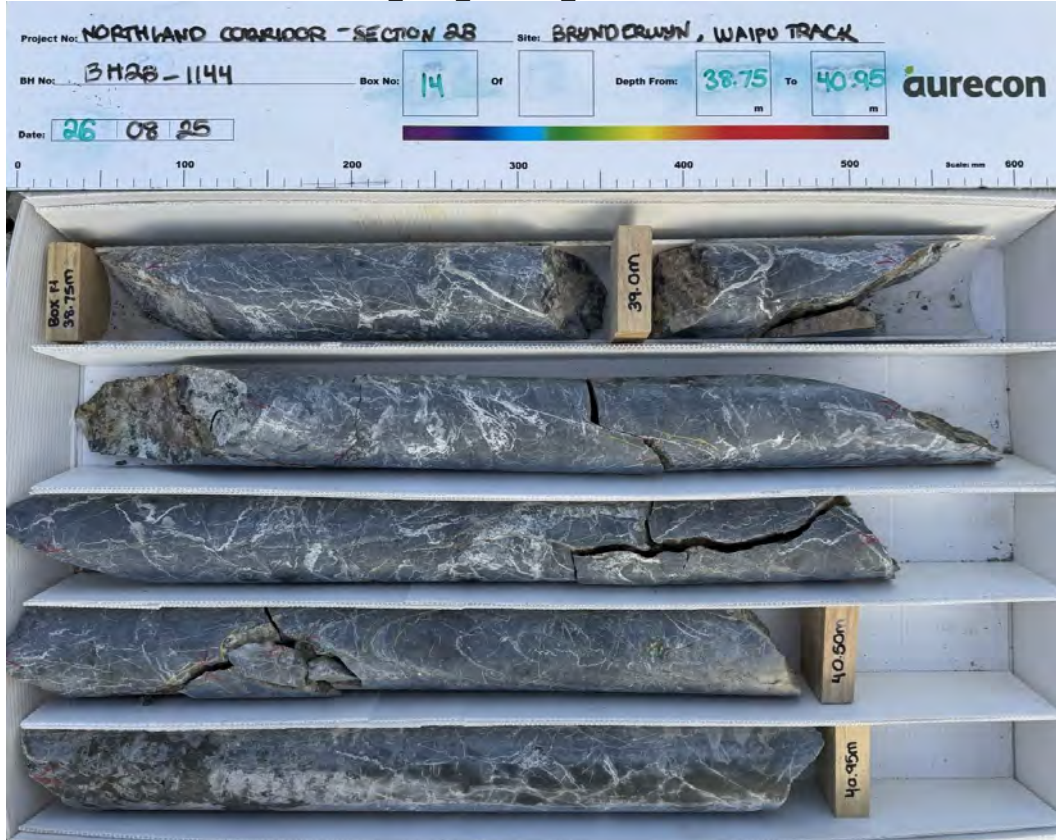
Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX013_36.15m-38.75m



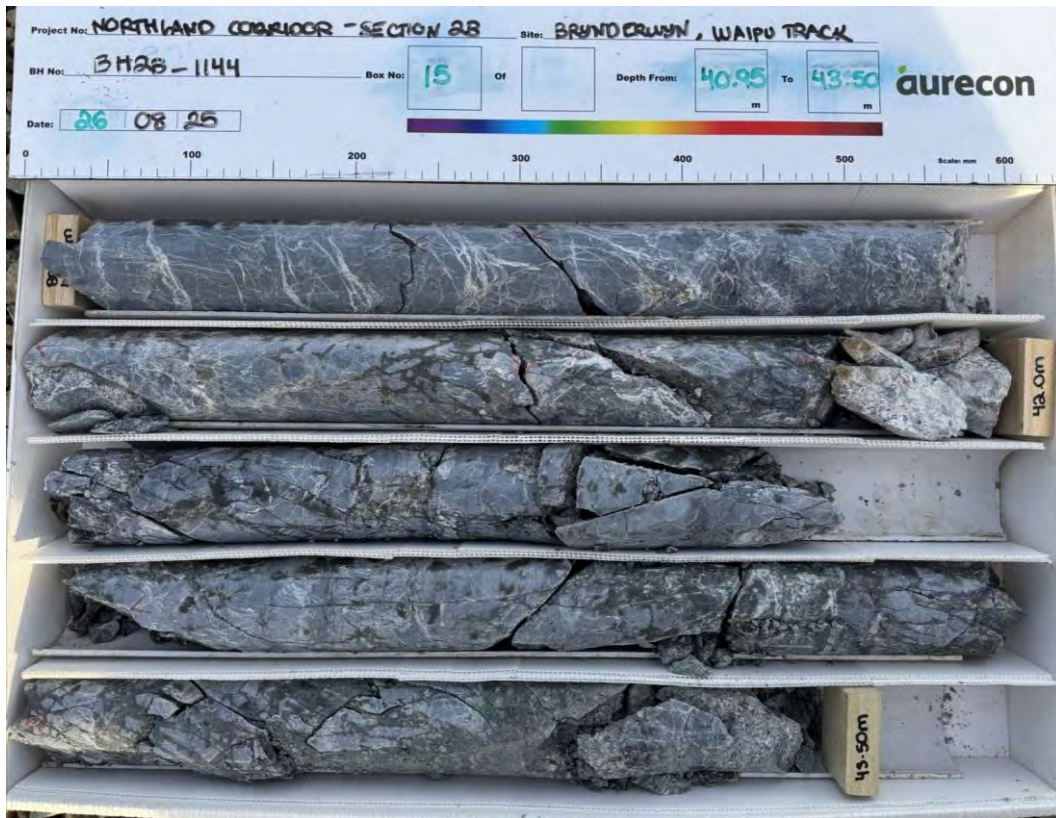
BH2B_1144_BOX014_38.75m-40.95m

Borehole Reference: BH2B_1144

Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX015_40.95m-43.5m



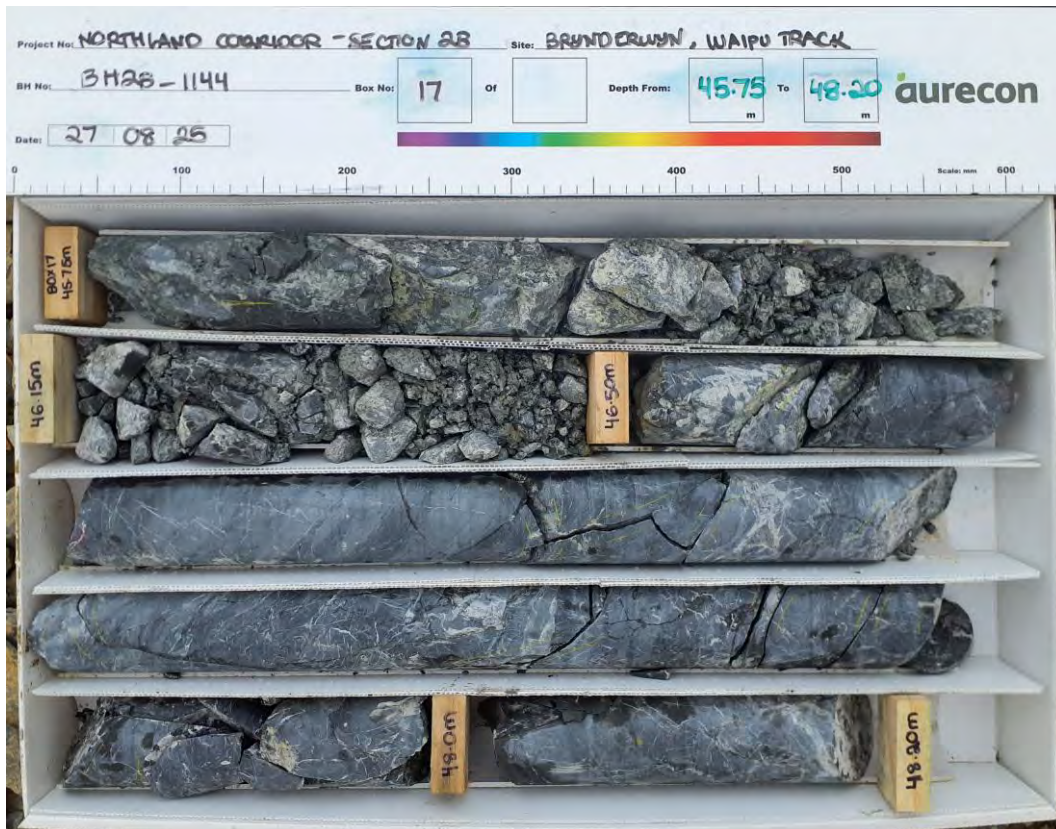
BH2B_1144_BOX016_43.5m-45.75m

Borehole Reference: BH2B_1144

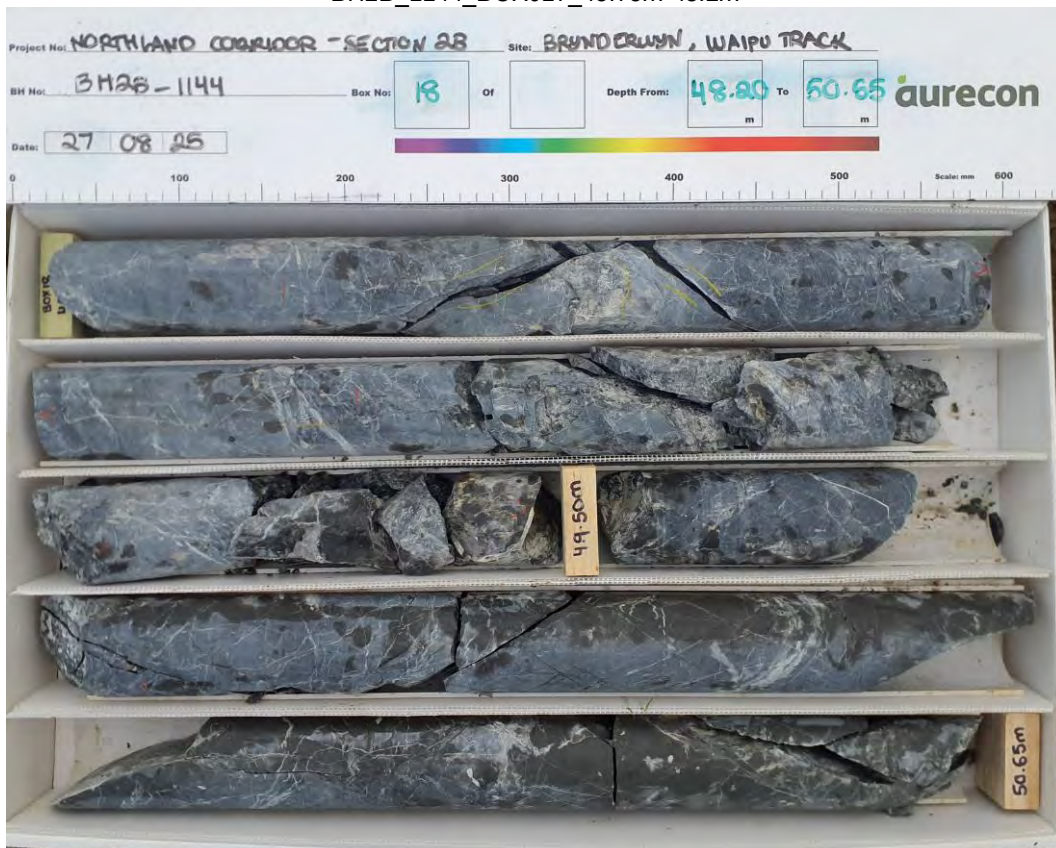
Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX017_45.75m-48.2m



BH2B_1144_BOX018_48.2m-50.65m

Borehole Reference: BH2B_1144

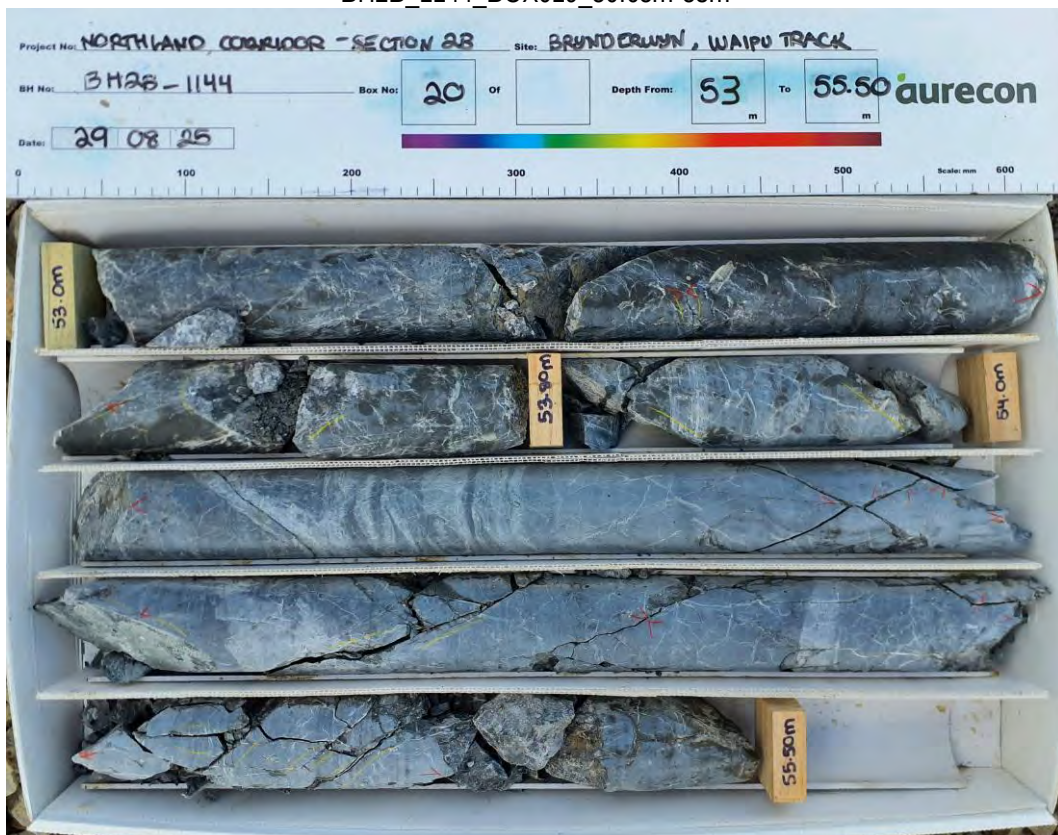
Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX019_50.65m-53m



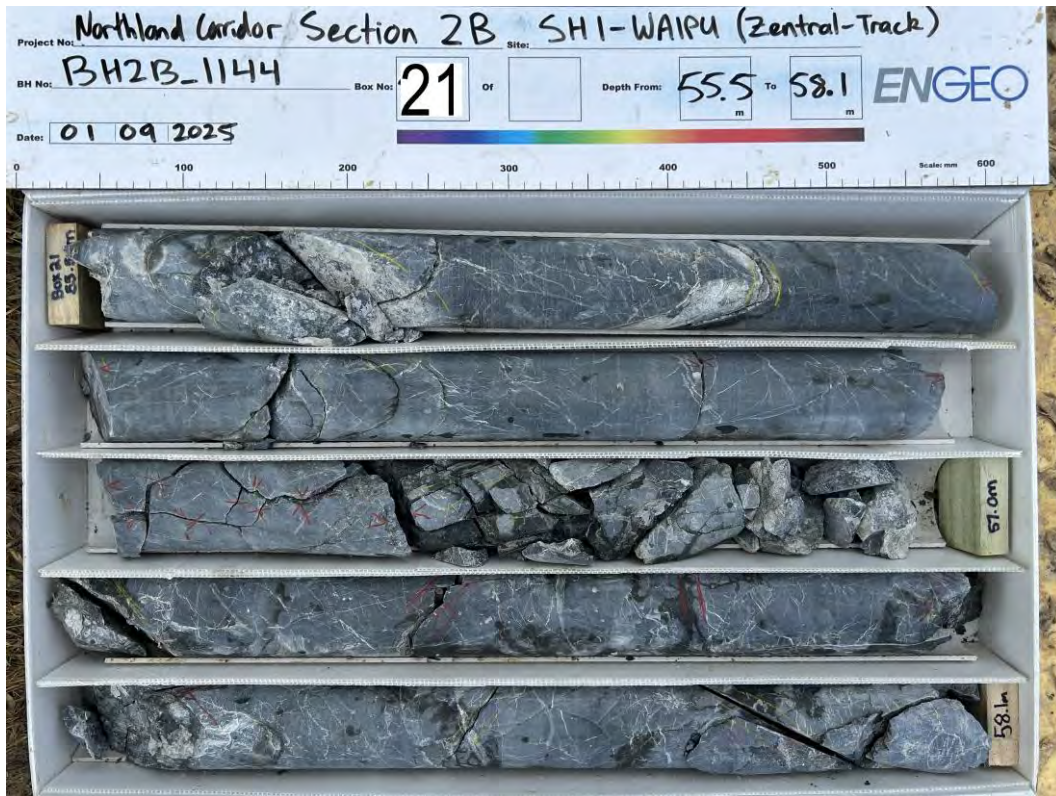
BH2B_1144_BOX020_53m-55.5m

Borehole Reference: BH2B_1144

Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX021_55.5m-58.1m



BH2B_1144_BOX022_58.1m-60m

Borehole Reference: BH2B_1144

Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX023_60m-62.8m



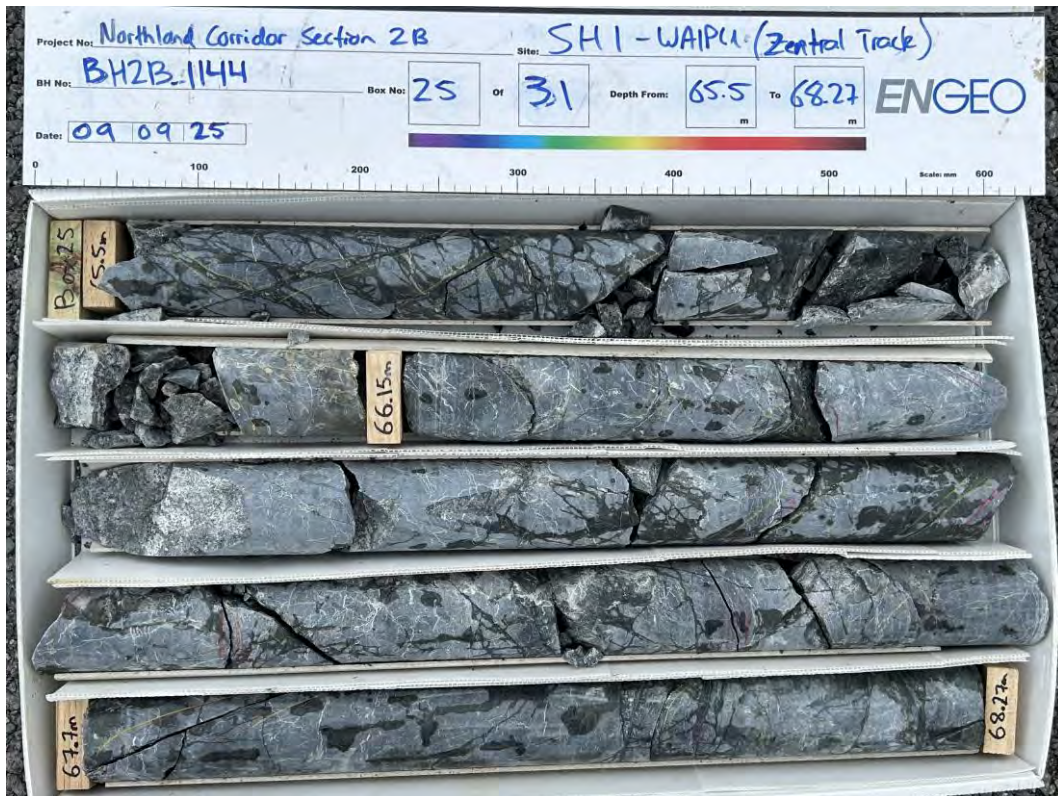
BH2B_1144_BOX024_62.8m-65.5m

Borehole Reference: BH2B_1144

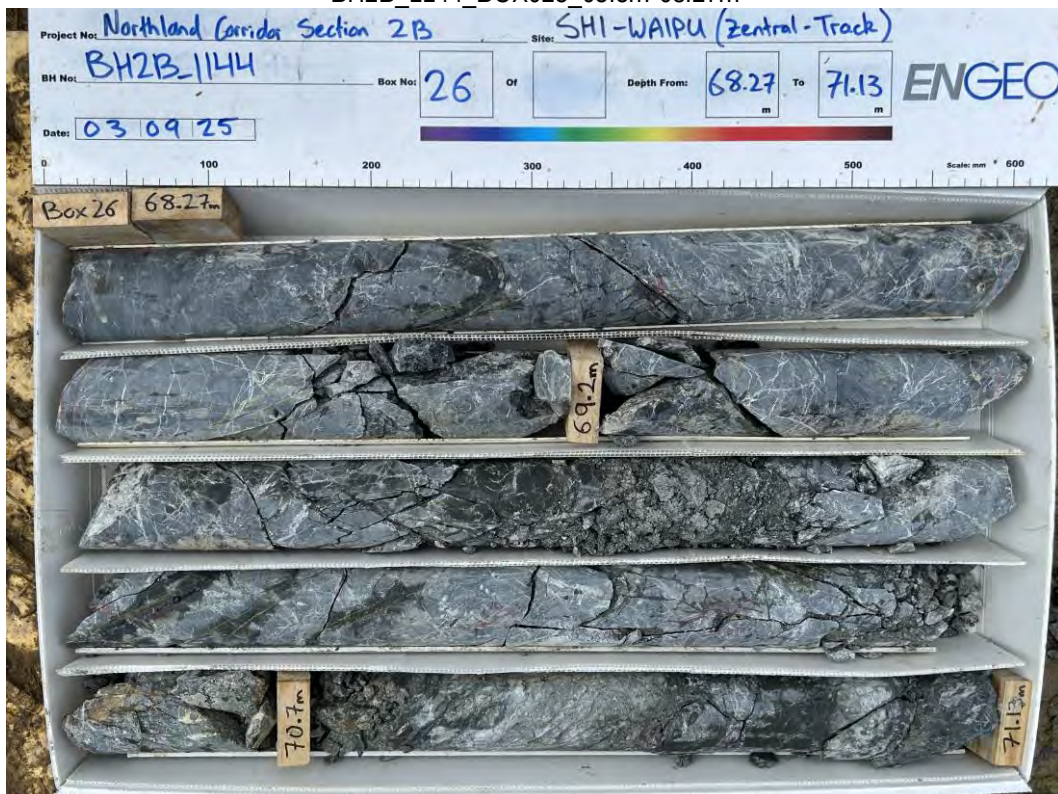
Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX025_65.5m-68.27m



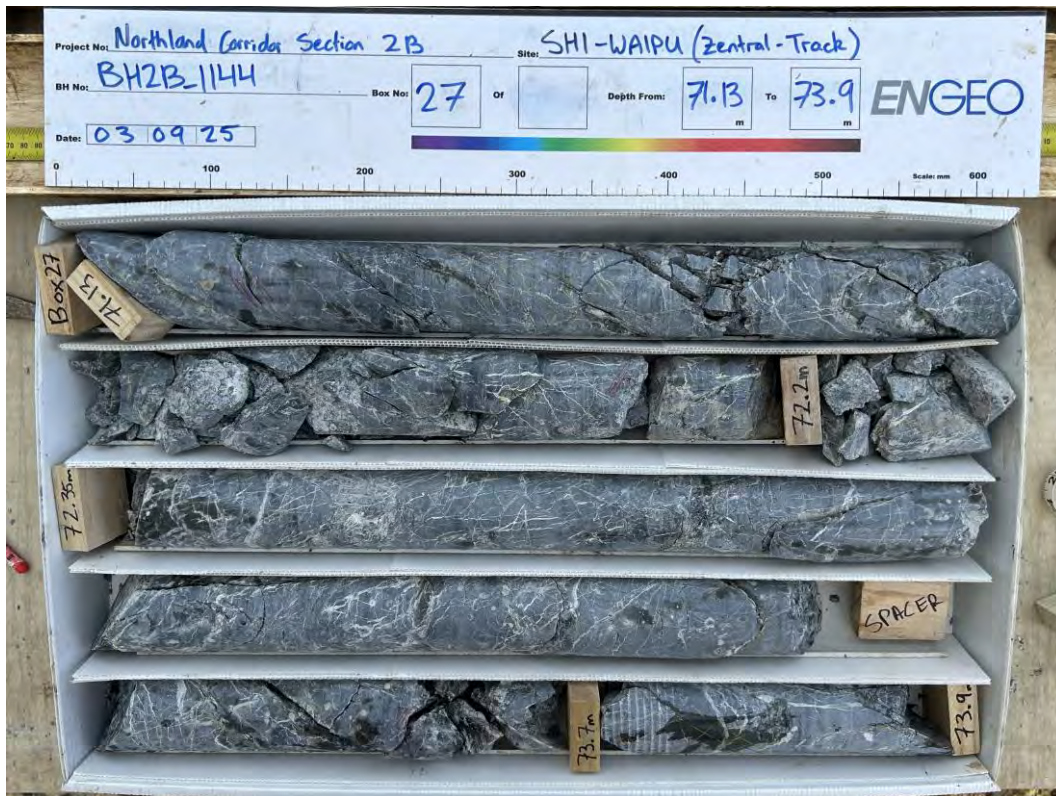
BH2B_1144_BOX026_68.27m-71.13m

Borehole Reference: BH2B_1144

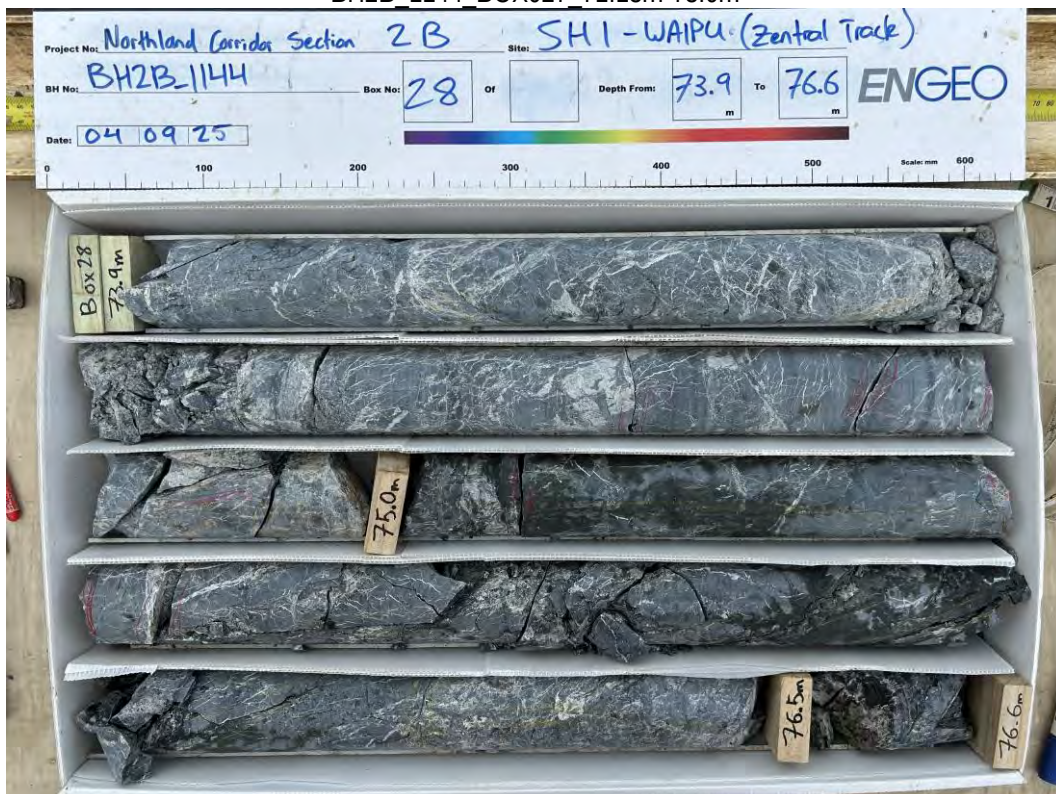
Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B 1144 BOX027 71.13m-73.9m



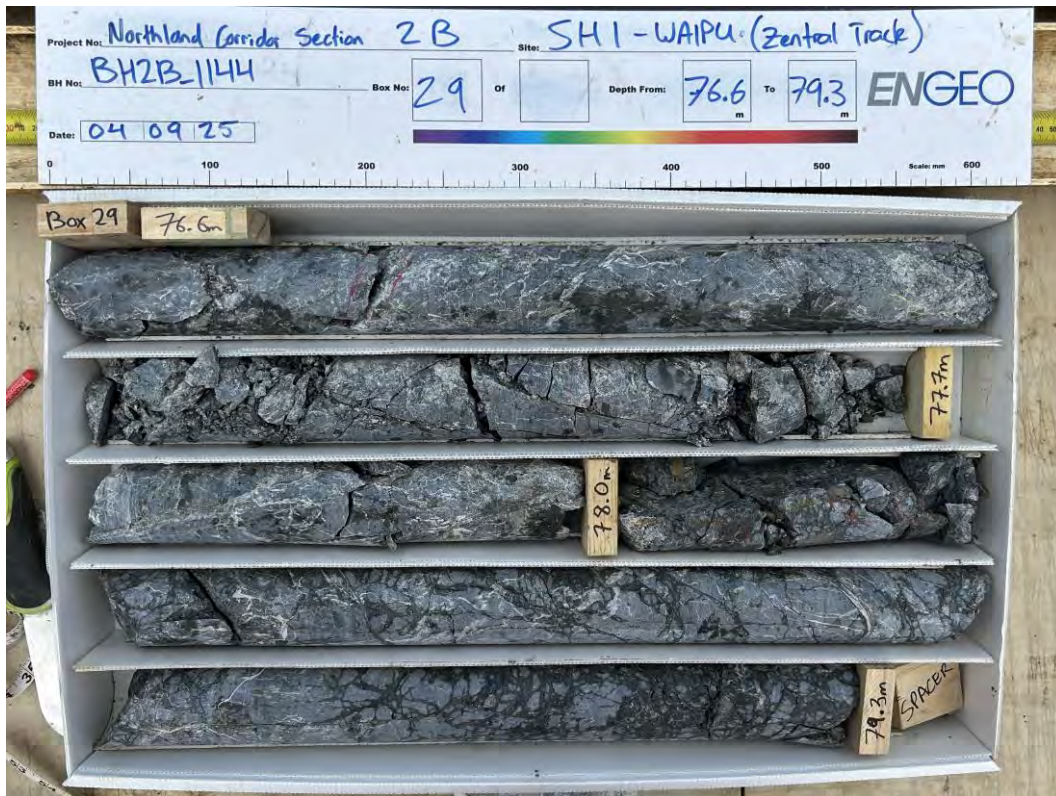
BH2B_1144_BOX028_73.9m-76.6m

Borehole Reference: BH2B_1144

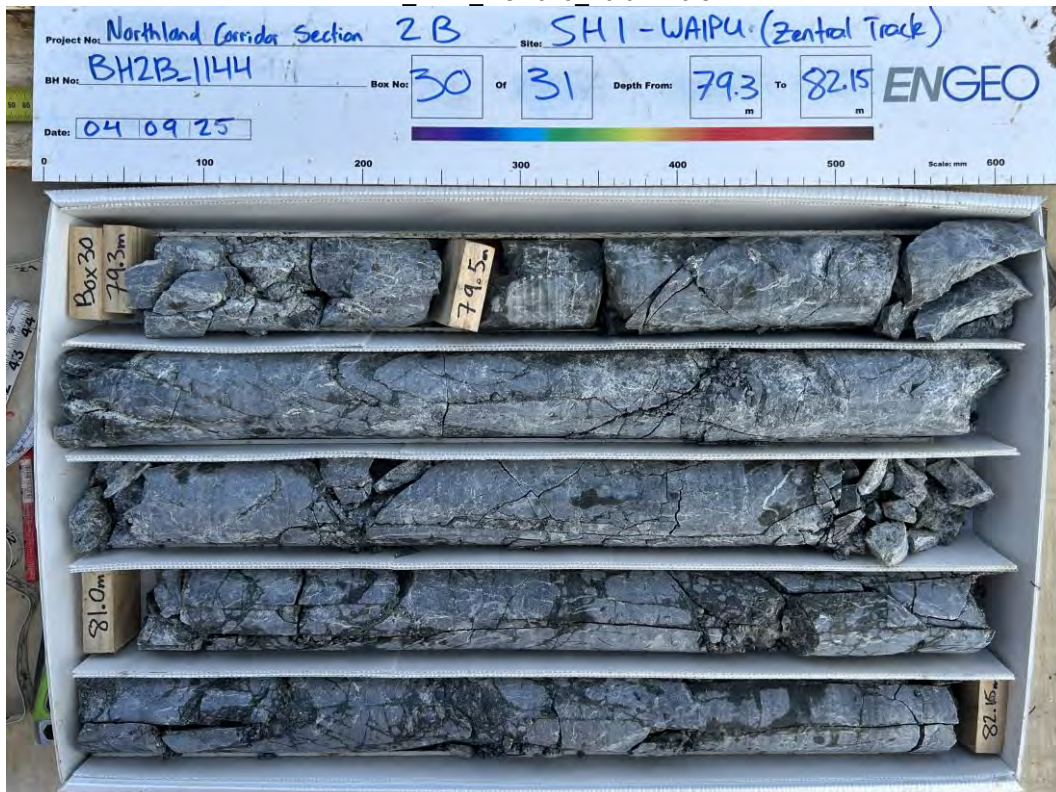
Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX029_76.6m-79.3m



BH2B_1144_BOX030_79.3m-82.15m

Borehole Reference: BH2B_1144

Photographed By: JD

Date Photographed:

19/08/2025-13/10/2025



BH2B_1144_BOX031_82.15m-82.5m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	01/09/2025	Logged:	C. Nicholas
Method:	Rotary Core Wireline	Easting:	1727464.13	Date completed:	05/09/2025	Input:	C. Nicholas
Equipment:	Fraste SRS	Northing:	6005407.70	Inclination:	90°	Reviewed:	F. Monteith
Contractor:	ProDrill NZ	Ground level:	96.198m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL						
1	HA		96		TS	0.00m: SILT, trace rootlets; dark brown. Firm, moist, non-plastic. [TOPSOIL]	RS	0.5m: ISHSV 93/45 kPa 1m: ISHSV 93/43 kPa 1.5m: ISHSV 90/34 kPa U: 1.50-1.90 m	100				0.00-49.50m: HCl reaction generally weak in sandstone and nil in siltstone.							
					PR	0.25m: Silty CLAY; brown mottled orange. Stiff, moist, high plasticity. [RESIDUALLY WEATHERED PAKIRI FORMATION]									1.9m: SPT 7, 13// 18, 32 N = 50+	70	93			
						0.70m: ...Light brown mottled orange. Soft, moist, low plasticity. 0.90m: ...Light brown and grey mottled orange.														
						1.30m: ...Trace gravel, light brown and grey mottled orange with black speckles. Gravel is fine, angular, grey, siltstone. 1.40m: ...Black carbonaceous streaks. 1.50m: PUSH TUBE														
						1.90m: SILT; grey. Hard, moist, non-plastic [COMPLETELY WEATHERED PAKIRI FORMATION SILTSTONE].														
					PM	2.20m: Moderately weathered, grey, SILTSTONE. Very weak. Weak incipient fractures, drill breaks along bedding planes. [MODERATELY WEATHERED PAKIRI FORMATION]									MW	81	64	39	2.37-2.43m: Fracture Zone 2.49-2.54m: Fracture Zone 2.74m: JT, 40°, Un, Ro, Cn, 1mm	
						UW														3.16m: Unweathered, grey, thin to moderately thin, interbedded SANDSTONE (60%) and SILTSTONE (40%). Sandstone is fine. Siltstone has low strength incipient fractures and drilling breaks along bedding planes. [UNWEATHERED PAKIRI FORMATION]
					3.83-3.86m: ...Fine to coarse SANDSTONE.															
					3.95m: Unweathered, grey, indistinctly bedded, fine to medium SANDSTONE. Moderately strong.															
					4.36-4.44m: ...Dark grey, thinly laminated. 4.50m: ...Fine to coarse SANDSTONE. 4.69-4.71m: ...Grey SILTSTONE. Weak. Sub-horizontal, drilling breaks along bedding planes. 4.71m: ...Fine to medium SANDSTONE, thinly laminated black carbonaceous bedding, gently inclined, soft sediment deformation. 4.89m: ...Fine to coarse SANDSTONE.															
2	HQ3		93		PM	MW	3m: SPTC 12, 38 for 70mm// N = 50+	81	64	39		5.35m: BPJT, 5°, Un, Sm, Cn, 2mm 5.38m: BPJT, 35°, Un, Sm, Cn, 2mm 5.38-5.41m: Strong HCl reaction								
														UW	3.16m: Unweathered, grey, thin to moderately thin, interbedded SANDSTONE (60%) and SILTSTONE (40%). Sandstone is fine. Siltstone has low strength incipient fractures and drilling breaks along bedding planes. [UNWEATHERED PAKIRI FORMATION]	4.5m: SPTC 50// N = 50+	100	100	100	
															3.83-3.86m: ...Fine to coarse SANDSTONE.					
															3.95m: Unweathered, grey, indistinctly bedded, fine to medium SANDSTONE. Moderately strong.					
															4.36-4.44m: ...Dark grey, thinly laminated. 4.50m: ...Fine to coarse SANDSTONE. 4.69-4.71m: ...Grey SILTSTONE. Weak. Sub-horizontal, drilling breaks along bedding planes. 4.71m: ...Fine to medium SANDSTONE, thinly laminated black carbonaceous bedding, gently inclined, soft sediment deformation. 4.89m: ...Fine to coarse SANDSTONE.					
														UW	5.35-5.38m: ...Greyish green SILTSTONE. Weak. 5.38-5.41m: ...Conglomeratic fine to coarse SANDSTONE. Clasts are angular to rounded, 2-7mm, dark grey and greenish grey, siltstone. 5.41m: ...Fine to medium SANDSTONE. 5.65m: ...Fine to coarse SANDSTONE.	UW	100	100	100	5.35m: BPJT, 5°, Un, Sm, Cn, 2mm 5.38m: BPJT, 35°, Un, Sm, Cn, 2mm 5.38-5.41m: Strong HCl reaction
															5.98m: ...Trace sub-angular to rounded, 2-3mm, dark grey, light grey and green, siltstone clasts. 6.05m: ...2-6mm siltstone clasts.					
															6.50m: Unweathered, grey, conglomeratic fine to coarse SANDSTONE. Moderately strong. Clasts are sub-angular to rounded, 2-10mm, light grey, dark grey and green, siltstone.					
															6.84m: Unweathered, grey, indistinctly bedded, fine to coarse SANDSTONE. Moderately strong. 7.06m: ...5mm SILTSTONE bed.					
														UW	7.45-7.50m: ...Conglomeratic fine to coarse SANDSTONE. Clasts are sub-angular, 2-6mm, dark grey and green, siltstone. 7.59-7.93m: ...Grey and dark grey, thinly laminated, fine SANDSTONE. Wispy black carbonaceous laminations. 7.93m: ...Fine to medium SANDSTONE	UW	100	100	100	

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 22mm and vertical accuracy +/- 36mm.

Water Level Readings:		
DateTime	Hole Depth	Water Level
2025-09-02 17:00	10.50m	0.40mbgl
2025-09-03 08:00	10.50m	0.70mbgl
2025-09-03 16:30	30.00m	2.30mbgl
2025-09-04 07:00	30.00m	1.30mbgl
2025-09-04 17:00	49.50m	1.30mbgl
2025-09-05 09:00	49.50m	1.20mbgl

Logged:	C. Nicholas
Input:	C. Nicholas
Reviewed:	F. Monteith
Verified:	A. George

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG				STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL	
3	HQ3		88				8.54-8.73m: ...Fine to coarse SANDSTONE. Trace sub-rounded to rounded, 2-6mm, dark grey and grey, siltstone clasts. 8.73m: ...Fine to coarse SANDSTONE.	UW		100	100	100	VWS	WS	NWS	VCS	EC3		
4	HQ3		87				8.97m: Unweathered, interbedded, thin to moderately thin fine to coarse SANDSTONE (80%) and conglomeratic SANDSTONE (20%). Clasts are angular to rounded, 2-7mm, dark grey and green, siltstone.	UW		100	100	100						9.15-9.19m: Strong HCl reaction	
	HQ3		86				10.43m: Unweathered, grey, fine to medium SANDSTONE. Moderately strong.	UW		100	100	100						10.10-10.16m: Strong HCl reaction	
	HQ3		85			PU	11.80m: ...Fine to coarse SANDSTONE. 11.95m: ...Trace sub-angular to rounded, 2-3mm, light grey and dark grey, siltstone.	UW		100	100	100							
5	HQ3		84				12.20m: Unweathered, grey, indistinctly bedded, conglomeratic fine to coarse SANDSTONE. Moderately strong. Clasts are angular to rounded, 2-13mm, light grey, dark grey and greenish grey, siltstone. 12.57m: ...Clasts are 2-10mm. 12.77m: ...2-4mm clasts.	UW		100	100	100							
	HQ3		83				13.13-13.16m: ...Fine SANDSTONE. Thinly laminated black carbonaceous material. Sub-horizontal bedding.	UW		100	100	100							
	HQ3		82				13.98-14.02m: ...Fine SANDSTONE. Thinly laminated black carbonaceous material. Sub-horizontal bedding. 14.02m: Unweathered, grey, fine to medium SANDSTONE. Moderately strong. Trace angular to rounded, 2-20mm, dark grey, siltstone clasts. 14.11m: ...Fine to coarse SANDSTONE.	UW		100	100	100							
6	HQ3		81				14.59m: Unweathered, grey, indistinctly bedded, conglomeratic fine to coarse SANDSTONE. Moderately strong. Clasts are sub-angular to rounded, 2-5mm, light grey, dark grey and greenish grey, siltstone. 14.69m: ...Clasts are 2-20mm. 15.07m: ...Clasts are 2-3mm. 15.17m: ...Clasts are 2-5mm.	UW		100	100	100						14.80-15.05m: Strong HCl reaction	
							15.49m: Unweathered, grey, indistinctly bedded, fine to coarse SANDSTONE. Moderately strong. Trace sub-rounded to rounded, 2-3mm, light grey and dark grey, siltstone clasts. 15.96-16.23m: ...Conglomeratic fine to coarse SANDSTONE. Clasts are sub-angular to rounded, 2-4mm, light grey and dark grey, siltstone.	UW		100	100	100							

DateTime	Hole Depth	Water Level
2025-09-02 17:00	10.50m	0.40mbgl
2025-09-03 08:00	10.50m	0.70mbgl
2025-09-03 16:30	30.00m	2.30mbgl
2025-09-04 07:00	30.00m	1.30mbgl
2025-09-04 17:00	49.50m	1.30mbgl
2025-09-05 09:00	49.50m	1.20mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Fraste SRS
Contractor: ProDrill NZ

CO-ORDINATES: NZTM2000
Easting: 1727464.13
Northing: 6005407.70
Ground level: 96.198m (NZVD2016)

Date started: 01/09/2025
Date completed: 05/09/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Nicholas
Input: C. Nicholas
Reviewed: F. Monteith
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS	WS	MWS	VCS	EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
6	HQ3	80				16.23-16.29m: ...Fine SANDSTONE. Black carbonaceous thin laminations. Sub-horizontal bedding. 16.29m: ...Fine to medium SANDSTONE. 16.47-17.16m: ...Fine to coarse SANDSTONE. Trace sub-angular to rounded, 2-15mm, light grey and dark grey, siltstone clasts. 16.80m: ...2-5mm clasts.													
	HQ3	79				17.16-17.23m: ...Grey and black, thinly laminated to laminated, fine SANDSTONE. Bedding is sub-horizontal to gently inclined 5-10°. Black carbonaceous layers at base of layer. 17.23m: ...Fine to medium SANDSTONE. 17.55m: ...Fine to coarse SANDSTONE.	UW		100	100	100								
7	HQ3	78				17.96-18.08m: ...Trace sub-angular to rounded, 2-3mm, light grey and dark grey, siltstone clasts. 18.08m: ...Fine to medium SANDSTONE. 18.35m: ...Fine to coarse SANDSTONE.													
	HQ3	77				18.80m: Unweathered, grey, conglomeratic fine to coarse SANDSTONE. Moderately strong. 75% matrix supported. Clasts are sub-angular to rounded, 2-20mm, light grey, dark grey, greenish grey and red, siltstone.	UW		100	100	100								
	HQ3	76			PU	19.45m: Unweathered, thinly laminated to thin, interbedded SANDSTONE (60%) and SILTSTONE (40%). Sandstone is fine, grey. Siltstone is dark grey. Bedding is sub-horizontal 0-5°. Healed microfaulting. Soft sediment deformation. Strong incipient fractures within siltstone. 19.66-19.81m: ...Grey, fine to medium SANDSTONE.	UW		100	100	100							19.58m: Healed micro FT, 70°, Un, <1mm	
8	HQ3	75				20.47-20.55m: ...Healed microfault set x4, 40-65°, PI and Un, <1mm. 20.58-20.70m: ...Grey, fine to coarse SANDSTONE. 20.68-20.71m: ...2x healed microfaults, 70°, Un, <1mm.													
	HQ3	74				21.20m: Unweathered, grey, indistinctly bedded, fine to medium SANDSTONE. Moderately strong. Strong incipient fractures, steeply to very steeply inclined 50-70°. 21.71-21.76m: ...Thinly laminated black carbonaceous layers. Sub-horizontally bedded. 21.76m: ...Fine to coarse SANDSTONE. Weak, drilling induced fracture zone from weak incipient joints.	UW		100	80	80							21.21-21.80m: VN,90°, Un, Ro, calcite infill, 3mm	
9	HQ3	73				22.20m: Unweathered, grey, indistinctly bedded, conglomeratic fine to coarse SANDSTONE. Moderately strong. Clasts are sub-angular to rounded, 2-10mm, light grey, dark grey and greenish grey, siltstone. 22.72-22.74m: ...Grey, SILTSTONE. 22.74-22.89m: ...Fine to coarse SANDSTONE.	UW		100	100	100								

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 22mm and vertical accuracy +/- 36mm.
- One vibrating wire piezometer was installed on 05/09/2025. BH2B_1145_PZ01 was installed at 22.8m bgl, Serial No. 378310.
- RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.
- Tensile strength of incipient joints was assessed based on assumed in ground conditions.
- Major/ dominant defects are noted in defect column while minor/secondary defects are included in the material descriptions.

Shear Vane (ISHSV) Serial No. 1288, calibration constant 1.546.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-09-02 17:00	10.50m	0.40mbgl
2025-09-03 08:00	10.50m	0.70mbgl
2025-09-03 16:30	30.00m	2.30mbgl
2025-09-04 07:00	30.00m	1.30mbgl
2025-09-04 17:00	49.50m	1.30mbgl
2025-09-05 09:00	49.50m	1.20mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Fraste SRS
Contractor: ProDrill NZ

CO-ORDINATES: NZTM2000
Easting: 1727464.13
Northing: 6005407.70
Ground level: 96.198m (NZVD2016)

Date started: 01/09/2025
Date completed: 05/09/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Nicholas
Input: C. Nicholas
Reviewed: F. Monteith
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
9	HQ3	72					UW								
			25			24.66m: Unweathered, grey, indistinctly bedded, fine to coarse SANDSTONE. Moderately strong. Trace sub-angular to rounded, 2-4mm, light grey, dark grey and greenish grey, siltstone clasts. 25.03m: ...2-10mm clasts. 25.12m: ...Siltstone clasts absent.	UW		100	100	100			24.60-24.85m: VN, 75°, Un, calcite infill, <1-1mm	
		71												25.26-25.38m: VN, 65-90°, Un, calcite infill, <1-1mm 25.53-25.75m: VN, 70°, Un, calcite infill, <1-2mm	
	HQ3	70				25.95m: ...Trace sub-angular to rounded, 2-5mm, dark grey and light grey, siltstone clasts.								26.05m: JT, 55°, Pl, Silk, Cn, 1mm	
10						26.24m: Unweathered, grey, indistinctly bedded, conglomeratic fine to coarse SANDSTONE. Moderately strong. Clasts are sub-angular to rounded, 2-5mm, light grey, dark grey and greenish grey, siltstone.			100	100	100			26.43-26.62m: VN, 70°, Pl, calcite infill, <1-4mm 26.70-26.80m: Strong HCl reaction	
		69				26.75-26.87m: ...Moderate strength incipient fractures. 26.79m: ...15mm round, green, siltstone clast.	C: 27.00-27.60 m								
	HQ3	68					UW							27.69-28.04m: JT, 90°, Un, Ro, Cn, 1-3mm	
			28		PU	27.85m: ...2-10mm clasts.			100	100	100				
						28.74m: Unweathered, grey and dark grey, thinly laminated, fine SANDSTONE. Moderately strong. Bedding is sub-horizontal 0-5°. Soft sediment deformation. 28.84m: ...Grey, indistinctly bedded. 28.94m: ...Fine to coarse SANDSTONE. 29.13m: ...Dark grey and grey, thinly laminated, fine SANDSTONE. Wispy black carbonaceous material. 29.18m: ...Grey, indistinctly bedded. 29.39m: ...Fine to medium.			100	100	100				
	HQ3	67													
			30			29.85-30.19m: ...Wispy black carbonaceous fragments.									
	HQ3	66					UW		100	100	100				
						30.75m: ...Fine to coarse SANDSTONE.									
						31.02m: ...Fine to medium SANDSTONE.									
			31												
						31.52m: ...Fine to coarse SANDSTONE.								31.65-32.21m: VN x3, 75-90°, Un, calcite infill, <1-2mm.	
12	HQ3	65													

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 22mm and vertical accuracy +/- 36mm.
- One vibrating wire piezometer was installed on 05/09/2025. BH2B_1145_PZ01 was installed at 22.8m bgl, Serial No. 378310.
- RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.
- Tensile strength of incipient joints was assessed based on assumed in ground conditions.
- Major/ dominant defects are noted in defect column while minor/secondary defects are included in the material descriptions.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-09-02 17:00	10.50m	0.40mbgl
2025-09-03 08:00	10.50m	0.70mbgl
2025-09-03 16:30	30.00m	2.30mbgl
2025-09-04 07:00	30.00m	1.30mbgl
2025-09-04 17:00	49.50m	1.30mbgl
2025-09-05 09:00	49.50m	1.20mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Fraste SRS
Contractor: ProDrill NZ

CO-ORDINATES: NZTM2000
Easting: 1727464.13
Northing: 6005407.70
Ground level: 96.198m (NZVD2016)

Date started: 01/09/2025
Date completed: 05/09/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Nicholas
Input: C. Nicholas
Reviewed: F. Monteith
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS VGS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
12	HQ3	64				32.21-32.31m: ...Grey and dark grey, thinly laminated, fine SANDSTONE. Sub-horizontal. Wispy black carbonaceous inclusions. Prevalent healed microfaults, inclined 50-75°. 32.31m: ...Fine to medium SANDSTONE. drilling induced breaks along incipient fractures or healed joints.	UW		100	100	100			32.84m: VN, 75°, PI, calcite infill, 2mm	
		33				32.86m: ...Fine to coarse SANDSTONE.								33.05-33.50m: VN set x5, 65°, PI-Un, Calcite infill <1-1mm	
	HQ3	63				33.05-33.12m: ...Grey and dark grey, thinly laminated, fine SANDSTONE. Bedding is gently inclined 10°. Wispy black carbonaceous inclusions. Micro faulting. 33.12m: ...Fine to medium SANDSTONE.									
		34				33.54m: Unweathered, thinly laminated to thin, SANDSTONE (60%) and SILTSTONE. (40%) Sandstone is fine to medium, grey, moderately strong. Siltstone is dark grey, weak. Sub-horizontal 0-5°. Soft sediment deformation.			100	100	100				
		62				34.12-34.18m: ...Wispy black carbonaceous fragments.									
13	HQ3	61				35.40-36.00m: ...Moderate strength incipient joints and micro faults. Extremely closely spaced.	UW		100	100	100			35.36m: VN, 70°, Un, calcite infill, <1-1mm	
		36			PU			C: 36.00-36.53 m							
		60						C: 36.53-37.08 m							
	HQ3	37						99	99	99					
		59													
14	HQ3	58				37.50m: Unweathered, grey, laminated to thin, fine SANDSTONE. Moderately strong. Sub-horizontal 0-5°. 37.66m: ...Grades to fine to coarse SANDSTONE.	UW		100	100	100				
		39				38.55m: ...Fine to medium SANDSTONE. 38.82-39.00m: ...Conglomeratic, fine to coarse SANDSTONE. 70% matrix supported. Clasts are sub-angular to rounded, 2-25mm, dark grey and light grey, siltstone. 38.91m: ...90% matrix supported, 2-6mm clasts. 39.00m: ...Fine to coarse SANDSTONE. 39.22-39.31m: ...Grey and dark grey, thinly laminated fine to medium SANDSTONE. Gently inclined 10°. Wispy black carbonaceous fragments. Soft sediment deformation. 39.31m: ...Fine to coarse SANDSTONE. Trace sub-angular to rounded, 2-6mm, light grey and dark grey, siltstone clasts. 39.78m: ...5mm lens of wispy black carbonaceous laminations. Gently inclined 10°. 39.93-41.00m: ...Grey and dark grey, thinly laminated, fine SANDSTONE. Sub-horizontal to gently inclined 0-10°. Wispy black carbonaceous fragments. Soft sediment deformation.									
15	HQ3	57						100	100	100					

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 22mm and vertical accuracy +/- 36mm.
- One vibrating wire piezometer was installed on 05/09/2025. BH2B_1145_PZ01 was installed at 22.8m bgl, Serial No. 378310.
- RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.
- Tensile strength of incipient joints was assessed based on assumed in ground conditions.
- Major/ dominant defects are noted in defect column while minor/secondary defects are included in the material descriptions.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-09-02 17:00	10.50m	0.40mbgl
2025-09-03 08:00	10.50m	0.70mbgl
2025-09-03 16:30	30.00m	2.30mbgl
2025-09-04 07:00	30.00m	1.30mbgl
2025-09-04 17:00	49.50m	1.30mbgl
2025-09-05 09:00	49.50m	1.20mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Fraste SRS
Contractor: ProDrill NZ

CO-ORDINATES: NZTM2000
Easting: 1727464.13
Northing: 6005407.70
Ground level: 96.198m (NZVD2016)

Date started: 01/09/2025
Date completed: 05/09/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Nicholas
Input: C. Nicholas
Reviewed: F. Monteith
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
15	HQ3	56				40.10m: ...Carbonaceous fragments absent.									
						40.74m: ...45mm dark grey siltstone clast.									
	HQ3	55	41			41.00m: ...Trace sub-rounded to rounded, 2-15mm, light grey and dark grey siltstone clasts. 41.13m: ...Trace 2-5mm clasts.			100	100	100			41.13-41.40m: VN, 75°, Un, calcite infill, 1-7mm	
			42			42.02m: ...Siltstone clasts absent.	UW								
	HQ3	54				42.27-42.29m: ...Wispy black carbonaceous fragments.									
			43			42.76m: ...Trace sub-rounded to rounded, 2-4mm, light grey and dark grey siltstone clasts.			97	97	97				
16			53			43.23-43.38m: ...Fine to medium SANDSTONE. Wispy black carbonaceous fragments/laminations.									
						43.50m: ...Fine to coarse SANDSTONE.									
	HQ3	52	44		PU	43.78-43.83m: ...Grey and dark grey, thinly laminated, fine SANDSTONE. Bedding is sub-horizontal 0-5°. Wispy black carbonaceous fragments.									
						44.06m: Unweathered, grey, indistinctly bedded, conglomeratic fine to coarse SANDSTONE. Moderately strong. Clasts are sub-rounded to rounded, 2-5mm, light grey and dark grey, siltstone.	UW		100	100	100			44.16-44.35m: VN, 80°, Un, calcite infill, 1mm	
			45			44.92-45.10m: ...Fine to medium SANDSTONE.									
			51			45.00-45.60m: ...Moderate strength incipient and healed fractures, inclined 80-90°. Extremely close to closely spaced. Drilling breaks along fractures and healed joints.									
	HQ3					45.33m: Unweathered, grey, indistinctly bedded, fine to coarse SANDSTONE. Moderately strong.			100	100	100			45.95-46.08m: VN, 70°, Un, calcite infill, <1mm	
17			46												
			50												
	HQ3		47				UW							46.56-46.74m: VN, 65°, Un, calcite infill, <1-5mm	
			49												
18						47.41-47.50m: ...Thinly laminated interbedded SILTSTONE (50%) and SANDSTONE (50%). Siltstone is dark grey. Sandstone is fine, grey. Soft sediment deformation.			100	100	100				
						47.80-47.90m: ...Thinly laminated interbedded SILTSTONE (50%) and SANDSTONE (50%). Siltstone is dark grey. Sandstone is fine, grey. Soft sediment deformation. Wispy black carbonaceous fragments.									

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 22mm and vertical accuracy +/- 36mm.
- One vibrating wire piezometer was installed on 05/09/2025. BH2B_1145_PZ01 was installed at 22.8m bgl, Serial No. 378310.
- RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.
- Tensile strength of incipient joints was assessed based on assumed in ground conditions.
- Major/ dominant defects are noted in defect column while minor/secondary defects are included in the material descriptions.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-09-02 17:00	10.50m	0.40mbgl
2025-09-03 08:00	10.50m	0.70mbgl
2025-09-03 16:30	30.00m	2.30mbgl
2025-09-04 07:00	30.00m	1.30mbgl
2025-09-04 17:00	49.50m	1.30mbgl
2025-09-05 09:00	49.50m	1.20mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline

Equipment: Fraste SRS

Contractor: ProDrill NZ

CO-ORDINATES:

Easting: 1727464.13

Northing: 6005407.70

Ground level: 96.198m (NZVD2016)

Date started: 01/09/2025

Date completed: 05/09/2025

Inclination: 90°

Azimuth: N/A

Logged: C. Nicholas

Input: C. Nicholas

Reviewed: F. Monteith

Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
												VWS	WS	MWS	VCS	EGS		
18	HQ3		48		PU	48.55-48.59m: ...Trace sub-angular to rounded, 2-30mm, light grey and dark grey, siltstone.	UW		100	100	100						49.07-49.50m: VN, 75°, Un, calcite infill, <1-2mm	
			49			48.84-48.88m: ...Dark grey, thinly laminated, fine SANDSTONE.												
			47			Terminated at 49.50 m. Target depth.												
			50															
			46															
			51															
			45															
			52															
			44															
			53															
			43															
			54															
			42															
			55															
			41															

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 22mm and vertical accuracy +/- 36mm.

2. One vibrating wire piezometer was installed on 05/09/2025. BH2B_1145_PZ01 was installed at 22.8m bgl, Serial No. 378310.

3. RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.

4. Tensile strength of incipient joints was assessed based on assumed in ground conditions.

5. Major/ dominant defects are noted in defect column while minor/secondary defects are included in the material descriptions.

Water Level Readings:

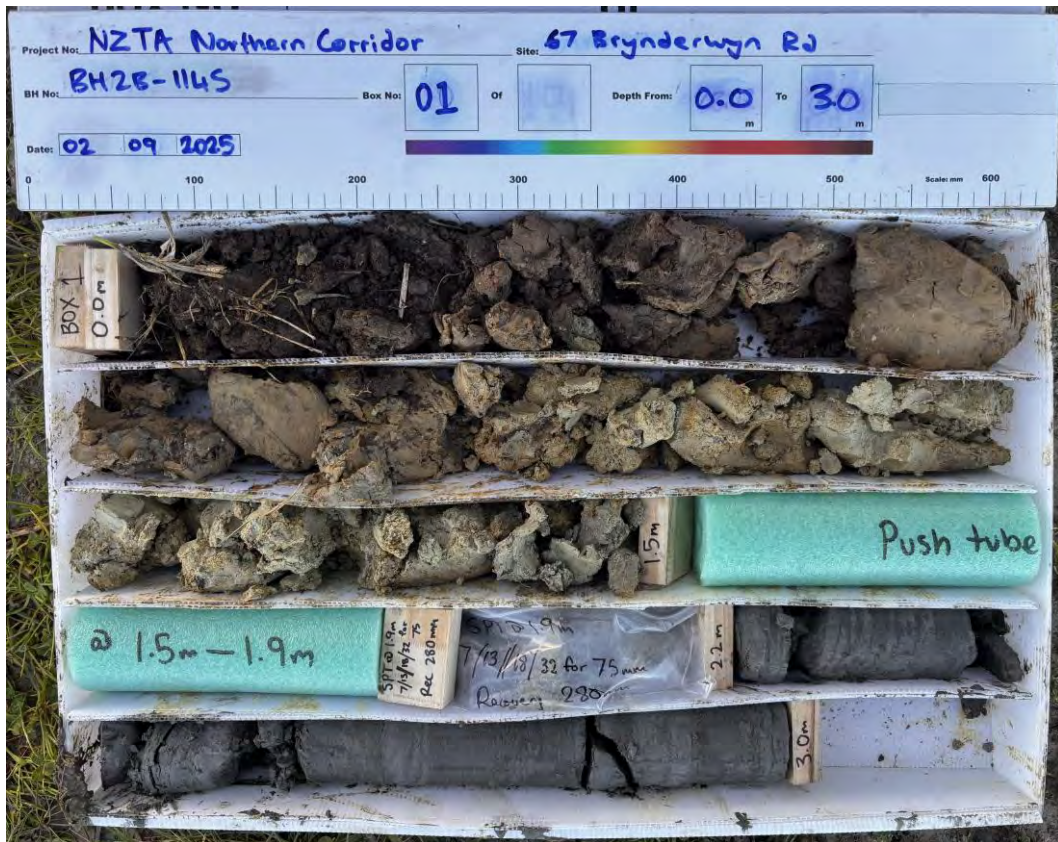
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2025-09-02 17:00	10.50m	0.40mbgl
2025-09-03 08:00	10.50m	0.70mbgl
2025-09-03 16:30	30.00m	2.30mbgl
2025-09-04 07:00	30.00m	1.30mbgl
2025-09-04 17:00	49.50m	1.30mbgl
2025-09-05 09:00	49.50m	1.20mbgl

Shear Vane (ISHSV) Serial No. 1288, calibration constant 1.546.

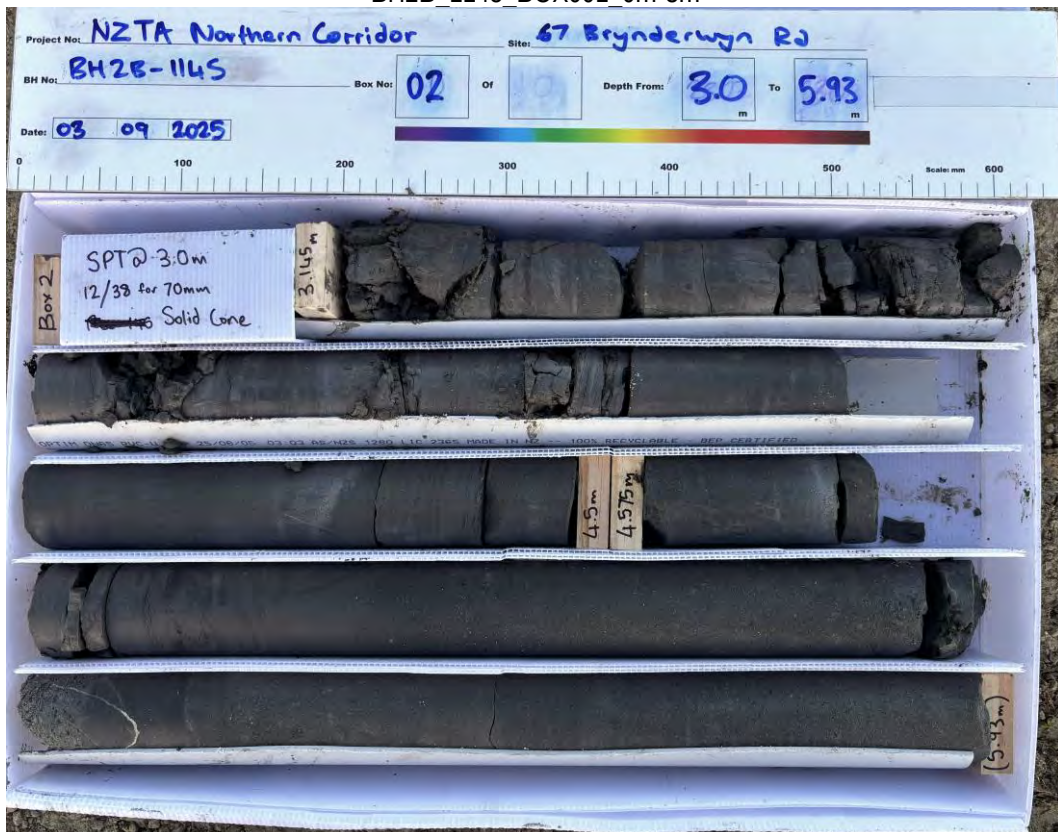
Borehole Reference: BH2B_1145

Photographed By: SH

Date Photographed:



BH2B 1145 BOX001 0m-3m

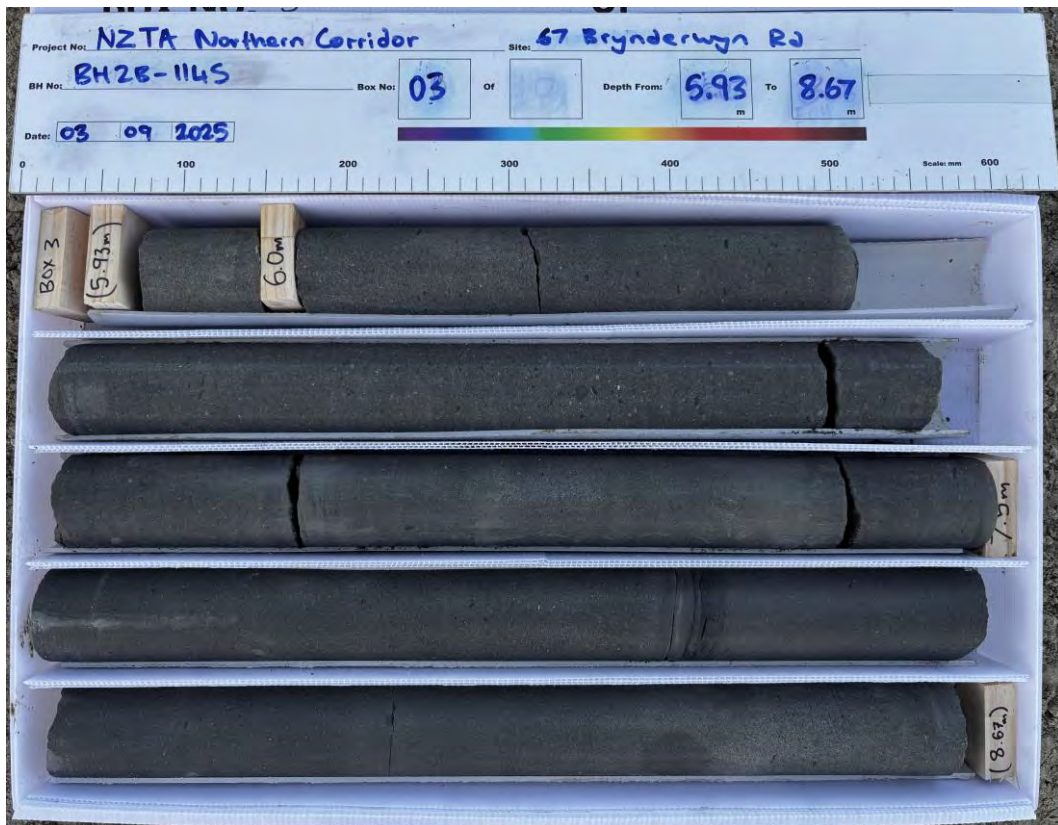


BH2B_1145_BOX002_3m-5.93m

Borehole Reference: BH2B_1145

Photographed By: SH

Date Photographed:



BH2B_1145_BOX003_5.93m-8.67m



BH2B_1145_BOX004_8.67m-11.47m

Borehole Reference: BH2B_1145

Photographed By: SH

Date Photographed:



BH2B 1145 BOX005 11.47m-14.28m

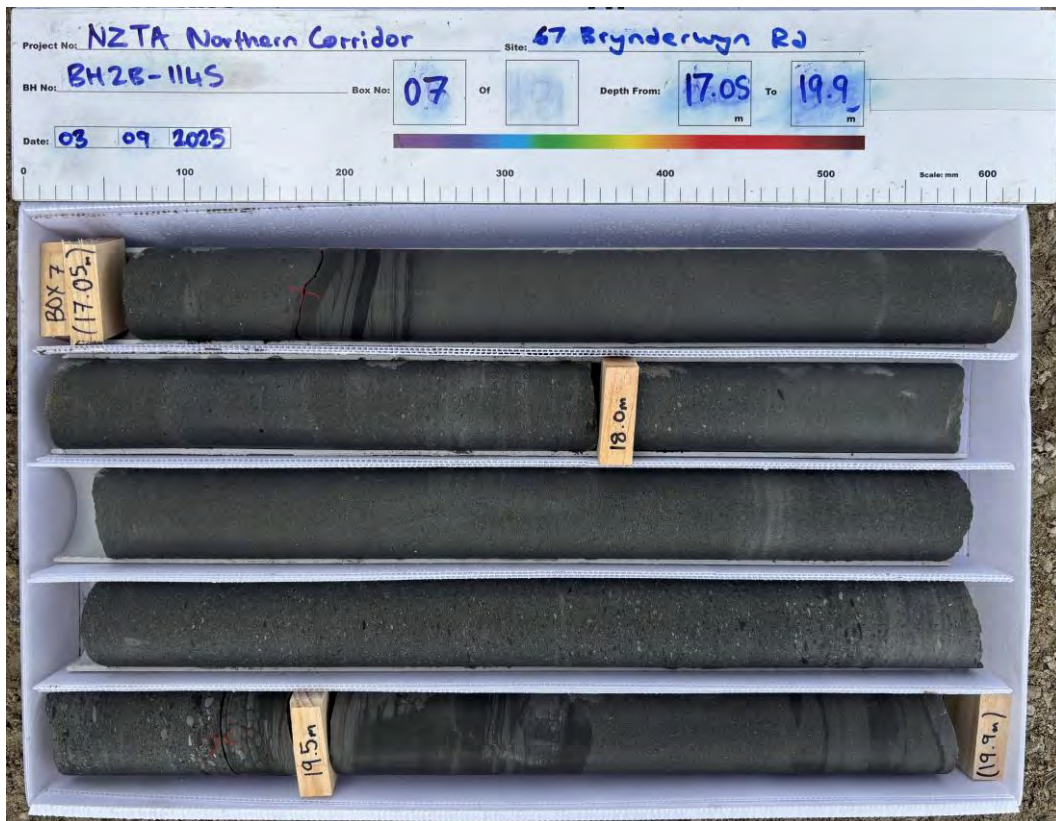


BH2B_1145_BOX006_14.28m-17.05m

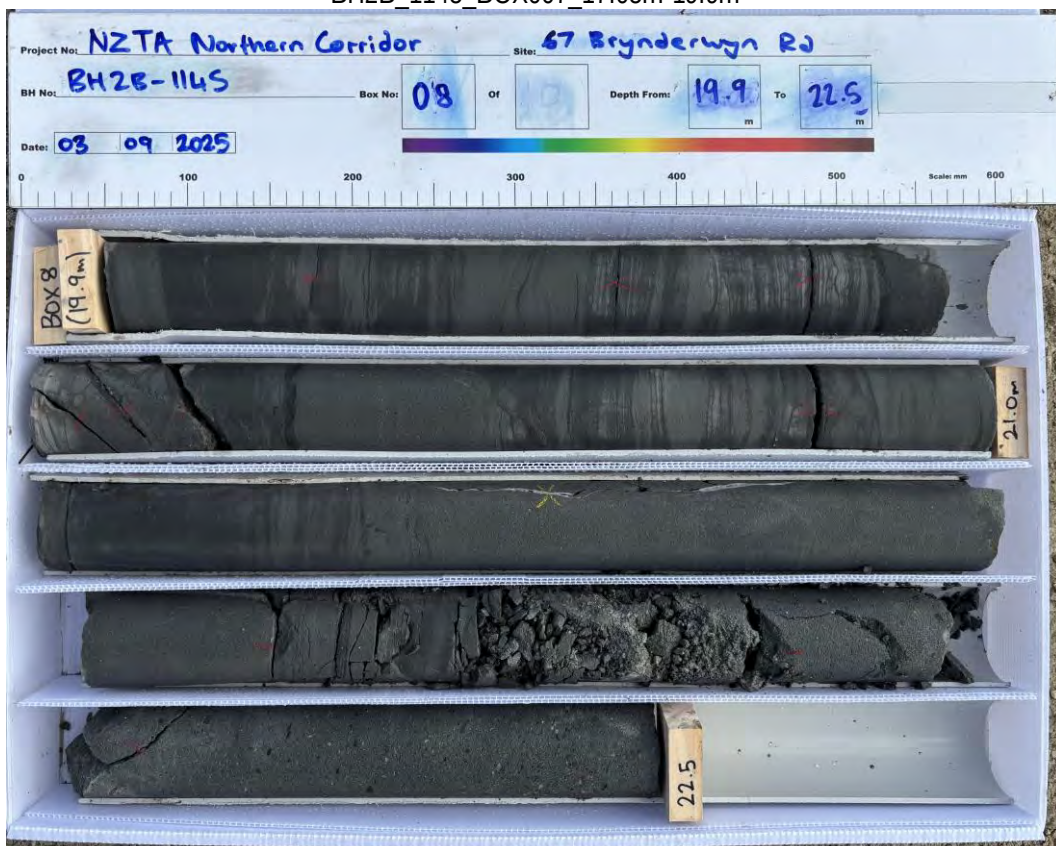
Borehole Reference: BH2B_1145

Photographed By: SH

Date Photographed:



BH2B_1145_BOX007_17.05m-19.9m



BH2B_1145_BOX008_19.9m-22.5m

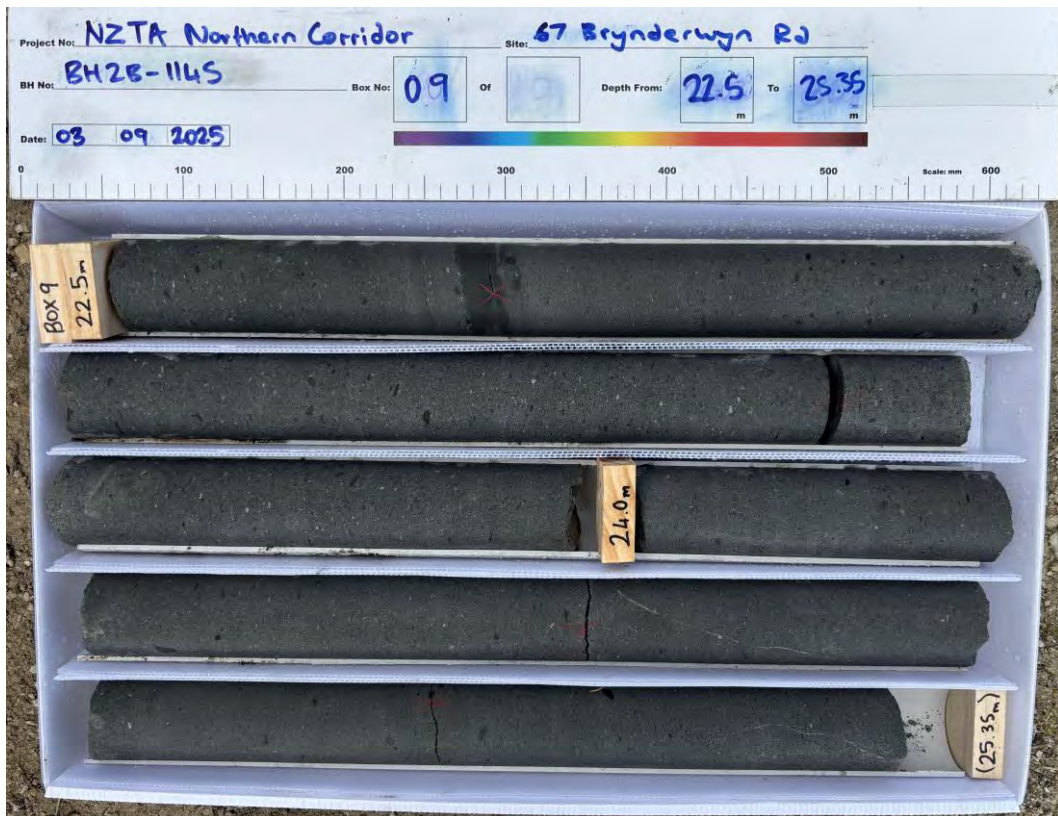
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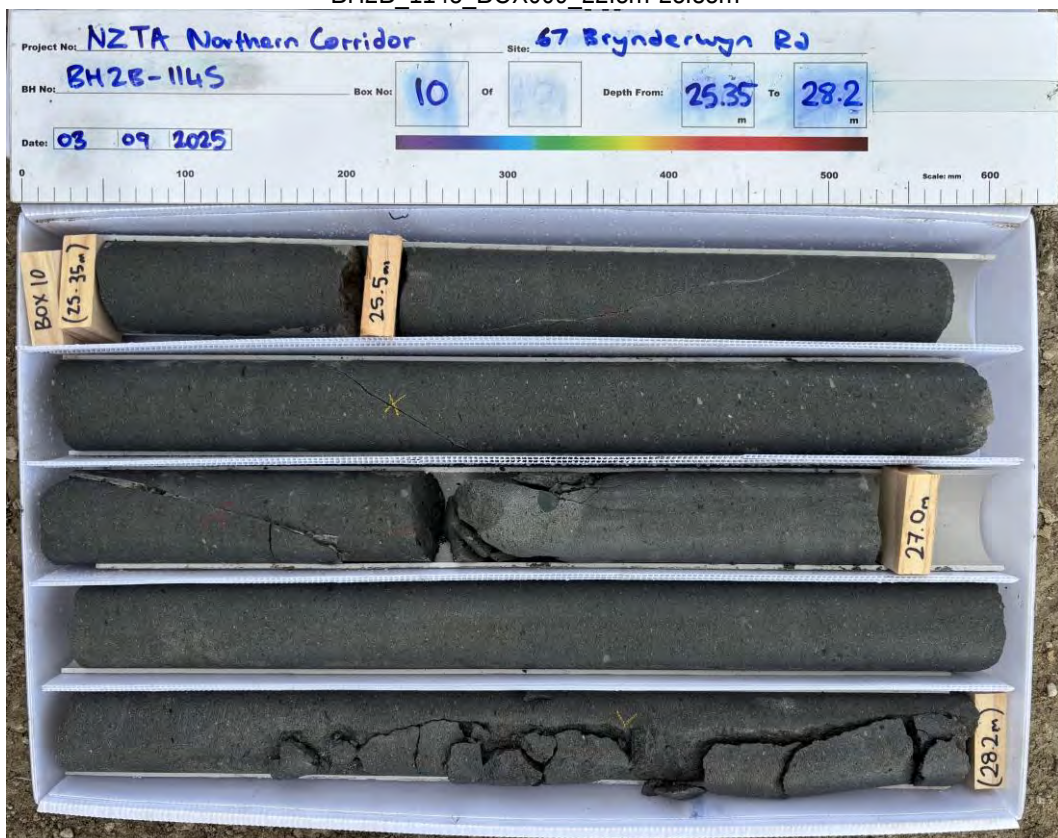
Photographed By:

SH

Date Photographed:



BH2B_1145_BOX009_22.5m-25.35m

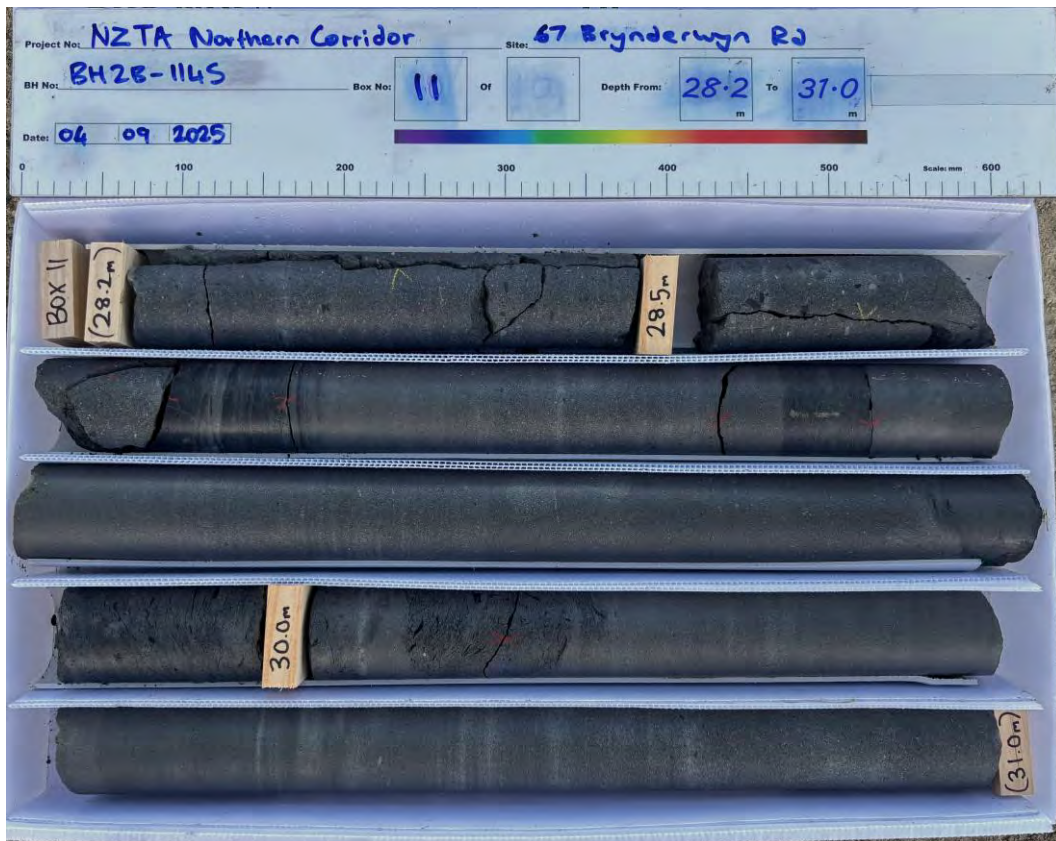


BH2B_1145_BOX010_25.35m-28.2m

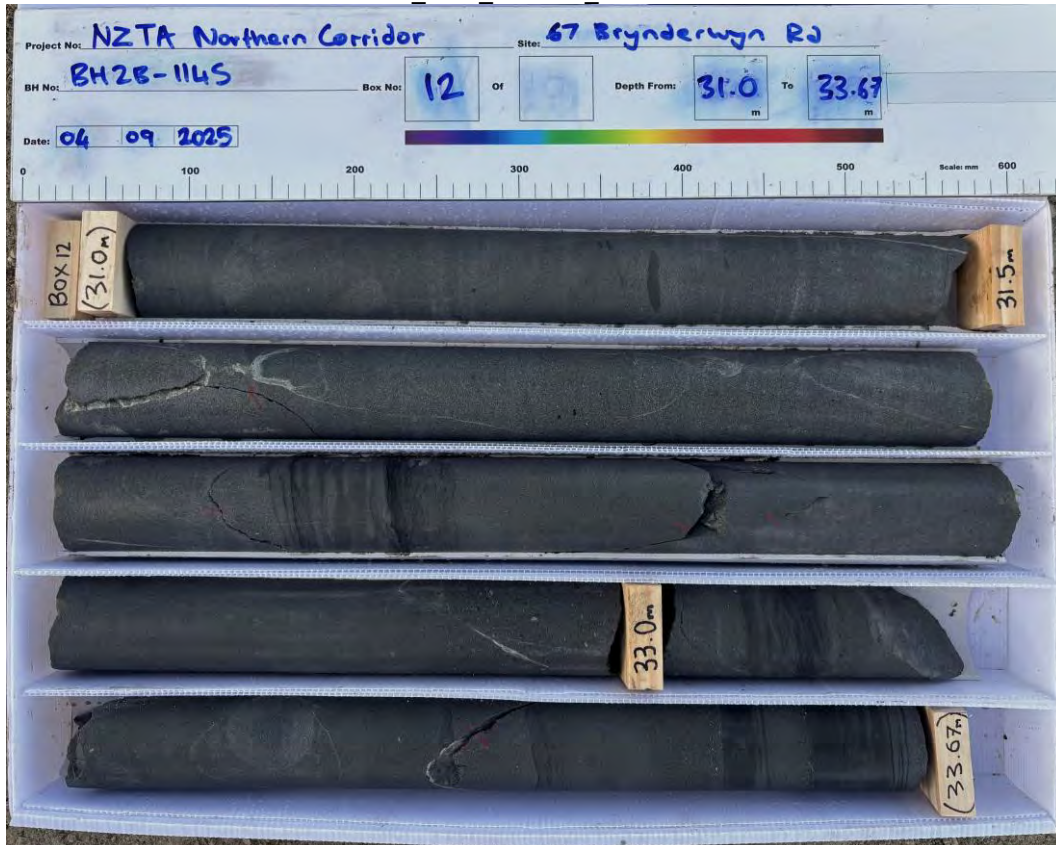
Borehole Reference: BH2B_1145

Photographed By: SH

Date Photographed:



BH2B_1145_BOX011_28.2m-31m

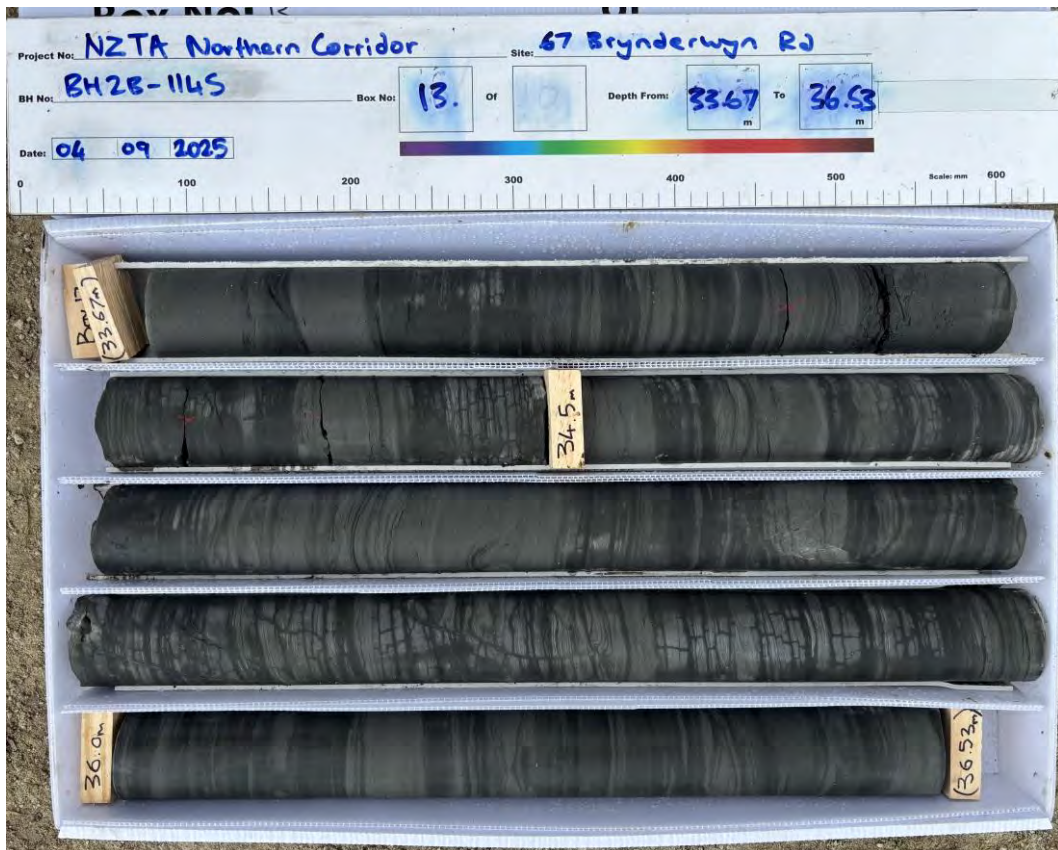


BH2B_1145_BOX012_31m-33.67m

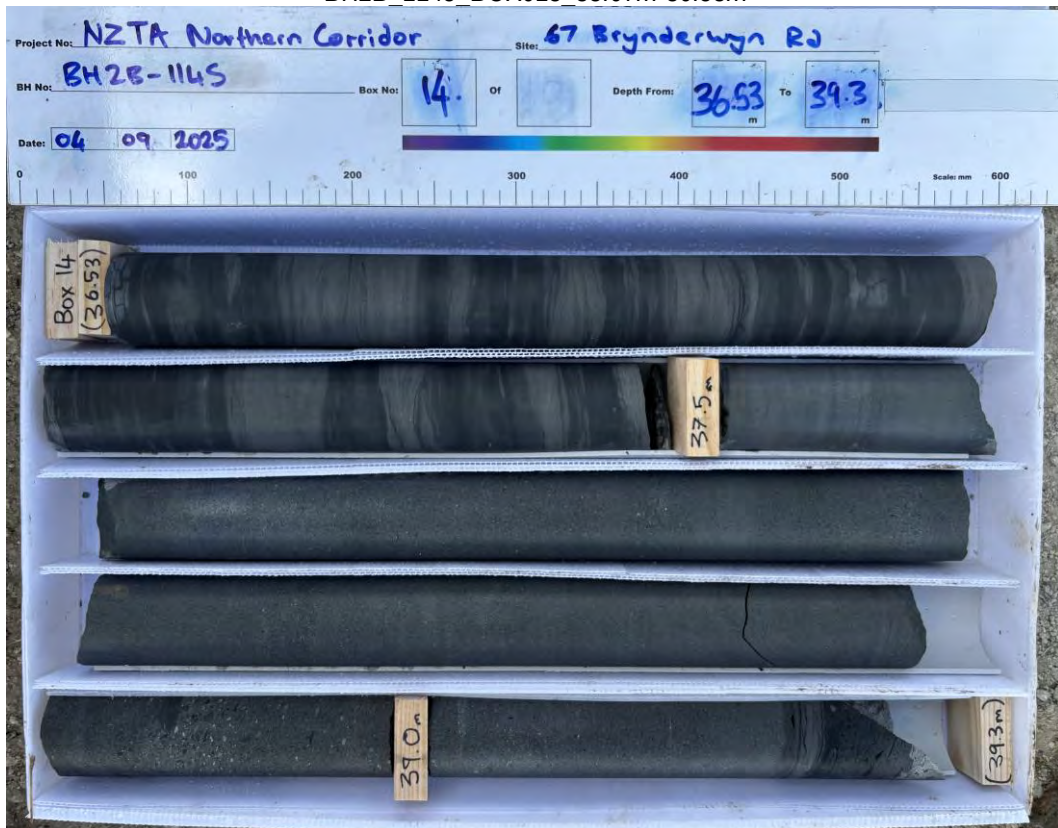
Borehole Reference: BH2B_1145

Photographed By: SH

Date Photographed:



BH2B 1145 BOX013 33.67m-36.53m

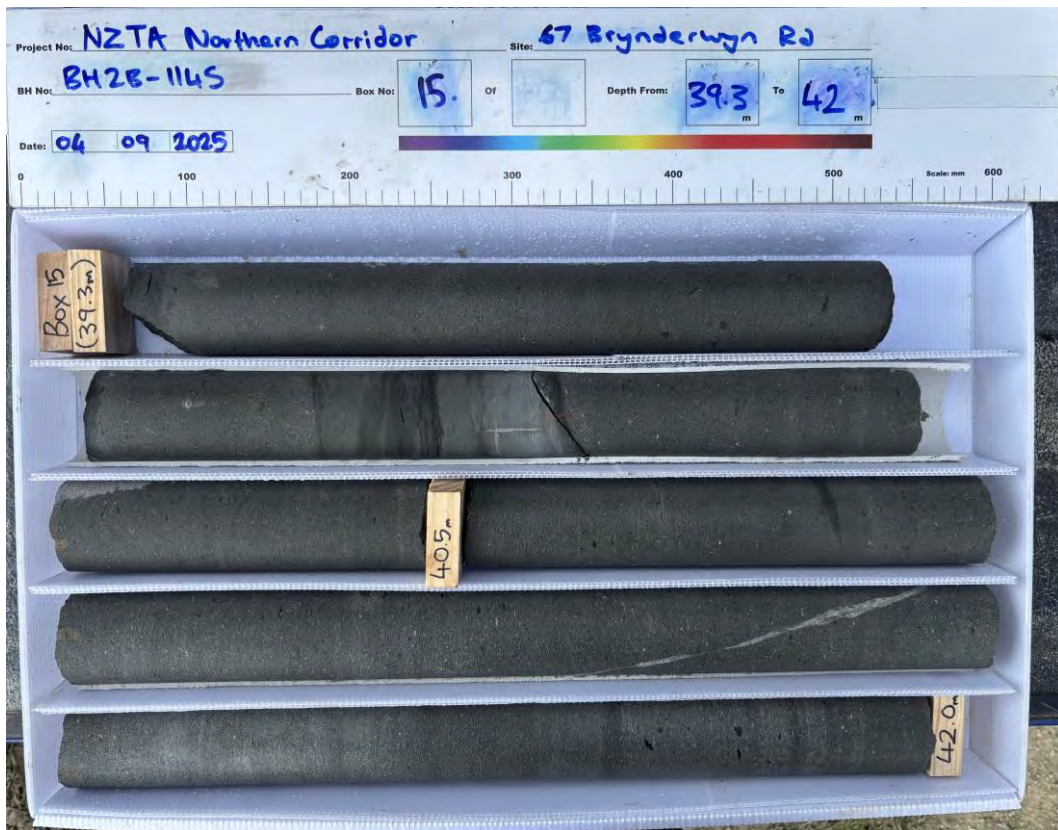


BH2B_1145_BOX014_36.53m-39.3m

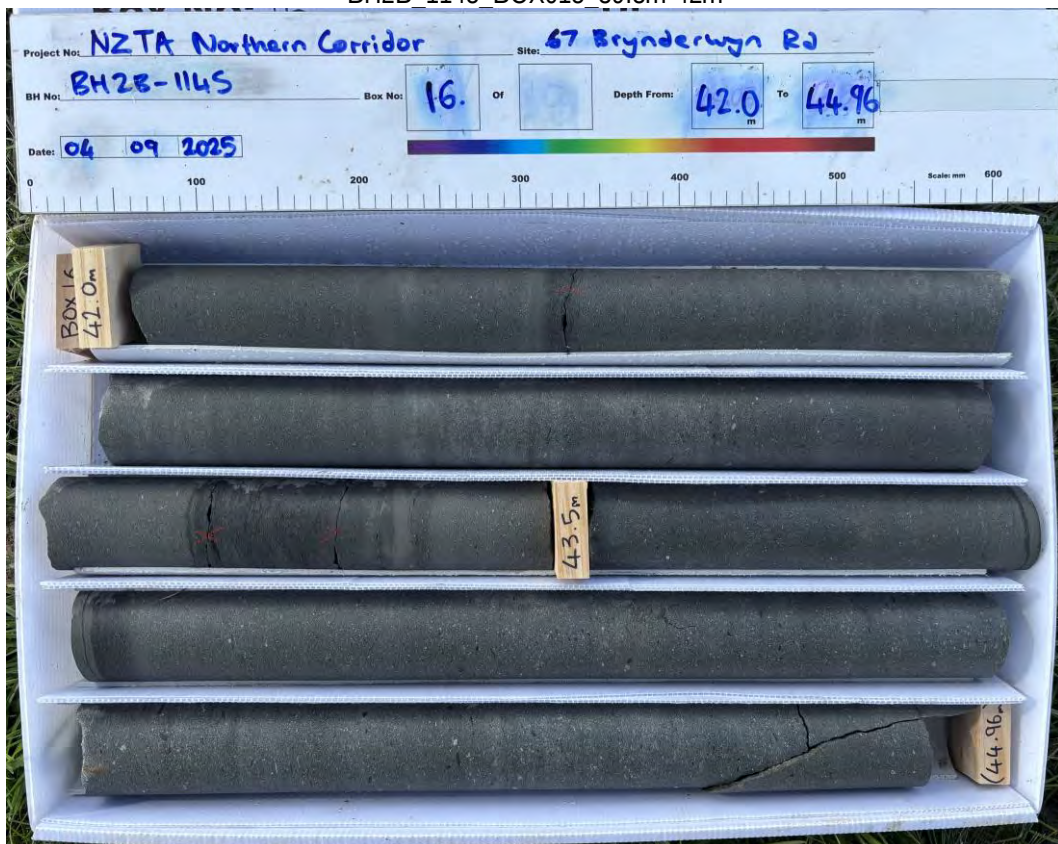
Borehole Reference: BH2B_1145

Photographed By: SH

Date Photographed:



BH2B 1145 BOX015 39.3m-42m



BH2B_1145_BOX016_42m-44.96m

Borehole Reference: BH2B_1145

Photographed By: SH

Date Photographed:

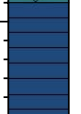
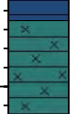


BH2B_1145_BOX017_44.96m-47.62m



BH2B_1145_BOX018_47.62m-49.5m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 21-11-2025	Logged: D. Baker/ I. Mans
Method: Rotary Core Wireline		Easting: 1727796.28mE,	Date Completed: 27-11-2025	Input: D. Baker
Equipment: Hanjin / D&B 10		Northing: 6016004.92mN,	Inclination: 90	Reviewed: N. Crampton
Contractor: McMillan Drilling Ltd		Ground level: 10.42m	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	HA	10	1		TS	Clayey SILT, with trace sand; brown. Stiff, dry; sand, fine to medium. [TOPSOIL].	-	0.3m SV BH SV 94/ 20kPa 0.5m SV BH SV 47/ 13kPa	100	0	0	VMS VS WS MWS CS VCS EC5		
						Silty CLAY, with trace sand; brown, grey and light orangish brown. Stiff, dry to moist, high plasticity; sand, fine to medium; [RECENT (HOLOCENE) ALLUVIUM]. 0.50m: Firm, moist.		1m SV BH SV 38/ 13kPa						
						CLAY, with trace sand; brown, grey and orange. Firm, moist; sand, fine to medium.								
	SPT	9	1		1.50m: Light grey with orangish brown. Very soft, wet.	1.5m SV BH SV 27/ 3kPa 1.5m SPT 0, 0/0, 0, 0, 0 N= 0		100	0	0				
					1.95m: Blueish grey with orangish brown.									
	HQ3	8	2		2.45m: Trace organic material (less than 1%).			100	0	0				
					3.00m: Soft.	3m SV CB SV 13/ 3kPa								
	SPT	7	3		3.50m: With trace sand and gravel. Very soft; sand, fine to coarse, gravel, fine, rounded.	3.5m SPT 0, 0/0, 0, 0, 0 N= 0		100	0	0				
	HQ3	6	4		4.80m - 4.90m: Brown with grey.	4.5m SPT 0, 0/0, 0, 0, 0 N= 0 4.5m SV CB SV 3/1kPa		100	0	0				
2	HQ3	5	5		TA	Silty CLAY, with trace sand; brown with dark brown. Very soft, saturated; sand, fine; trace organic material (1-5%), wood fragments up to 10mm.		71	0	0				
						5.70-6.00m: CORE LOSS (300mm). Fines assumed washed out.								
						Silty CLAY, with trace sand; brown with dark brown. Very soft, saturated; sand, fine; trace organic material (1-5%), wood fragments up to 10mm.	6m SV CB SV 3/1kPa 6.5m SPT 0, 0/0, 0, 0, 0 N= 0	100			0	0		
	SPT	4	7			6.95-7.50m: CORE LOSS (550mm). Fines assumed washed out.		0	0	0				
	HQ3	3	8			Silty fine to medium SAND, with minor clay; grey. Very loose, wet; wood fragments (less than 1%) up to 20mm.	7.5m SPT 0, 0/0, 0, 0, 0 N= 0	100	0	0				
	SPT	3	9											

REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 90mm.		DateTime	Hole Depth (m)	Water Level (m)
2. A standpipe piezometer was installed on 27/11/2025 with a screened interval between 12.50 to 15.50m bgl. One vibrating wire piezometer BH2B_1146_PZ01 was installed at 15.2m bgl on 9/12/2025, Serial No. P250893.				
3. Shear Vane Serial No. 2183, calibration constant 1.348.				

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan Drilling Ltd

CO-ORDINATES:

NZTM2000
Easting: 1727796.28mE,
Northing: 6016004.92mN,
Ground level: 10.42m

Date Started: 21-11-2025
Date Completed: 27-11-2025
Inclination: 90
Azimuth: N/A

Logged: D. Baker/ I. Mans
Input: D. Baker
Reviewed: N. Crampton
Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
3	HQ3	2				CLAY, with trace sand; greyish brown and light grey. Very soft, moist, high plasticity; sand, fine to medium. 7.95m: Trace organic material including wood fragments up to 50 mm. 8.55-9.00m: CORE LOSS (550mm). Fines assumed washed out.								
	SPT	9				CLAY, with trace sand; grey. Very soft, moist, high plasticity; sand, fine; trace organic material (1%) up to 2mm.		9m SPT 0, 0/0, 0, 0, 0 N= 0	100	0	0			
4	HQ3	10							100	0	0			
	SPT	0												
	HQ3	11						10.5m SPT 0, 0/0, 0, 0, 0 N= 0	100	0	0			
	SPT	11						10.5m SV CB SV 16/ 5kPa						10,95m - 12,00m: Core swell (550mm)
	HQ3	-1							100	0	0			
	SPT	12			TA	Silty CLAY, with minor sand; dark grey with green. Soft, moist, high plasticity; sand, fine to medium.		12m SPT 0, 0/0, 0, 0, 0 N= 0	100	0	0			
	SPT	-2				12.60m: Dark grey.		12m SV CB SV 13/ 4kPa						12,45m - 13,00m: Core swell (500mm)
	HQ3	13							100	0	0			
	SPT	-3						13.5m SPT 0, 0/0, 0, 0, 0 N= 0	100	0	0			
	SPT	14						13.5m SV CB SV 39/ 8kPa						13,95m - 15,00m: Core swell (500mm)
5	HQ3	15							100	0	0			
	SPT	-4						15m SV 26/ 8kPa	100	0	0			
	HQ3	-5				CLAY, with trace sand; grey. Soft, moist, high plasticity; sand, fine to medium; wood fragments (1%) up to 10 mm.		15m SPT 0, 0/0, 0, 0, 0 N= 0	100	0	0			15,45m - 16,50m: Core swell (400mm)

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 90mm.
- A standpipe piezometer was installed on 27/11/2025 with a screened interval between 12.50 to 15.50m bgl. One vibrating wire piezometer BH2B_1146_PZ01 was installed at 15.2m bgl on 9/12/2025, Serial No. P250893.
- Shear Vane Serial No. 2183, calibration constant 1.348.

Water Level Readings:

DateTime

Hole Depth (m)

Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 21-11-2025	Logged: D. Baker/ I. Mans
Method: Rotary Core Wireline		Easting: 1727796.28mE,		Date Completed: 27-11-2025	Input: D. Baker
Equipment: Hanjin / D&B 10		Northing: 6016004.92mN,		Inclination: 90	Reviewed: N. Crampton
Contractor: McMillan Drilling Ltd		Ground level: 10.42m		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
6	HQ3	-6			TA	[CONT] CLAY, with trace sand; grey. Soft, moist, high plasticity; sand, fine to medium; wood fragments (1%) up to 10 mm.			100	0	0			
	U54								100	0	0			
	SPT	-7	17			Silty CLAY, with trace sand; grey. Soft, moist, high plasticity; sand, fine; shells and shell fragments (1-5%), wood fragments (less than 1%). [ESTUARINE DEPOSITS].		17m SPT 0, 0/1, 1, 1, 1 N= 4	100	0	0			
	HQ3								100	0	0			
6	SPT	-8	18			18.00m: Very soft.		18m SPT 0, 0/0, 0, 0, 1 N= 1	100	0	0			18.45m - 19.50m: Core swell (500mm)
	HQ3								100	0	0			
	SPT	-9	19			19.50m: Firm.		19.5m SPT 0, 0/0, 1, 1, 1 N= 3	100	0	0			19.95m - 21.00m: Core swell (100mm)
	HQ3							19.5m SV CB SV 46/ 13kPa						
7	SPT	-10	20		TE	21.00m: Soft.		21m SPT 0, 0/0, 0, 0, 2 N= 2	100	0	0			21.45m - 22.50m: Core swell (500mm)
	HQ3								100	0	0			
	SPT	-11	21						100	0	0			
	HQ3								100	0	0			
8	SPT	-12	22			22.50m: Very soft.		22.5m SPT 0, 0/0, 0, 0, 1 N= 1	100	0	0			22.95m - 24.00m: Core swell (500mm)
	HQ3								100	0	0			
	SPT	-13	23						100	0	0			
	HQ3								100	0	0			

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 90mm. 2. A standpipe piezometer was installed on 27/11/2025 with a screened interval between 12.50 to 15.50m bgl. One vibrating wire piezometer BH2B_1146_PZ01 was installed at 15.2m bgl on 9/12/2025, Serial No. P250893. 3. Shear Vane Serial No. 2183, calibration constant 1.348.	Water Level Readings:		
	Date/Time	Hole Depth (m)	Water Level (m)
	24-11-2025 17:00:00 25-11-2025 07:12:00	18.45 18.45	7.90 2.80

BOREHOLE INFORMATION

Method: Rotary Core Wireline

Equipment: Hanjin / D&B 10

Contractor: McMillan Drilling Ltd

CO-ORDINATES:

Easting: 1727796.28mE,

Northing: 6016004.92mN,

Ground level: 10.42m

Date Started: 21-11-2025

Date Completed: 27-11-2025

Inclination: 90

Azimuth: N/A

Logged: D. Baker/ I. Mans

Input: D. Baker

Reviewed: N. Crampton

Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
8	SPT	-14			TE	[CONT] Silty CLAY, with trace sand; grey. Soft, moist, high plasticity; sand, fine; shells and shell fragments (1-5%), wood fragments (less than 1%). [ESTUARINE DEPOSITS].		24m SPT 0, 0/0, 1, 1, 1 N= 3	100	0	0			
	HQ3	-15		25.50m: Firm to stiff.			25.5m SV CB SV 51/ 16kPa	100	0	0				
	U54	-16		26.00m: Firm; without shells.			26m SPT 0, 0/0, 1, 1, 1 N= 3	100	0	0				
	SPT	-17		26.75m: Shells and shell fragments (1-5%).			27m SPT 0, 0/0, 0, 1, 2 N= 3	100	0	0				
	HQ3	-18		27.00m: Shell fragments (less than 1%).			27m SV CB SV 48/ 11kPa	100	0	0				
	SPT	-19												
	HQ3	-20												
	SPT	-21												
	HQ3	-22												
	9	HQ3	-23				TA	Clayey fine to medium SAND; grey. Medium dense, moist [RECENT (HOLOCENE) ALLUVIUM].		28.5m SPT 6, 7/9, 6, 7, 6 N= 28	-	-	-	
SC	-24		Fine to coarse GRAVEL; grey. Medium dense, moist, well graded; rounded to subrounded, slightly weathered, moderately strong, greywacke; inferred clayey sand matrix assumed washed out [OLDER (PLEISTOCENE) ALLUVIUM].											
HQ3	-25		29.05-30.00m: CORE LOSS (950mm). Core bound.											
SPT	-26													
HQ3	-27													
SPT	-28													
HQ3	-29													
SPT	-30													
HQ3	-31													
10	SPT	-32			TP	Fine to coarse GRAVEL; grey with brown. Medium dense, moist, well graded; rounded to subrounded, slightly weathered, moderately strong, greywacke; assumed clast supported in clayey sand matrix.			30m SPT 7, 8/7, 6, 6, 6 N= 25	44	0	0		
HQ3	-33		30.75-31.20m: CORE LOSS (450mm). Core bound.											
SPT	-34													
HQ3	-35													
11	HQ3	-36			SW	BOULDER; fine SANDSTONE, subrounded, slightly weathered, very weak to extremely weak, Ruarangi derived.		31.5m SPT 50 for 60mm N = 50+	51	32	0			
	HQ3	-37		31.56-32.26m: CORE LOSS (700mm). Assumed washout of gravels.										

REMARKS:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 90mm.

2. A standpipe piezometer was installed on 27/11/2025 with a screened interval between 12.50 to 15.50m bgl. One vibrating wire piezometer BH2B_1146_PZ01 was installed at 15.2m bgl on 9/12/2025, Serial No. P250893.

3. Shear Vane Serial No. 2183, calibration constant 1.348.

Water Level Readings:

DateTime	Hole Depth (m)	Water Level (m)
25-11-2025 17:00:07	31.20	4.80
26-11-2025 07:00:00	31.20	3.70

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 21-11-2025	Logged: D. Baker/ I. Mans
Method: Rotary Core Wireline		Easting: 1727796.28mE,		Date Completed: 27-11-2025	Input: D. Baker
Equipment: Hanjin / D&B 10		Northing: 6016004.92mN,		Inclination: 90	Reviewed: N. Crampton
Contractor: McMillan Drilling Ltd		Ground level: 10.42m		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
10	HQ3	-22			TP	[CONT] 31.56-32.26m: CORE LOSS (700mm). Assumed washout of gravels.	-							
					TE	Sandy fine to medium GRAVEL, with trace silt; grey. Loosely packed, moist, poorly graded. Gravel, subangular, slightly weathered sandstone and shell fragments up to 7mm (5%); sand, fine to coarse. [ESTUARINE DEPOSITS].			51	32	0		32.48-32.70m: JT, 75°, RG, UN, clean	
					TP	BOULDER; fine SANDSTONE, subrounded, slightly weathered, very weak to extremely weak, Ruarangi derived [OLDER (PLEISTOCENE) ALLUVIUM].								
11	SC	-23				Slightly weathered, dark grey mixed light bluish grey and reddish brown, pervasively sheared MUDSTONE; extremely weak. Shear fabric is convoluted. Hosts trace clasts of siltstone and fine sandstone, 3-20mm, subrounded to subangular. Breaks down to silty CLAY; very stiff, moist, high plasticity [NORTHLAND ALLOCHTHON MELANGE MATRIX].		33m SPT 3, 4/6, 6, 8, 8 N= 28						
	HQ3	-24				34.00m: Shear fabric dips 20°.								
	SPT					35.30m: Shear fabric dips 45-55°.		34.5m SPT 4, 5/7, 8, 8, 10 N= 33						33.45m - 34.20m: Core swell (250mm)
	HQ3	-25			NAM	35.75m: Clasts are predominantly laminated fine sandstone. Matrix breaks down to CLAY with some silt and fine sand; very stiff, moist, high plasticity.			100	100	0			
									93	93	0			
	SPT	-26					SW	36m SPT 5, 8/10, 10, 10, 13 N= 43						34.95m - 35.50m: Core swell (300mm)
	HQ3	-27				Slightly weathered, light bluish grey banded reddish brown, fine to medium, indistinctly bedded SANDSTONE; very weak. Banding 50-100mm thick, banding dips 15°, top contact dips 10°.			76	76	43			
	SC					37.25-37.50m: CORE LOSS (250mm). Core bound.								
						Slightly weathered, light bluish grey banded reddish brown, fine to medium, indistinctly bedded SANDSTONE; very weak. Banding 50-100mm thick, banding dips 15°, bottom contact dips 10°.		37.5m SPT 11, 39 for 74mm N = 50+						35.50m - 36.00m: Core swell (250mm)
	HQ3	-28				37.65m: Colour change to reddish brown, speckled bluish grey.			78	-	-			35.70m: HCl test: no reaction
														
	SC													
														
	HQ3	-29						39m SPT 17, 33 for 70mm N = 50+						
														
														
														
														
														
														

REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 90mm.		Date/Time	Hole Depth (m)	Water Level (m)
2. A standpipe piezometer was installed on 27/11/2025 with a screened interval between 12.50 to 15.50m bgl. One vibrating wire piezometer BH2B_1146_P201 was installed at 15.2m bgl on 9/12/2025, Serial No. P250893.				
3. Shear Vane Serial No. 2183, calibration constant 1.348.				

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 21-11-2025	Logged: D. Baker/ I. Mans
Method: Rotary Core Wireline		Easting: 1727796.28mE,		Date Completed: 27-11-2025	Input: D. Baker
Equipment: Hanjin / D&B 10		Northing: 6016004.92mN,		Inclination: 90	Reviewed: N. Crampton
Contractor: McMillan Drilling Ltd		Ground level: 10.42m		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
13	HQ3	-30				[CONT] Slightly weathered, light bluish grey banded reddish brown, fine to medium, indistinctly bedded SANDSTONE; very weak. Banding 50-100mm thick, banding dips 15°, bottom contact dips 10°.		40.5m SPT 50 for 60mm N = 50+	100	100	93		mudstone matrix	
14	HQ3	-31			NAM	Slightly weathered, reddish brown streaked light bluish grey, pervasively sheared MUDSTONE; extremely weak. Shear fabric dip indistinct. Hosts trace clasts of sheared siltstone and fine sandstone, 3-100mm, subrounded to subangular. Breaks down to silty CLAY; very stiff, moist, high plasticity.	SW		100	100	44		41.20m - 43.00m: Core stuck to splits, subsequently broken during removal	
						42.00m: Shear fabric convoluted, dip 30-60°.								
	HQ3	-32							100	100	0			
						End Of Hole: 43.00m								
		-33												
		-34												
		-35												
		-36												
		-37												

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 90mm. 2. A standpipe piezometer was installed on 27/11/2025 with a screened interval between 12.50 to 15.50m bgl. One vibrating wire piezometer BH2B_1146_PZ01 was installed at 15.2m bgl on 9/12/2025, Serial No. P250893. 3. Shear Vane Serial No. 2183, calibration constant 1.348.	Water Level Readings:		
	DateTime	Hole Depth (m)	Water Level (m)
	26-11-2025 16:03:00	43.00	4.70

Borehole Reference:

BH2B_1146

Photographed By:

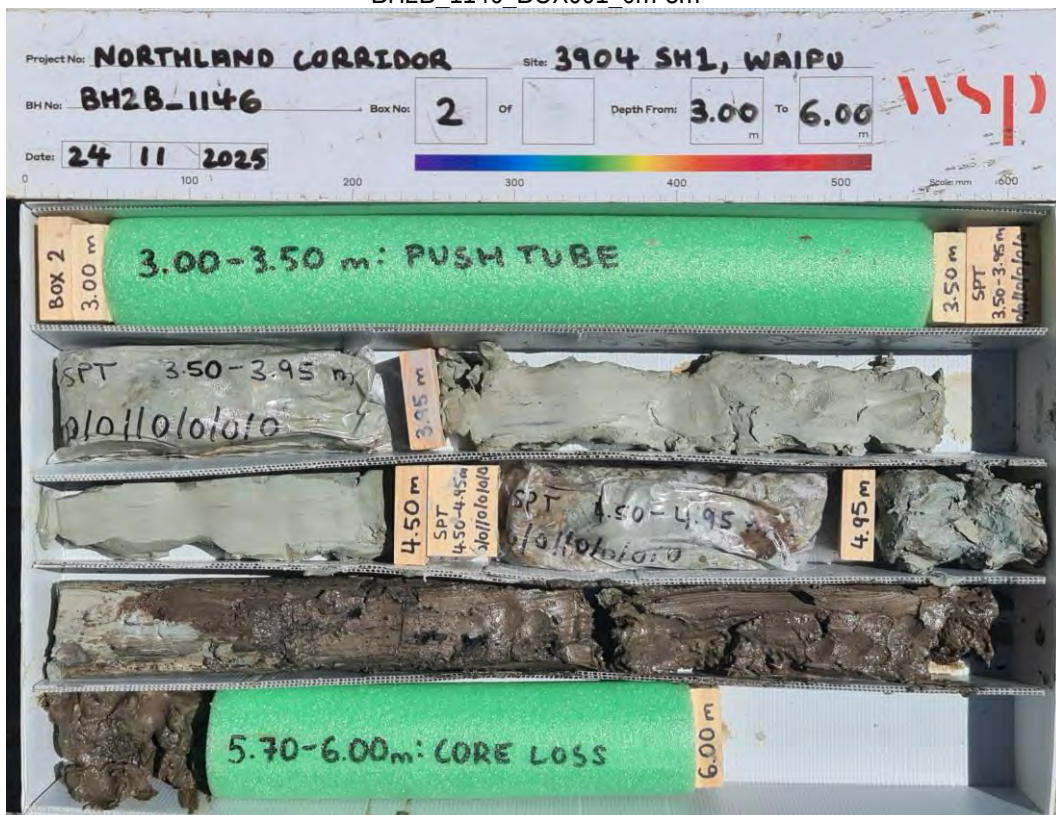
DRB, IM

Date Photographed:

24/11/2025-25/11/2025



BH2B_1146_BOX001_0m-3m



BH2B_1146_BOX002_3m-6m

Borehole Reference:

BH2B_1146

Photographed By:

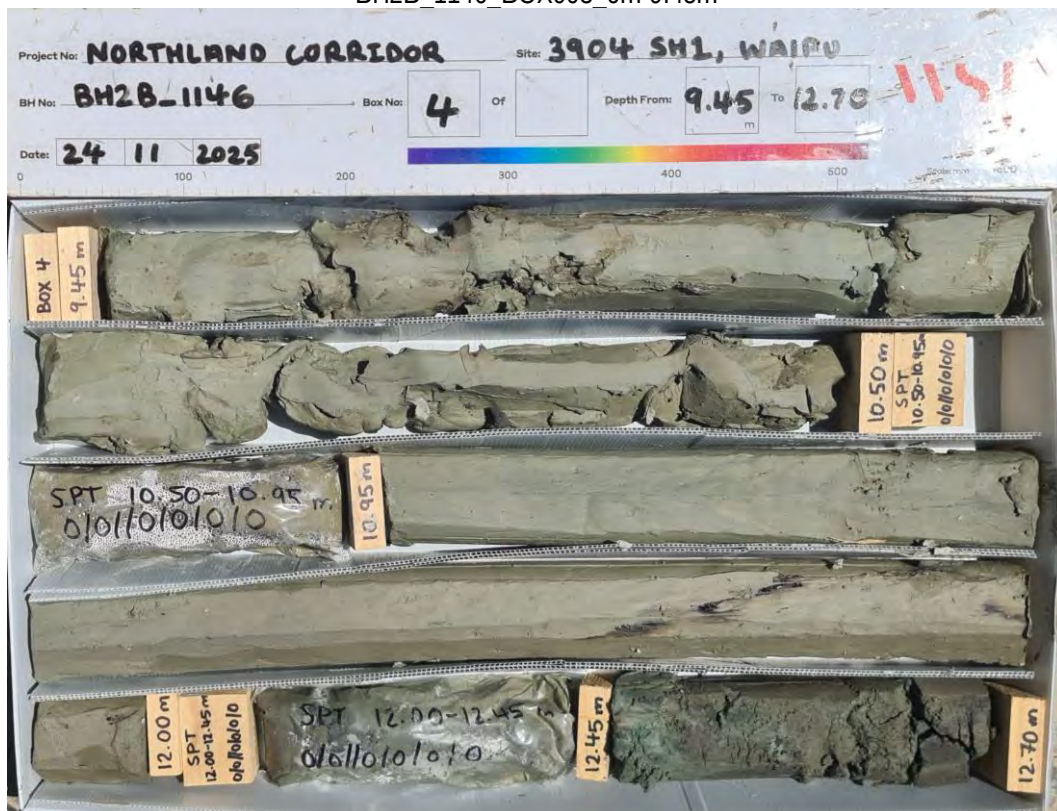
DRB, IM

Date Photographed:

24/11/2025-25/11/2025



BH2B_1146_BOX003_6m-9.45m



BH2B_1146_BOX004_9.45m-12.7m

Borehole Reference:

BH2B_1146

Photographed By:

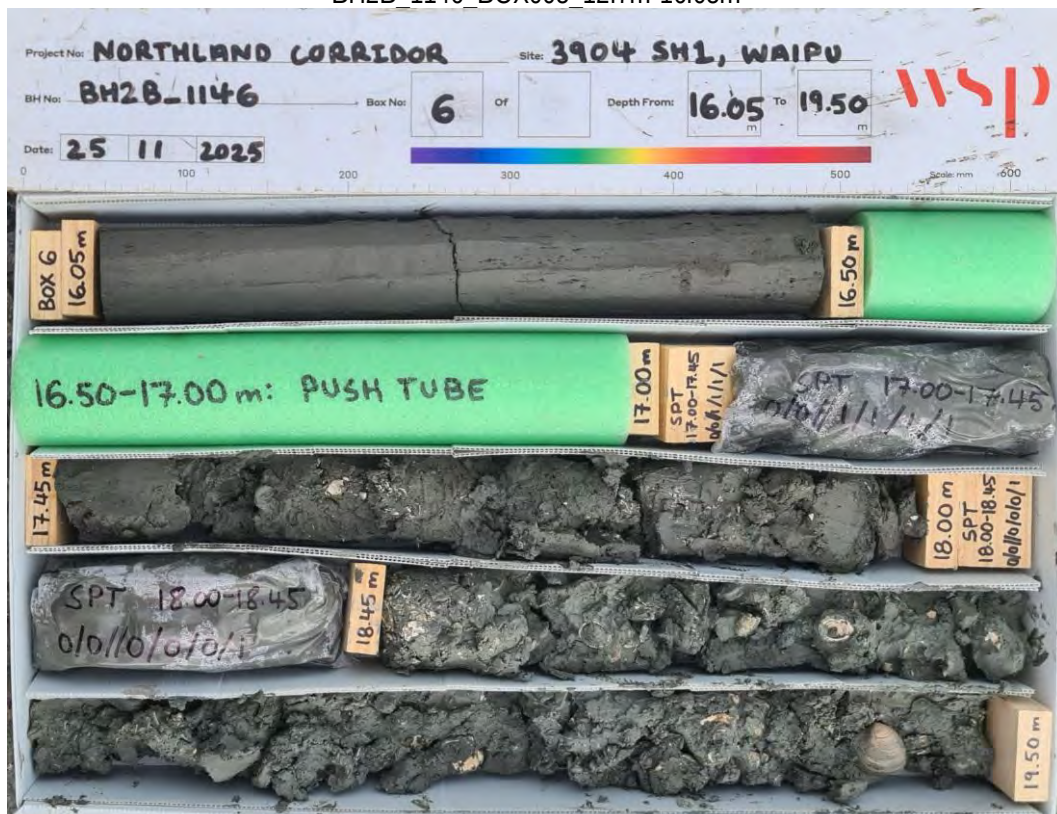
DRB, IM

Date Photographed:

24/11/2025-25/11/2025



BH2B 1146 BOX005 12.7m-16.05m



BH2B_1146_BOX006_16.05m-19.5m

Borehole Reference: BH2B_1146

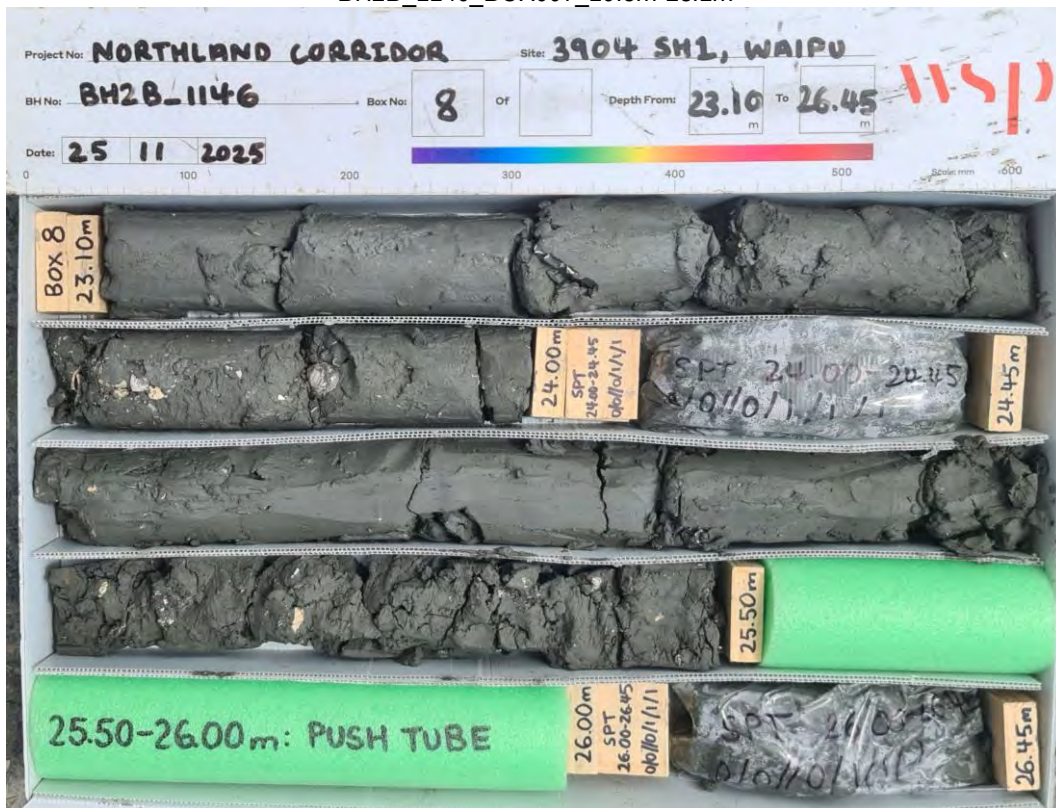
Photographed By: DRB, IM

Date Photographed:

24/11/2025-25/11/2025



BH2B_1146_BOX007_19.5m-23.1m



BH2B_1146_BOX008_23.1m-26.45m

Borehole Reference:

BH2B_1146

Photographed By:

DRB, IM

Date Photographed:

24/11/2025-25/11/2025



BH2B 1146 BOX009 26.45m-29.7m



BH2B_1146_BOX010_29.7m-32.95m

Borehole Reference:

BH2B_1146

Photographed By:

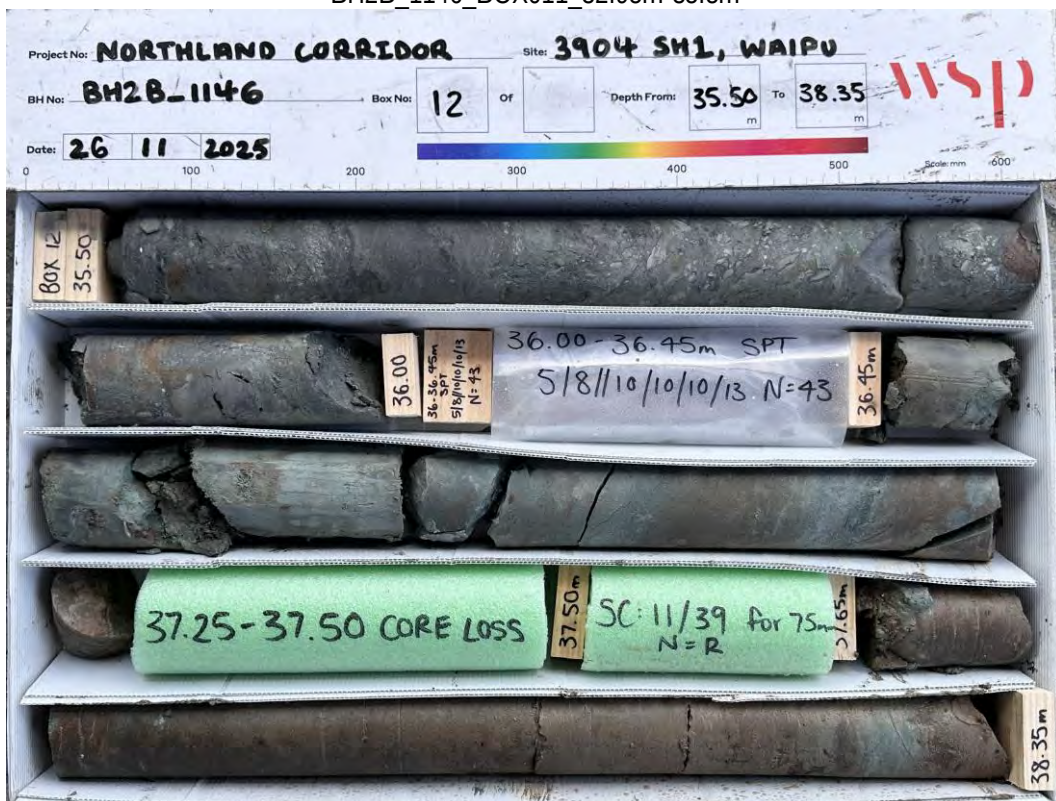
DRB, IM

Date Photographed:

24/11/2025-25/11/2025



BH2B_1146_BOX011_32.95m-35.5m



BH2B_1146_BOX012_35.5m-38.35m

Borehole Reference:

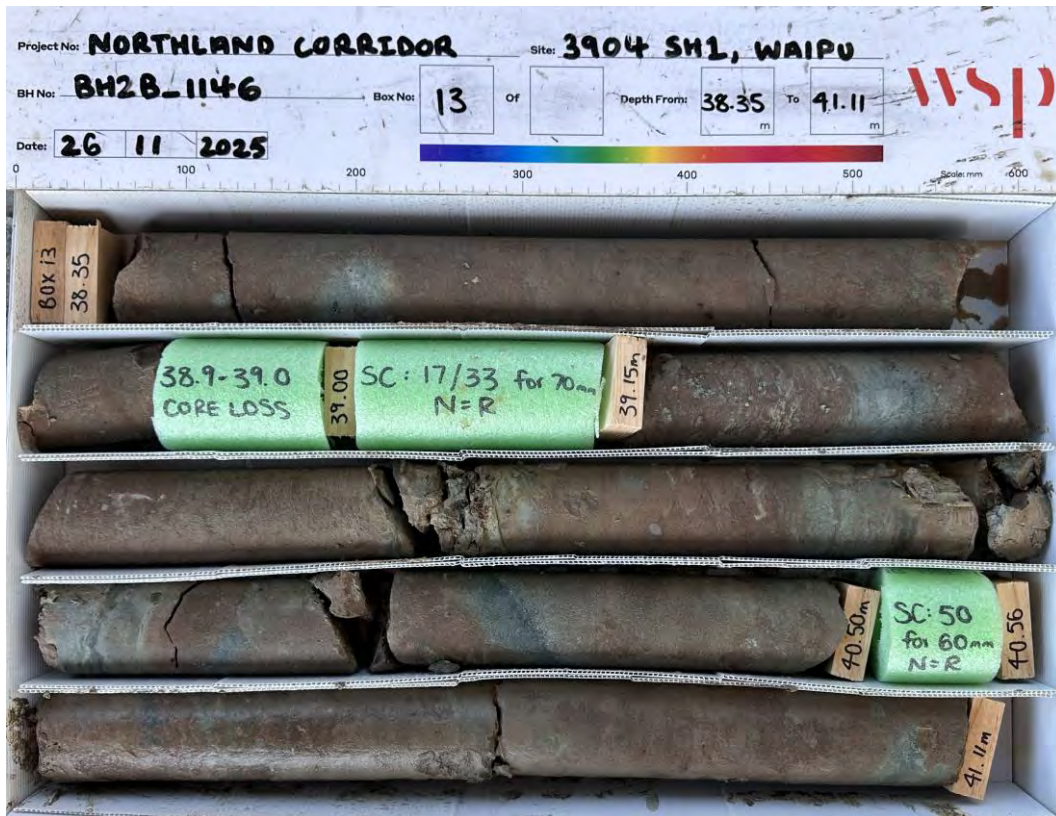
BH2B_1146

Photographed By:

DRB, IM

Date Photographed:

24/11/2025-25/11/2025



BH2B_1146_BOX013_38.35m-41.11m



BH2B_1146_BOX014_41.11m-43m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	17/09/2025	Logged:	B.Griffiths
Method:	Rotary Core Wireline	Easting:	1728074.01	Date completed:	26/09/2025	Input:	B.Griffiths
Equipment:	Hanjin/D&B 10	Northing:	6010600.40	Inclination:	90°	Reviewed:	B.O'Loughlin
Contractor:	McMillan (NI) Drilling	Ground level:	42.311m (NZVD2016)	Azimuth:	N/A	Verified:	A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
1	HA	42	1		TS	0.00m: CLAY, some silt and some rootlets; brown. Firm, moist, high plasticity. Rootlets are 1-5mm long. [TOPSOIL]		0.5m: ISHSV 224/119 kPa	100				0.00m: HWT Casing installed to 22.4m	
					QC	0.20m: CLAY, some silt, minor rootlets, trace sand; brownish grey with orange mottling. Hard, moist, high plasticity. Rootlets are 1-5mm. Sand is medium. [COLLUVIUM (UNDIFFERENTIATED)]	1m: ISHSV 210/109 kPa							
						1.20m: Silty CLAY, trace rootlets; grey with orange mottling. Hard, moist, high plasticity. Rootlets are 1-3mm long.	1.5m: ISHSV 193/133 kPa 1.5m: SPT 0, 1// 1, 1, 1, 1 N = 4							
						1.50m: CLAY, minor silt; grey. Very stiff, moist, high plasticity. 1.60m: ...Grey with orange mottling								
	HQ3	41	2		WPR	2.40m: Completely weathered, brownish grey with orange staining, fine SANDSTONE; extremely weak. Poorly cemented, no distinct bedding planes. (Silty fine to medium SAND. Medium dense, moist, highly friable, poorly graded). [COMPLETELY WEATHERED GREYWACKE]	CW	3m: IBHSV UTP 3m: SPT 2, 3// 4, 3, 4, 4 N = 15	100				2.40m: HCl: None	
						3.60m: ...Some fine gravels. sub-rounded, greywacke siltstone.		89						
						4.25-4.50m: ...CORE LOSS (250mm) Fines assumed washed away.		76						
						4.5m: SPT 2, 2// 3, 3, 2, 4 N = 12		89						
						5.50m: CORE LOSS (500mm) Fines assumed washed away.		52						
						6.00m: Highly weathered, grey with orange staining, fine to medium SANDSTONE; extremely weak. Poorly cemented, no distinct bedding planes. (Silty fine to medium SAND. Very dense, moist, highly friable, well sorted) [HIGHLY WEATHERED GREYWACKE]		67						
2	40	3		WPH	6.90m: CORE LOSS (600mm). Fines assumed washed away.	HW	6m: SPT 6, 11// 15, 17, 18 N = 50+	67				6.50m: HCl: None		
					7.50m: Highly weathered, greyish orange, brecciated GREYWACKE; extremely weak. Matrix supported, silty fine sand. Clasts fine to medium sandstone gravels, sub-angular. Breaks down to a soil when handled. (Silty fine SAND with some fine to medium gravels. Very stiff, poorly graded. Gravels are greywacke sandstone)		69							
							0							
							105							
							100							
							0							
3	35	7		WPH		HW	7.5m: SPT 8, 18// 26, 24 for 60mm N = 50+	0	0	0		7.50m: HCl: None		

Remarks:

- Remarks:**
- 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 70.5mm and vertical accuracy +/- 110mm.
 - 2. A standpipe was installed on 26/09/25 with a screened interval between 5 to 8m bgl. A vibrating wire piezometer was installed at 7.50m bgl, within the open standpipe on 16/10/2025, Serial No. 378276.
 - 3. Falling/rising head testing undertaken with data logger at borehole depth 22.50m on 22/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 25.20m on 23/09/2025.

Shear Vane (IBHSV + ISHSV) Serial No. 3352, calibration constant 1.75.

Water Level Readings:		
DateTime	Hole Depth	Water Level
2025-09-17 16:50	12.50m	1.55mbgl
2025-09-18 07:45	12.50m	3.35mbgl
2025-09-18 17:00	19.50m	0.90mbgl
2025-09-19 07:47	19.50m	1.00mbgl
2025-09-22 09:30	19.50m	1.76mbgl
2025-09-22 19:06	22.50m	0.50mbgl
2025-09-23 07:59	22.50m	0.20mbgl
2025-09-23 17:00	25.20m	0.60mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	17/09/2025	Logged:	B.Griffiths
Method:	Rotary Core Wireline	Easting:	1728074.01	Date completed:	26/09/2025	Input:	B.Griffiths
Equipment:	Hanjin/D&B 10	Northing:	6010600.40	Inclination:	90°	Reviewed:	B.O'Loughlin
Contractor:	McMillan (NI) Drilling	Ground level:	42.311m (NZVD2016)	Azimuth:	N/A	Verified:	A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL		
															WVS MVS CS VCS EGS	
3	HQ	3			WPM	8.10m: Moderately weathered, greyish orange, brecciated GREYWACKE; very weak. Matrix supported, silty fine sand. Clasts fine to medium sandstone gravels, sub-angular. Breaks down to a soil when handled. (Silty fine SAND with some fine to medium gravels. Very stiff, poorly graded. Gravels are greywacke sandstone). [MODERATELY WEATHERED GREYWACKE] 8.40m: CORE LOSS (600mm) Fines assumed washed away.	HW	9m: SPT 8, 4// 27, 23 for 55mm N = 50+					8.20m: HCl: None			
	HQ3	34				MW			33	0	0					
	SPT	9			WPM	9.00m: Moderately weathered, grey with orange staining, brecciated GREYWACKE; very weak. Matrix supported, silty fine sand. Clasts fine to medium sandstone gravels, angular to sub-angular. Recovered as fine to coarse gravels and cobbles. Matrix assumed to have been washed away.	MW			86					9.00-13.70m: Fracture Zone	
	HQ3	33							100	0	0					
	HQ3	10								15	0	0			10.00m: HCl: None	
4	HQ3	32			WPU	10.35m: Slightly weathered, grey, brecciated GREYWACKE; weak. Matrix supported, silty fine sand. Clasts fine to medium sandstone gravels, angular to sub-angular. Recovered as fine to coarse gravels and cobbles. Matrix assumed to have been washed away. [SLIGHTLY WEATHERED GREYWACKE] 10.50-10.65m: ...CORE LOSS (150mm) Fines assumed washed away.	SW		50	0	0		13.50m: HCl: None 13.70-29.00m: Fault Zone - Highly fractured and brecciated GREYWACKE Siltstone and Sandstone (very closely spaced defects).			
	HQ3	11						44	18	0						
	HQ3	31						100	0	0						
	HQ3	12						89	0	0						
	HQ3	30						0	0	0						
5	HQ3	13			WPU	12.50m: Slightly weathered, light grey, brecciated GREYWACKE SILTSTONE; very weak. Matrix supported, silty fine sand. Clasts fine to coarse sandstone gravels, angular to sub-angular. Recovered as fine to coarse gravels and cobbles. Matrix assumed to have been washed away. 13.20-13.50m: ...CORE LOSS (300mm) Fines assumed washed away. 13.60-13.70m: ...CORE LOSS (100mm) Fines washed away. 13.85-14.27m: ...Intact section of slightly weathered brecciated GREYWACKE, dark grey, pervasively sheared, extremely weak. Friable on handling. 14.45-14.65m: ...CORE LOSS (200mm) Fines assumed washed away.	SW		100	0	0		15.00m: HCl: None			
	HQ3	29						100	0	0						
	HQ3	14						0	0	0						
	HQ3	28						50	0	0						
	HQ3	15						79	42	42						
6	HQ3	27				15.00m: ...Recovered as fine to medium gravel, minor silt matrix/coating. 15.30-15.75m: ...CORE LOSS (450mm) Fines assumed washed away.			100	0	0					
									40	0	0					
	HQ3								100	0	0					

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 70.5mm and vertical accuracy +/- 110mm.
2. A standpipe was installed on 26/09/25 with a screened interval between 5 to 8m bgl. A vibrating wire piezometer was installed at 7.50m bgl, within the open standpipe on 16/10/2025, Serial No. 378276.
3. Falling/rising head testing undertaken with data logger at borehole depth 22.50m on 22/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 25.20m on 23/09/2025.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-09-24 08:00	25.20m	0.20mbgl
2025-09-24 19:14	32.30m	0.00mbgl
2025-09-25 08:20	32.30m	0.10mbgl
2025-09-25 16:53	40.00m	2.00mbgl
2025-09-26 08:00	40.00m	0.68mbgl

		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: 4245 SH1, Waipu, Zone 1 Project Reference: Aurecon WSP JV		BH2B_1147											
Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010				Sheet 3 of 6											
BOREHOLE INFORMATION Method: Rotary Core Wireline Equipment: Hanjin/D&B 10 Contractor: McMillan (NI) Drilling		CO-ORDINATES: NZTM2000 Easting: 1728074.01 Northing: 6010600.40 Ground level: 42.311m (NZVD2016)		Date started: 17/09/2025 Date completed: 26/09/2025 Inclination: 90° Azimuth: N/A											
				Logged: B.Griffiths Input: B.Griffiths Reviewed: B.O'Loughlin Verified: A.George											
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL	
6	HQ3	26			WPU		SW		92	0	0	WS WS MWS CS VCS ECS	18.00m: HCl: None		
	HQ3	17				16.70m: CORE LOSS (500mm) Fines assumed washed away.		29	0	0					
	HQ3	25			WPU	17.20m: Slightly weathered, grey, brecciated GREYWACKE; very weak. Matrix supported, silty fine sand. Clasts fine to coarse sandstone gravels, angular to sub-angular. Ubiquitous incipient fractures infilled with white mineral (zeolite, quartz, prehnite?) 17.50-17.65m: ...Recovered as fine to coarse gravels and cobbles. Angular to sub-angular. Matrix assumed washed away. 18.00-18.45m: ...Recovered as silty fine to coarse gravels and cobbles. Angular to sub-angular. Matrix assumed washed away.	SW	100	56	56					
	HQ3	18					100	46	46						
	HQ3	24					100	0	0						
	HQ3	19					0	0	0						
7	HQ3	23			WPU	19.00m: Slightly weathered, grey, brecciated GREYWACKE; very weak. Matrix supported, silty fine sand. Clasts fine to coarse sandstone gravels, angular to sub-angular. Core broken during drilling. 19.15m: CORE LOSS (750mm). Fines assumed washed away.	SW	100	0	0		23.00m: HCl: None			
	HQ3	20					0	0	0						
	HQ3	22			WPU	19.90m: Slightly weathered, grey, brecciated GREYWACKE; very weak. Matrix supported, silty fine sand. Clasts fine to coarse sandstone gravels, angular to sub-angular. Recovered as fine to coarse gravels. Matrix assumed to have been washed away. 20.10m: CORE LOSS (600mm) Fines assumed washed away.	SW	100	0	0					
	HQ3	21					0	0	0						
	HQ3	21			WPU	20.70m: Slightly weathered, grey, brecciated GREYWACKE; very weak. Matrix supported, silty fine sand. Clasts fine to coarse sandstone gravels, angular to sub-angular. Recovered as fine to coarse gravels and cobbles. Matrix assumed to have been washed away. 20.80-21.00m: ...CORE LOSS (200mm) Fines assumed washed away. 21.24-21.70m: ...CORE LOSS (460mm) Fines assumed washed away.	SW	60	0	0					
	HQ3	22					0	0	0						
8	HQ3	20				21.90m: CORE LOSS (600mm) Fines assumed washed away.		25	0	0					
	HQ3	23			WPU	22.50m: Slightly weathered, grey, brecciated GREYWACKE; very weak. Matrix supported, silty fine sand. Clasts fine to coarse sandstone gravels, angular to sub-angular. Recovered as silty fine to coarse gravels. Matrix assumed to have been washed away. 22.90-23.15m: ...CORE LOSS (250mm) Fines assumed washed away.	SW	75	0	0					
	HQ3	19					100	0	0						
	HQ3						0	0	0						
	HQ3						100	0	0						
	HQ3						100	0	0						
9	HQ3							88	0	0					
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 70.5mm and vertical accuracy +/- 110mm. 2. A standpipe was installed on 26/09/25 with a screened interval between 5 to 8m bgl. A vibrating wire piezometer was installed at 7.50m bgl, within the open standpipe on 16/10/2025. Serial No. 378276. 3. Falling/rising head testing undertaken with data logger at borehole depth 22.50m on 22/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 25.20m on 23/09/2025.												Water Level Readings: Date/Time Hole Depth Water Level			
Shear Vane (IBHSV + ISHSV) Serial No. 3352, calibration constant 1.75.															

Logged:	B.Griffiths
Input:	B.Griffiths
Reviewed:	B.O'Loughlin
Verified:	A.George

[illegible]

DateTime	Hole Depth	Water Level
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Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 70.5mm and vertical accuracy +/- 110mm. 2. A standpipe was installed on 26/09/25 with a screened interval between 5 to 8m bgl. A vibrating wire piezometer was installed at 7.50m bgl, within the open standpipe on 16/10/2025, Serial No. 378276. 3. Falling/rising head testing undertaken with data logger at borehole depth 22.50m on 22/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 25.20m on 23/09/2025. Shear Vane (IBHSV + ISHSV) Serial No. 3352, calibration constant 1.75.	Water Level Readings:		
	Date/Time	Hole Depth	Water Level

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan (NI) Drilling

CO-ORDINATES:	NZTM2000
Easting:	1728074.01
Northing:	6010600.40
Ground level:	42.311m (NZVD2016)

Date started:	17/09/2025
Date completed:	26/09/2025
Inclination:	90°
Azimuth:	N/A

Logged:	B.Griffiths
Input:	B.Griffiths
Reviewed:	B.O'Loughlin
Verified:	A.George

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 70.5mm and vertical accuracy +/- 110mm.
2. A standpipe was installed on 26/09/25 with a screened interval between 5 to 8m bgl. A vibrating wire piezometer was installed at 7.50m bgl, within the open standpipe on 16/10/2025, Serial No. 378276.
3. Falling/rising head testing undertaken with data logger at borehole depth 22.50m on 22/09/2025. Second falling/rising head testing undertaken with data logger at borehole depth 25.20m on 23/09/2025.

Shear Vane (IBHSV + ISHSV) Serial No. 3352, calibration constant 1.75.

DateTime	Hole Depth	Water Level
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[illegible]

Borehole Reference:

BH2B_1147

Photographed By:

BTG

Date Photographed:

17/09/2025-25/09/2025



BH2B_1147_BOX001_0m-3m



BH2B_1147_BOX002_3m-6.5m

Borehole Reference: BH2B_1147

Photographed By: BTG

Date Photographed:

17/09/2025-25/09/2025



BH2B_1147_BOX003_6.5m-9.45m



BH2B_1147_BOX004_9.45m-12.42m