



BOREHOLE LOG

BOREHOLE No.:

BH_42

SHEET: 6 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 12/05/2025

FINISH DATE: 12/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200000.11 mN
 (NZTM2000) 1573012.24 mE

R.L. GROUND: 1.90m

R.L. COLLAR:

DIRECTION: 0°

DATUM: NZVD2016

ANGLE FROM HORIZ.: -90°

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No					
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)										
Bromley Formation	24.95m: Silty fine SAND, some gravel; greenish grey. Saturated. Gravel, fine to medium.		[Weathering symbols]	[Strength symbols]	SNC 100		-24	25.5	[Graphic log symbols]	[Discontinuities symbols]												
	25.55m: Fine to coarse SAND, some silt and some gravel; greenish grey. Moist. Gravel, fine to coarse.																					
	25.90m: Sandy fine to coarse GRAVEL, some silt; light brown. Very dense, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.																	SPT 100	9/18// 28/22 for 25 mm N=50	-25	26.0	[Graphic log symbols]
	27.40m: SILT, minor clay; greenish grey. Stiff, moist, medium plasticity.																	SNC 48	7/6// 32/33 N=11				-26	27.5	[Graphic log symbols]
	27.90m: Fine to coarse SAND, some silt and some gravel; greenish grey. Very dense, moist. Gravel, fine to coarse.																	SPT 100	13/22// 29/21 for 65 mm N=50	-27	28.5	[Graphic log symbols]
28.90m: Fine to coarse SAND, some silt and some gravel; greenish grey. Very dense, moist. Gravel, fine to coarse.		SNC 100		-28	29.0	[Graphic log symbols]																
29.19m: EOBH. Target depth																						

COMMENTS: 9.4m to lake bed from barge deck including 0.9m from barge deck to water surface. Coordinates derived from RTK GPS. Elevation data from 2025 B2P LIDAR.

Hole Depth
29.19m

Scale 1:25

Rev.: A

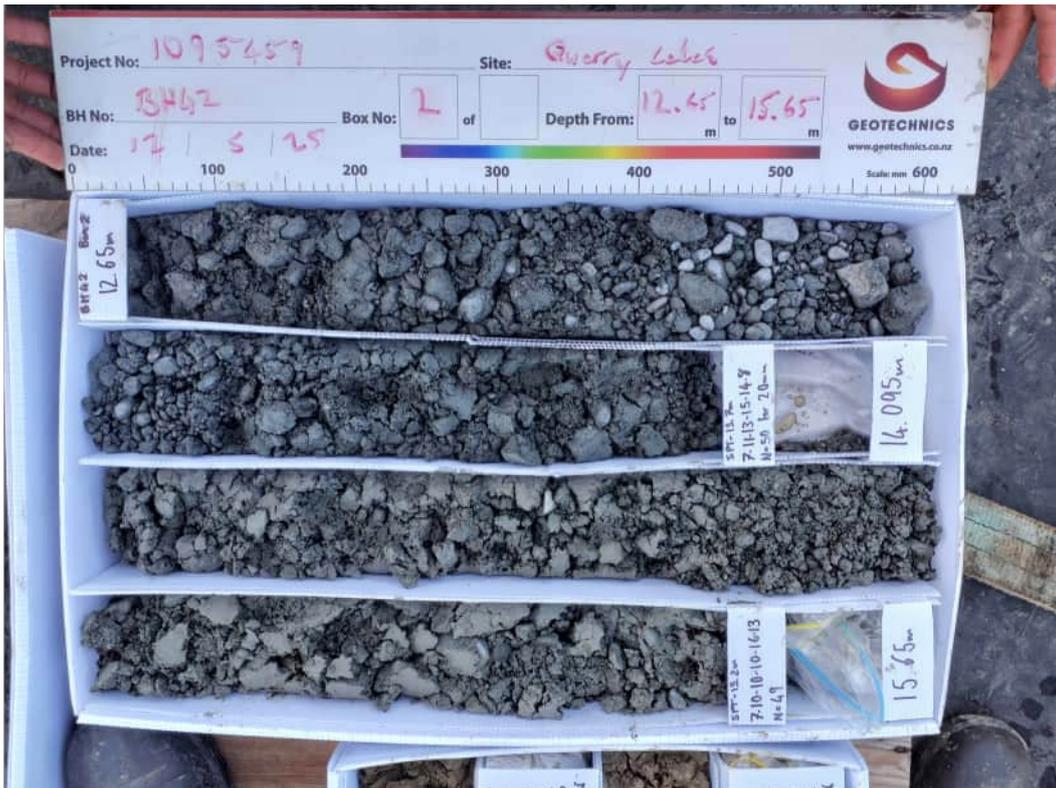
CORE PHOTOS

BOREHOLE No.: **BH_42**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200000.11 mN 1573012.24 mE	DRILL TYPE: XL170	HOLE STARTED: 12/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	HOLE FINISHED: 12/05/2025
DATUM:	NZVD2016		DRILLED BY: Prodrill/Paritt LOGGED BY: ALSP CHECKED: DAA



9.40-12.65m



12.65-15.65m

CORE PHOTOS

BOREHOLE No.: **BH_42**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200000.11 mN 1573012.24 mE	DRILL TYPE: XL170	HOLE STARTED: 12/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	HOLE FINISHED: 12/05/2025
DATUM:	NZVD2016		DRILLED BY: Prodrill/Parfitt LOGGED BY: ALSP CHECKED: DAA



15.65-18.68m



18.68-21.64m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200000.11 mN 1573012.24 mE	DRILL TYPE: XL170	HOLE STARTED: 12/05/2025 HOLE FINISHED: 12/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



21.64-24.40m



24.40-26.75m

CORE PHOTOS

BOREHOLE No.: **BH_42**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200000.11 mN 1573012.24 mE	DRILL TYPE: XL170	HOLE STARTED: 12/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	HOLE FINISHED: 12/05/2025
DATUM:	NZVD2016		DRILLED BY: Prodrill/Parfitt
			LOGGED BY: ALSP CHECKED: DAA



26.75-29.19m



BOREHOLE LOG

BOREHOLE No.:
BH_43

SHEET: 3 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

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FINISH DATE: 09/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5199998.67 mN
(NZTM2000) 1573097.26 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Christchurch Formation	[CONT] 9.60m: SILT, minor clay, trace organics; grey. Very soft, wet, medium plasticity.				SNC	100	3 @ 10.00m BH043_10:AL:LL 41, PL 25, PI 16	10.00				10.00 - 10.50m BH043_10: AL: LL 41, PL 25, PI 16				
	11.00m: Silty fine SAND; grey. Wet. Trace shell fragments .				SPT	100	0.0// 0.0/0.0 N=0	11.00								
	11.60m: Fine SAND, minor silt; grey. Loose, wet. Trace shell fragments .				SNC	100		11.50								
	12.00m: Fine SAND, trace silt; grey. Wet. Minor shell fragments . 12.20m: Medium dense.				SPT	100	3.8// 5.4/8/10 N=27	12.50								
Springston Formation	13.00 - 13.20m Sand: fine to medium.				SNC	100		13.00								
	13.20m: Sandy fine to coarse GRAVEL; grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100		13.50								
	13.70m: Very dense. 13.80m: Fine to coarse GRAVEL, minor sand; dark grey. Very dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	2.7// 12/15/17/9 for 20mm N=50	14.00								
	14.40m: Poorly graded.				SNC	100		14.50								
	14.70 - 14.80m WOOD.							14.80								

COMMENTS: 5.6m to lake bed from barge deck, measurement includes 0.9m from barge deck to water surface. Coordinates derived from RTK GPS. Elevation data from 2025 B2P LIDAR.

Hole Depth
26.18m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_43

SHEET: 4 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 09/05/2025

FINISH DATE: 09/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5199998.67 mN
(NZTM2000) 1573097.26 mE

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R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	15.00m: Sandy fine to medium GRAVEL, trace silt; grey. Wet. Sand, fine to coarse. 15.20 - 15.30m Dense.		[Weathering symbols]	[Strength symbols]	SNC	100	3.6// 11/13/11/8 N=43	-14	15.5	[Graphic log symbols]	[Discontinuities symbols]	[RQD symbols]	[Description]	[Water/Fluid Loss]	[Casing]	[Installation]	[Core Box No]	
	15.30m: Fine to coarse GRAVEL, some sand, minor silt; light brown. Dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100												
	17.00 - 17.80m Some silt.				SPT	100	10/15// 12/11/13/11 N=47											
	17.80 - 18.20m Silty sandy GRAVEL.				SNC	100												
Burnham Formation	18.20m: SILT, trace clay and trace sand; orange brown. Very stiff to hard, moist, low plasticity. Sand, fine.		[Weathering symbols]	[Strength symbols]	SPT	100	4/15// 17/14/13/6 for 40mm N=50	-17	18.5	[Graphic log symbols]	[Discontinuities symbols]	[RQD symbols]	[Description]	[Water/Fluid Loss]	[Casing]	[Installation]	[Core Box No]	
	18.40m: Fine to coarse GRAVEL, some sand, trace silt; light brown. Very dense, wet. Sand, fine to coarse.				SPT	100												
	19.70m: Gravelly fine to coarse SAND, minor silt; light brown. Wet. Gravel, fine to coarse, rounded to sub-angular. 19.80m: Very dense.				SPT	82	12/19// 19/18/13 for 60 mm											

COMMENTS: 5.6m to lake bed from barge deck, measurement includes 0.9m from barge deck to water surface. Coordinates derived from RTK GPS. Elevation data from 2025 B2P LIDAR.

Hole Depth
26.18m
Scale 1:25



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LOGGED BY: ALSP

CHECKED: DAA

START DATE: 09/05/2025

FINISH DATE: 09/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5199998.67 mN
(NZTM2000) 1573097.26 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					25	50	75
Burnham Formation	[CONT] 19.70m: Gravelly fine to coarse SAND, minor silt; light brown. Wet. Gravel, fine to coarse, rounded to sub-angular.				SPT	82	N ₅₀		20.5								
	21.40m: Fine to coarse GRAVEL, minor sand, trace silt; light brown. Very dense, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SPT	100	19/20// 23/27 for 75 mm N ₅₀		21.5								
	22.20m: Sandy fine to coarse GRAVEL, trace silt; orangish brown. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SNC	100			22.0								
	22.80m: Very dense.				SNC	100			22.5								
	23.00m: Light grey.				SPT	100	13/12// 17/14/13/6 for 50mm N ₅₀		23.0								
	23.30m: NO RECOVERY.								23.5								
Bromley Formation	23.50m: SILT, trace clay; light grey. Firm to stiff, moist, low to medium plasticity.							23.5									
	23.80m: Silty PEAT (AMORPHOUS); brownish black. Moist.				SNC	98			24.0								
	24.00m: Organic SILT, trace clay; blackish grey and grey. Stiff, moist, low to medium plasticity.								24.0								
	24.30m: Grading to SILT, minor organics; grey.								24.5								
	24.40m: Fine to coarse GRAVEL, some silt and some sand; light orangish brown. Very dense, wet to saturated. Gravel, rounded to sub-rounded; sand, fine to coarse.				SPT	100	11/12// 15/17/18 for 75 mm N ₅₀		24.5								

COMMENTS: 5.6m to lake bed from barge deck, measurement includes 0.9m from barge deck to water surface. Coordinates derived from RTK GPS. Elevation data from 2025 B2P LIDAR.

Hole Depth
26.19m

Scale 1:25

Rev.: A

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199998.67 mN 1573097.26 mE	DRILL TYPE: XL170	HOLE STARTED: 09/05/2025 HOLE FINISHED: 09/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA

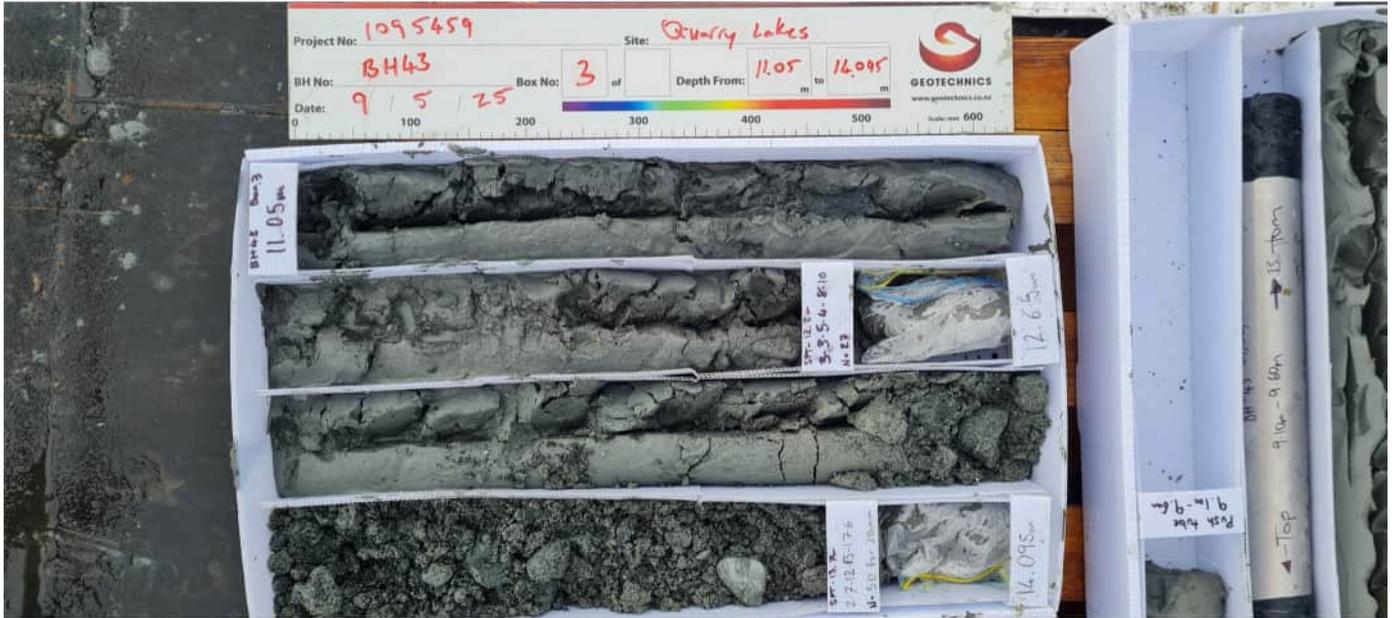


5.60-8.90m



8.90-11.05m

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CO-ORDINATES: (NZTM2000)	5199998.67 mN 1573097.26 mE	DRILL TYPE: XL170	HOLE STARTED: 09/05/2025 HOLE FINISHED: 09/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



11.05-14.10m



14.10-17.15m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
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R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



17.15-20.16m



20.16-22.80m

CORE PHOTOS

BOREHOLE No.: **BH_43**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 4 OF 4

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R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
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22.80-26.18m



BOREHOLE LOG

BOREHOLE No.:

BH_44

SHEET: 2 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 07/05/2025

FINISH DATE: 08/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200049.64 mN
 (NZTM2000) 1573150.71 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		ROCK MASS DISCONTINUITIES															
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	Defect Log	Fracture Spacing (mm)	RQD (%)	Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
Christchurch Formation	5.00m: [Cont] Water/Empty drill casing.					OB	0											
	6.50m: NO RECOVERY.																	
	6.80m: Fine to medium SAND; orangish brown. Saturated.					SNC	73											
	7.10m: Sandy fine GRAVEL; grey. Saturated. Gravel, rounded; sand, fine to medium.																	
	7.30m: Fine to coarse SAND, minor gravel, trace silt; grey. Wet, gap graded. Gravel, fine to medium, rounded.														7.30 - 7.80m BH044_7.3: PSD Percent passing 63um sieve: 4%			
	7.60m: NO RECOVERY. 7.60 - 8.00m Medium dense.																	
	7.75m: [Cont] fine to coarse SAND, minor gravel, trace silt; grey. Medium dense, wet, gap graded. Gravel, fine to medium, rounded.					SPT	67											
	8.00m: SILT, trace clay and trace sand; grey. Very soft, wet, low to medium plasticity. Sand, fine.																	
	8.20 - 8.21m Sandy SILT.					SNC	100								8.30 - 8.80m BH044_8.3: AL: LL 34, PL 24, PI 10			
	9.60m: Push tube. LAB TECHNICIANS description of sample: SILT with some sand, grey. Soft, moist.					SPTC	0								9.60 - 10.10m: BH044_9.6 TRI: CU Triaxial Test F = 33° c' = 11 kPa r = 1.0000			

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.35m

Scale 1:25

Rev: A



BOREHOLE LOG

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	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	[CONT] 9.60m: Push tube. LAB TECHNICIANS description of sample: SILT with some sand, grey. Soft, moist.				PT	100												
	10.10m: SILT, some sand; grey. Soft to firm, saturated, dilatant. Sand, fine. Trace shell fragments.				SNC	100												
	10.90m: Fine to coarse SAND, some gravel, trace silt; brown. Dense, wet. Gravel, fine, sub-rounded to angular.				SPT	100	3.0// 4.9/10/14 N=37											
	11.05m: NO RECOVERY.																	
	11.15m: [Cont] fine to coarse SAND, some gravel, trace silt; brown. Wet. Gravel, fine, sub-rounded to angular.																	
Springston Formation	11.60m: Fine to medium GRAVEL, some sand; brownish grey. Wet. Gravel, sub-rounded to sub-angular; sand, coarse.				SNC	91												
	12.20m: Sandy fine to medium GRAVEL; grey. Dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	4.4// 5.8/11.9 N=33											
	12.70m: Fine to medium GRAVEL, some sand; grey. Wet. Gravel, rounded to sub-angular.																	
	12.90m: Fine to medium GRAVEL, minor sand; grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100												
	13.70m: Dense.																	
	13.90m: NO RECOVERY.				SPT	44	7.1/2// 11/13/11/13 N=48											
	14.15m: Fine to coarse SAND, some gravel, trace silt; grey. Wet. Gravel, fine to medium, rounded to angular.				SNC	100												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.35m

Scale 1:25

Rev.: A



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	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Fracture Spacing (mm)	RQD (%)	25 50 75					
Burnham Formation	[CONT] 18.30m: Sandy fine to medium GRAVEL, minor silt; light brown. Dense, wet, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100												
	21.75m: Gravelly fine to coarse SAND, some silt; orange brown. Wet. Gravel, fine to coarse, rounded to sub-angular.				SNC	100												
	22.00m: Sandy fine to medium GRAVEL, minor silt; orange brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100		9/6// 15/14/10/9 N=48										
	22.20m: Medium to coarse GRAVEL, trace sand; orange brown. Wet. Gravel, rounded to sub-angular; sand, coarse.				SNC	100												
	22.40m: Sandy fine to medium GRAVEL, minor silt; orange brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100		10/12// 9/3/3/4 N=19										
Bromley Formation	22.80m: Medium dense.				PT	100												
	23.00m: SILT, trace sand; grey. Very stiff, moist, low plasticity. Sand, fine. 23.00m: Gravel visible within sampled material from this stratum was introduced during drilling.				SPT	100												
	23.30m: Push tube.				PT	100		PT @ 23.30m										
	23.80m: SILT, trace sand and trace gravel; grey. Firm, moist, low plasticity. Sand, fine; gravel, fine, rounded.				SNC	100												
	24.10m: Silty fine SAND; grey. Saturated.				SPT	100												
	24.40m: Medium dense.				SPT	100		3/4// 6/6/6/10 N=28										
	24.85m: Fine to medium GRAVEL, some silt and some sand;				SNC	100												
COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.																		

Hole Depth
26.35m

Scale 1:25

Rev.: A

TTNZ_20240902 - GeneralLog - 25/08/2025 5:22:12 pm - Produced with Core-GS by GeRoc

Box 18.75-21.75m

Box 21.75-24.40m



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CHECKED: DAA

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R.L. COLLAR:

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SURVEY: dGPS (with base station)

DIRECTION: 0°

ANGLE FROM HORIZ.: -90°

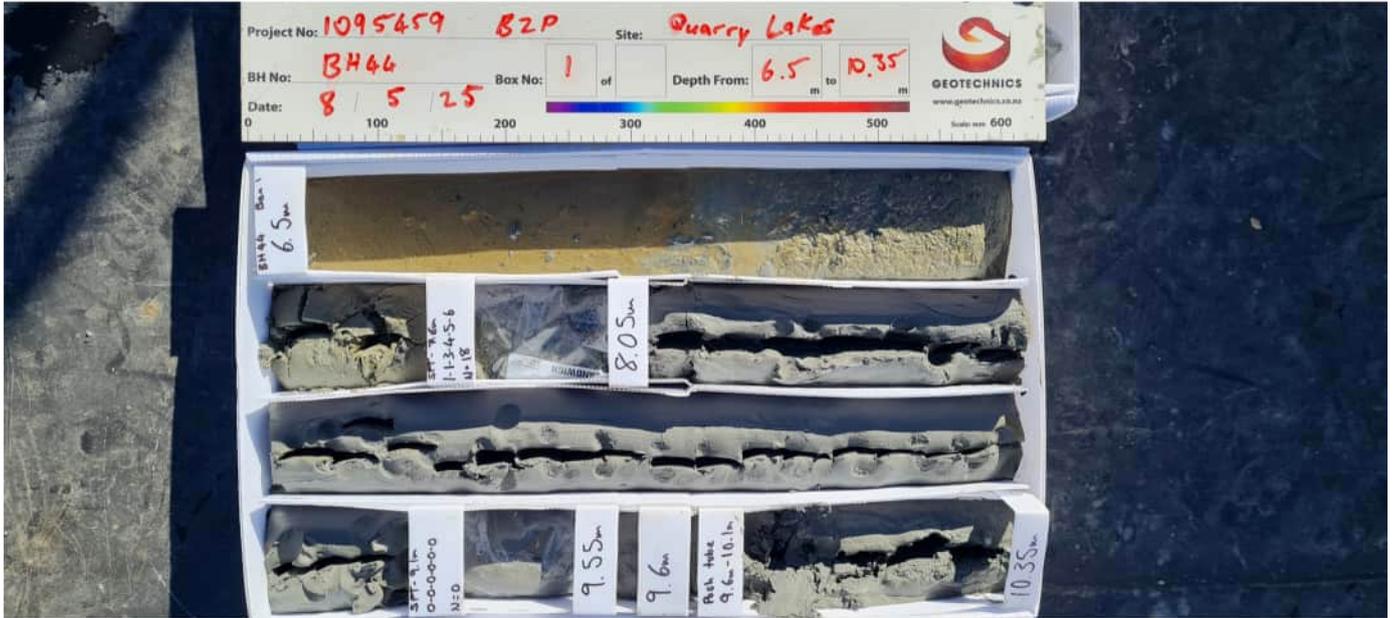
GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Bromley Formation	orange grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.		[Dotted pattern]	[Dotted pattern]	SNC 100		25.5	[Graphic log: Gravel]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]		[Dotted pattern]				
	25.00m: Sandy fine to coarse GRAVEL, minor silt; orange brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.																
Bromley Formation	25.20m: Fine to coarse GRAVEL, trace sand; orange brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.		[Dotted pattern]	[Dotted pattern]	SPT 100	11/14/ 14/13/13/ 10 N>=50	26.0	[Graphic log: Gravel]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]		[Dotted pattern]				
	25.80m: Sandy fine to coarse GRAVEL, minor silt; orange brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse. 25.90m: Very dense.																
	26.35m: EOBH. Target depth		[Dotted pattern]	[Dotted pattern]			26.5	[Graphic log: Empty]	[Dotted pattern]	[Dotted pattern]		[Dotted pattern]					
			[Dotted pattern]	[Dotted pattern]			27.0	[Graphic log: Empty]	[Dotted pattern]	[Dotted pattern]		[Dotted pattern]					
			[Dotted pattern]	[Dotted pattern]			27.5	[Graphic log: Empty]	[Dotted pattern]	[Dotted pattern]		[Dotted pattern]					
			[Dotted pattern]	[Dotted pattern]			28.0	[Graphic log: Empty]	[Dotted pattern]	[Dotted pattern]		[Dotted pattern]					
			[Dotted pattern]	[Dotted pattern]			28.5	[Graphic log: Empty]	[Dotted pattern]	[Dotted pattern]		[Dotted pattern]					
			[Dotted pattern]	[Dotted pattern]			29.0	[Graphic log: Empty]	[Dotted pattern]	[Dotted pattern]		[Dotted pattern]					
			[Dotted pattern]	[Dotted pattern]			29.5	[Graphic log: Empty]	[Dotted pattern]	[Dotted pattern]		[Dotted pattern]					

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.35m
Scale 1:25

TTNZ_20240902 - GeneralLog - 25/08/2025 5:22:12 pm - Produced with Core-GS by GeRoc

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200049.64 mN 1573150.71 mE	DRILL TYPE: XL170	HOLE STARTED: 07/05/2025 HOLE FINISHED: 08/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



6.50-10.35m

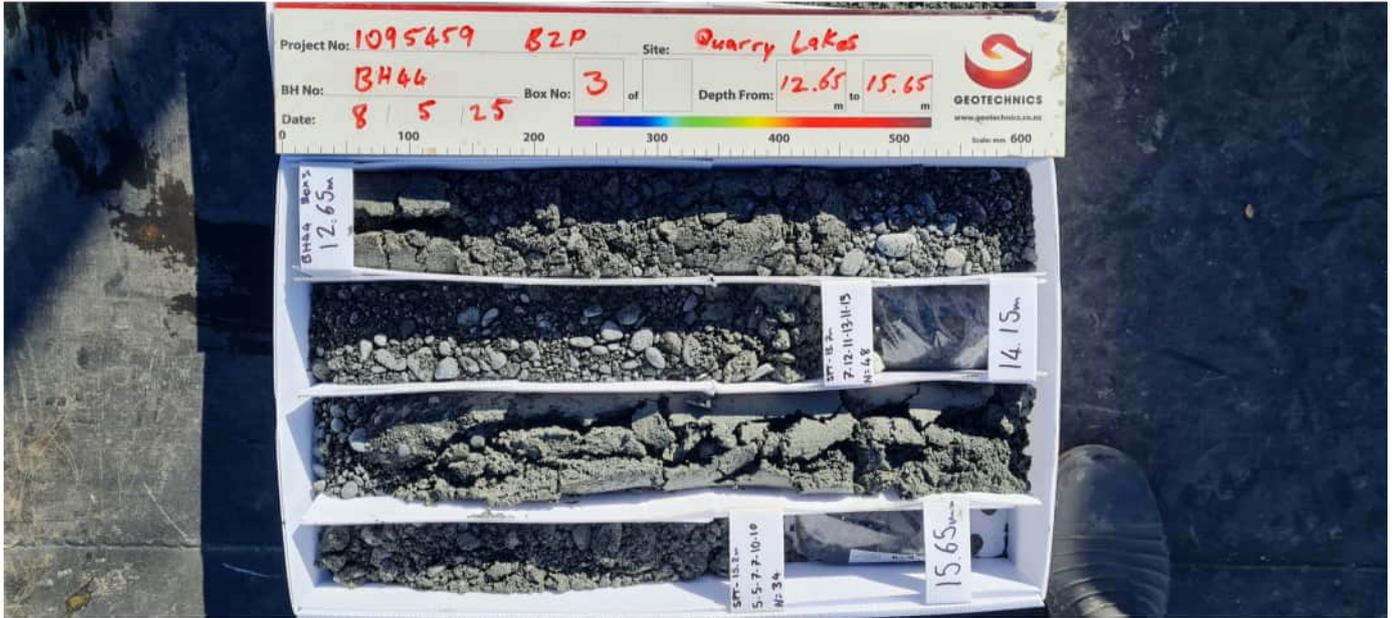


10.35-12.65m

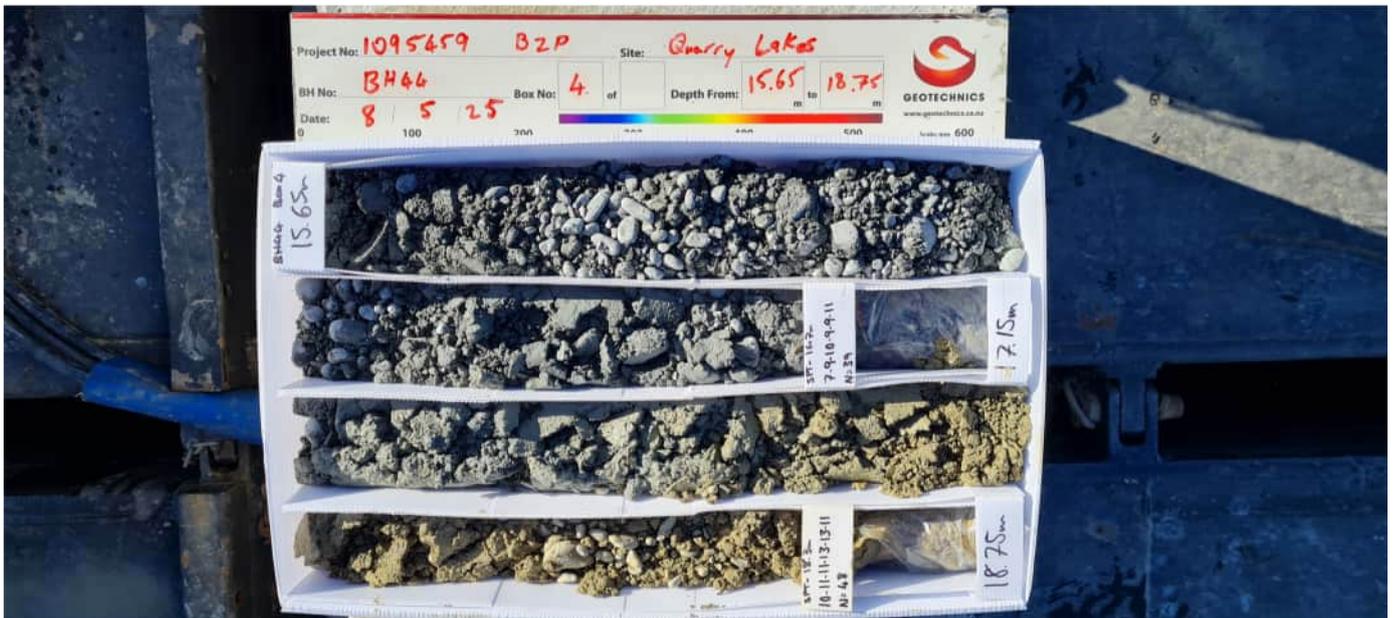
CORE PHOTOS

BOREHOLE No.: **BH_44**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200049.64 mN 1573150.71 mE	DRILL TYPE: XL170	HOLE STARTED: 07/05/2025 HOLE FINISHED: 08/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



12.65-15.65m



15.65-18.75m

CORE PHOTOS

BOREHOLE No.: **BH_44**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200049.64 mN 1573150.71 mE	DRILL TYPE: XL170	HOLE STARTED: 07/05/2025 HOLE FINISHED: 08/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



18.75-21.75m



21.75-24.40m

CORE PHOTOS

BOREHOLE No.: **BH_44**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200049.64 mN 1573150.71 mE	DRILL TYPE: XL170	HOLE STARTED: 07/05/2025 HOLE FINISHED: 08/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



24.40-26.35m



BOREHOLE LOG

BOREHOLE No.:

BH_45

SHEET: 2 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 06/05/2025

FINISH DATE: 07/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200099.45 mN
 (NZTM2000) 1573192.33 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering		Rock Strength		Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation	USP	IS	USP	IS						Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	5.00m: 0.00 - 5.2m: Water/Empty drill casing.						OB	0											
	5.20m: NO RECOVERY.																		
	5.30m: Fine to medium SAND; grey. Saturated.																		
	5.40m: Fine to coarse SAND, minor silt and minor gravel; grey. Wet, uniformly graded. Sand, predominantly fine; gravel, fine.						SNC	56											
	6.10m: Medium dense.						SPT	100	2/2// 3/5/5/5 N=18										
	6.90m: Trace gravel.						SNC	100											
	7.20m: Sandy fine to medium GRAVEL; dark grey. Saturated. Gravel, rounded; sand, fine to coarse.																		
	7.30m: Fine to medium SAND, minor gravel; grey. Wet. Gravel, fine to medium.						SPT	100	3/4// 6/10/14/14 N=44										
	7.60m: Dense.																		
	8.05m: Fine to medium SAND, some gravel, minor silt; dark grey. Wet. Gravel, fine to medium, rounded to sub-angular.						SNC	100											
	8.70m: Fine to medium SAND, trace gravel; grey. Wet. Gravel, fine, rounded.																		
8.90m: Sandy fine to medium GRAVEL, trace cobbles; grey. Wet. Gravel, rounded; sand, fine to coarse.																			
9.10m: Very dense. No recovery within SPT.						SPT	0	6/8// 13/16/15/6 for 20mm N=50											
9.55m: Fine to medium GRAVEL, minor sand; greyish orange. Wet. Gravel, rounded; sand, fine to coarse.						SNC	100												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.21m

Scale 1:25

Box: 5.20-8.95m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_45

SHEET: 3 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 06/05/2025

FINISH DATE: 07/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200099.45 mN
 (NZTM2000) 1573192.33 mE

R.L. GROUND: 1.90m

R.L. COLLAR:

DIRECTION: 0°

ANGLE FROM HORIZ.: -90°

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	[CONT] 9.55m: Fine to medium GRAVEL, minor sand; greyish orange. Wet. Gravel, rounded; sand, fine to coarse.																	
	10.20 - 10.50m Trace sand.				SNC	100												
	10.60m: Dense.				SPT	100	4.6// 8/10/9/7 N=34											
	11.20m: Fine to coarse SAND, some gravel; brown. Wet. Gravel, fine to medium.																	
	11.50m: Fine to medium SAND, trace gravel; light brown. Wet. Gravel, fine, rounded.				SNC	100												
Springston Formation	11.60m: Sandy fine to medium GRAVEL, minor silt; light brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.																	
	12.20m: Very dense.				SPT	100	2/13// 18/21/11 for 35 mm N=50											
	12.50m: Sandy fine to medium GRAVEL; light brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.																	
	13.30m: Fine GRAVEL, minor sand; grey. Wet. Gravel, rounded to sub-rounded; sand, coarse.				SNC	100												
	13.40m: Gravelly fine to medium SAND, minor silt; grey. Wet. Gravel, fine to medium, sub-rounded to sub-angular.																	
	13.70m: Very dense.				SPT	100	6.5// 13/25/12 for 30 mm N=50											
	14.30 - 14.40m Grades to sandy GRAVEL, trace silt.																	
	14.40m: Fine to medium GRAVEL, some sand; grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	74												
	14.60m: Fine to medium GRAVEL, trace sand; grey. Wet. Gravel, rounded to sub-rounded.																	
	14.90m: Core loss.																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.21m

Scale 1:25

Box 8.35-11.45m

Box 11.45-14.43m

TTNZ_20240902 - GeneralLog - 25/08/2025 5:33:52 pm - Produced with Core-GS by GeRoc

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_45

SHEET: 4 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 06/05/2025

FINISH DATE: 07/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200099.45 mN
 (NZTM2000) 1573192.33 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Springston Formation	[CONT] 14.90m: Core loss.				SNC	74													
	15.20m: Fine to medium GRAVEL, minor sand; grey. Medium dense, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SPT	67	2/1// 2/3/4/6 N=15		15.5										
	15.50m: No recovery within SPT.																		
	15.65m: [Cont] fine to medium GRAVEL, minor sand; grey. Medium dense, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.																		
	16.00m: Fine to medium GRAVEL, some sand; grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100			16.0										
	16.70m: Very dense.																		
	17.10m: Fine to coarse SAND; light brown. Wet.				SPT	100	3/4// 11/16/17/6 for 35mm N>=50		17.0										
Burnham Formation	17.30m: Fine to medium GRAVEL, trace sand; grey. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.																		
	17.70m: Sandy fine to medium GRAVEL, trace silt; orange brown. Wet. Gravel, sub-rounded to angular; sand, fine to coarse.				SNC	100			18.0										
	18.30m: Dense.																		
	18.50m: No recovery within SPT.				SPT	44	5/7// 8/9/9/7 N=33		18.5										
	18.75m: SILT, minor gravel, trace clay and trace sand; brownish orange. Soft to firm, wet, low plasticity. Gravel, fine, sub-rounded to sub-angular; sand, fine.																		
18.90m: Sandy fine to medium GRAVEL, some silt; orange brown. Wet. Gravel, rounded to angular; sand, fine to coarse.				SNC	100			19.0											
19.80m: Dense.				SPT	100	5/11// 11/8/7/8 N=34		19.5											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.21m
Scale 1:25

Box 14.43-17.70m



BOREHOLE LOG

BOREHOLE No.:

BH_45

SHEET: 5 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 06/05/2025

FINISH DATE: 07/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200099.45 mN
 (NZTM2000) 1573192.33 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 18.90m: Sandy fine to medium GRAVEL, some silt; orange brown. Wet. Gravel, rounded to angular; sand, fine to coarse.				SPT	100												
	20.40m: Fine to medium GRAVEL, minor sand, trace silt; orange brown. Wet. Gravel, sub-rounded to sub-angular.				SNC	100												
	21.30m: Sandy fine to medium GRAVEL, some silt; orange brown. Very dense, wet. Gravel, sub-rounded to angular; sand, fine to coarse.				SPT	100	12/13// 15/16/19 for 75 mm N>=50											
	22.00m: SILT, minor sand; orange brown. Firm, moist, non-plastic. Sand, fine.																	
	22.20m: Sandy fine to medium GRAVEL, some silt; orange brown. Wet. Gravel, sub-rounded to angular; sand, fine to coarse.				SNC	100												
	22.50m: Fine to medium GRAVEL, minor sand, trace silt; orange brown. Wet. Gravel, sub-rounded to sub-angular. 22.80m: Very dense.				SPT	100	15/16// 18/20/12 for 50 mm N>=50											
Bromley Formation	23.20m: Organic SILT; black and grey. Stiff to very stiff, moist, non-plastic.																	
	23.30m: PEAT (AMORPHOUS); brown. Stiff, moist.																	
	23.35m: Organic SILT; black and grey. Stiff to very stiff, moist, non-plastic.																	
	23.70m: SILT, minor sand, trace organics; grey. Stiff to very stiff, moist, low plasticity. Sand, fine.				SNC	100												
24.10m: Silty fine SAND, trace gravel; grey. Moist. Gravel, fine to medium. 24.25 - 24.40m: Minor organics; brown and grey. 24.40m: Orange brown. Very dense.				SPT	100	4/10// 14/12/16/8 for 35mm N>=50												
24.80m: Sandy fine to medium GRAVEL, some silt; grey. Wet. Gravel, rounded to angular; sand, fine to coarse.				SNC	100													

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.21m

Scale 1:25

Box 17.70-20.85m

Box 20.85-23.75m



BOREHOLE LOG

BOREHOLE No.:

BH_45

SHEET: 6 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 06/05/2025

FINISH DATE: 07/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200099.45 mN
 (NZTM2000) 1573192.33 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Bromley Formation	[CONT] 24.80m: Sandy fine to medium GRAVEL, some silt, grey. Wet. Gravel, rounded to angular; sand, fine to coarse.					SNC 100		25.5	25.5									
	25.90m: Very dense.					SPT 100	13/16// 22/23/5 for 10 mm N ₅₀	26.0	26.0									
	26.21m: EOBH. Target depth							26.5	26.5									
								27.0	27.0									
								27.5	27.5									
								28.0	28.0									
								28.5	28.5									
								29.0	29.0									
								29.5	29.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.21m

Scale 1:25

Rev.: A

CORE PHOTOS

BOREHOLE No.: **BH_45**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200099.45 mN 1573192.33 mE	DRILL TYPE: XL170	HOLE STARTED: 06/05/2025 HOLE FINISHED: 07/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



5.20-8.35m



8.35-11.45m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: 5200099.45 mN (NZTM2000) 1573192.33 mE	DRILL TYPE: XL170	HOLE STARTED: 06/05/2025 HOLE FINISHED: 07/05/2025	
R.L.: 1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt	
DATUM: NZVD2016		LOGGED BY: ALSP	CHECKED: DAA



11.45-14.43m



14.43-17.70m

CORE PHOTOS

BOREHOLE No.: **BH_45**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200099.45 mN 1573192.33 mE	DRILL TYPE: XL170	HOLE STARTED: 06/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	HOLE FINISHED: 07/05/2025
DATUM:	NZVD2016		DRILLED BY: Prodrill/Parfitt
			LOGGED BY: ALSP CHECKED: DAA



17.70-20.85m



20.85-23.75m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200099.45 mN 1573192.33 mE	DRILL TYPE: XL170	HOLE STARTED: 06/05/2025 HOLE FINISHED: 07/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



23.75-26.21m



BOREHOLE LOG

BOREHOLE No.:
BH_46

SHEET: 1 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 13/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200233.72 mN
(NZTM2000) 1573391.98 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
	<p>0.00m: Investigation within a water-filled quarry.</p> <p>0.00m = Barge deck level at time of drilling.</p> <p>Borehole drilled over water from the deck of a barge. Measurements of stratigraphic depth below 0.00m are relative to the barge deck surface which was used as the Measuring Point during drilling.</p> <p>The R.L. of the barge deck (1.90m NZVD2016) at the time of drilling was determined using RTK GPS, and cross checked using similar measurements made for B2P BH's 42, 43, 44 and 45, 2025 B2P LiDAR data, and barge and pond surface level field measurements.</p> <p>0.00 - 4.10m: WaterEmpty drill casing..</p>																	
	<p>4.10m: CORE LOSS - Suspect washed out.</p>																	
	<p>4.50m: No recovery in SPT.</p>																	
	<p>4.85m: Fine to coarse SAND, minor gravel, trace silt; grey.</p>																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
27.71m

Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_46

SHEET: 2 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 13/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200233.72 mN
(NZTM2000) 1573391.98 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Christchurch Formation	Loose, wet, uniformly graded. Sand, predominantly fine, gravel, fine to medium, rounded.				SNC	100	1 @ 5.00m BH046_5.0: PSD Percent passing 63um sieve: 3%		5.5									
	5.85 - 5.95m Fine GRAVEL, some sand.				SPT	100	2/2// 44/7/7 N=22		6.0									
	6.05 - 6.15m Gravelly with fine, sub rounded gravels. 6.10m: Medium dense.				SNC	100			6.5									
	7.00 - 7.50m Gravelly with fine, sub rounded gravels.				SNC	100			7.0									
	7.60m: NO RECOVERY - Solid cone used. 7.60m: Dense.				SPTC	100	3/3// 7/7/9/9 N=32 Solid Cone		8.0									
	9.10m: NO RECOVERY - Solid cone used.				SPTC	100	2/3// 5/8/9/11 N=33 Solid Cone		9.5									
	9.70m: Fine to medium SAND, some gravel; light grey. Wet. Gravel, fine, sub-rounded to sub-angular.				SNC	100												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
27.71m

Scale 1:25



BOREHOLE LOG

BOREHOLE No.:

BH_46

SHEET: 3 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 13/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200233.72 mN
 (NZTM2000) 1573391.98 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	10.00m: Gravelly fine to medium SAND; light grey . Medium dense, wet. Gravel, fine, sub-rounded to sub-angular.				SNC	100		10.5									
	10.60m: Dense.																
Springston Formation	10.70m: Sandy fine GRAVEL; grey. Dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100		11.0									
	11.30m: Fine to medium GRAVEL, minor sand; grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100		11.5									
	12.10 - 12.30m Sandy. 12.20m: Dense.				SPT	100		12.5									
	13.00m: Fine to coarse GRAVEL, trace sand; grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100		13.0									
	13.60m: Fine to medium SAND, minor gravel; grey. Wet. Gravel, fine, rounded. 13.70m: Medium dense.				SPT	100		14.0									
14.20m: Sandy fine to coarse GRAVEL, minor silt, trace cobbles; grey. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SNC	100		14.5										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
27.71m

Scale 1:25

Box 8.05-11.05m

Box 11.05-14.15m



BOREHOLE LOG

BOREHOLE No.:

BH_46

SHEET: 4 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 13/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200233.72 mN
 (NZTM2000) 1573391.98 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	[CONT] 14.20m: Sandy fine to coarse GRAVEL, minor silt, trace cobbles; grey. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse. 15.20m: Dense.		[Weathering symbols]	[Strength symbols]	SNC	100	5/7// 9/9/9/10 N=37	-14	15.5	[Graphic Log]	[Defect Log]	[Fracture Spacing]	[RQD]		[Water Level / Fluid Loss]	[Casing]	[Installation]	[Core Box No]
	15.80m: Sandy fine GRAVEL; dark grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100			16.0									
	16.70m: Very dense.				SNC	100	7/11// 15/17/15/3 for 10mm N=50		16.5									
	18.40m: Fine to coarse SAND, minor gravel; light brown. Dense, wet. Gravel, fine, rounded.				SPT	100	4/8// 10/11/12/14 N=47		18.5									
	18.80m: Fine to coarse SAND; light brown. Wet.				SPT	100			19.0									
	19.10m: Fine to medium GRAVEL, trace sand; dark grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100			19.5									
Burnham Formation	19.40m: Sandy fine GRAVEL, minor silt; light brown. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse. 19.80m: Very dense.		[Weathering symbols]	[Strength symbols]	SPT	100	9/17// 17/12/10/11 N=50	-18	19.5	[Graphic Log]	[Defect Log]	[Fracture Spacing]	[RQD]	[Water Level / Fluid Loss]	[Casing]	[Installation]	[Core Box No]	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
27.71m

Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_46

SHEET: 5 OF 6

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 13/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: Prodrill/Parfitt

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds OVERWATER

CO-ORDINATES: 5200233.72 mN
(NZTM2000) 1573391.98 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.90m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Burnham Formation	[CONT] 19.40m: Sandy fine GRAVEL, minor silt; light brown. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SPT	100													
	20.80m: SILT; brown. Soft, moist, low plasticity.				SNC	100													
	20.90m: [Cont] sandy fine GRAVEL, minor silt; light brown. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.																		
	21.20m: SILT, some sand, trace gravel; orange brown. Stiff, wet, non-plastic. Sand, fine; gravel, fine to medium.																		
	21.40m: Sandy fine GRAVEL, minor silt; light brown. Very dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100		6.6// 10/18/18/4 for 10mm N>=50											
	22.60m: Gravelly fine to medium SAND, minor silt; brown. Moist. Gravel, fine to coarse, sub-rounded to sub-angular. 22.80m: Very dense.				SPT	100		19/24// 27/23 for 65 mm N>=50											
	23.00m: Fine to coarse GRAVEL, minor sand, trace silt; grey. Very dense, wet. Gravel, rounded to sub-angular. 23.50 - 23.60m Some silt.																		
Bromley Formation	23.60m: Organic SILT; dark brown. Soft to firm, moist, non-plastic. Trace wood fragments.				SNC	100													
	23.80m: SILT, minor organics; light brownish grey. Firm, moist, low plasticity.																		
	24.30m: Organic SILT; dark brown. Soft to firm, moist, non-plastic. Trace rootlets. 24.40m: Push tube.				PT	100		PT @ 24.40m											
	24.90m: SILT, minor sand; light grey. Firm, moist, non-plastic,				S.	100													

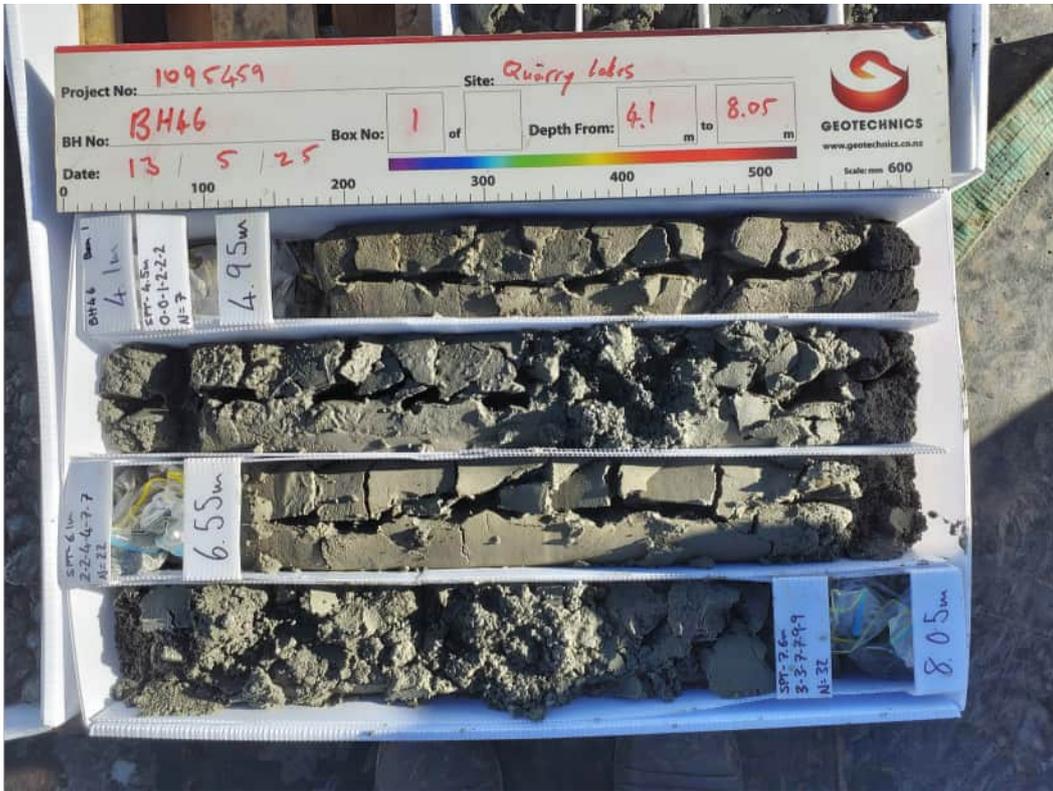
COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
27.71m

Scale 1:25

Rev.: A

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200233.72 mN 1573391.98 mE	DRILL TYPE: XL170	HOLE STARTED: 13/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	HOLE FINISHED: 13/05/2025
DATUM:	NZVD2016		DRILLED BY: Prodrill/Parfitt
			LOGGED BY: ALSP
			CHECKED: DAA



4.10-8.05m



8.05-11.05m

CORE PHOTOS

BOREHOLE No.: **BH_46**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200233.72 mN 1573391.98 mE	DRILL TYPE: XL170	HOLE STARTED: 13/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	HOLE FINISHED: 13/05/2025
DATUM:	NZVD2016		DRILLED BY: Prodrill/Parfitt
			LOGGED BY: ALSP CHECKED: DAA



11.05-14.15m



14.15-17.09m

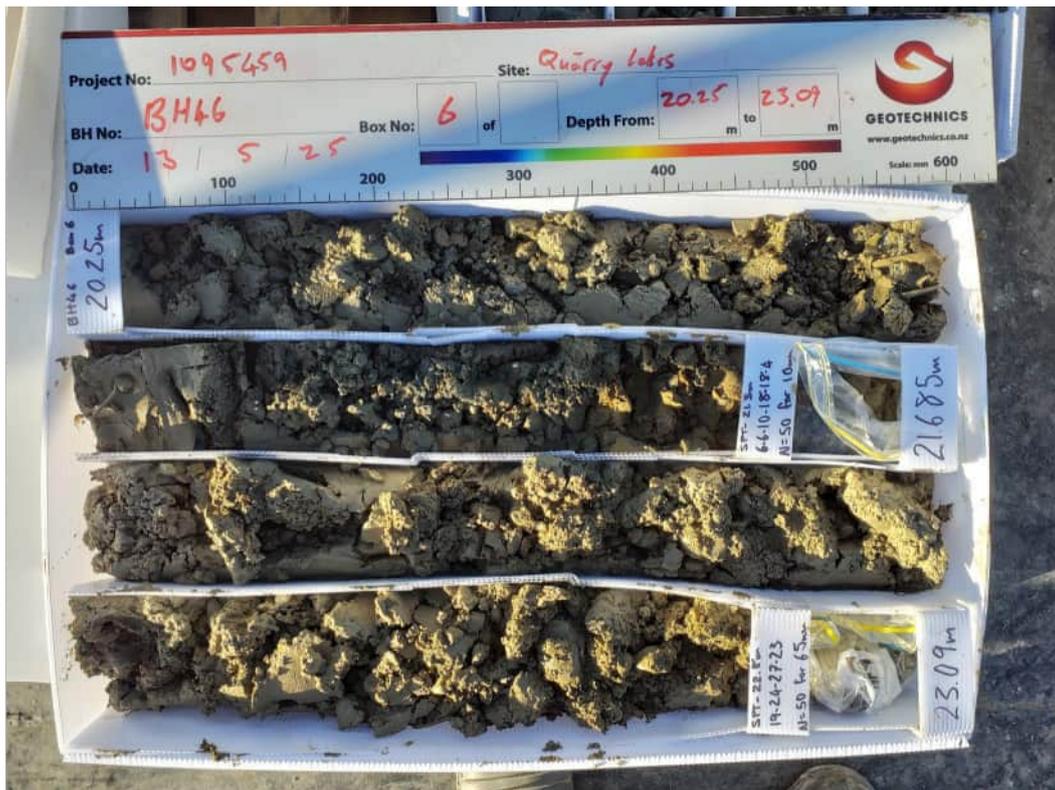
CORE PHOTOS

BOREHOLE No.: **BH_46**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200233.72 mN 1573391.98 mE	DRILL TYPE: XL170	HOLE STARTED: 13/05/2025 HOLE FINISHED: 13/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	DRILLED BY: Prodrill/Parfitt
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



17.09-20.25m



20.25-23.09m

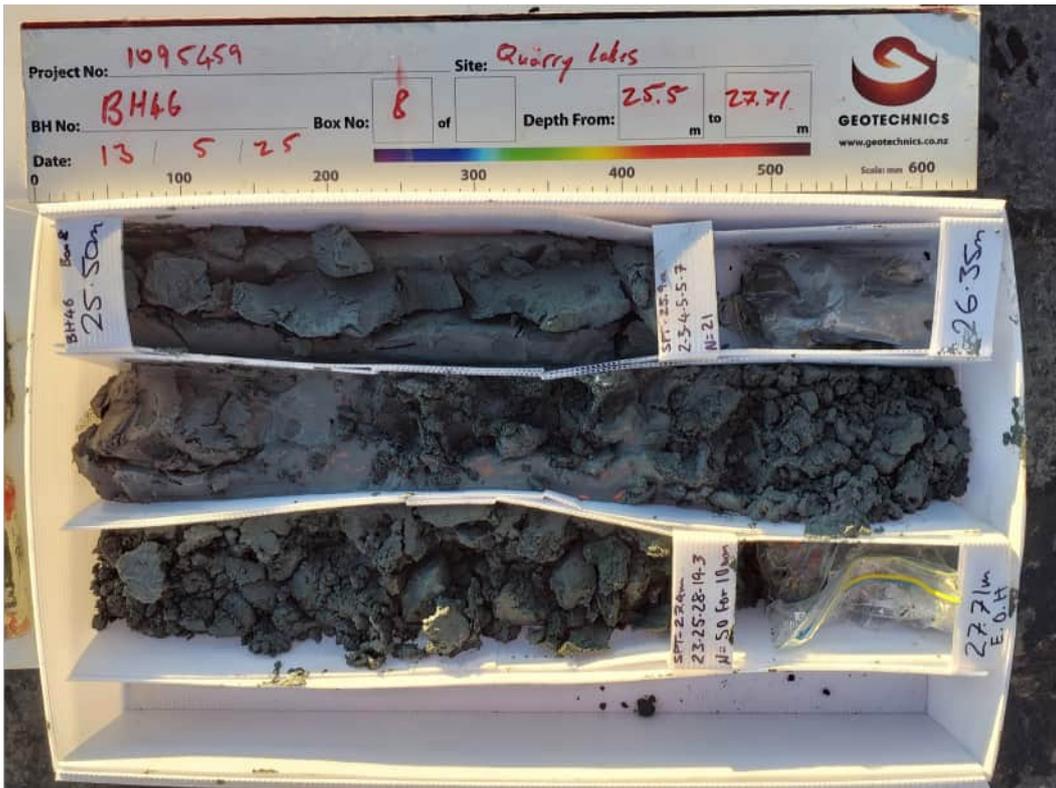
CORE PHOTOS

BOREHOLE No.: **BH_46**
 Hole Location: Quarry Ponds OVERWATER
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200233.72 mN 1573391.98 mE	DRILL TYPE: XL170	HOLE STARTED: 13/05/2025
R.L.:	1.90m	METHOD: Sonic core drilling	HOLE FINISHED: 13/05/2025
DATUM:	NZVD2016		DRILLED BY: Prodrill/Parfitt LOGGED BY: ALSP CHECKED: DAA



23.09-25.50m



25.50-27.71m



BOREHOLE LOG

BOREHOLE No.:
BH_47

SHEET: 1 OF 5

DRILLED BY: Matt

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 05/05/2025

FINISH DATE: 05/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds West

CO-ORDINATES: 5199965.21 mN
(NZTM2000) 1572894.06 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.41m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation										Defect Log	Fracture Spacing (mm)	RQD (%)						
T Soil	0.00m: Organic SILT, minor sand and minor gravel; dark brown. Soft, moist, non-plastic. Sand, fine; gravel, fine, sub-rounded. (TOPSOIL).																		
Fill	0.40m: Sandy fine to medium GRAVEL, some silt; dark brown. Moist. Gravel, rounded to angular, trace fine red brick fragments; sand, fine to coarse. (REWORKED/FILL).								0.5										
	0.50m: NO RECOVERY.																		
Christchurch Formation	1.00m: Fine to medium SAND; brown. Dry.								1.0										
	1.50m: Medium dense.								1.5										
	1.65m: Gravelly fine to coarse SAND, minor silt; light brown. Dry. Gravel, fine to medium, rounded to sub-angular.				SPT	100		2.0	2.0	2.0									
	2.40m: Medium to coarse SAND, minor gravel; brown. Dry. Gravel, fine to medium, sub-rounded to sub-angular.				SNC	100		2.5	2.5	2.5									
	2.80m: Gravelly fine to medium SAND; brown. Dry. Gravel, fine to medium, sub-rounded to sub-angular.							3.0	3.0	3.0									
	3.00m: Medium to coarse SAND, minor gravel; brown. Medium dense, dry. Gravel, fine to medium, sub-rounded to sub-angular.				SPT	44		3.0	3.0	3.0									
	3.45m: Gravelly fine to medium SAND, some silt; greyish brown. Wet. Gravel, fine to medium, sub-rounded to sub-angular.							3.5	3.5	3.5									
	4.00m: Fine to medium GRAVEL, minor sand; greyish brown. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100		4.0	4.0	4.0									
	4.20m: Fine to coarse SAND, trace gravel; greyish brown. Wet. Gravel, fine, sub-rounded to sub-angular.							4.5	4.5	4.5									
	4.50m: Medium dense.							4.5	4.5	4.5									
4.60m: Gravelly fine to coarse SAND, minor silt; orangish brown. Medium dense, wet, well graded. Gravel, fine to medium, rounded to sub-rounded.				SPT	100		4.5	4.5	4.5										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_47

SHEET: 2 OF 5

DRILLED BY: Matt

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 05/05/2025

FINISH DATE: 05/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds West

CO-ORDINATES: 5199965.21 mN
 (NZTM2000) 1572894.06 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.41m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	4.95m	Fine GRAVEL, minor sand; grey. Wet. Gravel, sub-rounded to sub-angular; sand, coarse.			SNC	100		5.41	5.5									
	5.40m	Fine to coarse SAND, some gravel; greyish brown. Wet. Gravel, fine to medium, sub-rounded to sub-angular.			SNC	100		5.5	6.0									
	6.00m	Silty fine to coarse SAND, minor gravel; grey. Wet. Gravel, fine to medium.			SPT	44	2/7// 8/11/9/11 N=39	6.0	6.5									
	6.10m	Gravelly medium to coarse SAND; brownish grey. Dense, saturated. Gravel, fine to coarse.			SNC	100		6.5	7.0									
	7.50m	Sandy fine to coarse GRAVEL; brownish grey. Medium dense to dense, saturated. Gravel, sub-rounded to sub-angular; sand, fine to coarse.			SPT	22	3/6// 7/6/8/9 N=30	7.5	8.0									
	7.60m	Medium dense.			SNC	100		8.0	8.5									
	8.05m	Fine to coarse SAND, trace gravel; greyish brown. Wet. Gravel, fine to medium, rounded to sub-rounded.			SNC	100		8.5	9.0									
	9.00m	Gravelly fine to coarse SAND, minor silt; greyish brown. Medium dense, wet. Gravel, fine to medium, rounded to sub-rounded.			SPT	44	3 @ 9.00m BH047.0: 0.1% PSD Percent passing 63 um sieve: 6%	9.0	9.5				9.00 - 9.50m BH047.0: PSD Percent passing 63 um sieve: 6%					
	9.60m	Fine to medium SAND, trace silt; light grey. Wet.			SNC	100	2/4// 6/7/19/7 N=29	9.5										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

Rev.: A

TTNZ_20240902 - GeneralLog - 26/08/2025 3:44:51 pm - Produced with Core-GS by GeRoc



BOREHOLE LOG

BOREHOLE No.:

BH_47

SHEET: 3 OF 5

DRILLED BY: Matt

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 05/05/2025

FINISH DATE: 05/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds West

CO-ORDINATES: 5199965.21 mN
 (NZTM2000) 1572894.06 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.41m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Christchurch Formation	[CONT] 9.60m: Fine to medium SAND, trace silt; light grey. Wet.				SNC	100		-5.0	10.5										
	10.60m: Very dense.				SPT	100	5/10// 15/25/10 for 40 N=50	-6.0	11.0										
	12.60m: Medium to coarse SAND, trace gravel; dark grey. Wet. Gravel, fine to medium, sub-rounded. Shell fragments.				SNC	100		-7.0	11.5										
	12.70m: Organic SILT, trace sand; brown. Soft to firm, moist, medium plasticity, insensitive.				SPT	100	3A// 15/25/10 for 40 N=50	-8.0	12.0										
Burnham Formation	12.80m: SILT, minor sand, trace clay and trace gravel; greenish grey. Stiff, moist, low to medium plasticity. Sand, fine; gravel, fine to medium, sub-rounded to sub-angular.				SNC	100		-8.5	12.5										
	13.60m: Fine to medium SAND, minor silt, trace gravel; grey. Moist.				SPT	44	7B// 8/10/12/12 N=42	-9.0	13.0										
	13.70m: Sandy fine to coarse GRAVEL, trace silt; grey. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, medium to coarse.				SNC	100		-9.5	13.5										
	14.70m: Fine to coarse GRAVEL, trace sand; grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100		-10.0	14.0										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

Box 9.55-12.55m

TTNZ_20240902 - GeneralLog - 26/08/2025 3:44:51 pm - Produced with Core-GS by GeRoc

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_47

SHEET: 4 OF 5

DRILLED BY: Matt

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 05/05/2025

FINISH DATE: 05/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds West

CO-ORDINATES: 5199965.21 mN
 (NZTM2000) 1572894.06 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.41m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	15.10m: Sandy fine to coarse GRAVEL, trace silt; grey. Dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100	5.5// 6/12/10/11 N=39	-10	15.5									
	15.20m: Dense.				SPT	44												
	16.50m: Fine to coarse GRAVEL, minor cobbles, trace sand; grey. Wet. Gravel, sub-rounded to sub-angular; cobbles, sub-rounded to sub-angular.				SNC	100	14/22// 25/25 for 70 mm N=50	-11	17.0									
	18.30m: Dense.				SNC	10		-12	17.5									
	18.75m: Silty fine to coarse GRAVEL, some sand; brown. Moist. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	22	8/12// 10/8/10/11 N=39	-13	18.5									
	19.05m: CORE LOSS.				SNC	29		-14	19.5									
	19.80m: Fine to medium SAND, minor gravel, trace silt; light grey brown. Medium dense, saturated. Gravel, fine, rounded.				SPT	44	7.5// 5/3/33 N=14											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m
Scale 1:25

Box 12.54-15.65m

Box 15.65-18.30m



BOREHOLE LOG

BOREHOLE No.:
BH_47

SHEET: 5 OF 5

DRILLED BY: Matt
LOGGED BY: ALSP

CHECKED: DAA
START DATE: 05/05/2025
FINISH DATE: 05/05/2025
CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds West

CO-ORDINATES: 5199965.21 mN
(NZTM2000) 1572894.06 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.41m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation										Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	20.25m: EOBH. Target depth		UW SW HW CW MW	UW SW HW CW MW	SPT	44		-15	20.5	X	2000 2000 2000 2000 2000			25 50 75			Box 18 30-20.25m	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

CORE PHOTOS

BOREHOLE No.: **BH_47**
 Hole Location: Quarry Ponds West
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199965.21 mN 1572894.06 mE	DRILL TYPE: XL170	HOLE STARTED: 05/05/2025 HOLE FINISHED: 05/05/2025
R.L.:	5.41m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



0.00-3.45m



3.45-6.55m

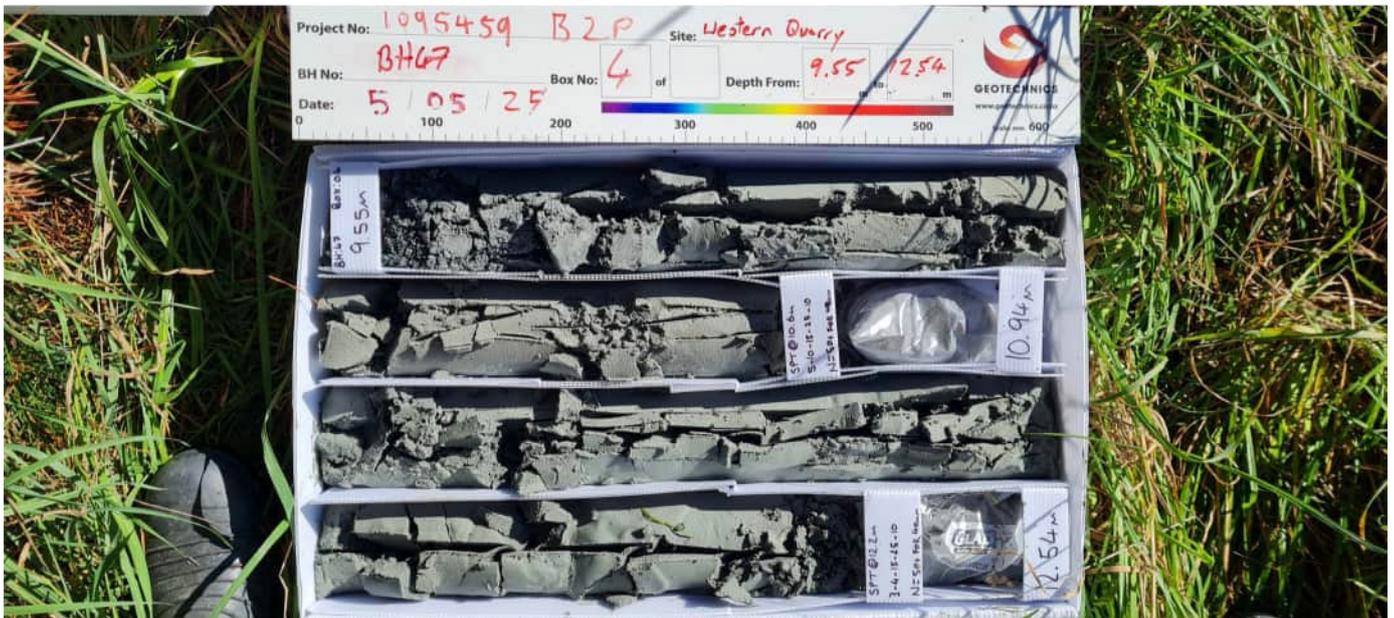
CORE PHOTOS

BOREHOLE No.: **BH_47**
 Hole Location: Quarry Ponds West
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199965.21 mN 1572894.06 mE	DRILL TYPE: XL170	HOLE STARTED: 05/05/2025 HOLE FINISHED: 05/05/2025
R.L.:	5.41m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



6.55-9.55m



9.55-12.54m

CORE PHOTOS

BOREHOLE No.: **BH_47**
 Hole Location: Quarry Ponds West
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199965.21 mN 1572894.06 mE	DRILL TYPE: XL170	HOLE STARTED: 05/05/2025 HOLE FINISHED: 05/05/2025
R.L.:	5.41m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



12.54-15.65m



15.65-18.30m

CORE PHOTOS

BOREHOLE No.: **BH_47**
 Hole Location: Quarry Ponds West
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199965.21 mN 1572894.06 mE	DRILL TYPE: XL170	HOLE STARTED: 05/05/2025
R.L.:	5.41m	METHOD: Sonic core drilling	HOLE FINISHED: 05/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



18.30-20.25m



BOREHOLE LOG

BOREHOLE No.:
BH_48

SHEET: 1 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: CMS

START DATE: 03/06/2025

FINISH DATE: 03/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Kaiapoi Bridge

CO-ORDINATES: 5197073.90 mN
(NZTM2000) 1571296.68 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.43m
R.L. COLLAR: 2.43m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Fracture Spacing (mm)	RQD (%)	25 50 75						
TSoil	0.00m: Sandy SILT, some rootlets; brown. Moist, non-plastic. Sand, fine. (TOPSOIL).		[Symbol]	[Symbol]	SNC	100		2.43	0.00	[Symbol]	[Symbol]	[Symbol]							
	0.30m: Sandy SILT, some gravel; brown. Moist, non-plastic. Sand, fine; gravel, medium to coarse, sub-angular to angular.																		
Fill	0.50m: Gravelly fine to coarse SAND; light brown. Dry, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.		[Symbol]	[Symbol]	SNC	100		1.50	0.30	[Symbol]	[Symbol]	[Symbol]	0.50 - 1.50m: BH048_07: PSD Percent passing 63 um sieve: 17%						
	1.20m: Gravelly SILT; dark brown. (BURIED TOPSOIL).																		
Top	1.40m: Gravelly fine to coarse SAND; light brown. Moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular. 1.50 - 1.60m: Loose. Change to moist.		[Symbol]	[Symbol]	SPT	100	01// 12/1/1 N=5	1.40	1.20	[Symbol]	[Symbol]	[Symbol]	1.50 - 2.00m: BH048_07: PSD Percent passing 63 um sieve: 61%; AL: LL NS, PL NP, PI NO						
	1.60m: Sandy SILT, minor gravel; brown. Very soft to soft, moist, non-plastic, dilatant. Sand, fine; gravel, fine to coarse, rounded to sub-angular.																		
	2.30m: Silty fine SAND; brownish grey. Saturated.																		
	2.50 - 2.70m: Trace silt.																		
Springston Formation	2.70m: Fine to coarse GRAVEL, minor sand; brownish grey. Moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.		[Symbol]	[Symbol]	SPT	100	25// 76/6/5 N=24	2.70	2.30	[Symbol]	[Symbol]	[Symbol]							
	3.00 - 5.00m: Medium dense.																		
			[Symbol]	[Symbol]	SNC	100		3.50	2.70	[Symbol]	[Symbol]	[Symbol]							
			[Symbol]	[Symbol]	SPT	100	35// 45/4/5 N=18	4.50	3.50	[Symbol]	[Symbol]	[Symbol]							

COMMENTS: SPT hammer efficiency = 77.3%. 50mm diameter standpipe piezometer installed with screen 3 - 6m bgl. Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LIDAR.

Hole Depth
20.16m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_48

SHEET: 2 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: CMS

START DATE: 03/06/2025

FINISH DATE: 03/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Kaiapoi Bridge

CO-ORDINATES: 5197073.90 mN
(NZTM2000) 1571296.68 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.43m
R.L. COLLAR: 2.43m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Springston Formation	5.00m: Fine to coarse GRAVEL, minor sand; brownish grey. Medium dense, moist, well graded. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC 100											
	7.40m: Fine to coarse GRAVEL, some silt, minor sand; grey. Medium dense, wet. Gravel, sub-rounded to sub-angular; sand, fine.				SPT 100	3/2// 24/3/4 N=13										
	8.10m: Silty fine to coarse GRAVEL, trace sand; grey. Wet. Gravel, rounded to sub-angular.				SPT 100	3/2// 33/4/3 N=13										
	8.35m: SILT, trace clay and trace gravel; grey. Wet, low plasticity, dilatant. Gravel, fine to medium, rounded to sub-angular.				SNC 100											
	8.50m: PEAT (FIBROUS AND AMORPHOUS); dark brown. Moist, non-plastic. Organics, roots greater than 2mm diameter and root fibres less than 2mm diameter and twigs (decomposed).				SNC 100											
	8.80m: SILT, minor sand, trace clay and trace gravel; grey. Soft, wet, low plasticity, dilatant. Gravel, fine to medium, rounded to sub-angular.				SPT 100	5/10// 8/10/10/8 N=36										
	9.05m: Sandy fine to coarse GRAVEL, some silt; grey. Dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT 100											
9.50m: Fine to coarse GRAVEL, some sand; dark grey. Dense, wet. Gravel, sub-rounded to sub-angular; sand, medium to coarse.				SNC 100												
7.60 - 8.10m: BH048_61 : PSD Percent passing 63 um sieve: 6%																

COMMENTS: SPT hammer efficiency = 77.3%. 50mm diameter standpipe piezometer installed with screen 3 - 6m bgl. Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LIDAR.

Hole Depth
20.16m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_48

SHEET: 3 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: CMS

START DATE: 03/06/2025

FINISH DATE: 03/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Kaiapoi Bridge

CO-ORDINATES: 5197073.90 mN
(NZTM2000) 1571296.68 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.43m
R.L. COLLAR: 2.43m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	[CONT] 9.50m: Fine to coarse GRAVEL, some sand; dark grey. Dense, wet. Gravel, sub-rounded to sub-angular; sand, medium to coarse.				SNC	100											
	10.60 - 10.80m: Very dense.																
	10.80m: Gravelly fine to coarse SAND; dark grey. Very dense, wet. Gravel, fine to medium.				SPT	100	5/10// 10/11/14/15 N>=50										
	11.50m: Sandy fine to coarse GRAVEL; dark grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100											
	12.20 - 12.40m: Very dense.																
	12.40m: Fine to coarse SAND, minor gravel; dark grey. Very dense, wet. Gravel, fine to medium.				SPT	100	2.5// 11/14/15/10 for 65mm N>=50										
	12.70m: Fine to coarse GRAVEL, some sand; dark grey. Wet. Gravel, rounded to sub-angular; sand, medium to coarse.				SNC	100											
	13.20 - 14.10m: Sandy.																
13.70 - 14.80m: Very dense.																	
14.60m: Colour change to greyish brown.																	
14.80m: Fine to coarse GRAVEL, some sand, trace silt; yellowish brown. Wet. Gravel, sub-rounded to sub-angular;				SPT	100	4/10// 20/25/5 for 5 mm N>=50											

COMMENTS: SPT hammer efficiency = 77.3%. 50mm diameter standpipe piezometer installed with screen 3 - 6m bgl. Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LIDAR.

Hole Depth
20.16m

Scale 1:25

Box 9.95-12.64m



BOREHOLE LOG

BOREHOLE No.:
BH_48

SHEET: 4 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: CMS

START DATE: 03/06/2025

FINISH DATE: 03/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Kaiapoi Bridge

CO-ORDINATES: 5197073.90 mN
(NZTM2000) 1571296.68 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.43m
R.L. COLLAR: 2.43m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					25	50	75
Springston Formation	sand, medium to coarse.		[Weathering symbols]	[Strength symbols]	SNC	100	5/12// 17/13/15.6 for 15mm N=50	-13	15.20 - 15.40m	[Graphic log symbols]	[Defect log symbols]	[Fracture spacing symbols]	[RQD symbols]	[Water/Fluid loss symbols]	[Casing symbols]	[Installation symbols]	[Core box symbols]
	15.20 - 15.40m: Very dense.																
	15.40m: Fine to coarse GRAVEL; yellowish brown. Very dense, wet. Gravel, sub-rounded to sub-angular.																
	15.80m: SILT, minor sand and minor gravel; yellowish brown. Moist, non-plastic, dilatant. Sand, fine.																
	16.00m: Sandy fine to coarse GRAVEL, trace silt; light yellowish brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.																
	16.70 - 18.30m: Dense.																
	16.70 - 18.30m: Dense.																
	18.30 - 19.60m: Very dense.																
	18.30 - 19.60m: Very dense.																
	19.60m: Fine to coarse GRAVEL; light yellowish brown. Wet. Gravel, sub-rounded to sub-angular.																
19.80m: Sandy fine to coarse GRAVEL, trace silt; light yellowish brown. Very dense, wet. Gravel, sub-rounded to sub-																	

COMMENTS: SPT hammer efficiency = 77.3%. 50mm diameter standpipe piezometer installed with screen 3 - 6m bgl. Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LIDAR.

Hole Depth
20.16m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_48

SHEET: 5 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: CMS

START DATE: 03/06/2025

FINISH DATE: 03/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Kaiapoi Bridge

CO-ORDINATES: 5197073.90 mN
 (NZTM2000) 1571296.68 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.43m
 R.L. COLLAR: 2.43m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation										Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	angular, sand, fine to coarse.				SPT	100												Box 18.30-20.16m
	20.16m: EOBH. Target depth																	

COMMENTS: SPT hammer efficiency = 77.3%. 50mm diameter standpipe piezometer installed with screen 3 - 6m bgl. Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LIDAR.

Hole Depth
20.16m

Scale 1:25

CORE PHOTOS

BOREHOLE No.: **BH_48**
 Hole Location: Kaiapoi Bridge
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5197073.90 mN 1571296.68 mE	DRILL TYPE: MD1000	HOLE STARTED: 03/06/2025
R.L.:	2.43m	METHOD: Sonic core drilling	HOLE FINISHED: 03/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: CMS



0.00-3.45m

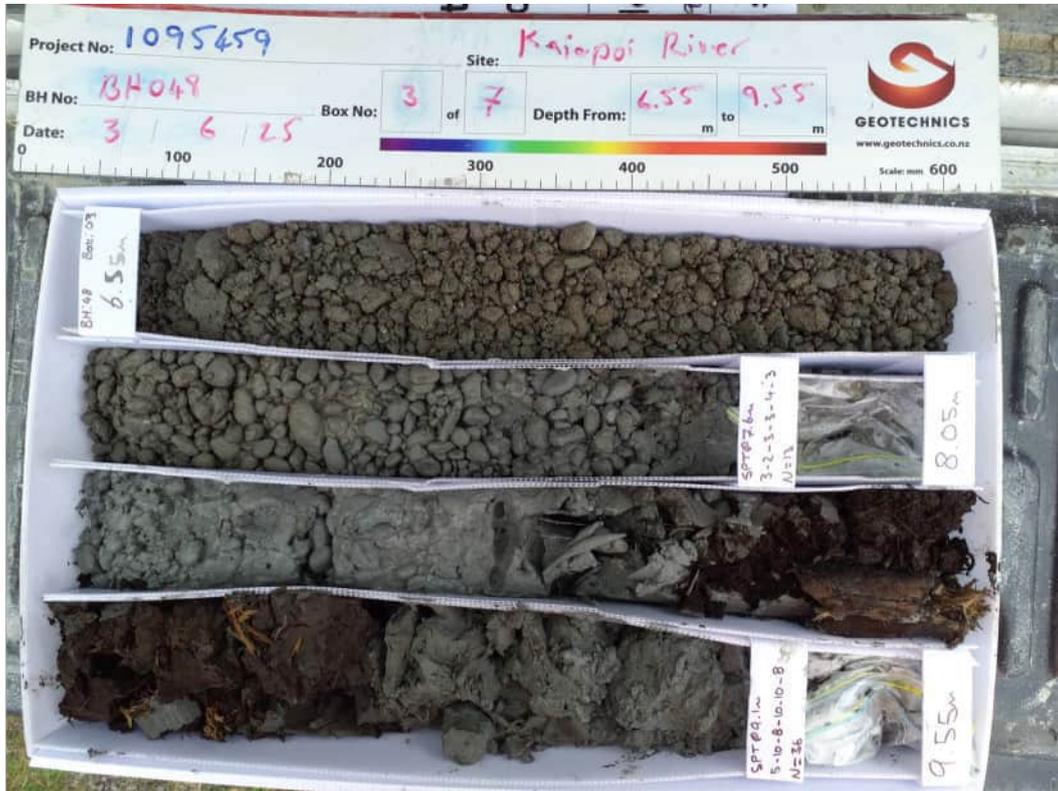


3.45-6.55m

CORE PHOTOS

BOREHOLE No.: **BH_48**
 Hole Location: Kaiapoi Bridge
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5197073.90 mN 1571296.68 mE	DRILL TYPE: MD1000	HOLE STARTED: 03/06/2025
R.L.:	2.43m	METHOD: Sonic core drilling	HOLE FINISHED: 03/06/2025
DATUM:	NZVD2016	LOGGED BY: ALSP	CHECKED: CMS



6.55-9.55m



9.55-12.64m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5197073.90 mN 1571296.68 mE	DRILL TYPE: MD1000	HOLE STARTED: 03/06/2025
R.L.:	2.43m	METHOD: Sonic core drilling	HOLE FINISHED: 03/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: CMS



12.64-15.20m



15.20-18.30m

CORE PHOTOS

BOREHOLE No.: **BH_48**
 Hole Location: Kaiapoi Bridge
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5197073.90 mN 1571296.68 mE	DRILL TYPE: MD1000	HOLE STARTED: 03/06/2025
R.L.:	2.43m	METHOD: Sonic core drilling	HOLE FINISHED: 03/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill LOGGED BY: ALSP CHECKED: CMS



18.30-20.16m



BOREHOLE LOG

BOREHOLE No.:

BH_51

SHEET: 1 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: CMS

START DATE: 29/05/2025

FINISH DATE: 29/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Kaiapoi Bridge

CO-ORDINATES: 5197302.85 mN
 (NZTM2000) 1571337.43 mE

R.L. GROUND: 4.06m
 R.L. COLLAR: 4.69m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering <small>SW W M C F S</small>	Rock Strength <small>CS S W F S</small>	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%) <small>25 50 75</small>	Casing	Installation	Core Box No
									Defect Log	Fracture Spacing (mm) <small>2000 200 50</small>	RQD (%) <small>20</small>					
Fill	0.00m: Sandy SILT, some rootlets and some gravel; dark brown. Moist, non-plastic. Sand, fine.						4									
	0.10m: Sandy GRAVEL; dark brown. Moist. Sand, fine to medium. Some brick - fill.															
	0.40m: Fine SAND, minor silt; dark brown. Moist.															
	0.50m: Fine to coarse GRAVEL, some silt and some sand; brown. Wet. Gravel, sub-rounded to angular; sand, fine to medium.															
	0.70m: Fine to coarse GRAVEL, some silt and some sand; brown. Wet. Gravel, sub-rounded to angular; sand, fine to medium. 0.60m: Concrete fragment.															
Springston Formation	1.50 - 1.95m: Medium dense.			SNC 100			1.5									
	1.95m: Medium to coarse GRAVEL; light grey. Dry, poorly graded. Gravel, rounded to angular.				SPT 33	2.2// 2.3/6/5 N=16	2.0									
	3.00m: Silty fine SAND, minor gravel; dark brown. Medium dense, wet. Gravel, fine to medium.				SNC 95		2.5									
	3.50m: Silty fine SAND; dark brown. Wet.				SPT 100	2.2// 3.2/3/6 N=14	3.0									
	3.80m: Silty fine SAND; dark brown. Wet.				SNC 100		3.5									
	3.80m: Sandy fine to coarse GRAVEL; light yellowish brown. Wet, well graded. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT 67	5.7// 8.8/8/8 N=32	4.0									
	4.50 - 5.00m: Dense.						4.5									

COMMENTS: SPT hammer correction = 77.3%. 50mm diameter standpipe piezometer installed with screen 5-8mm bgl. Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LIDAR.

Hole Depth
20.25m

Scale 1:25

Box 0.00-3.45m

Rev.: A

TTNZ_20240902 - GeneralLog - 21/08/2025 4:49:47 pm - Produced with Core-GS by GeRoc



BOREHOLE LOG

BOREHOLE No.:

BH_51

SHEET: 2 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: CMS

START DATE: 29/05/2025

FINISH DATE: 29/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Kaiapoi Bridge

CO-ORDINATES: 5197302.85 mN
 (NZTM2000) 1571337.43 mE

R.L. GROUND: 4.06m
 R.L. COLLAR: 4.69m

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Springston Formation	[CONT] 3.80m: Sandy fine to coarse GRAVEL; light yellowish brown. Wet, well graded. Gravel, rounded to sub-angular; sand, fine to coarse. 5.00m: Colour change to grey.		[Visual representation of weathering]	[Visual representation of strength]	SNC 100	[Visual representation of testing]	-1	5.5	[Visual representation of graphic log]	[Visual representation of defect log]	[Visual representation of fracture spacing]	[Visual representation of RQD]	[Visual representation of water level/fluid loss]	[Visual representation of casing]	[Visual representation of installation]	[Visual representation of core box]
	5.70 - 5.80m: Trace sand.															
	6.10 - 7.60m: Loose to medium dense.															
Christchurch Formation	7.60 - 9.10m: Medium dense.		[Visual representation of weathering]	[Visual representation of strength]	SPT 44	4/3// 32/3/2 N=10	-2	6.5	[Visual representation of graphic log]	[Visual representation of defect log]	[Visual representation of fracture spacing]	[Visual representation of RQD]	[Visual representation of water level/fluid loss]	[Visual representation of casing]	[Visual representation of installation]	[Visual representation of core box]
	9.10m: Silty fine to medium GRAVEL, some sand; green grey. Medium dense, saturated. Gravel, sub-rounded to sub-angular; sand, fine to medium. Trace shells.															
Christchurch Formation	9.70m: SILT, some sand; grey. Very soft to soft, wet, non-plastic, dilatant. Sand, fine to coarse. Minor shells.		[Visual representation of weathering]	[Visual representation of strength]	SPT 67	3/4// 46/6/6 N=22	-3	7.5	[Visual representation of graphic log]	[Visual representation of defect log]	[Visual representation of fracture spacing]	[Visual representation of RQD]	[Visual representation of water level/fluid loss]	[Visual representation of casing]	[Visual representation of installation]	[Visual representation of core box]
	9.90m: SILT, minor organic flecks; brownish grey. Very soft to															

COMMENTS: SPT hammer correction = 77.3%. 50mm diameter standpipe piezometer installed with screen 5-8mm bgl. Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LIDAR.

Hole Depth
20.25m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_51

SHEET: 5 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: CMS

START DATE: 29/05/2025

FINISH DATE: 29/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Kaiapoi Bridge

CO-ORDINATES: 5197302.85 mN
 (NZTM2000) 1571337.43 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.06m
 R.L. COLLAR: 4.69m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	[CONT] 18.70m: Silty fine to coarse GRAVEL; brown. Wet. Gravel, rounded to sub-rounded.				SPT	100		-16	18.70									Box 18_10-20-25m
	20.25m: EOBH. Target depth								20.5									
								-17	21.0									
								-18	21.5									
								-19	22.0									
								-20	22.5									
								-19	23.0									
								-20	23.5									
								-20	24.0									
								-20	24.5									

COMMENTS: SPT hammer correction = 77.3%. 50mm diameter standpipe piezometer installed with screen 5-8mm bgl. Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LIDAR.

Hole Depth
20.25m

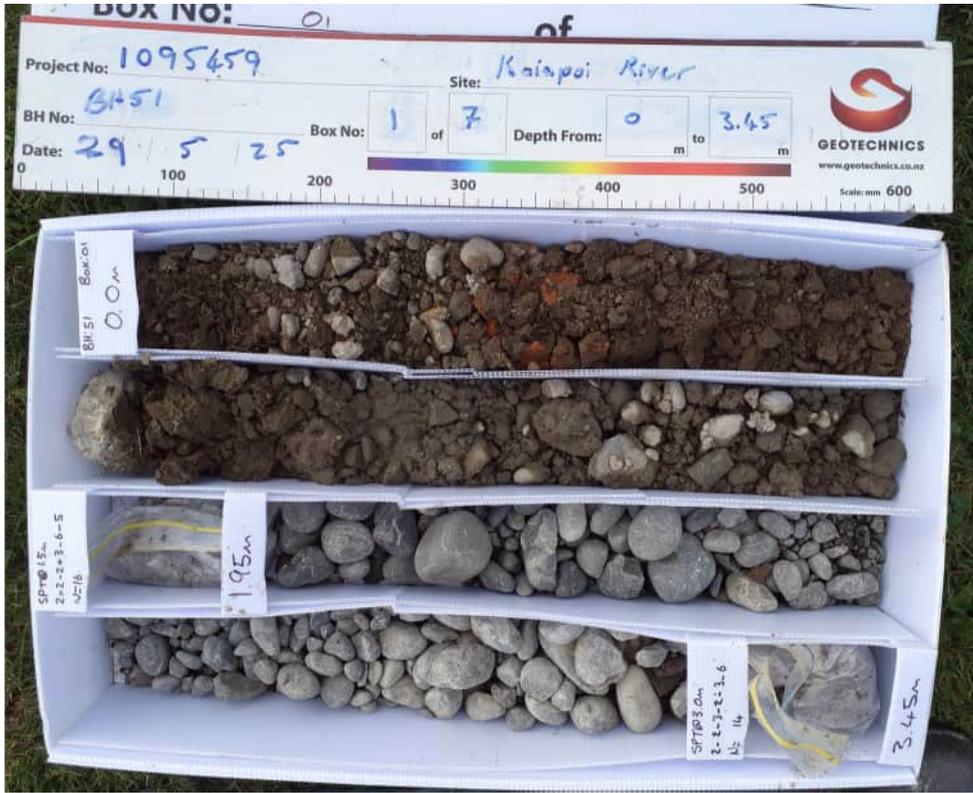
Scale 1:25

Rev.: A

CORE PHOTOS

BOREHOLE No.: **BH_51**
 Hole Location: Kaiapoi Bridge
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5197302.85 mN 1571337.43 mE	DRILL TYPE: MD1000	HOLE STARTED: 29/05/2025
R.L.:	4.06m	METHOD: Sonic core drilling	HOLE FINISHED: 29/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: CMS



0.00-3.45m



3.45-6.55m

CORE PHOTOS

BOREHOLE No.: **BH_51**
 Hole Location: Kaiapoi Bridge
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5197302.85 mN 1571337.43 mE	DRILL TYPE: MD1000	HOLE STARTED: 29/05/2025
R.L.:	4.06m	METHOD: Sonic core drilling	HOLE FINISHED: 29/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: CMS



6.55-9.55m



9.55-12.20m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: 5197302.85 mN (NZTM2000) 1571337.43 mE	DRILL TYPE: MD1000	HOLE STARTED: 29/05/2025 HOLE FINISHED: 29/05/2025	
R.L.: 4.06m	METHOD: Sonic core drilling	DRILLED BY: ProDrill	
DATUM: NZVD2016		LOGGED BY: ALSP	CHECKED: CMS



12.20-15.20m

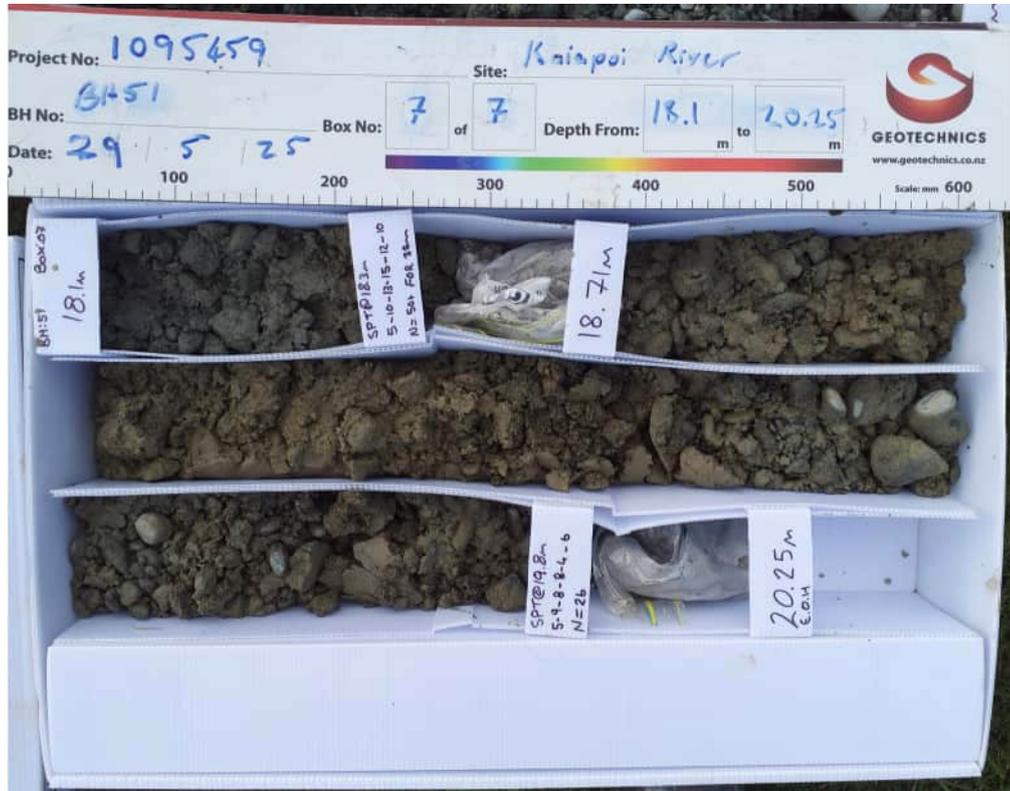


15.20-18.10m

CORE PHOTOS

BOREHOLE No.: **BH_51**
 Hole Location: Kaiapoi Bridge
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5197302.85 mN 1571337.43 mE	DRILL TYPE: MD1000	HOLE STARTED: 29/05/2025
R.L.:	4.06m	METHOD: Sonic core drilling	HOLE FINISHED: 29/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: CMS



18.10-20.25m



BOREHOLE LOG

BOREHOLE No.:
BH_52

SHEET: 1 OF 4

DRILLED BY: Matt
LOGGED BY: CARL

CHECKED: DAA
START DATE: 28/05/2025
FINISH DATE: 28/05/2025
CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Lineside to Cam

CO-ORDINATES: 5198345.66 mN
(NZTM2000) 1571674.19 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.07m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	0.00m: SILT, minor sand, trace organics and trace gravel; light brown mottled orange brown. Firm, moist, low plasticity. Sand, fine; gravel, fine, sub-rounded to sub-angular. Trace rootlets.							1										
	0.30m: SILT, trace clay; light greyish brown with mottled orange. Very stiff, moist, medium plasticity. Trace rootlets.							0.5										
	0.80 - 0.90m Very soft, saturated.							1.0										
	0.90 - 1.10m Light brown mottled orange.							1.5										
	1.00m: Medium plasticity.							2.0										
	1.10 - 1.40m Moist to wet.							2.5										
Christchurch Formation	1.40m: Wet, high plasticity.							3.0										
	1.50m: Very soft.							3.5										
	1.60m: SILT, trace sand and trace gravel; light grey mottled orange. Very soft, wet, medium to high plasticity, insensitive. Gravel, fine, rounded to sub-rounded. Trace rootlets, sand is coarse.							4.0										
	1.65 - 1.95m Minor coarse sand and fine gravel.							4.5										
	2.55 - 2.70m Firm.							5.0										
	2.70 - 3.00m Grey. High plasticity.							5.5										
Christchurch Formation	3.00m: Push tube. Lab technician's sample description: SILT with some clay, light grey. Very soft, wet. Low [to medium] plasticity.							6.0										
	3.50m: SILT, minor sand; grey. Very soft to soft, saturated, low plasticity, dilatant. Sand, fine.							6.5										
	3.85m: Sandy SILT; grey. Soft to firm, wet, non-plastic. Sand, fine.							7.0										
	3.90m: SILT, some sand; grey. Soft, wet to saturated, low plasticity. Sand, fine.							7.5										
	4.25m: Sandy SILT; grey. Soft, wet, low to medium plasticity. Sand, fine. Trace shell fragments.							8.0										
4.50m: SILT, some sand; grey. Very soft, wet to saturated, low plasticity. Sand, fine.							8.5											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
17.14m

Scale 1:25



BOREHOLE LOG

BOREHOLE No.:

BH_52

SHEET: 2 OF 4

DRILLED BY: Matt

LOGGED BY: CARL

CHECKED: DAA

START DATE: 28/05/2025

FINISH DATE: 28/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Lineside to Cam

CO-ORDINATES: 5198345.66 mN
 (NZTM2000) 1571674.19 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.07m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	4.95m: Fine to coarse SAND, some silt, trace gravel; grey. Saturated, poorly graded. Sand, predominantly fine to medium; gravel, fine, rounded. Trace shell fragments.				SNC	100	4 @ 5.10m BH52-04: PSD Percent passing 63 um sieve: 12%	-4					5.10 - 5.40m BH52-04: PSD Percent passing 63 um sieve: 12%					
	6.10m: Medium dense.				SPT	100	0.0// 12/4/4 N=11	-5										
	6.85 - 7.00m Silty SAND.																	
	7.00m: SILT; greenish grey. Stiff, moist, low to medium plasticity.				SNC	100	5 @ 7.10m BH52-05: AL, LL, 34, PL, 19, PI 15	-6					7.10m: BH52-05: AL: LL 34, PL 19, PI 15					
	7.60m: Very stiff.				SPT	100	2.6// 45/9/10 N=28	-7										
	8.05m: Silty fine to medium GRAVEL, minor sand; light grey. Wet to saturated. Sand, fine to medium.																	
	8.50m: Sandy fine to medium GRAVEL; grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse. Trace shell fragments.				SNC	100		-8										
	9.10m: Dense.				SPT	100	3.6// 10/12/11/11 N=44	-9										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
17.14m

Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_52

SHEET: 3 OF 4

DRILLED BY: Matt
LOGGED BY: CARL

CHECKED: DAA
START DATE: 28/05/2025
FINISH DATE: 28/05/2025
CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Lineside to Cam

CO-ORDINATES: 5198345.66 mN
(NZTM2000) 1571674.19 mE
DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.07m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	9.95m: Fine to medium SAND, some gravel; grey. Wet. Gravel, fine to medium, rounded to sub-angular. Trace shell fragments.				SNC	100											
	10.30m: Fine to coarse SAND, some silt, trace gravel; grey. Wet, poorly graded. Sand, predominantly fine to medium; gravel, fine to medium, rounded.				SPT	100	6 @ 10.40m BH52 - 06: PSD Percent passing 63 um sieve: 17%										
	10.60m: Dense.						24// 7/11/12/16 N=46										
Burnham Formation	11.05m: Sandy fine to medium GRAVEL; grey. Wet. Gravel, rounded to sub-angular, sand, fine to coarse.				SNC	100											
	11.65m: Fine to coarse GRAVEL, some sand; grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100											
	12.20m: Sandy fine to medium GRAVEL; grey. Very dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	11/11// 14/15/21 for 75 mm N=50 Refusal										
	12.98m: Sandy fine to medium GRAVEL, minor silt; light yellowish brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100											
	13.70m: Very dense.				SPT	100	17/14// 17/15/15/3 for 15mm N=50 Refusal										
	14.30m: Fine to medium GRAVEL, some sand; grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100											
	14.65 - 14.70m Trace cobbles.																
	14.80m: Sandy fine to coarse GRAVEL, minor silt; light grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.																

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
17.14m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_52

SHEET: 4 OF 4

DRILLED BY: Matt

LOGGED BY: CARL

CHECKED: DAA

START DATE: 28/05/2025

FINISH DATE: 28/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Lineside to Cam

CO-ORDINATES: 5198345.66 mN
 (NZTM2000) 1571674.19 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.07m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No			
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)								
Burnham Formation	[CONT] 14.80m: Sandy fine to coarse GRAVEL, minor silt; light grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.		[Dotted pattern]	[Dotted pattern]	SNC	100	5/11// 20/17/13 for 55 mm N>=50 Refusal	-14	[Graphic log showing gravel]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]			
	15.20m: Very dense. Some silt, becomes light yellowish grey.							SPT											100	9/12// 13/13/15/9 for 60mm N>=50 Refusal	-15
	16.00 - 16.60m Yellowish brown.							SNC											100		-16
	16.60m: Silty fine to coarse GRAVEL, some sand; grey. Very dense, moist to wet. Gravel, rounded to sub-angular; sand, fine to coarse.																				
	16.70m: Sandy fine to medium GRAVEL, minor silt; yellowish brown. Very dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.																				
	17.14m: EOBH Termination criteria reached.																				

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
17.14m

Scale 1:25

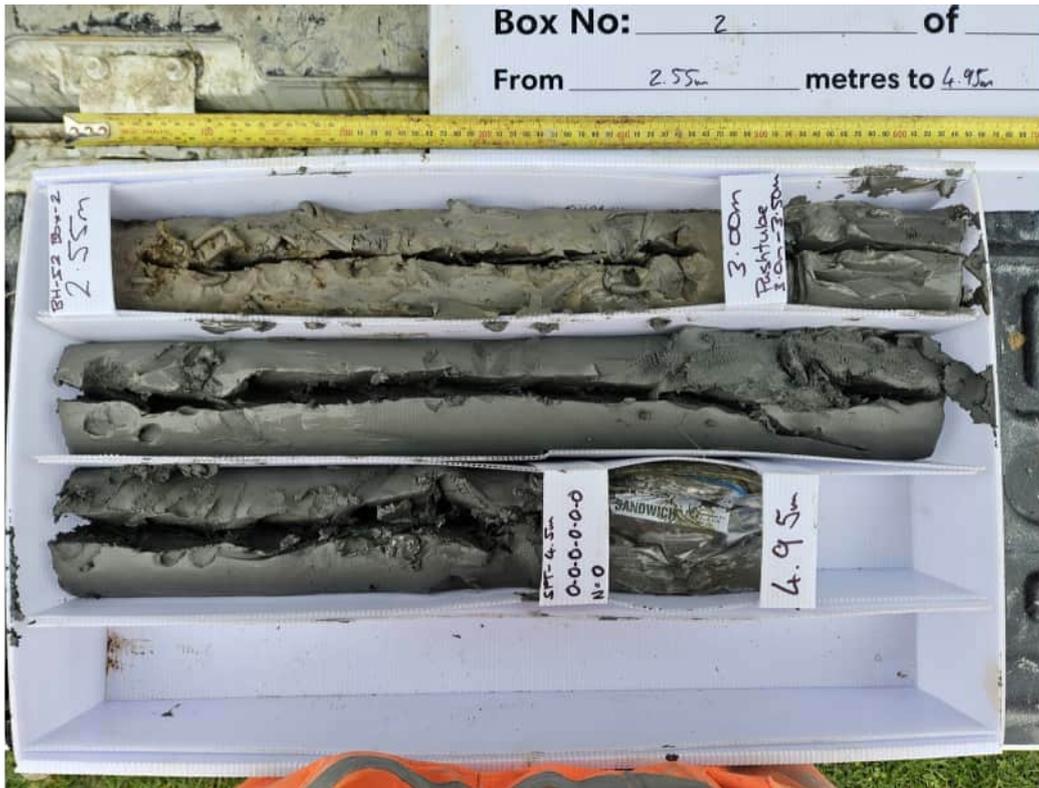
CORE PHOTOS

BOREHOLE No.: **BH_52**
 Hole Location: Lineside to Cam
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5198345.66 mN 1571674.19 mE	DRILL TYPE:	HOLE STARTED: 28/05/2025
R.L.:	1.07m	METHOD: Sonic core drilling	HOLE FINISHED: 28/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



0.00-2.55m



2.55-4.95m

CORE PHOTOS

BOREHOLE No.: **BH_52**
 Hole Location: Lineside to Cam
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5198345.66 mN 1571674.19 mE	DRILL TYPE:	HOLE STARTED: 28/05/2025
R.L.:	1.07m	METHOD: Sonic core drilling	HOLE FINISHED: 28/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



4.95-8.05m



8.05-11.05m

CORE PHOTOS

BOREHOLE No.: **BH_52**
 Hole Location: Lineside to Cam
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5198345.66 mN 1571674.19 mE	DRILL TYPE:	HOLE STARTED: 28/05/2025
R.L.:	1.07m	METHOD: Sonic core drilling	HOLE FINISHED: 28/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



11.05-13.70m



13.70-16.55m

CORE PHOTOS

BOREHOLE No.: **BH_52**
 Hole Location: Lineside to Cam
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5198345.66 mN 1571674.19 mE	DRILL TYPE:	HOLE STARTED: 28/05/2025
R.L.:	1.07m	METHOD: Sonic core drilling	HOLE FINISHED: 28/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



16.55-17.14m



BOREHOLE LOG

BOREHOLE No.:
BH_53

SHEET: 2 OF 5

DRILLED BY: Matt
LOGGED BY: CARL

CHECKED: DAA
START DATE: 03/06/2025
FINISH DATE: 04/06/2025
CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Lineside to Cam

CO-ORDINATES: 5199033.42 mN
(NZTM2000) 1571936.69 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 0.98m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Christchurch Formation	medium, rounded. Trace shell fragments.				SNC	100	5 @ 5.00m BH53-05: PSD Percent passing 63 um sieve: 35%; AL: NP		5.5								
	5.55m: SILT, minor clay; light grey. Very soft, wet, low plasticity.				SNC	100			6.0								
	6.10m: SILT, some sand, minor clay, trace gravel; light grey. Very soft, wet, gap graded, low to medium plasticity. Sand, fine; gravel, medium, rounded.				SPT	100	0.0// 0.0/0.0 N=0		6.5								
	6.40 - 6.45m Trace decomposed wood fragments.				SPT	100	6 @ 6.10m BH53-06: PSD Percent passing 63 um sieve: 76%; AL: LL 38, PL 24, PI 13		6.70								
	6.55 - 6.95m Wet to saturated.				SPT	100			7.0								
	6.70 - 6.95m Trace shell fragments and decomposed wood fragments.				SPT	100			7.5								
Burnham Formation	6.95m: Sandy gravelly SILT, trace rootlets and wood fragments; dark grey. Very soft, wet, well graded, low plasticity. Sand, fine to coarse; gravel, fine to coarse, rounded to sub-angular. Wood; fibres retain little to no strength.				SNC	100	4 @ 7.00m BH53-04: PSD Percent passing 63 um sieve: 40%		7.0								
	7.25 - 7.45m Grey.				SNC	100			7.5								
	7.45m: Fine to medium SAND, some silt and some gravel; grey. Wet. Gravel, fine to medium, rounded to sub-angular.				SPT	100	3.8// 9.7/18.9 N=33		8.0								
	7.60m: Sandy fine to coarse GRAVEL, minor silt; light grey. Dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100			8.5								
	8.80m: SILT, some sand, minor gravel; light grey. Firm, wet, medium to high plasticity. Sand, fine to coarse; gravel, fine to medium, rounded to sub-angular.				SPT	100	7.7// 10.10/9.9 N=38		9.0								
	8.88m: Sandy fine to coarse GRAVEL, trace silt; light grey. Dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100			9.5								
8.95 - 9.55m Wet to saturated. Minor silt.				SPT	100												
9.55m: Fine to coarse GRAVEL, minor sand, trace silt; light grey. Dense, wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100												
9.75m: Sandy fine to coarse GRAVEL, minor silt; light grey. Wet. Sand, fine to coarse.				SNC	100												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
21.75m

Scale 1:25

Box 5.25-8.40m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_53

SHEET: 3 OF 5

DRILLED BY: Matt
LOGGED BY: CARL

CHECKED: DAA
START DATE: 03/06/2025
FINISH DATE: 04/06/2025
CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Lineside to Cam

CO-ORDINATES: 5199033.42 mN
(NZTM2000) 1571936.69 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 0.98m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Burnham Formation	[CONT] 9.75m: Sandy fine to coarse GRAVEL, minor silt; light grey. Wet. Sand, fine to coarse. 10.10 - 10.35m Gravel is fine to medium, trace silt.				SNC	100		10.5								
	10.35 - 10.60m Trace silt.															
	10.60 - 11.30m Dense, wet to saturated.				SPT	100	4.5// 9/8/14 N=40	11.0								
	12.65 - 13.70m Trace silt.				SNC	100	7.6// 7/8/12 N=34	12.5								
	13.70m: Sandy fine to coarse GRAVEL, some silt; light grey. Medium dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	12.1// 11/7/43 N=25	14.0								
	14.25m: SILT, minor sand, trace gravel; light grey. Firm, wet, non-plastic to low plasticity. Sand, fine to coarse; gravel, fine to coarse, rounded.															
	14.33m: Sandy fine to coarse GRAVEL, some silt; light grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100		14.5								

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
21.75m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_53

SHEET: 4 OF 5

DRILLED BY: Matt

LOGGED BY: CARL

CHECKED: DAA

START DATE: 03/06/2025

FINISH DATE: 04/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Lineside to Cam

CO-ORDINATES: 5199033.42 mN
 (NZTM2000) 1571936.69 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 0.98m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 14.33m: Sandy fine to coarse GRAVEL, some silt; light grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100	7.9// 7.3/1.0 N=11											
	14.96m: Medium dense.																	
	15.40m: SILT, minor sand, trace clay; light greenish grey. Stiff, saturated, non-plastic to low plasticity. Sand, fine to coarse.				SPT	100			15.5									
	15.65m: Fine to coarse GRAVEL, minor silt and minor sand; light greenish grey. Saturated. Gravel, rounded to sub-angular; sand, fine to coarse.																	
	15.85m: Sandy fine to coarse GRAVEL, some silt; light greenish grey. Wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse.																	
	16.20 - 16.70m Light grey.				SNC	100			16.0									
	16.70m: Very dense.																	
	17.15m: Sandy fine to medium GRAVEL, minor silt; light brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	13/16// 13/11/14/12 for 70mm N>=50 Refusal		17.0									
	17.45m: SILT, minor sand, trace clay and trace gravel; light brown. Firm, wet, low to medium plasticity. Sand, fine to coarse; gravel, fine to medium, rounded to sub-angular.																	
	17.50m: Sandy fine to medium GRAVEL, minor silt; light brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100												
17.90 - 18.72m Grey.																		
18.20 - 18.30m Some silt.																		
18.30m: Very dense.				SPT	100	9/10// 9/1/17/13 for 45mm N>=50 Refusal		18.5										
18.72m: SILT, trace clay; light brownish grey with mottled orange. Very stiff, moist, low plasticity.																		
18.80 - 19.00m Trace fine to medium gravel.																		
19.00 - 19.10m Some fine to medium gravel.																		
19.40 - 19.80m Light greenish grey with mottled orange.				SNC	100			19.0										
19.80m: SILT, minor clay; light greenish grey. Very stiff, moist to wet, medium plasticity.				SPT	100	2/3// 3/4/4/5 N=16		19.5										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
21.75m

Scale 1:25

Box 14:15-17:15m



BOREHOLE LOG

BOREHOLE No.:
BH_53

SHEET: 5 OF 5

DRILLED BY: Matt
LOGGED BY: CARL

CHECKED: DAA
START DATE: 03/06/2025
FINISH DATE: 04/06/2025
CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Lineside to Cam

CO-ORDINATES: 5199033.42 mN
(NZTM2000) 1571936.69 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 0.98m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No												
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)																	
Burnham Formation	[CONT] 19.80m: SILT, minor clay; light greenish grey. Very stiff, moist to wet, medium plasticity.		<small>UW</small> <small>SW</small> <small>HW</small> <small>FW</small> <small>OW</small> <small>US</small> <small>SS</small> <small>WS</small> <small>FS</small> <small>OS</small>	<small>CS</small> <small>SS</small> <small>WS</small> <small>FS</small> <small>OS</small>	SPT	100				<small>2000</small> <small>200</small> <small>20</small>	<small>25</small> <small>50</small> <small>75</small>	<small>25</small> <small>50</small> <small>75</small>					Box 11 15-20.25m													
	21.00m: Stiff, wet to saturated.																	SNC	100				<small>2000</small> <small>200</small> <small>20</small>	<small>25</small> <small>50</small> <small>75</small>	<small>25</small> <small>50</small> <small>75</small>					
	21.30m: Stiff to very stiff.																													
21.50m: Silty fine to medium SAND; light grey. Medium dense, saturated.		SNC	100				<small>2000</small> <small>200</small> <small>20</small>	<small>25</small> <small>50</small> <small>75</small>	<small>25</small> <small>50</small> <small>75</small>																					
21.75m: EOBH. Hole extended past target depth to investigate silt capping thickness and groundwater.																	SNC	100				<small>2000</small> <small>200</small> <small>20</small>	<small>25</small> <small>50</small> <small>75</small>	<small>25</small> <small>50</small> <small>75</small>						

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

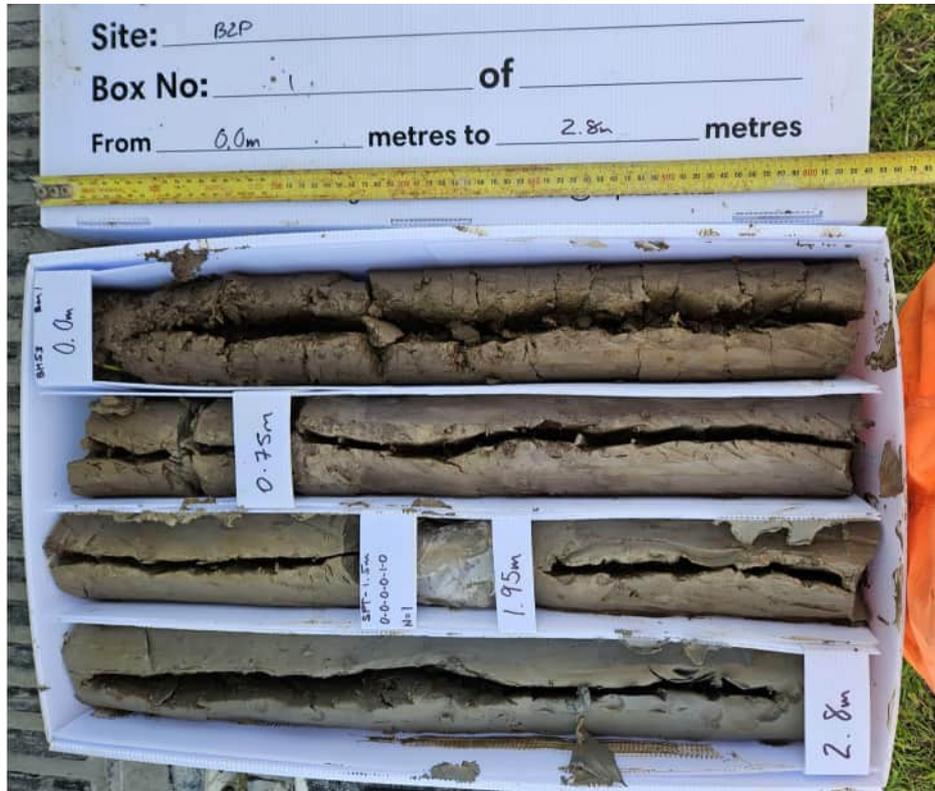
Hole Depth
21.75m

Scale 1:25

CORE PHOTOS

BOREHOLE No.: **BH_53**
 Hole Location: Lineside to Cam
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199033.42 mN 1571936.69 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	0.98m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



0.00-2.80m

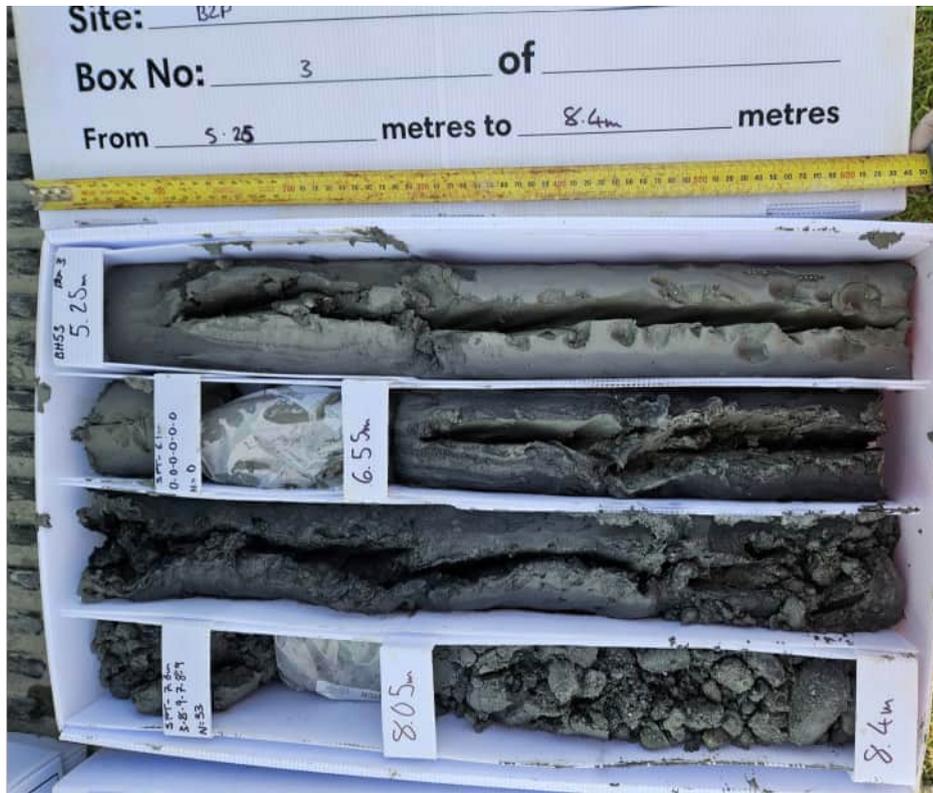


2.80-5.25m

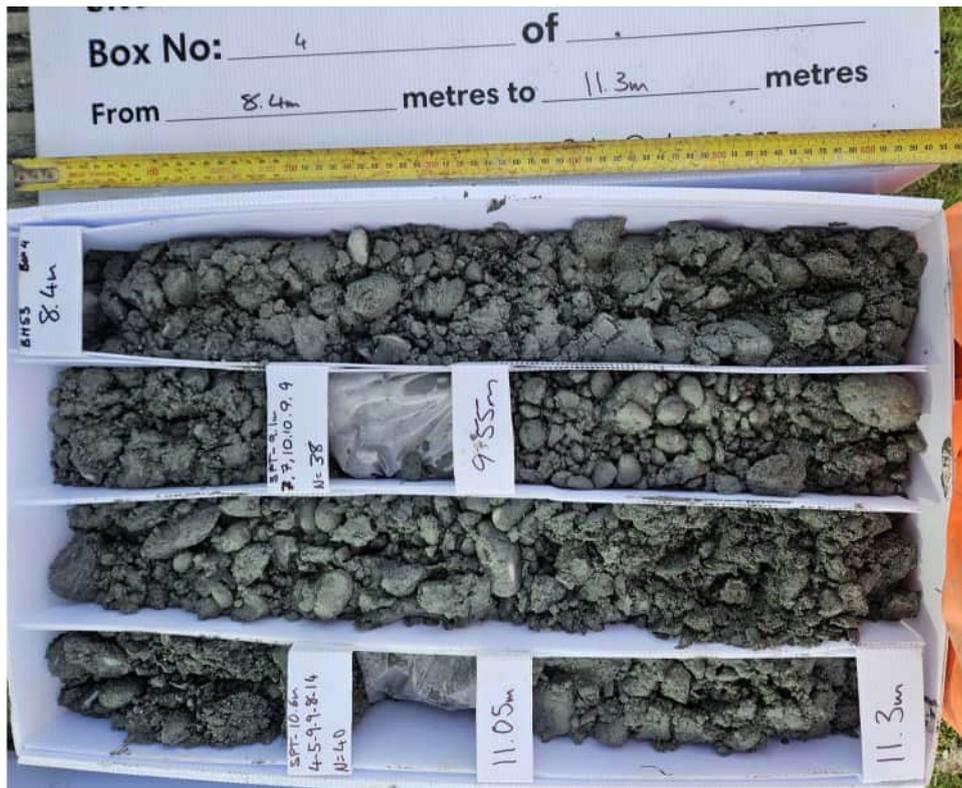
CORE PHOTOS

BOREHOLE No.: **BH_53**
 Hole Location: Lineside to Cam
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199033.42 mN 1571936.69 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	0.98m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



5.25-8.40m

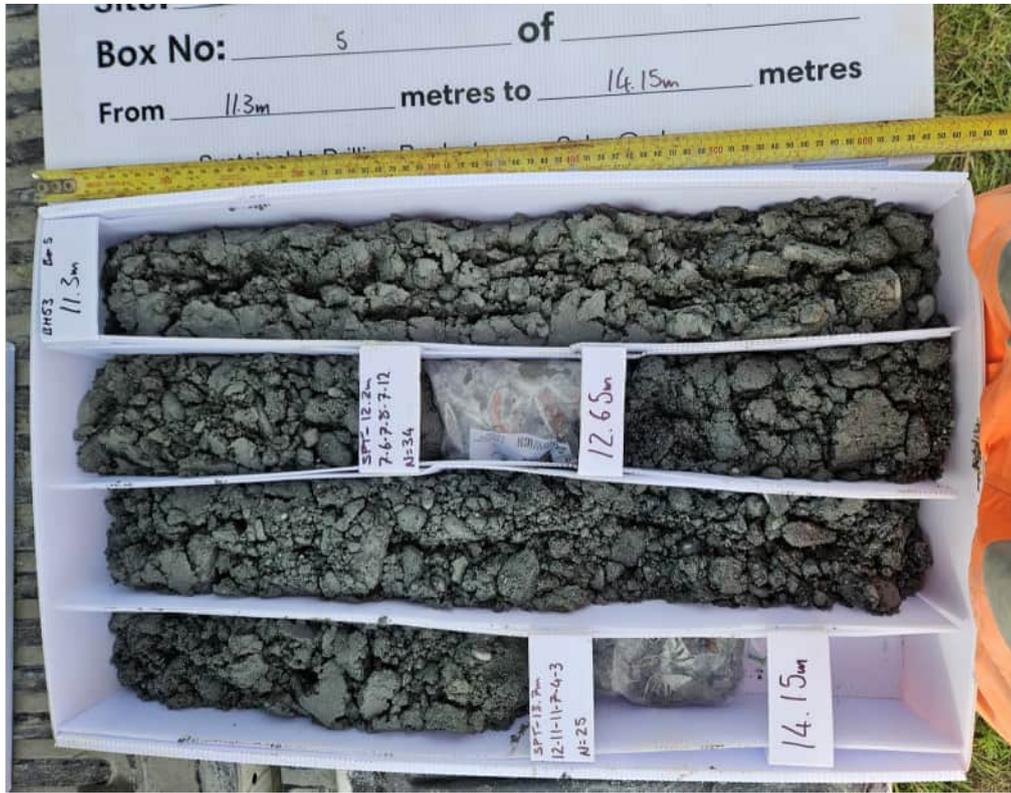


8.40-11.30m

CORE PHOTOS

BOREHOLE No.: **BH_53**
 Hole Location: Lineside to Cam
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199033.42 mN 1571936.69 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	0.98m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



11.30-14.15m



14.15-17.15m

CORE PHOTOS

BOREHOLE No.: **BH_53**
 Hole Location: Lineside to Cam
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199033.42 mN 1571936.69 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	0.98m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



17.15-20.25m



20.25-21.75m



BOREHOLE LOG

BOREHOLE No.:
BH_54

SHEET: 2 OF 4

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 06/06/2025

FINISH DATE: 09/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Cam River

CO-ORDINATES: 5199587.90 mN
(NZTM2000) 1572361.54 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.64m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Christchurch Formation	[CONT] 4.40m: Sandy SILT; grey. Very soft, wet, non-plastic, dilatant. Sand, fine.																		
	5.20m: SILT, trace sand; dark grey. Very soft, wet, non-plastic, dilatant. Sand, fine.																		
	5.90m: Fine to medium SAND, trace silt; grey. Moist.																		
	6.10 - 6.40m Medium dense.																		
	6.40m: SILT; light grey. Firm, wet, medium plasticity. Trace fine shell fragments.																		
	6.90m: Sandy SILT; grey. Soft, wet, non-plastic, dilatant. Sand, fine to medium, predominantly fine. Trace shell fragments.																		
Burnham Formation	7.40m: Fine SAND, minor silt; grey. Moist. Sample contains whole shells and trace shell fragments.																		
	7.60 - 7.80m Loose.																		
	7.80m: Organic SILT; dark grey. Soft, moist, non-plastic.																		
	7.90m: SILT, trace rootlets; dark grey. Soft to firm, moist, low plasticity.																		
	8.20m: SILT, trace organics and trace sand; dark grey. Very soft, moist, low plasticity. Sand, fine.																		
8.50m: Silty fine to coarse GRAVEL, some sand; grey. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.																			
9.10 - 9.40m Very dense.																			
9.40m: Sandy fine to coarse GRAVEL, trace silt; grey. Very dense, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.																			

7.00 - 7.20m BH054_7: AL: LL 25, PL NP, PI NP
7.00 - 7.20m BH054_7: PSD Percent passing 63 um sieve: 53%

6 @ 7.00m BH054_7: AL: LL 25, PL NP, PI NP
5 @ 7.00m BH054_7: PSD Percent passing 63 um sieve: 53%

1.0// 02/1/1 N=4

7.8// 10/11/16/13 N>=50

1.1// 12/4/5 N=12

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth 19.9m

Scale 1:25

Rev.: A

TTNZ_20240902 - GeneralLog - 5/09/2025 8:10:24 am - Produced with Core-GS by GeRoc

Box 2.75-6.10m

Box 6.10-9.10m



BOREHOLE LOG

BOREHOLE No.:

BH_54

SHEET: 3 OF 4

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 06/06/2025

FINISH DATE: 09/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Cam River

CO-ORDINATES: 5199587.90 mN
 (NZTM2000) 1572361.54 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.64m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)						
Burnham Formation	[CONT] 9.40m: Sandy fine to coarse GRAVEL, trace silt; grey. Very dense, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SNC	100		10.5										
	10.60 - 12.40m Medium dense.				SPT	100	5.6// 7.8/6.6 N=27	11.0										
	12.40 - 12.70m Very dense.				SPT	100	1.6// 19/19/12 for 55 mm N=50	12.5										
	12.70m: Fine to coarse GRAVEL, some sand, trace silt; greyish brown. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100		13.0										
	13.60 - 14.70m Very dense.				SPT	100	6.1/2// 12/13/16/9 for 50mm N=50	14.0										
	14.70m: Medium to coarse SAND, trace gravel; grey. Wet. Gravel, fine to medium, rounded.				SNC	100		14.5										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
19.9m

Scale 1:25

Box 9.10-12.20m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_54

SHEET: 4 OF 4

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 06/06/2025

FINISH DATE: 09/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Cam River

CO-ORDINATES: 5199587.90 mN
 (NZTM2000) 1572361.54 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.64m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Description & Additional Observations	Fracture Spacing (mm)	RQD (%)				
Bunham Formation	[CONT] 14.70m: Medium to coarse SAND, trace gravel; grey. Wet. Gravel, fine to medium, rounded. 15.20 - 15.25m Sandy SILT, some gravel. Very dense.				SNC	100	22// 9/14/17/10 for 45mm N>=50		15.5								
	15.60m: Fine to coarse GRAVEL, some sand, trace silt; brown. Very dense, wet. Gravel, sub-rounded to sub-angular; sand, medium to coarse.				SNC	100			16.0								
	16.50m: Sandy fine to coarse GRAVEL, minor silt; brown. Saturated. Gravel, sub-rounded to sub-angular; sand, medium to coarse. 16.80 - 17.40m Very dense.				SPT	100	8/11// 11/14/18/2 for 5mm N>=50		17.0								
	17.40m: Fine to coarse GRAVEL, trace silt and trace sand; brown. Saturated. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100			17.5								
	18.10m: Sandy fine to coarse GRAVEL, minor silt; brown. Saturated. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 18.30 - 19.00m Very dense.				SPT	100	13/16// 19/20/11 for 45mm N>=50		18.5								
	19.00m: Sandy SILT, some gravel; brown. Very stiff, moist, non-plastic. Sand, fine to coarse; gravel, fine to medium, sub-rounded.				SNC	97			19.0								
	19.30m: SILT; light orange brown. Firm, moist, non-plastic, dilatant.								19.5								
	19.50m: Sandy fine to coarse GRAVEL, some silt; brown. Saturated. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 19.80 - 19.90m Very dense.				SPT	100	28/22// for 25mm N>=50		19.9								
19.9m: EOBH. Target depth																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
19.9m

Scale 1:25

Rev.: A

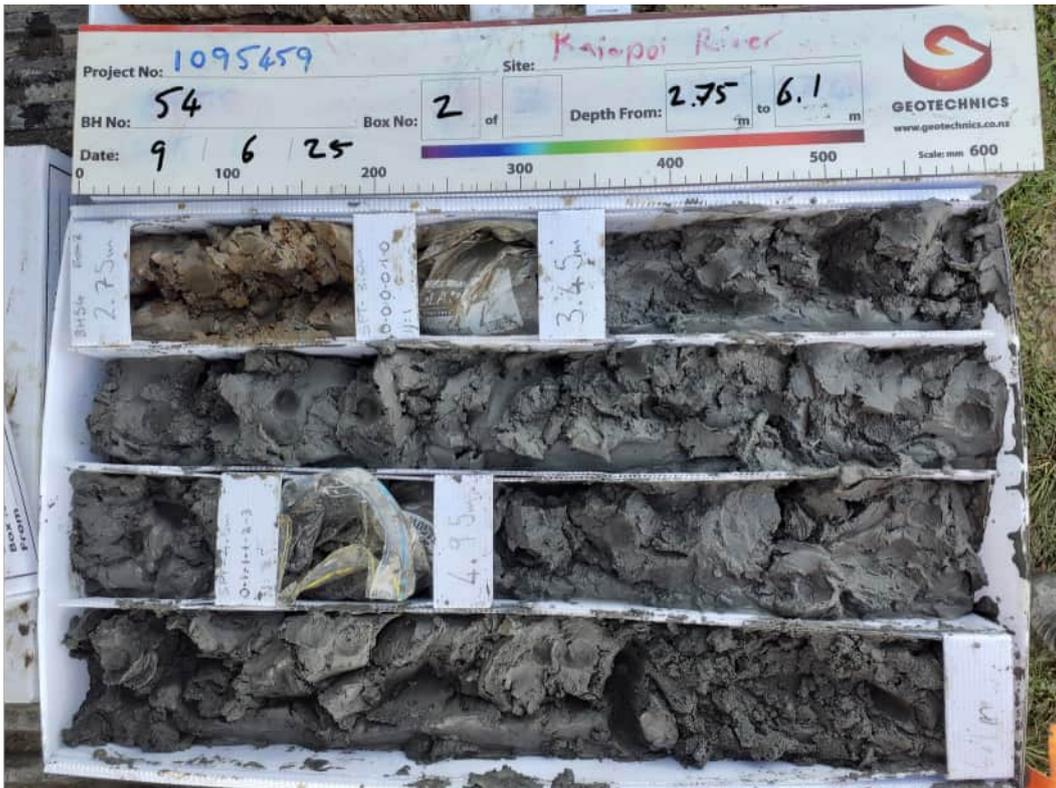
CORE PHOTOS

BOREHOLE No.: **BH_54**
 Hole Location: Cam River
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199587.90 mN 1572361.54 mE	DRILL TYPE: XL170	HOLE STARTED: 06/06/2025
R.L.:	1.64m	METHOD: Sonic core drilling	HOLE FINISHED: 09/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



0.00-2.75m



2.75-6.10m

CORE PHOTOS

BOREHOLE No.: **BH_54**
 Hole Location: Cam River
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199587.90 mN 1572361.54 mE	DRILL TYPE: XL170	HOLE STARTED: 06/06/2025 HOLE FINISHED: 09/06/2025
R.L.:	1.64m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



6.10-9.10m



9.10-12.20m

CORE PHOTOS

BOREHOLE No.: **BH_54**
 Hole Location: Cam River
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199587.90 mN 1572361.54 mE	DRILL TYPE: XL170	HOLE STARTED: 06/06/2025 HOLE FINISHED: 09/06/2025
R.L.:	1.64m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



12.20-15.20m



15.20-18.30m

CORE PHOTOS

BOREHOLE No.: **BH_54**
 Hole Location: Cam River
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199587.90 mN 1572361.54 mE	DRILL TYPE: XL170	HOLE STARTED: 06/06/2025 HOLE FINISHED: 09/06/2025
R.L.:	1.64m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



18.30-19.90m



BOREHOLE LOG

BOREHOLE No.:
BH_55

SHEET: 1 OF 8

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 04/06/2025

FINISH DATE: 06/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Cam River

CO-ORDINATES: 5199645.62 mN
(NZTM2000) 1572434.15 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.65m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
T Soil	0.00m: SILT, minor organics, trace clay and trace gravel; brown. Very soft to soft, moist, low plasticity, trace rootlets. Gravel, fine to medium, sub-rounded to sub-angular. (TOPSOIL).												0.00m: GWL measured at EOH. Artesian conditions encountered. Measured within a cased hole with casing at 39.60m. Water flush with drilling polymer used.					
Springston Formation	0.35m: SILT, minor clay, trace rootlets and trace sand; orange brown mottled light grey. Soft, moist, low to medium plasticity. Sand, fine. (ALLUVIUM).				SNC	100			0.5									
	1.50m: Stiff.								1.5									
Christchurch Formation	1.60m: SILT, trace clay; light grey with speckled orange. Stiff, wet, low plasticity.				SPT	100			2.0									
	2.10m: SILT, some sand, trace clay; grey. Soft, wet, low to medium plasticity. Sand, fine.								2.5				2.40 - 2.60m BH055_2.4: AL: LL 37, PL 23, PI 14					
	2.80m: Fine to medium SAND, some silt; dark grey. Wet, well graded. 3.00m: Medium dense.				SPT	100			3.0				3.00 - 3.45m BH055_3: PSD Percent passing 63 um sieve: 17%					
	3.70 - 3.80m Minor silt. 4.00 - 4.10m Minor silt.				SNC	100			4.0									
					SPT	100			4.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
39.67m

Scale 1:25



BOREHOLE LOG

BOREHOLE No.:

BH_55

SHEET: 2 OF 8

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 04/06/2025

FINISH DATE: 06/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Cam River

CO-ORDINATES: 5199645.62 mN
 (NZTM2000) 1572434.15 mE

R.L. GROUND: 1.65m

R.L. COLLAR:

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Christchurch Formation	[CONT] 2.80m: Fine to medium SAND, some silt; dark grey. Wet, well graded.																		
	5.60 - 5.80m Minor silt.				SNC	100													
	6.10m Silty. Loose.																		
	6.30m: Silty fine to medium SAND, trace gravel; grey. Loose, wet, poorly graded. Gravel, fine to medium, rounded. Sample contains rare whole shells and trace shell fragments.				SPT	100		12// 23/2/2 N=9											
	7.35m: Silty fine SAND; light grey. Wet. Trace shell fragments.																		
	7.45m: Fine SAND, minor silt; grey. Wet. Trace shell fragments.																		
	7.50m: Very loose.																		
7.75m: CORE LOSS.				SPT	33		12// 00/0/0 N=0												
Burnham Formation	8.05m: Silty PEAT (FIBROUS); black. Very soft, saturated, non-plastic.																		
	8.10m: SILT, minor organics, trace sand; light greenish grey. Very soft, wet, low to medium plasticity. Sand, fine.																		
	8.20 - 8.60m Wood. Fibres retain some strength.																		
	8.40 - 8.50m Trace shell fragments.																		
	8.60m: Sandy SILT, minor organics and minor gravel; light greenish grey. Soft to firm, wet, low to medium plasticity. Sand, fine to medium.				SNC	100													
8.65 - 9.00m Wood. Fibres retain some strength.																			
9.00m: Fine to coarse SAND, some gravel, trace silt; dark grey. Wet. Gravel, fine to medium, rounded. Trace shell fragments.																			
9.10m: Dense.				SPT	100		23// 8/12/12/11 N=43												
9.50m: Fine to coarse GRAVEL, minor sand, trace silt; grey. Dense, wet, well graded. Gravel, rounded; sand, fine to coarse.				SNC	100														

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
39.67m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_55

SHEET: 3 OF 8

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 04/06/2025

FINISH DATE: 06/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Cam River

CO-ORDINATES: 5199645.62 mN
 (NZTM2000) 1572434.15 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.65m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Burnham Formation	[CONT] 9.50m: Fine to coarse GRAVEL, minor sand, trace silt; grey. Dense, wet, well graded. Gravel, rounded; sand, fine to coarse.				SNC	100		10.5										
	10.60 - 11.30m Sandy, minor silt; medium dense.				SPT	100	5.6// 6.5/6.8 N=25	11.0										
	11.30 - 12.00m Some sand.				SNC	100		11.5										
	12.20m: Very dense.				SPT	100	5.8// 9.10/15.16 N=50	12.0										
	12.40m: Gravelly fine to coarse SAND, some silt; brown. Very dense, wet, well graded. Gravel, fine to medium, rounded to sub-rounded.				SPT	100		12.5										
	12.75m: SILT; light brown. Soft, wet, non-plastic, dilatant.							13.0										
	13.00m: Sandy fine to medium GRAVEL, trace silt; greyish brown. Wet. Sand, fine to coarse.				SNC	100		13.5										
	13.40m: Fine to coarse GRAVEL; grey. Wet, well graded. Gravel, rounded.				SPT	100	13/13// 15/16/11 for 35 mm N=50	14.0										
13.70m: Sandy fine to medium GRAVEL, trace silt; greyish brown. Very dense, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.							14.5											
14.10 - 14.30m Gravel, fine to coarse.				SNC	100		14.5											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
39.67m

Scale 1:25

Box 8.85-12.20m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_55

SHEET: 4 OF 8

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 04/06/2025

FINISH DATE: 06/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Cam River

CO-ORDINATES: 5199645.62 mN
 1572434.15 mE
 (NZTM2000)

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.65m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 13.70m: Sandy fine to medium GRAVEL, trace silt; greyish brown. Very dense, wet. Gravel, rounded to sub-rounded; sand, fine to coarse. 15.20m: Dense.				SNC	100	10/16// 14/13/11/8 N=46	-14	15.5									
	15.60 - 15.65m Becoming silty.				SPT	100												
	15.70m: Fine to coarse SAND, minor gravel; brown. Wet. Gravel, fine to medium, rounded.				SNC	100												
	16.00m: Sandy fine to coarse GRAVEL, minor silt; brown. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SNC	100												
	16.20m: Sandy SILT; light brown. Very soft to soft, wet, non-plastic, dilatant. Sand, fine.				SNC	100												
	16.40m: Silty fine to coarse GRAVEL, minor sand; light brown. Wet. Gravel, rounded to sub-rounded; sand, fine to medium.				SNC	100												
	16.70m: Medium dense.				SPT	100	7/5// 01/1/19 N=11	-15	17.0									
	16.85m: Sandy SILT; light brown. Stiff, wet, non-plastic, dilatant. Sand, fine.				SPT	100												
17.10m: Sandy fine to coarse GRAVEL, minor silt; light brown. Medium dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.		SNC	100															
18.30m: Dense.		SNC	100															
18.80m: Sandy fine to coarse GRAVEL, some silt; light brown. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.		SPT	100	6/7// 7/11/15/16 N=49	-17	18.5												
19.80m: Very dense.		SPT	100	16/21// 32/18 for 25 mm	-18	19.5												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
39.67m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_55

SHEET: 5 OF 8

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 04/06/2025

FINISH DATE: 06/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Cam River

CO-ORDINATES: 5199645.62 mN
(NZTM2000) 1572434.15 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.65m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 18.80m: Sandy fine to coarse GRAVEL, some silt; light brown. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SFT	100	N > 50		20.5									
	21.20m: Sandy fine to coarse GRAVEL, minor silt; light brown. Very dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	6.6// 11/22/17 for 40 mm N > 50		21.0									
	21.80m: Silty fine to coarse GRAVEL, some sand; light brown grey. Saturated. Gravel, rounded to sub-angular.								21.5									
	22.00m: Silty fine SAND; light bluish grey. Saturated.				SNC	100			22.0									
	22.40m: SILT, minor sand; light greyish brown. Soft, wet, non-plastic, dilatant. Sand, fine.								22.5									
Bromley Formation	22.65m: SILT, trace clay and trace sand; light grey. Firm, moist, non-plastic, dilatant. Sand, fine.							22.65										
	22.78m: PEAT (FIBROUS); black. Soft, moist, non-plastic.							22.78										
	22.80m: NOT LOGGED - Push tube.				PT	100		PT @ 22.80m	23.0									
	23.30m: SILT, minor clay; light brownish grey. Soft, moist, low to medium plasticity.								23.3									
	23.50m: SILT, trace clay and trace sand; light grey. Firm, moist, non-plastic, dilatant. Sand, fine.				SNC	100			23.5									
	24.20m: Silty fine to medium GRAVEL, some sand; light blue grey. Moist. Gravel, rounded to sub-angular; sand, fine to coarse.							24.2										
	24.40m: Very dense.				SPT	100	9/17// 26/24 for 50 mm N > 50		24.4									
	24.67 - 24.68m: Colour change to orange brown.								24.67									
	24.68m: Fine to coarse GRAVEL, trace silt and trace sand; blue grey. Moist. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100			24.68									

22.00 - 22.40m Sample has dilated and dispersed within the core box prior to any transport.

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
39.67m

Scale 1:25

Box 18.30-21.30m

Box 21.30-24.68m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_55

SHEET: 7 OF 8

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 04/06/2025

FINISH DATE: 06/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Cam River

CO-ORDINATES: 5199645.62 mN
(NZTM2000) 1572434.15 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.65m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Bromley Formation	30.00m: Fine to coarse SAND, trace gravel; orange brown. Wet, poorly graded. Gravel, fine, rounded to sub-rounded.				SNC	100		30.0									
	30.50m: Very dense.				SPT	100	4.6// 9/16/19/6 for 10mm N>=50	30.5									
	30.80m: Fine to coarse SAND, some gravel, minor silt; blue grey. Very dense, wet. Gravel, fine to medium, rounded to sub-rounded.				SNC	99		31.0									
	31.30 - 33.00m Gravelly.				SPT	100	17/30// 50 for 65mm N>=50	31.5									
	33.00m: Sandy fine to coarse GRAVEL, trace silt; grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100		32.0									
	33.50m: Very dense.				SPT	100	34/16// for 15mm N>=50	32.5									
	34.10m: Gravelly fine to coarse SAND, trace silt; grey. Moist. Gravel, fine to coarse, rounded to sub-angular.				SNC	100		33.0									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
39.67m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_55

SHEET: 8 OF 8

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 04/06/2025

FINISH DATE: 06/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Cam River

CO-ORDINATES: 5199645.62 mN
 (NZTM2000) 1572434.15 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.65m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations	25	50	75
Bromley Formation	[CONT] 34.10m: Gravelly fine to coarse SAND, trace silt; grey. Moist. Gravel, fine to coarse, rounded to sub-angular.				SPT	100	23/27// for 50mm N>=50										
	35.10m: Gravelly fine to medium SAND; dark orange. Moist. Gravel, fine to medium, rounded to sub-angular.																
	35.40m: Fine to medium SAND, minor gravel; brownish orange. Moist. Gravel, fine, rounded.																
	35.90m: Gravelly fine to medium SAND; brownish orange. Moist. Gravel, fine to medium, rounded to sub-angular.				SNC	100											
	36.60m: Sandy fine to coarse GRAVEL; light brown. Very dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 36.60m: 80mm cobble.				SPT	100	26/24// for 10mm N>=50										
	37.60m: Gravelly fine to coarse SAND, trace silt; light brown. Dry. Gravel, fine to coarse.				SNC	100											
	38.10m: Sandy fine to coarse GRAVEL, minor silt; light brown. Very dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100	23/27// for 30mm N>=50										
	38.60m: Gravelly fine to coarse SAND, minor silt; light brown. Dry. Gravel, fine to coarse.				SNC	100											
	39.10m: Medium to coarse GRAVEL, trace cobbles; brown. Moist. Gravel, sub-rounded to sub-angular.																
	39.30m: Gravelly fine to coarse SAND, trace silt and trace cobbles; light brown. Dry. Gravel, fine to coarse. 39.60m: Very dense.						50 for 65mm N>=50										
39.67m: EOBH. Target depth																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
39.67m

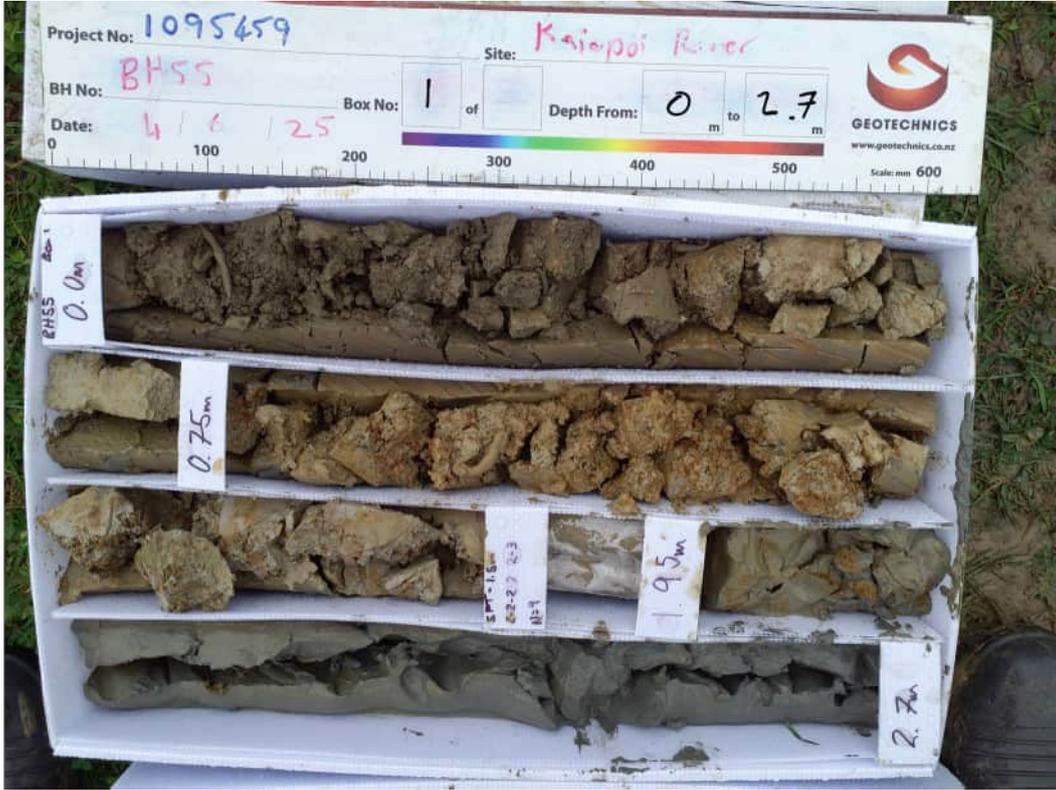
Scale 1:25

Rev.: A

CORE PHOTOS

BOREHOLE No.: **BH_55**
 Hole Location: Cam River
 SHEET: 1 OF 7

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199645.62 mN 1572434.15 mE	DRILL TYPE: XL170	HOLE STARTED: 04/06/2025 HOLE FINISHED: 06/06/2025
R.L.:	1.65m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



0.00-2.70m



2.70-5.75m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199645.62 mN 1572434.15 mE	DRILL TYPE: XL170	HOLE STARTED: 04/06/2025 HOLE FINISHED: 06/06/2025
R.L.:	1.65m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



5.75-8.85m



8.85-12.20m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199645.62 mN 1572434.15 mE	DRILL TYPE: XL170	HOLE STARTED: 04/06/2025 HOLE FINISHED: 06/06/2025
R.L.:	1.65m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



12.20-15.20m



15.20-18.30m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199645.62 mN 1572434.15 mE	DRILL TYPE: XL170	HOLE STARTED: 04/06/2025 HOLE FINISHED: 06/06/2025
R.L.:	1.65m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



18.30-21.30m



21.30-24.68m

CORE PHOTOS

BOREHOLE No.: **BH_55**
 Hole Location: Cam River
 SHEET: 5 OF 7

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199645.62 mN 1572434.15 mE	DRILL TYPE: XL170	HOLE STARTED: 04/06/2025 HOLE FINISHED: 06/06/2025
R.L.:	1.65m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA

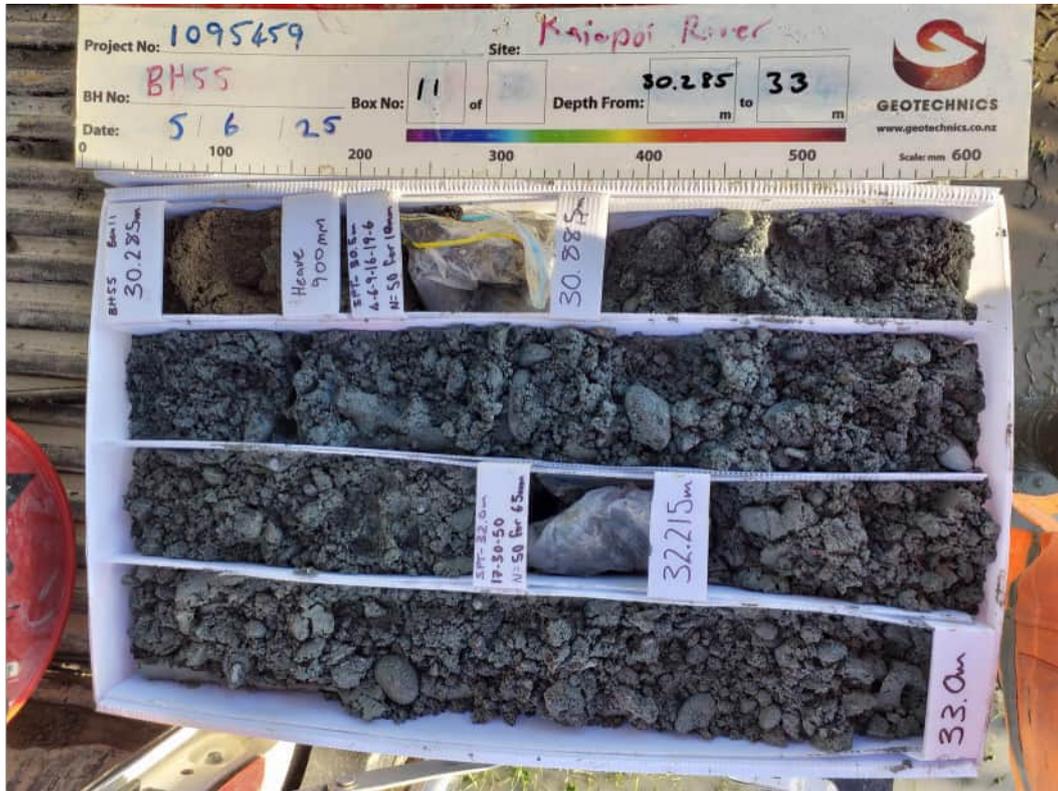


24.68-27.40m



27.40-30.29m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199645.62 mN 1572434.15 mE	DRILL TYPE: XL170	HOLE STARTED: 04/06/2025 HOLE FINISHED: 06/06/2025
R.L.:	1.65m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



30.29-33.00m

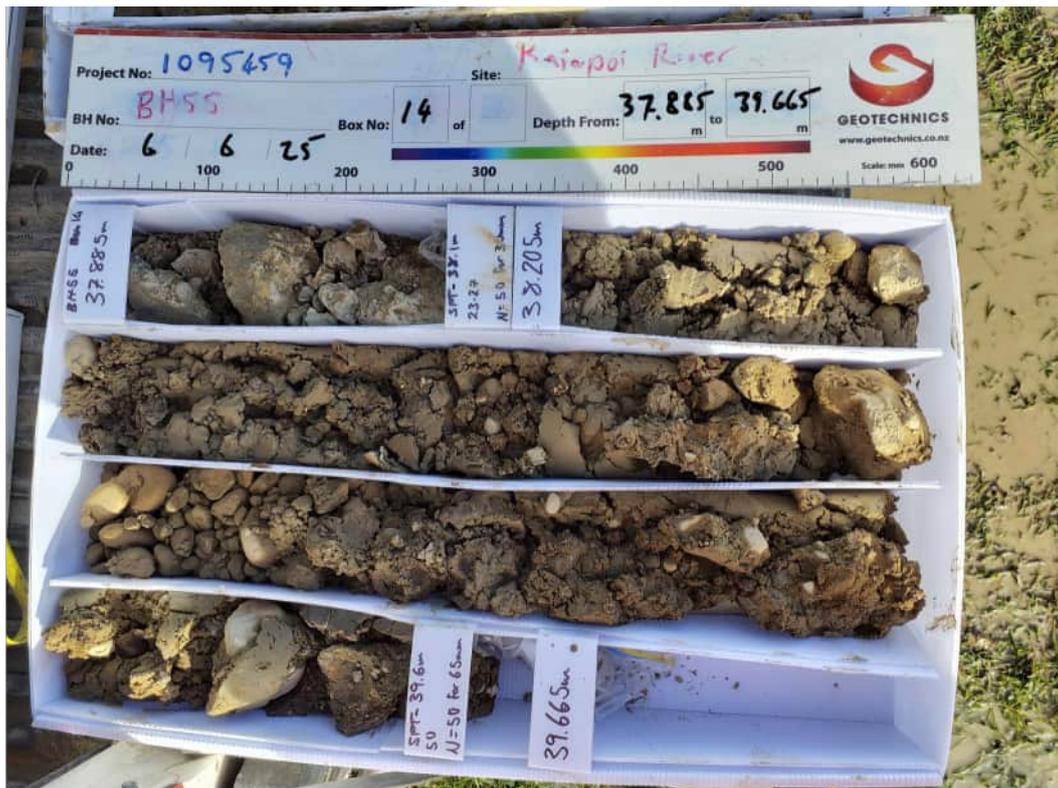


33.00-35.40m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199645.62 mN 1572434.15 mE	DRILL TYPE: XL170	HOLE STARTED: 04/06/2025 HOLE FINISHED: 06/06/2025
R.L.:	1.65m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: ALSP CHECKED: DAA



35.40-37.89m



37.89-39.67m



BOREHOLE LOG

BOREHOLE No.:

BH_57

SHEET: 2 OF 7

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Williams Street East

CO-ORDINATES: 5199891.31 mN
 (NZTM2000) 1572798.81 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.18m
 R.L. COLLAR: 3.18m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	[CONT] 2.40m: Gravelly fine to coarse SAND, minor silt; yellowish brown. Wet. Gravel, fine to medium, rounded to sub-rounded.																	
	5.40m: Fine to medium GRAVEL, trace sand; grey. Wet. Gravel, sub-rounded to sub-angular.				SNC	100												
	5.70m: Medium to coarse SAND, some gravel, trace silt; grey. Wet. Gravel, fine to medium, sub-rounded to sub-angular.																	
	5.90m: Silty fine to coarse SAND, some gravel; grey. Wet. Gravel, fine to medium, sub-rounded to sub-angular.																	
	6.05m: Fine to coarse SAND, trace gravel; grey. Dense, wet. Gravel, fine, rounded.				SPT	100	3/4// 6/7/8/10 N=31											
	6.60m: Fine to coarse SAND, some silt, trace gravel; grey. Wet. Gravel, fine, rounded.						3 @ 6.60m BH057 .6.6: PSD Percent passing 63 um sieve: 15%							6.60 - 7.00m BH057 .6.6: PSD Percent passing 63 um sieve: 15%				
	6.90 - 7.00m Some silt.																	
	7.00m: Fine to coarse SAND; grey. Wet.				SNC	100												
	7.55m: Silty fine to medium SAND; grey. Loose, wet.				SPT	100	1/1// 12/2/2 N=7											
	7.80m: Sandy SILT, trace gravel; grey. Firm, wet, gap graded, non-plastic. Sand, fine to medium; gravel, fine to medium, rounded. Trace shells.						4 @ 8.00m BH057 .8.0: PSD Percent passing 63 um sieve: 49%							8.00 - 8.40m BH057 .8.0: PSD Percent passing 63 um sieve: 49%				
8.40m: Silty fine to medium SAND; grey. Wet. Trace shells.				SNC	100													
8.70m: Sandy fine to medium GRAVEL; dark grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse. Minor shells.																		
9.10m: Dense.				SPT	100	2/2// 6/10/10/17 N=43												
9.80m: Silty fine SAND; dark grey. Wet. Trace shells.				SNC	100													

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.65m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_57

SHEET: 3 OF 7

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Williams Street East

CO-ORDINATES: 5199891.31 mN
(NZTM2000) 1572798.81 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.18m
R.L. COLLAR: 3.18m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Christchurch Formation	[CONT] 9.80m: Silty fine SAND; dark grey. Wet. Trace shells. 10.05m: Fine SAND, trace silt; dark grey. Wet. Trace shells.				SNC	100		-7											
	10.30m: SILT, trace wood fragments, trace roots; light grey. Firm, moist, low to medium plasticity. Wood fragments retain some fibre strength. 10.50 - 10.60m Minor fine sand.				SNC	100													
	10.60m: Push tube. Lab Technician description of sample: Gravelly SAND with some silt and organics; dark grey.				PT	100													
	11.05m: Sandy fine to medium GRAVEL, trace silt; grey. Very dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100													
	12.00m: Fine to medium GRAVEL, some sand; grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 12.20m: Medium dense.				SPT	22													
	13.50m: Sandy fine to medium GRAVEL, trace silt; grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 13.70m: Very dense.				SPT	100													
Burnham Formation	13.80m: Gravelly fine to coarse SAND; light orange grey. Very dense, saturated. Gravel, fine to medium, sub-rounded to sub-angular.				SPT	100													
	14.50m: Sandy fine to medium GRAVEL; light orange grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100													

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.65m

Scale 1:25

Box 9.10-12.0m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_57

SHEET: 4 OF 7

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Williams Street East

CO-ORDINATES: 5199891.31 mN
 (NZTM2000) 1572798.81 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.18m
 R.L. COLLAR: 3.18m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 14.50m: Sandy fine to medium GRAVEL; light orange grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 15.20m: Very dense.				SNC	100	10/8// 11/11/18/10 for 35mm N ₅₀	-12	15.5									
	15.40m: Fine to medium GRAVEL, some sand; grey. Very dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100			16.0									
	16.00m: Sandy fine to medium GRAVEL, trace silt; light orange grey. Wet. Gravel, sub-rounded to sub-angular.				SNC	100			16.5									
	16.70m: Very dense.				SPT	100	9/16// 25/25 for 70 mm N ₅₀		17.0									
	16.80m: Sandy fine to medium GRAVEL, trace silt; light orange grey. Very dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100			17.5									
	18.15m: Fine to medium GRAVEL, some sand, trace silt; greyish brown. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 18.30m: Very dense.				SPT	100	3/8// 10/15/25 for 70 mm N ₅₀		18.5									
	19.30m: SILT, minor sand; light brown. Soft, saturated, non-plastic, dilatant. Sand, fine.				SNC	100			19.5									
	19.50m: Fine to medium GRAVEL, some sand, minor silt; light brown. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 19.80m: Very dense.				SPT	100	7/11// 15/15/15/5 for 55mm N ₅₀											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.65m

Scale 1:25

Box 15.20-18.15m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_57

SHEET: 5 OF 7

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Williams Street East

CO-ORDINATES: 5199891.31 mN
(NZTM2000) 1572798.81 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.18m
R.L. COLLAR: 3.18m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Burnham Formation	20.00m: Fine to medium GRAVEL, some sand, trace silt; greyish brown. Very dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100		-17											
	21.60m: Fine to coarse GRAVEL, some sand, minor silt; light brown. Very dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100	7/13// 15/15/15/5 for 55mm N>=50												
	21.90m: SILT, some sand, minor gravel; yellowish brown. Stiff, moist, non-plastic. Sand, fine to coarse; gravel, coarse, sub-rounded to sub-angular.																		
	22.10m: Fine to coarse GRAVEL, some sand, minor silt; light brown. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100													
	22.40m: Sandy fine to coarse GRAVEL, minor silt; light brown. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.																		
	22.80m: Very dense.				SPT	100	8/10// 10/20/20 for 70 mm N>=50												
	23.90 - 24.40m Greenish grey colour.				SNC	100													
	24.45m: SILT; light grey. Very stiff, moist, non-plastic, dilatant.				SPT	100	1/3// 3/7/6/6 N=22												
	24.60m: Organic SILT; dark brown. Very stiff, moist, non-plastic.																		
	24.85m: Push tube.				PT	100		PT @ 24.85m											
24.85m: Push tube retained for future lab testing. Sample not extruded at time of log production.																			

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.65m

Scale 1:25

Box 18: 15-21.10m

Box 21: 10-23.95m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_57

SHEET: 6 OF 7

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Williams Street East

CO-ORDINATES: 5199891.31 mN
(NZTM2000) 1572798.81 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.18m
R.L. COLLAR: 3.18m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Fracture Spacing (mm)	RQD (%)	25 50 75					
Burnham Formation	[CONT] 24.85m: Push tube.				PT	100			-22									
	25.15m: Fine to coarse SAND, some silt, minor gravel; grey. Moist. Gravel, fine to medium, sub-rounded to sub-angular.																	
	25.25m: Fine to coarse GRAVEL, some sand, trace silt; grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.																	
	25.70 - 26.00m: Minor silt.																	
	25.90m: Very dense.																	
	26.00m: Fine to coarse GRAVEL, minor sand, trace silt; dark orange brown. Very dense, wet. Gravel, sub-rounded to sub-angular.					SPT	100	25/25// for 65mm N>=50		-23								
	26.90m: Sandy fine to medium GRAVEL, minor silt; orange brown. Moist. Gravel, sub-rounded to sub-angular; sand, fine to coarse.																	
	27.40m: Very dense.					SPT	100	5/20// 25/25 for 45 mm N>=50		-24								
	28.70m: Sandy fine to medium GRAVEL; orange brown. Dry. Gravel, sub-rounded to sub-angular; sand, fine to coarse.																	
	28.90m: Very dense.					SPT	67	22/28// for 70mm N>=50		-25								
29.05m: Sandy fine to medium GRAVEL, trace silt; greenish grey. Wet. Gravel, sub-rounded to sub-angular.																		
29.40m: SILT, minor organics; brownish grey. Soft to firm, moist, low plasticity.																		
29.70 - 30.05m: Trace organics. Greenish grey colour.					SNC	100			-26									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.65m

Scale 1:25

Box: 23.95-26.40m

Box: 28.40-29.05m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_57

SHEET: 7 OF 7

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Williams Street East

CO-ORDINATES: 5199891.31 mN
(NZTM2000) 1572798.81 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.18m
R.L. COLLAR: 3.18m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 29.40m: SILT, minor organics; brownish grey. Soft to firm, moist, low plasticity.				SNC	100		-27										
	30.05m: Sandy fine to medium GRAVEL, minor silt; greenish grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100	10/40// for 70mm N=50	30.5										Box 29.05-30.65m
	30.50m: Very dense.																	
	30.65m: EOBH. Target depth																	

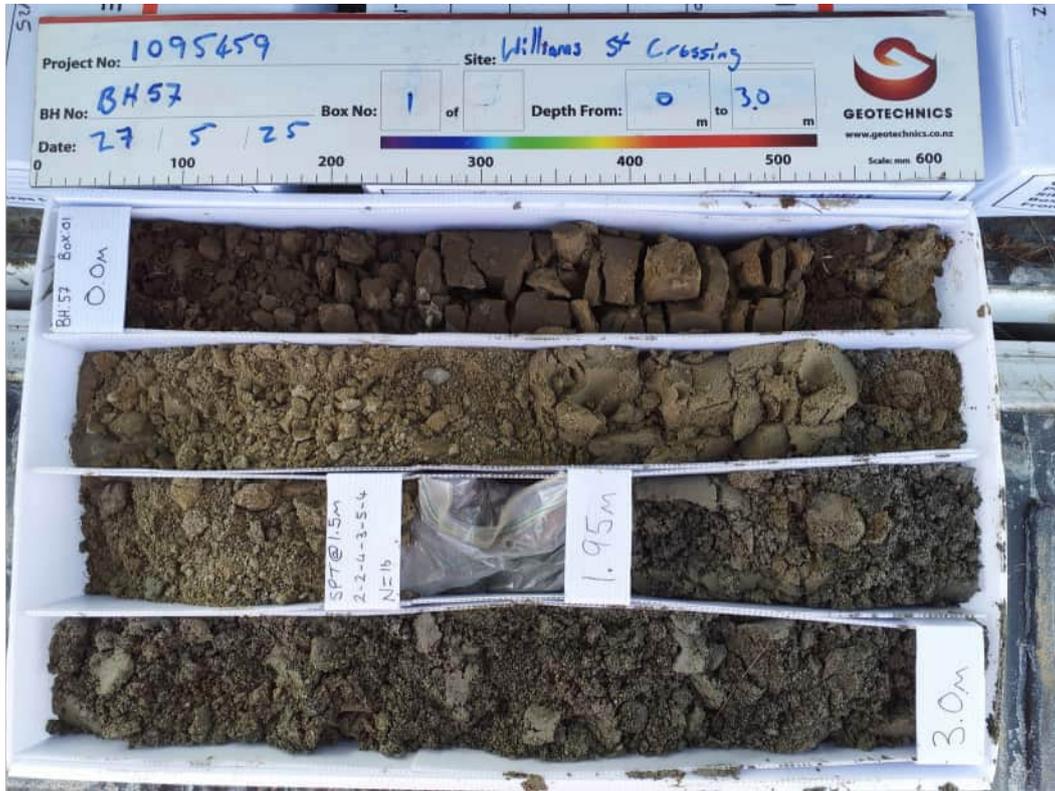
COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.65m

Scale 1:25

Rev.: A

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199891.31 mN 1572798.81 mE	DRILL TYPE: MD1000	HOLE STARTED: 27/05/2025
R.L.:	3.18m	METHOD: Sonic core drilling	HOLE FINISHED: 27/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



0.00-3.00m



3.00-6.10m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199891.31 mN 1572798.81 mE	DRILL TYPE: MD1000	HOLE STARTED: 27/05/2025
R.L.:	3.18m	METHOD: Sonic core drilling	HOLE FINISHED: 27/05/2025
DATUM:	NZVD2016	LOGGED BY: ALSP	CHECKED: DAA



6.10-9.10m

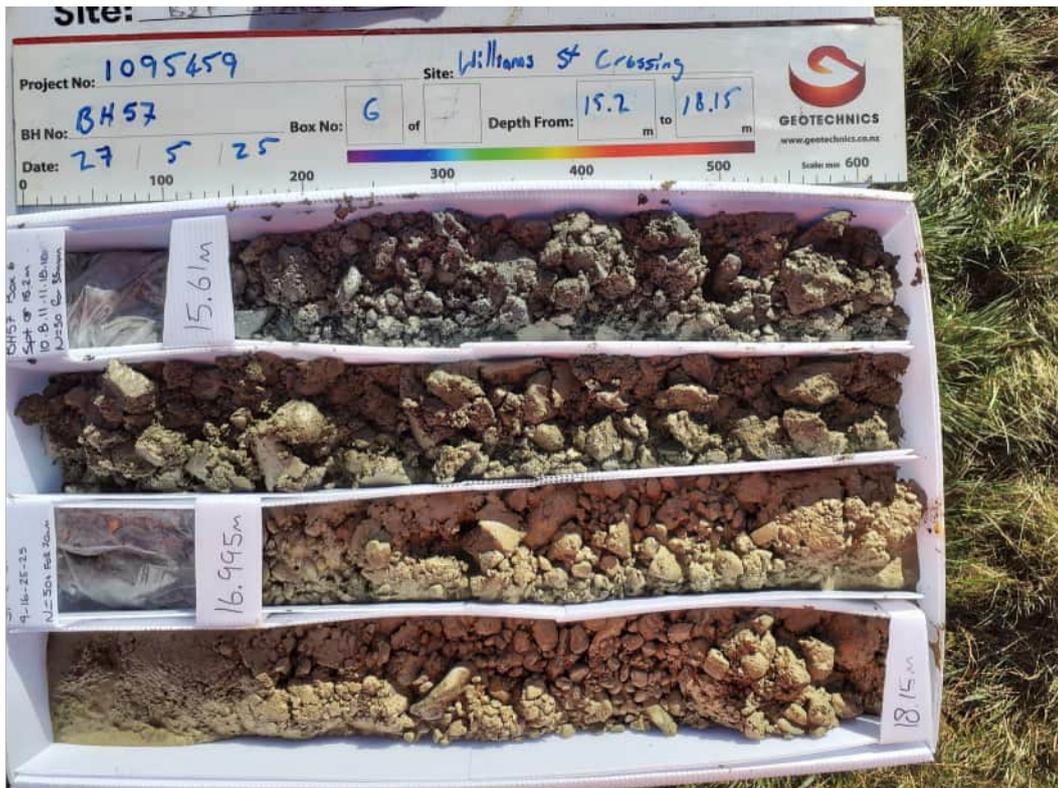


9.10-12.20m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199891.31 mN 1572798.81 mE	DRILL TYPE: MD1000	HOLE STARTED: 27/05/2025
R.L.:	3.18m	METHOD: Sonic core drilling	HOLE FINISHED: 27/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



12.20-15.20m



15.20-18.15m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199891.31 mN 1572798.81 mE	DRILL TYPE: MD1000	HOLE STARTED: 27/05/2025
R.L.:	3.18m	METHOD: Sonic core drilling	HOLE FINISHED: 27/05/2025
DATUM:	NZVD2016	LOGGED BY: ALSP	CHECKED: DAA



18.15-21.10m



21.10-23.95m

CORE PHOTOS

BOREHOLE No.: **BH_57**
 Hole Location: Williams Street East
 SHEET: 5 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199891.31 mN 1572798.81 mE	DRILL TYPE: MD1000	HOLE STARTED: 27/05/2025
R.L.:	3.18m	METHOD: Sonic core drilling	HOLE FINISHED: 27/05/2025
DATUM:	NZVD2016	LOGGED BY: ALSP	CHECKED: DAA



23.95-26.40m



26.40-29.05m

CORE PHOTOS

BOREHOLE No.: **BH_57**
 Hole Location: Williams Street East
 SHEET: 6 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199891.31 mN 1572798.81 mE	DRILL TYPE: MD1000	HOLE STARTED: 27/05/2025
R.L.:	3.18m	METHOD: Sonic core drilling	HOLE FINISHED: 27/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



29.05-30.65m



BOREHOLE LOG

BOREHOLE No.:

BH_58

SHEET: 2 OF 7

DRILLED BY: ProDrill

LOGGED BY: JASL

CHECKED: DAA

START DATE: 29/04/2025

FINISH DATE: 30/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds West

CO-ORDINATES: 5200005.62 mN
 (NZTM2000) 1572945.20 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.19m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Christchurch Formation	5.80m: Sandy fine to coarse GRAVEL, trace cobbles; orange brown. Wet. Gravel, sub-rounded to sub-angular; sand, medium to coarse; cobbles, sub-rounded.				SNC	100			5.5										
	6.10m: Very dense.				SPT	100	15/35// 0/0/0/0 for 70 mm N=50		6.0										
	7.60m: Dense.				SNC	100			7.0										
	8.05m: Dark brownish grey.				SPT	22	2/5// 7/10/11/12 N=40		8.0										
	8.45m: Dark yellowish brown.				SNC	100			8.5										
	8.70 - 8.90m Some cobbles.				SNC	100			9.0										
	8.90m: Gravelly fine to coarse SAND; grey. Wet. Gravel, fine to medium, sub-rounded to sub-angular.				SPT	22	5/6// 11/14/10/10 N=45		9.5										
	9.10m: Dense.				SNC	100													
	9.80m: SILT, trace gravel; dark grey. Very stiff to hard, wet, low plasticity, dilatant. Gravel, fine, rounded.				SNC	100													

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Material/stratigraphic continuity within zones of poor recovery associated with SPT's has been described from soils recovered by over-coring of the insitu test zone. The disturbed, over-cored material has not been retained within core boxes.

Hole Depth
30.95m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_58

SHEET: 3 OF 7

DRILLED BY: ProDrill

LOGGED BY: JASL

CHECKED: DAA

START DATE: 29/04/2025

FINISH DATE: 30/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds West

CO-ORDINATES: 5200005.62 mN
1572945.20 mE
(NZTM2000)

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.19m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	9.95m: Fine to medium SAND, minor silt and minor gravel, trace shells and shell fragments; dark grey. Wet. Gravel, fine to medium, rounded.				SNC	100		-6	10.5									
	10.60m: Very dense.				SPT	22	7/13// 15/15/10/10 for N=50	-7	11.0									
	11.25m: Gravelly fine to coarse SAND; grey. Wet. Gravel, fine to medium, rounded.				SNC	100		-7	11.5									
	12.05m: SILT, trace sand; grey. Very stiff, wet, low plasticity. Sand, fine.				SPT	23	2/6// 10/11/19/10 for N=50	-8	12.5									
	12.20m: Sandy fine to coarse GRAVEL, minor silt; grey. Very dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100		-9	13.0									
	13.50 - 13.70m Locally fine SAND, some gravel. Gravel, fine to medium.				SPT	22	3/5// 8/8/9/10 N=35	-9	13.5									
	13.70m: Dense.				SNC	100		-10	14.0									
					SNC	100		-10	14.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Material/stratigraphic continuity within zones of poor recovery associated with SPT's has been described from soils recovered by over-coring of the insitu test zone. The disturbed, over-cored material has not been retained within core boxes.

Hole Depth
30.95m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_58

SHEET: 5 OF 7

DRILLED BY: ProDrill

LOGGED BY: JASL

CHECKED: DAA

START DATE: 29/04/2025

FINISH DATE: 30/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds West

CO-ORDINATES: 5200005.62 mN
(NZTM2000) 1572945.20 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.19m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	20.83m: Fine SAND, minor gravel; orange brown. Saturated. Gravel, fine to medium, sub-rounded.		[Weathering symbols]	[Strength symbols]	SPT	23	N ₅₀	-16	20.5	[Graphic log symbols]	[Discontinuities symbols]	[RQD symbols]	[Water/Fluid loss symbols]	[Casing symbols]	[Installation symbols]	[Core Box symbols]	[Box 17|60-20.23m]	
	20.93m: SILT, minor gravel, trace sand; orange brown streaked orange. Saturated, low plasticity. Gravel, fine, rounded.																	
	21.03m: Sandy fine to coarse GRAVEL, minor silt; orange brown. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.																	
	21.30m: Very dense.																	
	21.5m: 9/13// 12/15/13/10 for 65mm N ₅₀																	
	22.0m: SNC 100																	
22.5m: SNC 100																		
23.0m: 3/3// 18/22/10/0 for 30mm N ₅₀																		
23.5m: SNC 100																		
24.0m: SNC 100																		
24.5m: 27/23// for 45mm N ₅₀																		
24.70 - 25.30m Grading to; grey.																		

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Material/stratigraphic continuity within zones of poor recovery associated with SPT's has been described from soils recovered by over-coring of the insitu test zone. The disturbed, over-cored material has not been retained within core boxes.

Hole Depth
30.95m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_58

SHEET: 7 OF 7

DRILLED BY: ProDrill

LOGGED BY: JASL

CHECKED: DAA

START DATE: 29/04/2025

FINISH DATE: 30/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds West

CO-ORDINATES: 5200005.62 mN
(NZTM2000) 1572945.20 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.19m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Bromley Formation	[CONT] 29.66m: SILT, trace sand; dark grey. Very stiff, wet, low to medium plasticity. Sand, fine.		[Dotted pattern]	[Dotted pattern]	SNC	100	[Dotted pattern]	-26	30.5	[Yellow shaded area]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]	[Dotted pattern]
	30.50m: NO RECOVERY.																		SPT	0	2.8// 4.5/6.7 N=22
	30.95m: EOBH. Target depth		[Dotted pattern]	[Dotted pattern]														

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Material/stratigraphic continuity within zones of poor recovery associated with SPT's has been described from soils recovered by over-coring of the insitu test zone. The disturbed, over-cored material has not been retained within core boxes.

Hole Depth
30.95m
Scale 1:25

CORE PHOTOS

BOREHOLE No.: **BH_58**
 Hole Location: Quarry Ponds West
 SHEET: 1 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200005.62 mN 1572945.20 mE	DRILL TYPE:	HOLE STARTED: 29/04/2025
R.L.:	4.19m	METHOD: Sonic core drilling	HOLE FINISHED: 30/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



0.00-2.60m



2.60-5.60m

CORE PHOTOS

BOREHOLE No.: **BH_58**
 Hole Location: Quarry Ponds West
 SHEET: 2 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: 5200005.62 mN (NZTM2000) 1572945.20 mE	DRILL TYPE:	HOLE STARTED: 29/04/2025	
R.L.: 4.19m	METHOD: Sonic core drilling	HOLE FINISHED: 30/04/2025	
DATUM: NZVD2016		LOGGED BY: JASL	CHECKED: DAA



5.60-8.45m



8.45-11.65m

CORE PHOTOS

BOREHOLE No.: **BH_58**
 Hole Location: Quarry Ponds West
 SHEET: 3 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200005.62 mN 1572945.20 mE	DRILL TYPE:	HOLE STARTED: 29/04/2025
R.L.:	4.19m	METHOD: Sonic core drilling	HOLE FINISHED: 30/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



11.65-14.75m



14.75-17.60m

CORE PHOTOS

BOREHOLE No.: **BH_58**
 Hole Location: Quarry Ponds West
 SHEET: 4 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200005.62 mN 1572945.20 mE	DRILL TYPE:	HOLE STARTED: 29/04/2025
R.L.:	4.19m	METHOD: Sonic core drilling	HOLE FINISHED: 30/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



17.60-20.23m



20.23-23.13m

CORE PHOTOS

BOREHOLE No.: **BH_58**
 Hole Location: Quarry Ponds West
 SHEET: 5 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200005.62 mN 1572945.20 mE	DRILL TYPE:	HOLE STARTED: 29/04/2025
R.L.:	4.19m	METHOD: Sonic core drilling	HOLE FINISHED: 30/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill LOGGED BY: JASL CHECKED: DAA



23.13-25.90m



25.90-28.90m

CORE PHOTOS

BOREHOLE No.: **BH_58**
 Hole Location: Quarry Ponds West
 SHEET: 6 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200005.62 mN 1572945.20 mE	DRILL TYPE:	HOLE STARTED: 29/04/2025
R.L.:	4.19m	METHOD: Sonic core drilling	HOLE FINISHED: 30/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



28.90-30.95m



BOREHOLE LOG

BOREHOLE No.:
BH_59

SHEET: 1 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 22/04/2025

FINISH DATE: 23/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds East

CO-ORDINATES: 5200063.23 mN
(NZTM2000) 1573246.61 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.14m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	Fill																	
	0.00m: Fine to medium SAND, some gravel; light brown. Moist. Gravel, fine to coarse, sub-rounded to sub-angular. (FILL).																	
	0.20m: Fine to coarse GRAVEL, some sand, trace silt; light brown. Moist. Gravel, sub-rounded to sub-angular; sand, fine to coarse. (FILL).																	
	0.44m: Fine to medium SAND, some gravel; light brown. Moist. Gravel, fine to medium, rounded.				SNC	93												
	1.08m: Fine to medium SAND; light brown. Moist.																	
	1.40m: CORE LOSS.																	
	1.50m: Fine to coarse SAND, minor silt; light grey. Medium dense, moist, uniformly graded. Sand, predominantly fine.				SPT	100	3.0// 3.4/6.7 N=20							1.50 - 2.00m BH059_1.5: PSD Percent passing 63 um sieve: 8%				
	2.25m: Fine to medium SAND, minor silt and minor gravel; grey. Moist. Gravel, fine.				SNC	100												
	2.55m: Gravelly fine to medium SAND; grey. Moist. Gravel, fine to medium.																	
	3.00m: Fine to coarse SAND, minor gravel, trace silt; grey. Medium dense to dense, wet, poorly graded. Gravel, fine to medium, rounded to sub-rounded.				SPT	100	3.4// 6.7/17.9 N=30							3.00 - 4.50m BH059_3.0: PSD Percent passing 63 um sieve: 4%				
3.90m: Fine to medium SAND; brownish grey. Wet.				SNC	100													
4.50m: Fine to coarse SAND, minor gravel; light grey. Medium dense, wet, uniformly graded. Gravel, fine to medium.				SPT	100	4.5// 6.7/17.9 N=29							4.50 - 5.00m BH059_4.5: PSD Percent passing 63 um sieve: 6%					

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.88m

Scale 1:25

Box 0.00-2.85m



BOREHOLE LOG

BOREHOLE No.:
BH_59

SHEET: 2 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 22/04/2025

FINISH DATE: 23/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds East

CO-ORDINATES: 5200063.23 mN
(NZTM2000) 1573246.61 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.14m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	[CONT] 4.50m: Fine to coarse SAND, minor gravel; light grey. Medium dense, wet, uniformly graded. Gravel, fine to medium.				SNC	100		-3									
	6.10m: Fine to coarse SAND, minor gravel, trace silt; brownish grey. Very dense, moist. Gravel, fine, rounded.				SPT	100	3.9// 10/13/21/6 N>=50 Refusal	-4									
					SNC	100		-5									
					SPT	100	4.7// 9/16/19/6 N>=50 Refusal	-7.5									
					SNC	100		-8.5									
	8.76m: Sandy fine to medium GRAVEL; brownish grey. Wet, gap graded. Gravel, rounded; sand, fine to medium.							-9.0									
8.96m: Fine to medium SAND, some gravel; brownish grey. Wet, well graded. Gravel, fine to medium, rounded.							-9.1										
9.10m: Sandy fine to medium GRAVEL, some silt; grey. Very dense, wet. Gravel, rounded; sand, fine to coarse.					SPT	100	5.7// 16/27/7 for 15 mm N>=50 Refusal	-9.5									
9.70m: Fine to medium GRAVEL, minor silt and minor sand; grey. Wet, poorly graded.					SNC	100		-9.8									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.88m

Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_59

SHEET: 4 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 22/04/2025

FINISH DATE: 23/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds East

CO-ORDINATES: 5200063.23 mN
(NZTM2000) 1573246.61 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.14m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	[CONT] 14.20m: Fine to medium GRAVEL, some sand; grey. Wet. Gravel, rounded; sand, fine to coarse.				SNC	105	8.6// 10/10/8/6 N=34	-13										
	15.20m: Sandy fine to coarse GRAVEL; grey. Dense, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SPT	100		15.5										
	16.30m: Fine to coarse GRAVEL, some sand; grey. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SNC	100		-14										
	16.70m: Sandy fine to coarse GRAVEL, some silt; brownish grey. Dense, wet. Sand, fine to coarse.				SPT	100	6.4// 9/11/11/9 N=40	17.0										
	17.55m: Fine to coarse GRAVEL, some sand, minor silt; brownish grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100		17.5										
Burnham Formation	18.30m: Dense.				SPT	100	4.6// 10/7/9/9 N=35	18.5										
	18.85m: Gravelly fine to coarse SAND, some silt; light orangish brown. Wet. Gravel, fine to medium, rounded.				SNC	100		19.0										
	19.03m: Sandy fine to coarse GRAVEL, some silt; orangish brown. Wet. Sand, fine to coarse.				SNC	100		-17										
	19.80m: Very dense.				SPT	100	13/15// 15/13/15/7 for 40mm N>=50 Refusal	19.5										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.88m

Scale 1:25

Box 14.60-17.85m

Rev: A



BOREHOLE LOG

BOREHOLE No.:
BH_59

SHEET: 5 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 22/04/2025

FINISH DATE: 23/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds East

CO-ORDINATES: 5200063.23 mN
(NZTM2000) 1573246.61 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.14m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 19.03m: Sandy fine to coarse GRAVEL, some silt; orangish brown. Wet. Sand, fine to coarse.				SPT	100		-18										
	21.64m: Silty fine to coarse GRAVEL, some sand; orangish brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100		-19										
	22.65m: Gravelly SILT, minor sand; orangish brown. Stiff, wet, low plasticity. Gravel, fine to medium; sand, fine to coarse. 22.80m: Dense.				SPT	100	16/19// 23/20/7 for 35 mm N<=50 Refusal	-20										
	23.25m: Silty fine to coarse GRAVEL, minor sand; light bluish grey. Wet. Sand, fine to medium.				SPT	100	13/19// 16/13/10/9 N=48	-21										
	23.45m: SILT; grey. Stiff, moist, low to medium plasticity.				SNC	100		-22										
Bromley Formation	23.80m: PEAT (AMORPHOUS); brown. Very stiff, dry.																	
	23.90m: SILT, trace sand; grey. Stiff, moist, low plasticity. Sand, fine.																	
	24.90m: Sandy fine to coarse GRAVEL, some silt; light bluish				PT	100		-22										
	24.90m: Sandy fine to coarse GRAVEL, some silt; light bluish				S.	100												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.88m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_59

SHEET: 6 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 22/04/2025

FINISH DATE: 23/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds East

CO-ORDINATES: 5200063.23 mN
(NZTM2000) 1573246.61 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.14m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Bromley Formation	grey. Wet to saturated. Sand, fine to coarse.				SNC	100		25.5									
	25.90m: Dense.							26.0									
	26.10m: Silty fine to coarse GRAVEL, some sand; light orangish brown. Dense, wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	16/15// 10/13/14/ 10 N=47		26.5								
	27.15m: Silty fine to coarse GRAVEL, some sand, trace cobbles; light brownish grey. Saturated. Sand, fine to coarse.								27.0								
	27.40m: Very dense.								27.5								
	27.50m: Silty fine to coarse GRAVEL, some sand; light orangish brown. Very dense, saturated. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	10/12// 17/18/15 N>=50 Refusal		28.0								
	28.25m: Sandy fine to coarse GRAVEL, some silt; light orangish brown. Wet. Sand, fine to coarse.								28.5								
28.90m: Very dense.								29.0									
29.40m: Silty fine to coarse GRAVEL, some sand; light brownish grey. Saturated. Sand, fine to coarse.					SPT	67	18/20// 30/20 N>=50 Refusal	29.5									
29.80m: Sandy fine to coarse GRAVEL, some silt; light orangish brown. Wet to saturated. Gravel, rounded to sub-																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
30.88m

Scale 1:25

Box 23.85-27.15m

Box 27.15-29.80m

Rev.: A

CORE PHOTOS

BOREHOLE No.: **BH_59**
 Hole Location: Quarry Ponds East
 SHEET: 1 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200063.23 mN 1573246.61 mE	DRILL TYPE: XL170	HOLE STARTED: 22/04/2025
R.L.:	2.14m	METHOD: Sonic core drilling	HOLE FINISHED: 23/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



0.00-2.85m



2.85-5.85m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200063.23 mN 1573246.61 mE	DRILL TYPE: XL170	HOLE STARTED: 22/04/2025
R.L.:	2.14m	METHOD: Sonic core drilling	HOLE FINISHED: 23/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



5.85-8.96m



8.96-11.79m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200063.23 mN 1573246.61 mE	DRILL TYPE: XL170	HOLE STARTED: 22/04/2025
R.L.:	2.14m	METHOD: Sonic core drilling	HOLE FINISHED: 23/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



11.79-14.60m



14.60-17.85m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200063.23 mN 1573246.61 mE	DRILL TYPE: XL170	HOLE STARTED: 22/04/2025
R.L.:	2.14m	METHOD: Sonic core drilling	HOLE FINISHED: 23/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



17.85-20.82m



20.82-23.85m

CORE PHOTOS

BOREHOLE No.: **BH_59**
 Hole Location: Quarry Ponds East
 SHEET: 5 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200063.23 mN 1573246.61 mE	DRILL TYPE: XL170	HOLE STARTED: 22/04/2025
R.L.:	2.14m	METHOD: Sonic core drilling	HOLE FINISHED: 23/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



23.85-27.15m



27.15-29.80m

CORE PHOTOS

BOREHOLE No.: **BH_59**
 Hole Location: Quarry Ponds East
 SHEET: 6 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200063.23 mN 1573246.61 mE	DRILL TYPE: XL170	HOLE STARTED: 22/04/2025
R.L.:	2.14m	METHOD: Sonic core drilling	HOLE FINISHED: 23/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



29.80-30.88m



BOREHOLE LOG

BOREHOLE No.:
BH_60

SHEET: 1 OF 6

DRILLED BY: Matt Bovill

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 15/04/2025

FINISH DATE: 16/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds East

CO-ORDINATES: 5200153.89 mN
(NZTM2000) 1573283.05 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.34m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Fill	0.00m: Fine SAND, trace silt; light brown. Wet. Grass present top 2 cm.																	
Top	0.25m: Organic SILT; dark brown. Soft, moist, high plasticity.																	
Christchurch Formation	0.45m: Fine to medium SAND, trace rootlets and trace silt; brownish grey. Moist.				SNC	100												
	1.20 - 1.50m Grading to grey.																	
	1.50m: Medium dense.				SPT	100	1/3// 45/5/6 N=20											
	1.95m: Gravelly fine to coarse SAND, trace silt; brownish grey. Moist. Gravel, fine to medium, rounded to sub-rounded.				SNC	100	1 @ 2.20m BH060_2: 2: PSD Percent passing 63 um sieve: 4%											
	2.70m: Fine to medium SAND, trace gravel; grey. Wet, gap graded. Gravel, fine to medium, rounded.				SPT	100	2/4// 56/8/10 N=29											
	3.00m: Medium dense.																	
3.45m: Fine to coarse SAND, some gravel; grey. Wet. Gravel, fine to medium, rounded.																		
3.65 - 3.85m Fine SAND.																		
4.05m: Fine to medium SAND, trace gravel; grey. Wet. Gravel, fine to medium, rounded.																		
4.50m: Medium dense.				SPT	100	0/2// 22/5/6 N=15												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.28m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_60

SHEET: 2 OF 6

DRILLED BY: Matt Bovill

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 15/04/2025

FINISH DATE: 16/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds East

CO-ORDINATES: 5200153.89 mN
(NZTM2000) 1573283.05 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.34m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Christchurch Formation	5.00m: Fine to medium SAND, minor silt; grey. Wet, uniformly graded.				SNC	100	2 @ 5.00m BH060_5.0: PSD Percent passing 63 um sieve: 5%		-4								
	6.10m: Medium dense.				SPT	100	0.0// 0.3/4/4 N=11		-5								
	6.75 - 6.95m Trace medium, rounded gravel.				SNC	100			-6								
	7.20m: Sandy fine to medium GRAVEL; grey. Wet. Gravel, rounded.				SPT	100	1.2// 12/3/7 N=13		-7								
	7.30m: Fine to medium SAND, some gravel, trace silt; brownish grey. Wet, gap graded. 7.60m: Medium dense.				SNC	100	3 @ 8.00m BH060_8.5: PSD Percent passing 63 um sieve: 13%		-8								
Springston Formation	8.05m: Fine to medium SAND, some gravel, trace silt; brownish grey. Wet, gap graded.				SNC	100			-7								
	8.75m: Sandy fine to coarse GRAVEL; grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100	11/22// 29/21 for 0mm N=50		-8								
	9.10m: Gravelly fine to coarse SAND; grey. Very dense, wet. Gravel, fine to coarse, sub-rounded to sub-angular.				SNC	100			-8								
	9.78m: Fine to coarse GRAVEL, some sand, trace silt; grey. Wet. Gravel, rounded to sub-angular, Grades to coarse; sand, fine to coarse, poorly graded.				SNC	100			-8								

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.28m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_60

SHEET: 3 OF 6

DRILLED BY: Matt Bovill

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 15/04/2025

FINISH DATE: 16/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds East

CO-ORDINATES: 5200153.89 mN
(NZTM2000) 1573283.05 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.34m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	[CONT] 9.78m: Fine to coarse GRAVEL, some sand, trace silt; grey. Wet. Gravel, rounded to sub-angular, Grades to coarse; sand, fine to coarse, poorly graded.				SNC	100		9.78									
	10.60m: Dense.				SPT	22	5.5// 6/11/16/15 N=48	10.60									
	11.85m: Sandy fine to coarse GRAVEL; brownish grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100		11.85									
	12.20m: Dense.				SPT	22	13/11// 12/7/11/10 N=40	12.20									
	12.80m: Fine to coarse GRAVEL, minor sand, trace silt; grey. Wet. Gravel, rounded; sand, fine to coarse.				SNC	100		12.80									
13.60 - 13.70m Some sand.							13.60 - 13.70										
13.70m: Fine to coarse GRAVEL, some sand; orangish brown. Very dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	9/13// 15/14/15/6 for 30mm N=50	13.70										
				SNC	72		14.50										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.28m

Scale 1:25

Rev: A



BOREHOLE LOG

BOREHOLE No.:

BH_60

SHEET: 4 OF 6

DRILLED BY: Matt Bovill

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 15/04/2025

FINISH DATE: 16/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds East

CO-ORDINATES: 5200153.89 mN
 (NZTM2000) 1573283.05 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.34m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering		Rock Strength		Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
		SW RW CW PW	CS*	UCS*	σ _c σ _t σ ₃ σ ₁ σ ₂ σ ₃ σ ₁ σ ₂ σ ₃						2000 2000 2000 90 90 20	25 50 75						
Springston Formation	15.20m: Dense.			SNC	72		8.8// 9/14/12/12 N=47	-14	15.5									
	15.95m: Sandy fine to coarse GRAVEL, some silt; orangish brown. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.			SNC	100			-15	16.0									
	16.45m: Gravelly fine to coarse SAND, minor silt; orangish brown. Wet. Gravel, fine to coarse, sub-rounded to sub-angular.							-16	16.5									
Burnham Formation	16.70m: Sandy fine to coarse GRAVEL, minor silt; orangish brown. Dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.			SPT	100		11/10// 11/11/5/5 N=32	-17	17.0									
								-17	18.5									
	19.40 - 19.80m Colour change to dark orange brown.			SNC	100		8.8// 9/9/10/8 N=36	-18	19.0									
	19.80m: Very dense.			SPT	100		11/12// 14/15/15/6 for 35mm	-18	19.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.28m
Scale 1:25

Box 14.90-17.95m



BOREHOLE LOG

BOREHOLE No.:
BH_60

SHEET: 5 OF 6

DRILLED BY: Matt Bovill

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 15/04/2025

FINISH DATE: 16/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds East

CO-ORDINATES: 5200153.89 mN
(NZTM2000) 1573283.05 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 1.34m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation					SPT	100	N > 50		-19									
					SNC	100			20.5									
					SPT	29	16/17// 20/17/13 for 0 mm N > 50		-20									
					SNC	100			21.0									
Bromley Formation	22.80m: Organic SILT; black. Very stiff, moist, non-plastic, trace wood.				SPT	100	5.5// 6.7/7/8 N=28		-21									
	23.25m: SILT, trace sand; grey. Very stiff, moist, low to medium plasticity.				SPT	100			21.5									
	23.80m: Grading to; light bluish grey. Dry, medium plasticity.				SNC	100			22.0									
	24.20 - 24.40m Friable.				SPT	100			22.5									
	24.40m: Fine to coarse GRAVEL, some sand, minor silt; orange. Very dense, wet to saturated. Gravel, rounded to sub-angular.				SPT	100	8.2/1// 29/21 for 0mm N > 50		-23									
					SNC	93			23.0									
					SNC	100			23.5									
					SNC	100			24.0									
					SPT	100			24.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
26.28m

Scale 1:25

Box 17.95-20.91m

Box 20.91-23.85m

CORE PHOTOS

BOREHOLE No.: **BH_60**
 Hole Location: Quarry Ponds East
 SHEET: 1 OF 5

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200153.89 mN 1573283.05 mE	DRILL TYPE: XL170	HOLE STARTED: 15/04/2025
R.L.:	1.34m	METHOD: Sonic core drilling	HOLE FINISHED: 16/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



0.00-2.75m

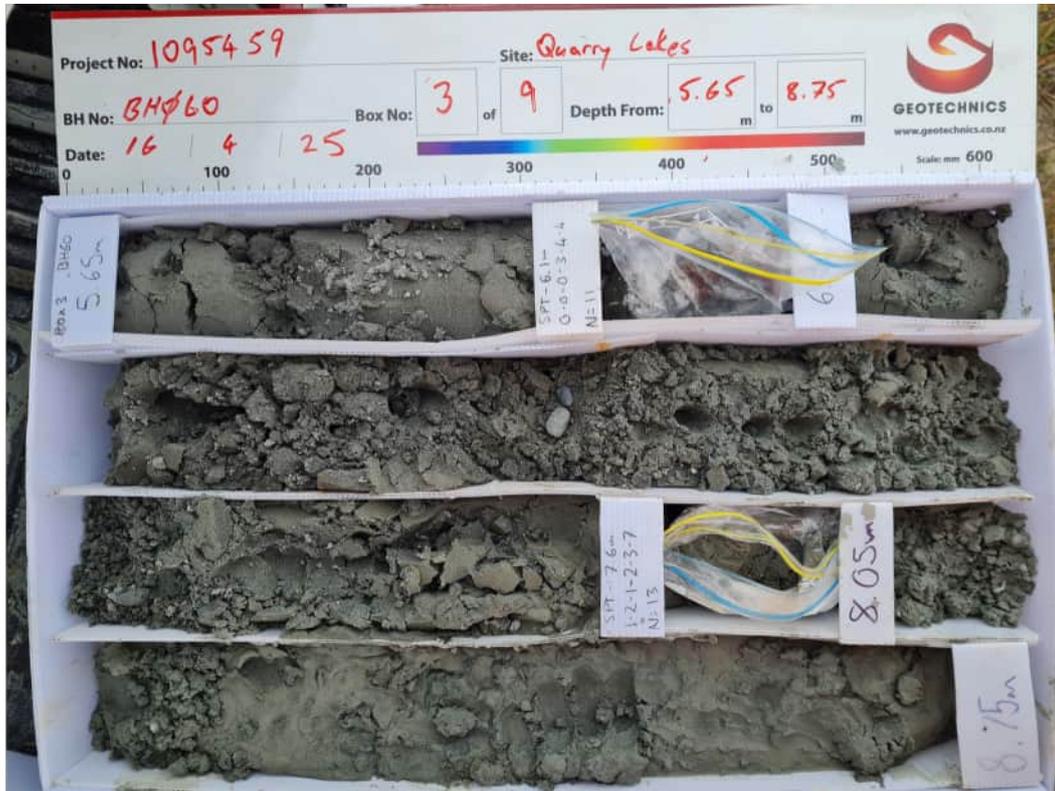


2.75-5.65m

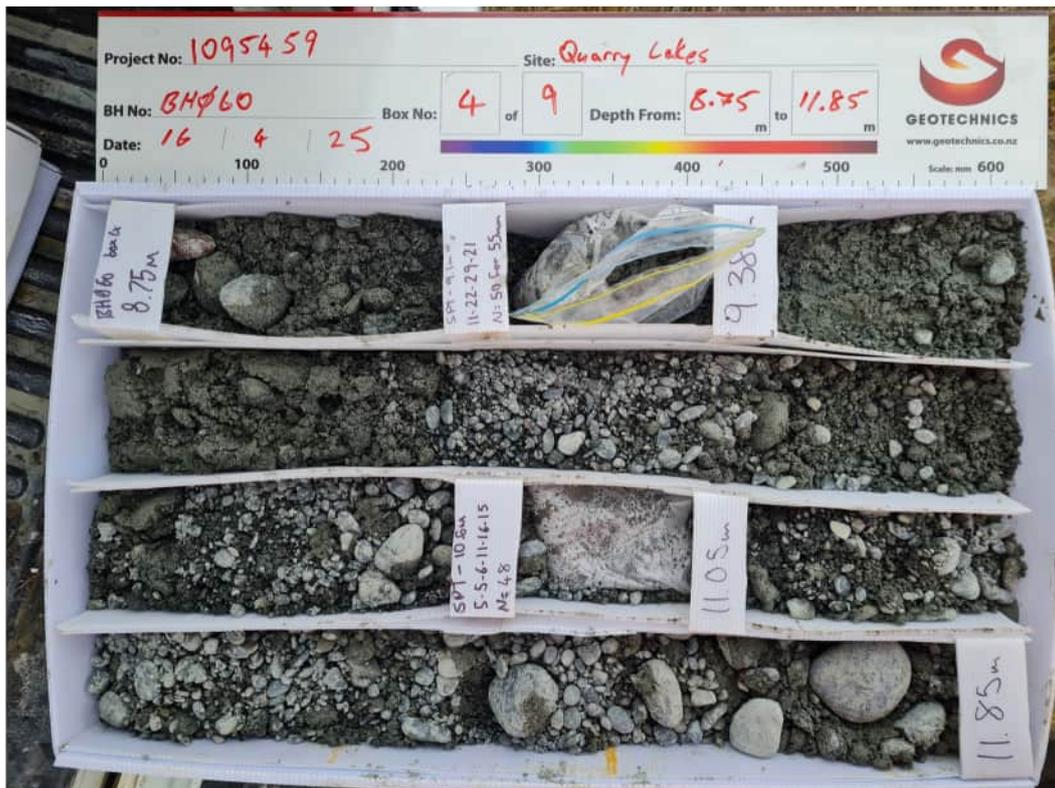
CORE PHOTOS

BOREHOLE No.: **BH_60**
 Hole Location: Quarry Ponds East
 SHEET: 2 OF 5

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: 5200153.89 mN (NZTM2000) 1573283.05 mE	DRILL TYPE: XL170	HOLE STARTED: 15/04/2025 HOLE FINISHED: 16/04/2025	
R.L.: 1.34m	METHOD: Sonic core drilling	DRILLED BY: ProDrill	
DATUM: NZVD2016		LOGGED BY: ALSP	CHECKED: DAA



5.65-8.75m

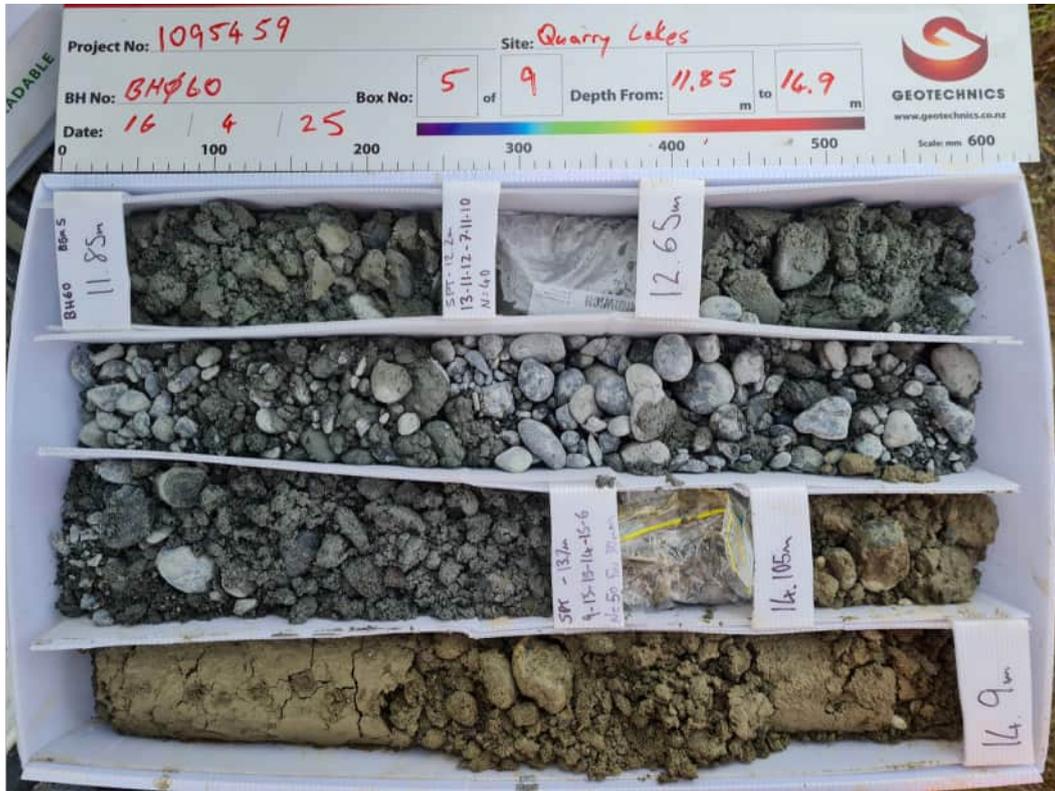


8.75-11.85m

CORE PHOTOS

BOREHOLE No.: **BH_60**
 Hole Location: Quarry Ponds East
 SHEET: 3 OF 5

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200153.89 mN 1573283.05 mE	DRILL TYPE: XL170	HOLE STARTED: 15/04/2025
R.L.:	1.34m	METHOD: Sonic core drilling	HOLE FINISHED: 16/04/2025
DATUM:	NZVD2016	LOGGED BY: ALSP	CHECKED: DAA



11.85-14.90m



14.90-17.95m

CORE PHOTOS

BOREHOLE No.: **BH_60**
 Hole Location: Quarry Ponds East
 SHEET: 4 OF 5

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200153.89 mN 1573283.05 mE	DRILL TYPE: XL170	HOLE STARTED: 15/04/2025
R.L.:	1.34m	METHOD: Sonic core drilling	HOLE FINISHED: 16/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



17.95-20.91m



20.91-23.85m

CORE PHOTOS

BOREHOLE No.: **BH_60**
 Hole Location: Quarry Ponds East
 SHEET: 5 OF 5

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200153.89 mN 1573283.05 mE	DRILL TYPE: XL170	HOLE STARTED: 15/04/2025
R.L.:	1.34m	METHOD: Sonic core drilling	HOLE FINISHED: 16/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



23.85-26.28m



BOREHOLE LOG

BOREHOLE No.:

BH_61

SHEET: 2 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 28/04/2025

FINISH DATE: 29/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds to Fullers Road.

CO-ORDINATES: 5200314.23 mN
 (NZTM2000) 1573558.94 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.56m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Christchurch Formation	[CONT] 4.50m: Gravelly fine to coarse SAND, minor silt; light grey. Loose, moist. Gravel, fine to medium, rounded. 5.00 - 6.55m Moderately widely spaced, very thin to thin beds of fine to medium, rounded gravel interbedded with predominantly fine to medium grained sand, minor silt, trace fine rounded gravel.				SNC	100		-3	5.5										
	6.10m: Dense.				SPT	100	3.5// 9/13/14/13 N=49	-4	6.5										
	6.55m: Silty fine to medium SAND, trace gravel; light grey. Wet to saturated, dilatant. Gravel, fine, rounded.								7.0										
	7.00m: Fine to coarse SAND, minor silt; light grey. Wet, uniformly graded, predominantly fine sand.				SNC	100	BH061_7.0_PSD @ 7.00m BH_61_7.0_PSD Percent passing 63um sieve 8%	-5	7.5				7.00 - 7.20m BH_61_7.0 : PSD Percent passing 63 um sieve: 8%						
	7.60m: Fine to medium SAND, trace gravel; light grey. Dense, wet. Gravel, fine, rounded.				SPT	100	2.4// 7/11/11/10 N=39	-6	8.5										
	8.20 - 8.25m Locally grading to, some gravel.				SNC	100		-7	9.5										
	8.90m: Gravelly fine to medium SAND, some silt; light grey. Moist. Gravel, fine, rounded.				SPT	100	2.2// 4.5/7/9 N=25		9.0										
	9.10m: Fine to medium SAND, some silt, minor gravel; light grey. Medium dense, wet. Gravel, fine to medium, rounded.				SNC	100			9.5										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
30.95m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_61

SHEET: 3 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 28/04/2025

FINISH DATE: 29/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds to Fullers Road.

CO-ORDINATES: 5200314.23 mN
 (NZTM2000) 1573558.94 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.56m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Christchurch Formation	[CONT] 9.10m: Fine to medium SAND, some silt, minor gravel; light grey. Medium dense, wet. Gravel, fine to medium, rounded.				SNC	100		10.5								
	10.60m: Fine to medium SAND, some gravel; light grey. Very dense, wet. Gravel, fine to medium, rounded.				SPT	100	4.6// 10/14/17/9 for 35mm N<=50	11.0								
Burnham Formation	11.10m: Sandy fine to medium GRAVEL; light grey. Moist. Sand, coarse.				SNC	100		11.5								
	12.00m: Silty fine to medium GRAVEL, some sand; light grey. Moist. Sand, fine to medium. 12.20m: Medium dense.				SPT	100	6.6// 6.8/6.6 N=26	12.5								
	12.65m: Sandy fine to coarse GRAVEL, minor silt; light grey. Wet. Sand, fine to medium.															
	12.75m: SILT, minor sand, trace rootlets; light grey. Stiff to very stiff, moist, low to medium plasticity, insensitive. Sand, fine.															
	12.95m: Sandy SILT, trace rootlets; light grey. Stiff to very stiff, moist, low to medium plasticity, insensitive. Sand, fine.															
	13.25m: Silty fine to medium SAND; light grey. Saturated, dilatant.															
	13.50m: Fine to medium SAND, trace silt; light grey. Wet. 13.70m: Dense.					SPT	100	7.1// 11/12/12/10 N=45	14.0							
14.15m: Sandy fine to medium GRAVEL, some silt; light grey. Wet. Gravel, rounded to sub-rounded; sand, fine to medium.					SNC	100		14.5								

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
30.95m

Scale 1:25

Box 9.55-12.65m

Rev: A



BOREHOLE LOG

BOREHOLE No.:

BH_61

SHEET: 4 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 28/04/2025

FINISH DATE: 29/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds to Fullers Road.

CO-ORDINATES: 5200314.23 mN
 (NZTM2000) 1573558.94 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.56m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Burnham Formation	[CONT] 14.15m: Sandy fine to medium GRAVEL, some silt; light grey. Wet. Gravel, rounded to sub-rounded; sand, fine to medium. 15.20m: Dense.		[Weathering symbols]	[Strength symbols]	SNC	100	22// 7/10/10/11 N=38	-13	[Graphic log symbols]	[Defect log symbols]	[Fracture spacing symbols]	[RQD symbols]	[Water level symbols]	[Casing symbols]	[Installation symbols]	[Core box symbols]
	15.65m: Sandy fine to coarse GRAVEL, minor silt, trace cobbles; light grey. Wet, well graded. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100	7/6// 8/8/9/8 N=33	-14								
	16.70m: Medium dense.				SNC	100	7/12// 11/14/13/12 for 60mm N=50 Refusal	-15								
	18.30m: Very dense.				SNC	100	7/12// 13/18/12/7 for 45mm N=50 Refusal	-16								
	18.72m: Silty fine to coarse GRAVEL, some sand; light brown. Wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100		-17								
	19.30m: Silty fine to medium SAND, some gravel; light brown. Saturated. Gravel, fine to coarse, rounded to sub-angular.				SNC	100		-17								
	19.40m: Silty fine to coarse GRAVEL, some sand; light brown. Saturated, well graded, dilatant. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100		-17								
19.80m: Very dense.		SNC	100		-17											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:

BH_61

SHEET: 5 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 28/04/2025

FINISH DATE: 29/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds to Fullers Road.

CO-ORDINATES: 5200314.23 mN
 (NZTM2000) 1573558.94 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.56m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 19.40m: Silty fine to coarse GRAVEL, some sand; light brown. Saturated, well graded, dilatant. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	93												
	20.55 - 20.70m Saturated.				SNC	100												
	21.15 - 21.30m Saturated.				SPT	100	7/10// 13/17/20 for 75 mm N>=50 Refusal											
	22.30 - 22.80m Light bluish grey.				SNC	100												
Bromley Formation	22.80m: SILT, minor clay, trace sand; light grey. Firm, saturated, medium plasticity. Sand, fine.				SPT	100	1/5// 7/6/7/7 N=27											
	23.30m: Push tube. Lab technician's sample description: SILT with some clay, grey. Firm, moist.				PT	100												
	23.80m: SILT, minor clay, trace sand; light grey. Firm, moist, low to medium plasticity. Sand, fine.				SNC	100												
	24.40m: SILT, minor clay, trace organics and trace sand; light grey brown. Very stiff, moist, low to medium plasticity. Sand, fine. 24.60 - 24.65m Black amorphous organics.				SPT	100	1/4// 4/3/4/5 N=16											
	23.75 - 23.77m 1D Consolidation Test																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
30.95m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_61

SHEET: 6 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 28/04/2025

FINISH DATE: 29/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds to Fullers Road.

CO-ORDINATES: 5200314.23 mN
 (NZTM2000) 1573558.94 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.56m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Bromley Formation	[CONT] 24.40m: SILT, minor clay, trace organics and trace sand; light grey brown. Very stiff, moist, low to medium plasticity. Sand, fine.																		
	25.40m: Organic SILT; black. Firm, moist, non-plastic. Trace roots and rootlets 0-2mm diameter. Fibres retain some strength.				SNC	100			25.5										
	25.60m: SILT, minor clay, trace organics and trace sand; light greyish brown mottled black. Firm, moist, low to medium plasticity. Sand, fine.																		
	25.90m: Sandy SILT; light grey. Very stiff, moist, non-plastic. Sand, fine.				SPT	100			26.0										
	27.00m: Silty fine SAND; light grey. Saturated.																		
	27.30m: Fine to medium SAND, minor silt; light grey. Wet.																		
	27.40m: SILT, minor sand; light grey. Very stiff, moist, non-plastic. Sand, fine.				SPT	100			27.5										
	28.40 - 28.50m: Minor white and blue nodules 1-3 mm diameter.																		
	28.50m: SILT, minor sand; light grey. Stiff, moist, non-plastic. Sand, fine.																		
	28.90m: Fine SAND, some silt; light grey. Medium dense to dense, wet.				SPT	100			29.0										
29.35m: Fine to coarse SAND; grey. Wet, well graded.																			
29.65m: Sandy fine to coarse GRAVEL, minor silt; grey. Saturated, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100			29.5											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
30.95m

Scale 1:25

Box 24.85-27.85m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_61

SHEET: 7 OF 7

DRILLED BY: ProDrill

LOGGED BY: CARL

CHECKED: DAA

START DATE: 28/04/2025

FINISH DATE: 29/04/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds to Fullers Road.

CO-ORDINATES: 5200314.23 mN
 (NZTM2000) 1573558.94 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.56m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)					25	50	75
Bromley Formation	[CONT] 29.65m: Sandy fine to coarse GRAVEL, minor silt; grey. Saturated, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.		UW SW HW CW OW	UW SW HW CW OW	SNC 100	14/25// 42/8 for 10mm N=50		30.5		2000 2000 2000 90 20						Box 27-85-30.95m
	30.50m: Very dense.				SPT 100			31.0								
	30.95m: EOBH. Target depth							31.5								
								32.0								
								32.5								
								33.0								
								33.5								
								34.0								
								34.5								

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
30.95m

Scale 1:25

Rev.: A

CORE PHOTOS

BOREHOLE No.: **BH_61**
 Hole Location: Quarry Ponds to Fullers Road.
 SHEET: 1 OF 5

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200314.23 mN 1573558.94 mE	DRILL TYPE: XL170	HOLE STARTED: 28/04/2025
R.L.:	2.56m	METHOD: Sonic core drilling	HOLE FINISHED: 29/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



0.00-3.65m



3.65-6.55m

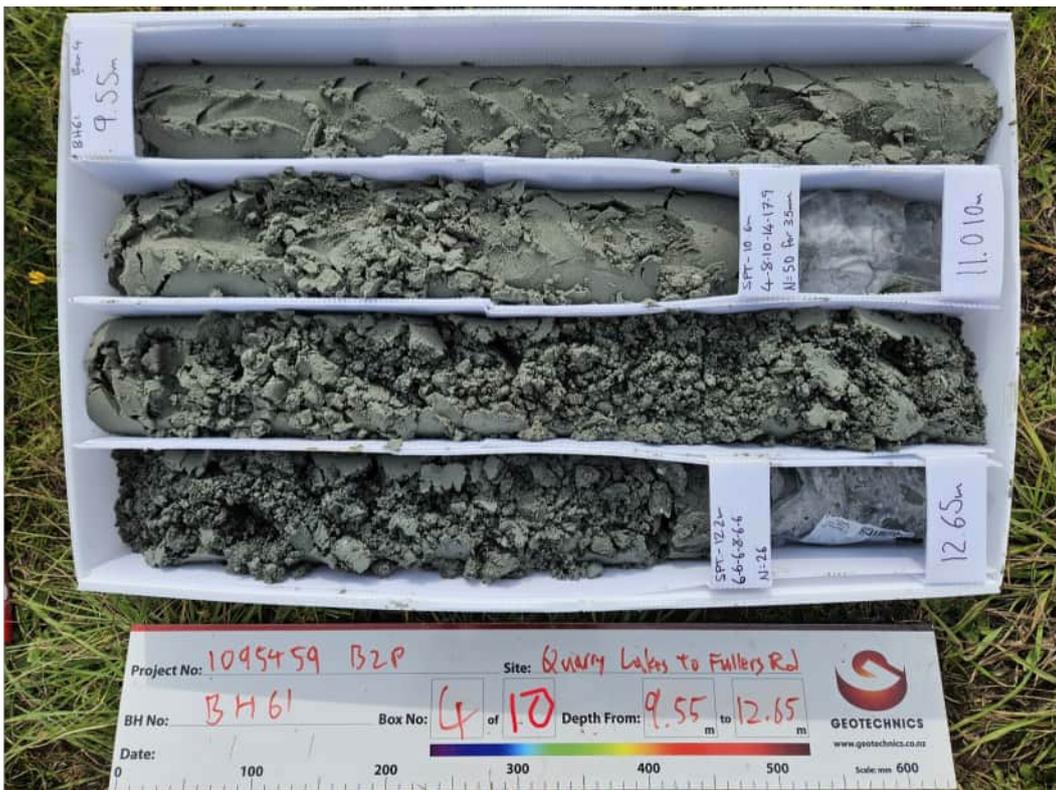
CORE PHOTOS

BOREHOLE No.: **BH_61**
 Hole Location: Quarry Ponds to Fullers Road.
 SHEET: 2 OF 5

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200314.23 mN 1573558.94 mE	DRILL TYPE: XL170	HOLE STARTED: 28/04/2025
R.L.:	2.56m	METHOD: Sonic core drilling	HOLE FINISHED: 29/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



6.55-9.55m

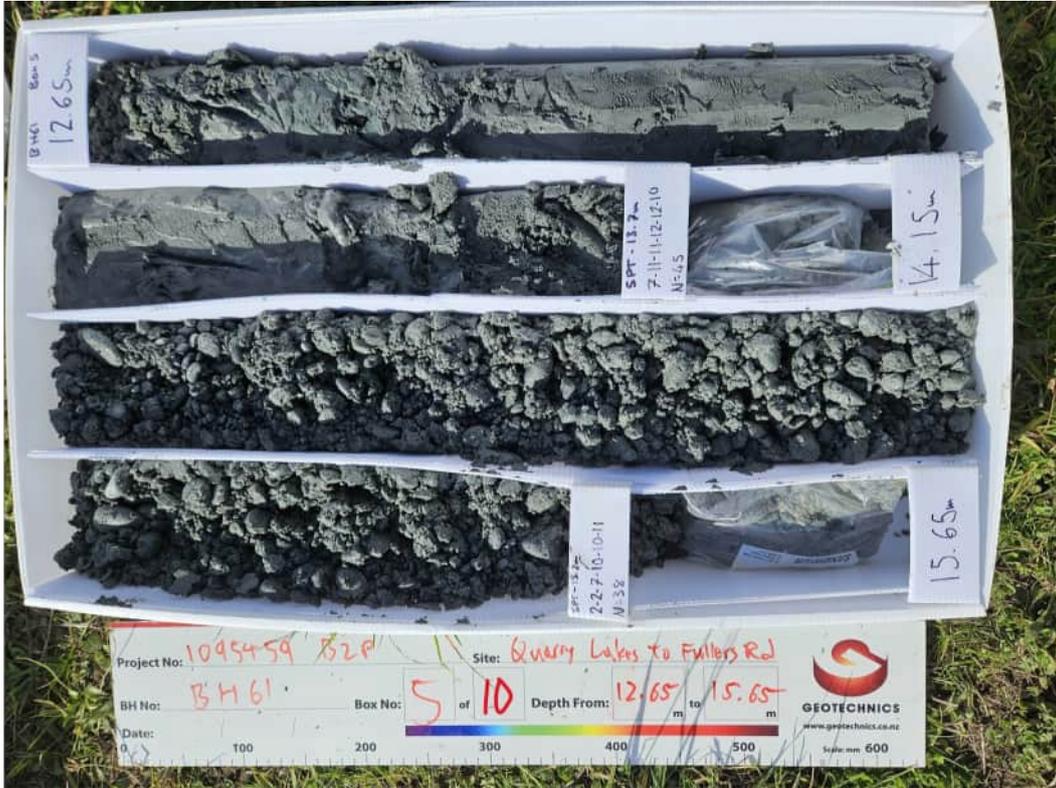


9.55-12.65m

CORE PHOTOS

BOREHOLE No.: **BH_61**
 Hole Location: Quarry Ponds to Fullers Road.
 SHEET: 3 OF 5

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200314.23 mN 1573558.94 mE	DRILL TYPE: XL170	HOLE STARTED: 28/04/2025
R.L.:	2.56m	METHOD: Sonic core drilling	HOLE FINISHED: 29/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



12.65-15.65m

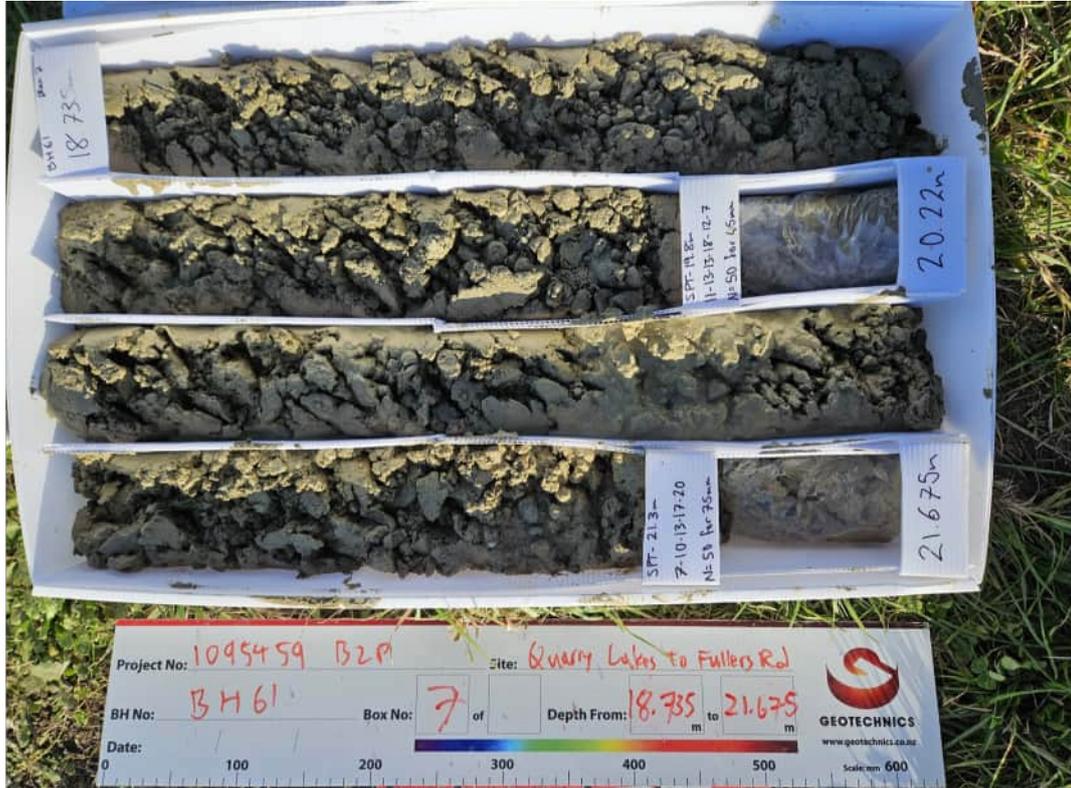


15.65-18.75m

CORE PHOTOS

BOREHOLE No.: **BH_61**
 Hole Location: Quarry Ponds to Fullers Road.
 SHEET: 4 OF 5

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200314.23 mN 1573558.94 mE	DRILL TYPE: XL170	HOLE STARTED: 28/04/2025
R.L.:	2.56m	METHOD: Sonic core drilling	HOLE FINISHED: 29/04/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



18.75-21.68m



21.68-24.85m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200314.23 mN 1573558.94 mE	DRILL TYPE: XL170	HOLE STARTED: 28/04/2025 HOLE FINISHED: 29/04/2025
R.L.:	2.56m	METHOD: Sonic core drilling	DRILLED BY: ProDrill
DATUM:	NZVD2016		LOGGED BY: CARL CHECKED: DAA



24.85-27.85m



27.85-30.95m



BOREHOLE LOG

BOREHOLE No.:
BH_62

SHEET: 1 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 28/05/2025

FINISH DATE: 28/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Williams Street East

CO-ORDINATES: 5199905.12 mN
(NZTM2000) 1573087.75 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.48m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Top	0.00m: Fine SAND, minor silt, trace rootlets; dark brown. Moist. (TOPSOIL).																
Christchurch Formation	0.25m: Fine to medium SAND; light orange brown. Dry.				SNC	100											
	1.00m: Fine to medium SAND; light yellow brown. Wet.																
	1.50m: Medium dense.				SPT	100	2.2// 3.3/5.6 N=17										
	2.10 - 2.30m Sand, fine to coarse.																
	2.50m: Fine to medium GRAVEL, minor sand; brownish grey. Loose to medium dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100											
	3.00m: Gravelly fine to medium SAND, trace silt; yellowish brown. Medium dense, wet. Gravel, fine to medium, rounded to sub-rounded.				SPT	100	2.4// 5.5/9.7 N=22										
	3.60m: Sandy fine to coarse GRAVEL; light yellow brown. Wet. Sand, fine to coarse.																
	4.00m: Gravelly fine to coarse SAND, trace silt; yellowish brown. Wet. Gravel, fine to medium, rounded to sub-rounded.				SNC	100											
4.30 - 5.00m Gravel, fine to coarse.																	
4.50m: Very dense.				SPT	100	12/14// 14/13/9/7 N=43											

2.30m: GWL measured within cased BH at EOH: GWL at 2.30m bgl; BH at 20.24m bgl; Casing at 19.80m bgl. Water flushed with drilling polymer used.

28/05/2025

Box 0.00-2.50m

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LiDAR.

Hole Depth
20.24m
Scale 1:25

TTNZ_20240902 - GeneralLog - 26/08/2025 4:35:32 pm - Produced with Core-GS by GeRoc



BOREHOLE LOG

BOREHOLE No.:

BH_62

SHEET: 2 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 28/05/2025

FINISH DATE: 28/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Williams Street East

CO-ORDINATES: 5199905.12 mN
 (NZTM2000) 1573087.75 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.48m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	[CONT] 4.00m: Gravelly fine to coarse SAND, trace silt; yellowish brown. Wet. Gravel, fine to medium, rounded to sub-rounded.																	
	5.50m: Sandy fine to medium GRAVEL; orange brown. Medium dense to dense, wet. Gravel, rounded; sand, fine to coarse, predominantly medium to coarse.				SNC	100			5.5									
	5.90m: Fine SAND; orange grey. Wet.																	
	6.10m: Very dense.																	
	6.30m: Sandy fine to medium GRAVEL; greyish orange. Very dense, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SPT	100	5/10// 10/9/ 19/12 for 65mm N=50		6.5									
	6.70m: Fine to medium SAND, trace gravel; orange grey. Wet. Gravel, fine, rounded.																	
	6.90m: Sandy fine to medium GRAVEL; greyish orange. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.																	
	7.10m: Fine to medium SAND, trace gravel; orange grey. Wet. Gravel, fine, rounded.				SNC	100			7.0									
	7.30m: Fine to medium SAND; light yellowish brown. Wet.																	
	7.50m: Fine to medium SAND, minor gravel; light yellowish grey. Dense, wet. Gravel, fine to medium, sub-rounded.																	
	7.70m: Fine to medium SAND; grey. Dense, wet.				SPT	100	1/3// 6/10/10/9 N=35		8.0									
	8.20m: Fine to medium GRAVEL, minor sand; grey. Wet. Gravel, rounded to sub-rounded; sand, fine to medium.																	
	8.35m: Fine to medium SAND; grey. Wet.																	
8.60m: Sandy fine to medium GRAVEL; grey. Wet. Gravel, rounded to sub-rounded; sand, fine to medium.				SNC	100			8.5										
8.80m: Fine to medium SAND; grey. Wet.																		
9.10m: Dense.																		
9.55m: SILT; grey. Soft, wet, non-plastic, dilatant.				SPT	100	3/6// 7/10/10/10 N=37		9.5										
Burnham Formation					SNC	100												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LiDAR.

Hole Depth
20.24m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_62

SHEET: 3 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 28/05/2025

FINISH DATE: 28/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Williams Street East

CO-ORDINATES: 5199905.12 mN
(NZTM2000) 1573087.75 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.48m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Burnham Formation	[CONT] 9.55m: SILT; grey. Soft, wet, non-plastic, dilatant.				SNC	100													
	10.60m: Push tube. Lab Technician's sample description: SILT with minor sand and traces of clay, stiff, low plasticity.				PT	100		PT @ 10.60m											
	11.05m: Gravelly SILT; grey. Hard, saturated, non-plastic. Gravel, fine to medium, rounded.				SPT	100		4A// 9/11/7 N=33											
	11.50m: Fine to medium GRAVEL, some sand; grey. Wet. Gravel, rounded; sand, fine to coarse.																		
	12.20m: Very dense.				SPT	100		1.0// 4.8/1226 N=50											
	13.30m: Fine to coarse GRAVEL, minor sand; grey. Wet. Gravel, sub-rounded to sub-angular.																		
	13.50m: Sandy fine to medium GRAVEL; dark grey. Wet. Gravel, rounded; sand, fine to coarse, predominantly coarse. 13.70m: Medium dense.				SPT	100		2B// 3.2/3.4 N=12											
	14.70m: Fine to coarse GRAVEL, some sand; grey. Wet. Gravel, rounded; sand, fine to coarse.				SNC	100													

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LiDAR.

Hole Depth
20.24m

Scale 1:25

Box 8.60-11.05m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_62

SHEET: 4 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 28/05/2025

FINISH DATE: 28/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Williams Street East

CO-ORDINATES: 5199905.12 mN
 (NZTM2000) 1573087.75 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.48m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Burnham Formation	[CONT] 14.70m: Fine to coarse GRAVEL, some sand; grey. Wet. Gravel, rounded; sand, fine to coarse. 15.20m: Dense.		.....	.....	SNC	100	6.6// 9.8/12/10 N=39	-12	15.5		.....	.....	.....	.....	.....	.....	.....	.....
	15.80m: Fine to coarse GRAVEL, minor sand; grey. Wet. Gravel, rounded; sand, fine to coarse.		.....	.....	SNC	100		-13	16.0		.....	.....	.....	.....	.....	.....	.....	.....
	16.30m: Fine to coarse GRAVEL, some sand, trace silt; brownish grey. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse. 16.70m: Dense.		.....	.....	SNC	100	8.7// 8.9/10/10 N=37	-14	17.0		.....	.....	.....	.....	.....	.....	.....	.....
	17.80m: Sandy fine to coarse GRAVEL, trace silt; light brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.		SNC	100		-15	17.5	
	18.30m: Very dense.		SNC	100	9.16// 15/20/15 for 70 mm N=50	-16	18.5	
			.....	.....	SNC	100	6.11// 15/15/11/9 N=50	-16	19.5		.....	.....	.....	.....	.....	.....	.....	.....

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LiDAR.

Hole Depth
20.24m

Scale 1:25

Box 14.40-17.06m



BOREHOLE LOG

BOREHOLE No.:
BH_62

SHEET: 5 OF 5

DRILLED BY: Tarph

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 28/05/2025

FINISH DATE: 28/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Williams Street East

CO-ORDINATES: 5199905.12 mN
(NZTM2000) 1573087.75 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.48m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation										Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 17.80m: Sandy fine to coarse GRAVEL, trace silt; light brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100												Box 17/06-20.24m
	20.24m: EOBH. Target depth																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2020-2023 LINZ LiDAR.

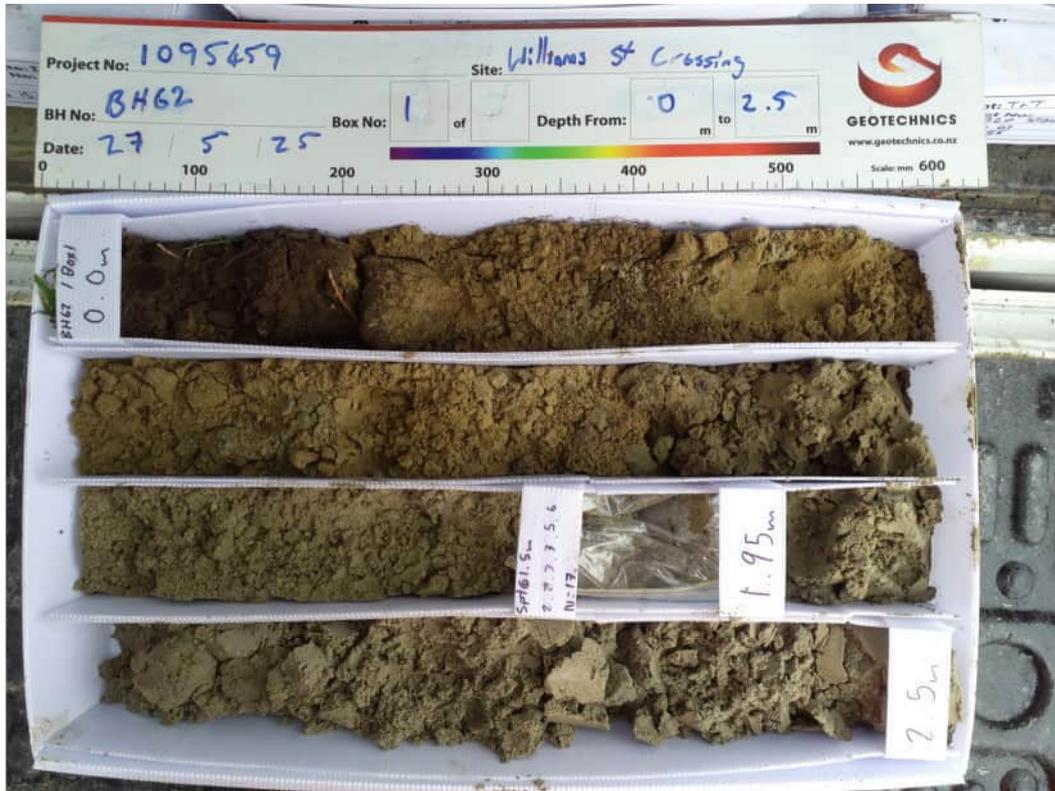
Hole Depth
20.24m

Scale 1:25

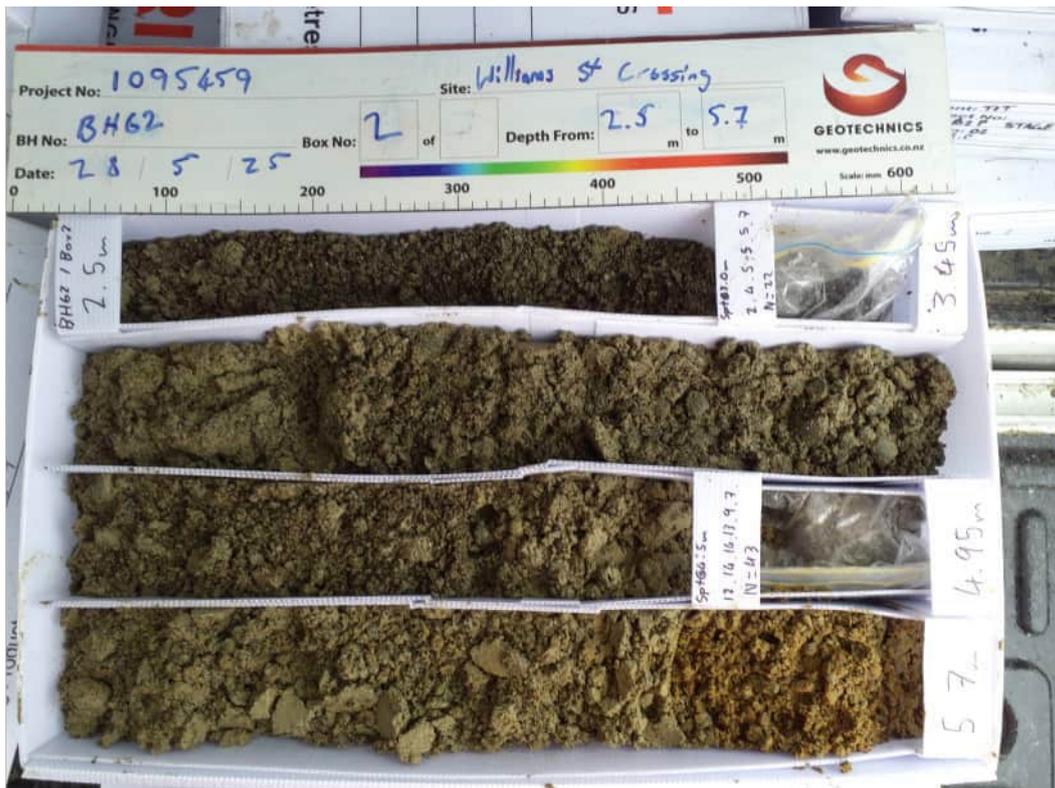
CORE PHOTOS

BOREHOLE No.: **BH_62**
 Hole Location: Williams Street East
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199905.12 mN 1573087.75 mE	DRILL TYPE: MD1000	HOLE STARTED: 28/05/2025
R.L.:	3.48m	METHOD: Sonic core drilling	HOLE FINISHED: 28/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA

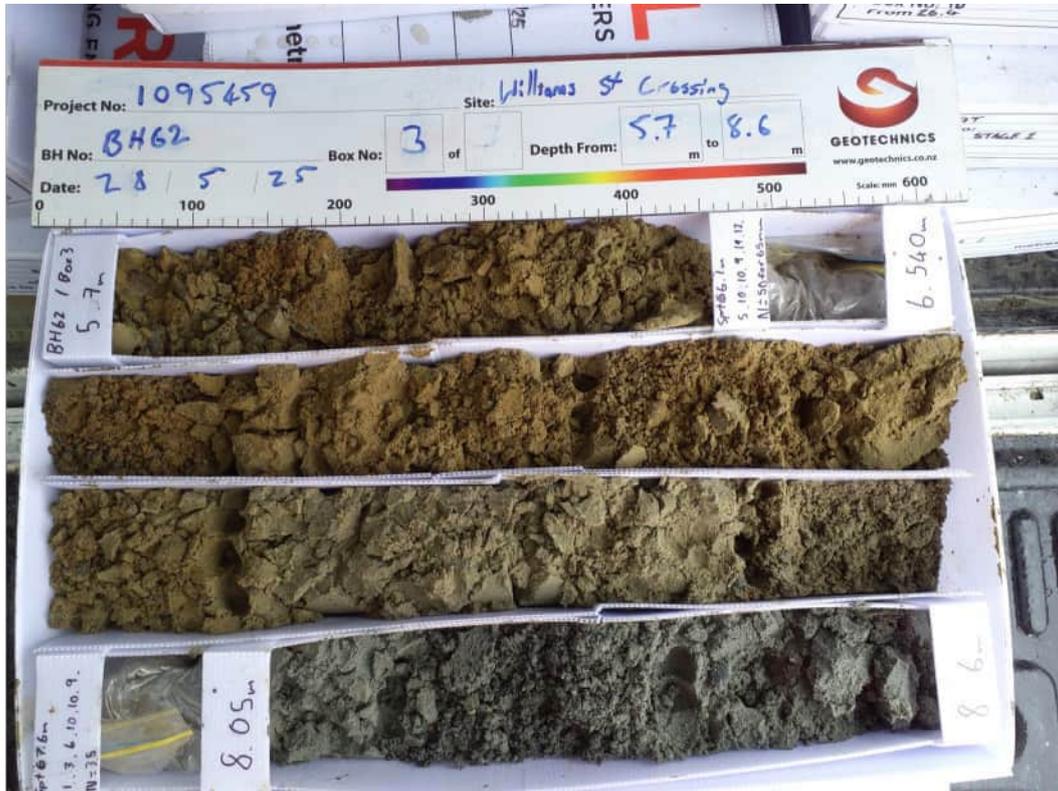


0.00-2.50m

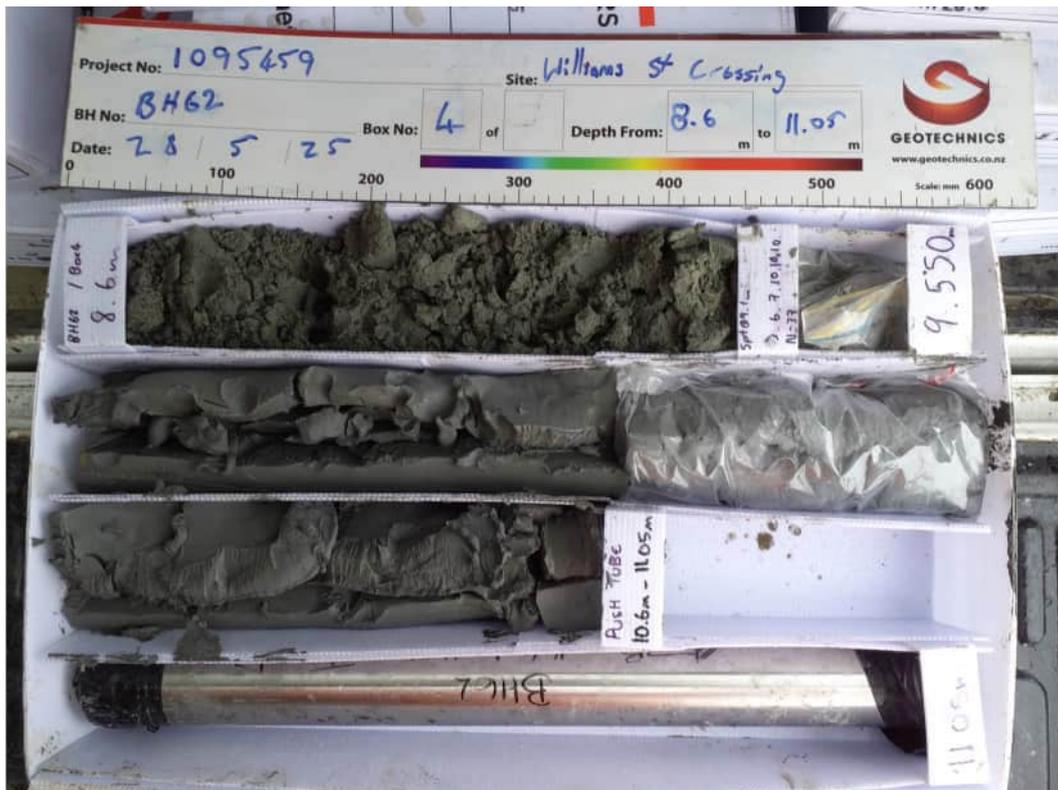


2.50-5.70m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199905.12 mN 1573087.75 mE	DRILL TYPE: MD1000	HOLE STARTED: 28/05/2025
R.L.:	3.48m	METHOD: Sonic core drilling	HOLE FINISHED: 28/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA

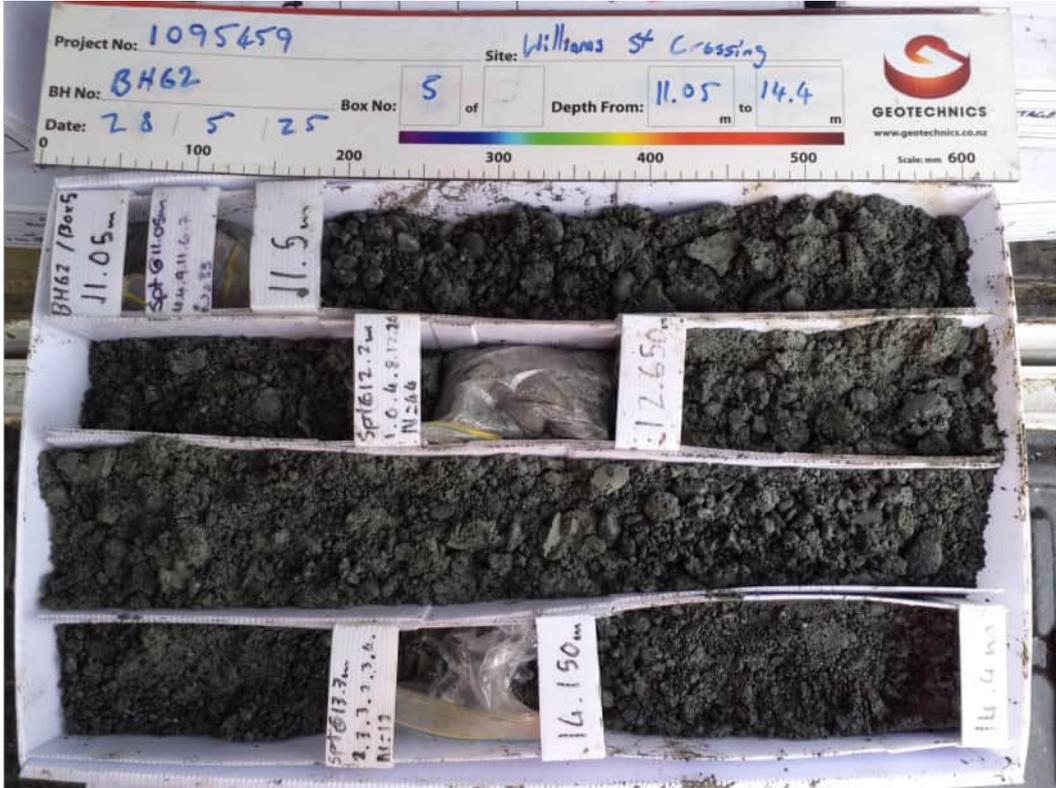


5.70-8.60m

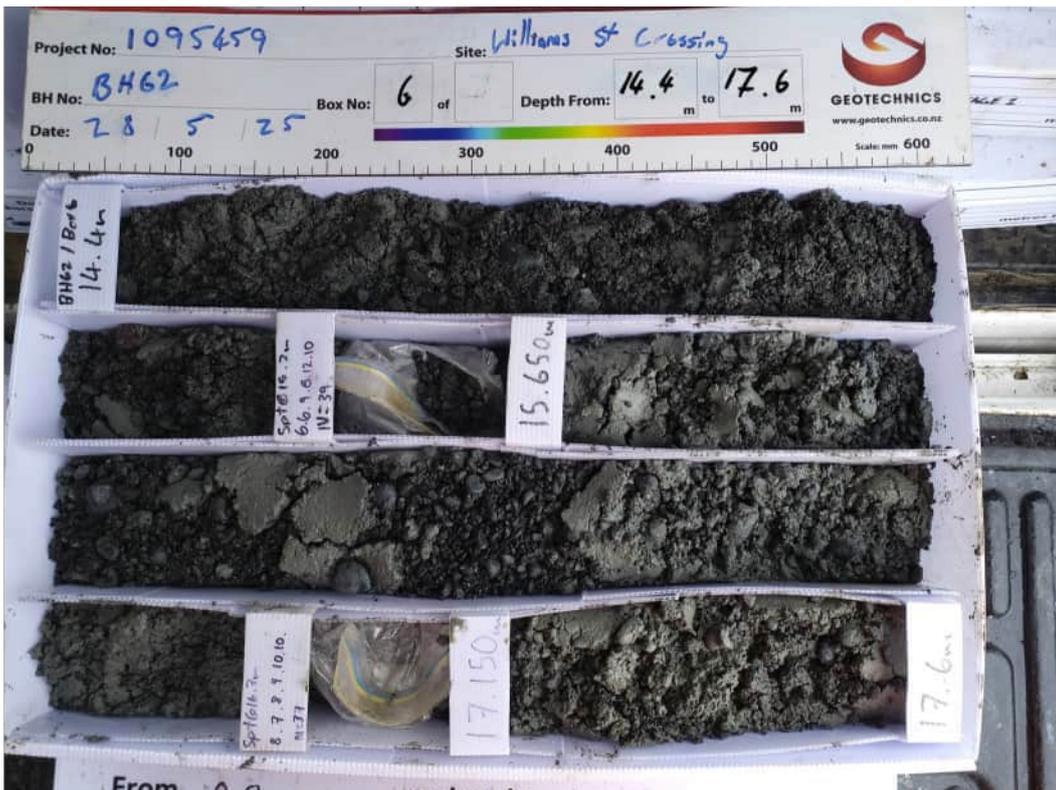


8.60-11.05m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199905.12 mN 1573087.75 mE	DRILL TYPE: MD1000	HOLE STARTED: 28/05/2025
R.L.:	3.48m	METHOD: Sonic core drilling	HOLE FINISHED: 28/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



11.05-14.40m



14.40-17.06m

CORE PHOTOS

BOREHOLE No.: **BH_62**
 Hole Location: Williams Street East
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5199905.12 mN 1573087.75 mE	DRILL TYPE: MD1000	HOLE STARTED: 28/05/2025
R.L.:	3.48m	METHOD: Sonic core drilling	HOLE FINISHED: 28/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



17.06-20.24m



BOREHOLE LOG

BOREHOLE No.:
BH_63

SHEET: 1 OF 5

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 24/05/2025

FINISH DATE: 24/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds to Fullers Road

CO-ORDINATES: 5200714.15 mN
(NZTM2000) 1573817.88 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.98m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Fill	0.00m: Sandy SILT, trace rootlets and trace clay; brown. Soft, moist, non-plastic. Sand, fine. (FILL). 0.15m: Firm, rootlets absent.		[Symbol]	[Symbol]	SNC	100		0.5	0.5	[Symbol]	[Symbol]	[Symbol]		[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]
	0.50m: Sandy SILT; orange brown mottled grey. Soft to firm, moist, non-plastic. Sand, fine. (FILL). 0.84 - 0.85m Trace rootlets at contact with the underlying material.																	
Christchurch Formation	0.85m: Fine to medium SAND; light yellow brown. Moist.		[Symbol]	[Symbol]	SPT	100	11// 22/22 N=8	1.5	1.5	[Symbol]	[Symbol]	[Symbol]	1.50 - 1.95m BH_63_1.5: BH: PSD Percent passing 63 um sieve: 5%	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]
	1.50m: Fine to medium SAND, minor silt; light yellow brown. Loose, moist, uniformly graded. 1.70m: Yellowish brown. Wet.																	
	2.70 - 2.85m Saturated.																	
	3.10m: Fine to medium SAND, minor silt; grey. Loose, wet, uniformly graded.																	
	4.50m: Medium dense.		[Symbol]	[Symbol]	SPT	100	32// 44/35 N=16	4.5	4.5	[Symbol]	[Symbol]	3.45 - 3.75m BH_63_3.45: PSD Percent passing 63 um sieve: 5%	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]
	4.80m: Fine to medium SAND, minor gravel; grey. Medium dense, wet. Gravel, fine to medium, sub-rounded to sub-																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.25m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_63

SHEET: 2 OF 5

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 24/05/2025

FINISH DATE: 24/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds to Fullers Road

CO-ORDINATES: 5200714.15 mN
(NZTM2000) 1573817.88 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.98m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)						
Christchurch Formation	angular.																	
	5.10m: Fine to medium SAND; grey. Wet.				SNC	100												
	5.40m: Fine GRAVEL, some sand; dark grey. Wet. Gravel, sub-rounded to sub-angular; sand, coarse.							5.5										
	5.70m: Fine to medium SAND, minor gravel; grey. Wet. Gravel, fine to medium, sub-rounded to sub-angular.							6.0										
	5.90m: Fine to coarse SAND, minor silt and minor gravel; grey. Wet, poorly graded. Gravel, fine to medium, sub-rounded. 6.10m: Very dense.				SPT	93	3/7// 9/12/20/9 for 50mm N=50	6.5					6.10 - 6.53m BH_63.6.1: PSD Percent passing 63 um sieve: 5%					
	6.30m: Fine to medium SAND, trace gravel; grey. Very dense, wet. Gravel, fine, rounded.							7.0										
	7.00m: Fine to medium SAND, minor gravel; grey. Wet. Gravel, fine to medium, sub-rounded to sub-angular.				SNC	100		7.5										
	7.40m: Fine to medium SAND; grey. Wet. 7.60m: Dense.				SPT	100	3/4// 7/11/14/14 N=46	8.0										
8.55 - 8.65m Minor fine gravel.				SNC	100		8.5											
9.80 - 9.90m Minor fine gravel.				SPT	100	2/4// 6/9/12/10 N=37	9.0											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.25m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_63

SHEET: 3 OF 5

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 24/05/2025

FINISH DATE: 24/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds to Fullers Road

CO-ORDINATES: 5200714.15 mN
(NZTM2000) 1573817.88 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.98m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	[CONT] 7.40m: Fine to medium SAND; grey. Wet.				SNC	100		10.5									
	12.05m: NO RECOVERY.				SPT	100	3A// 9/9/9/10 N=37	11.0									
	12.20m: Fine to medium SAND; brownish grey. Dense, wet.				SNC	91		11.5									
	12.65m: Sandy fine to medium GRAVEL; brownish grey. Wet. Gravel, sub-rounded to sub-angular; sand, medium to coarse.				SPT	100	2/3// 5/9/13/14 N=41	12.0									
Burnham Formation	13.30 - 13.50m: Gravel, fine to coarse.				SNC	100		13.0									
	13.50m: Fine to medium SAND; grey. Wet.				SPT	100	7/11// 13/20/17 for 65 mm N=50	13.5									
	13.70m: Very dense.				SNC	100		14.0									
	14.40m: SILT, minor sand; light grey. Firm to stiff, moist, low to medium plasticity. Sand, fine.				SNC	100		14.5									
14.50m: Fine to coarse GRAVEL, some sand; grey. Wet, well graded. Gravel, rounded to sub-angular; sand, fine to coarse.																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.25m
Scale 1:25

Box 8.65-11.65m

Box 11.65-14.67m



BOREHOLE LOG

BOREHOLE No.:

BH_63

SHEET: 4 OF 5

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 24/05/2025

FINISH DATE: 24/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Quarry Ponds to Fullers Road

CO-ORDINATES: 5200714.15 mN
 (NZTM2000) 1573817.88 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.98m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					25	50	75
Burnham Formation	[CONT] 14.50m: Fine to coarse GRAVEL, some sand; grey. Wet, well graded. Gravel, rounded to sub-angular; sand, fine to coarse. 15.20m: Dense.		[Weathering symbols]	[Strength symbols]	SNC	100	3A// 58/9/9 N=31	15.5	[Graphic log symbols]	[Defect log symbols]	[Fracture spacing symbols]	[RQD symbols]	[Water level symbols]	[Casing symbols]	[Installation symbols]	[Core box symbols]	
	15.60m: Fine to coarse GRAVEL, trace sand; grey. Dense, wet. Gravel, rounded to sub-angular; sand, coarse.				SNC	100		16.0									
	16.40m: Fine to coarse GRAVEL, some sand; grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 16.65 - 16.70m Minor silt. 16.70m: Dense.				SPT	100	13/14// 12/12/12/12 N=48	17.0									
	18.30m: Very dense.				SNC	100		17.5									
	19.70 - 19.80m Minor silt. 19.80m: Dense.				SPT	100	11/13// 14/14/18/4 for 10mm N=50	18.5									
					SNC	100		19.0									
				SPT	100	8/9// 10/13/12/11 N=46	19.5										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.25m

Scale 1:25

Box 14.67-17.75m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_63

SHEET: 5 OF 5

DRILLED BY: Matt, Sam

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 24/05/2025

FINISH DATE: 24/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Quarry Ponds to Fullers Road

CO-ORDINATES: 5200714.15 mN
(NZTM2000) 1573817.88 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.98m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 16.40m: Fine to coarse GRAVEL, some sand; grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100											Box 11 75-20.25m
	20.25m: EOBH. Target depth																

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.25m

Scale 1:25

Rev.: A

CORE PHOTOS

BOREHOLE No.: **BH_63**
 Hole Location: Quarry Ponds to Fullers Road
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200714.15 mN 1573817.88 mE	DRILL TYPE: MD1000	HOLE STARTED: 24/05/2025
R.L.:	2.98m	METHOD: Sonic core drilling	HOLE FINISHED: 24/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA

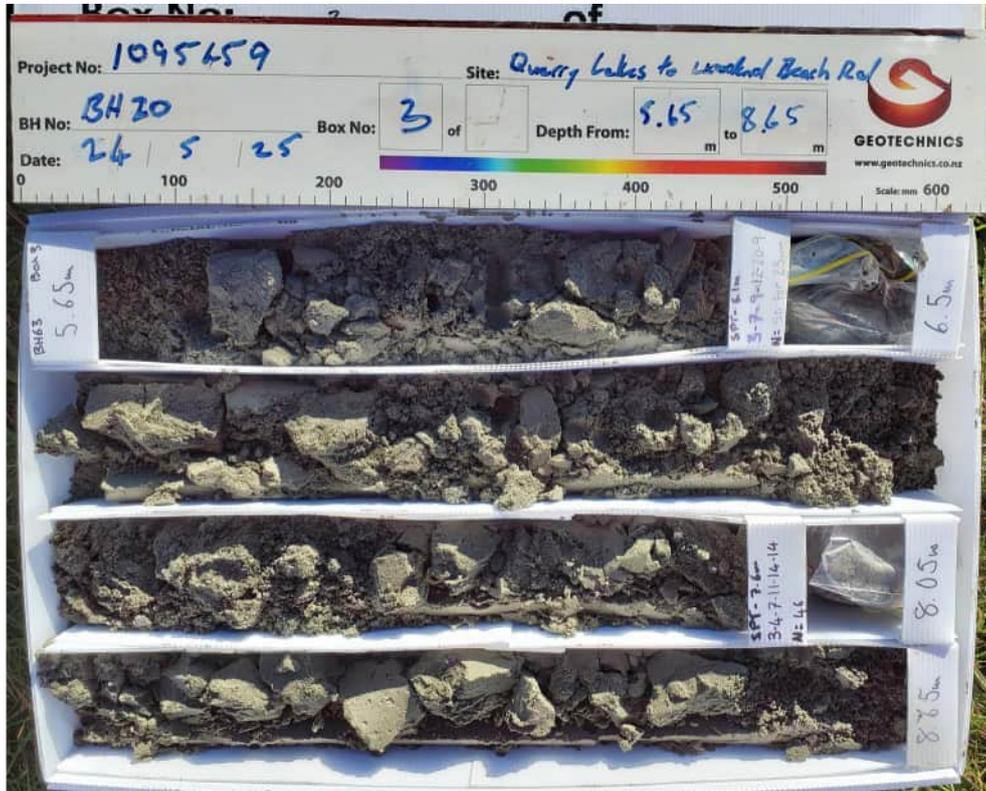


0.00-2.60m



2.60-5.65m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200714.15 mN 1573817.88 mE	DRILL TYPE: MD1000	HOLE STARTED: 24/05/2025
R.L.:	2.98m	METHOD: Sonic core drilling	HOLE FINISHED: 24/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



5.65-8.65m



8.65-11.65m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200714.15 mN 1573817.88 mE	DRILL TYPE: MD1000	HOLE STARTED: 24/05/2025
R.L.:	2.98m	METHOD: Sonic core drilling	HOLE FINISHED: 24/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



11.65-14.67m

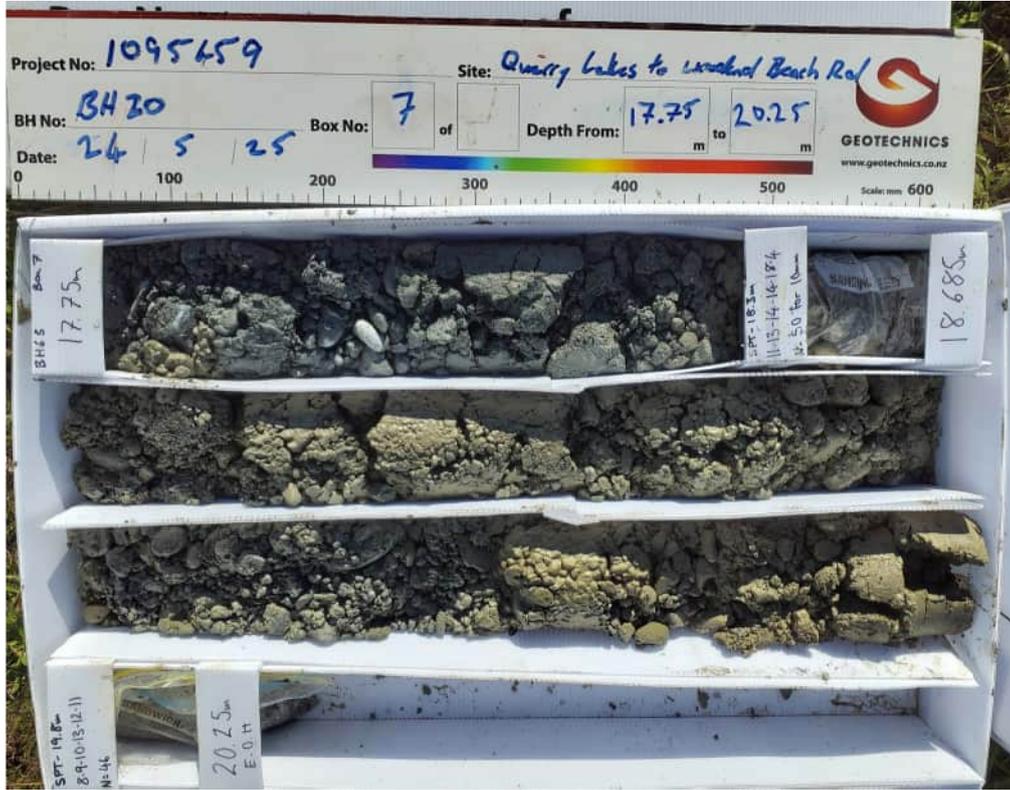


14.67-17.75m

CORE PHOTOS

BOREHOLE No.: **BH_63**
 Hole Location: Quarry Ponds to Fullers Road
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5200714.15 mN 1573817.88 mE	DRILL TYPE: MD1000	HOLE STARTED: 24/05/2025
R.L.:	2.98m	METHOD: Sonic core drilling	HOLE FINISHED: 24/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



17.75-20.25m



BOREHOLE LOG

BOREHOLE No.:

BH_64

SHEET: 1 OF 9

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 09/06/2025

FINISH DATE: 11/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Woodend Beach Road

CO-ORDINATES: 5201973.53 mN
 (NZTM2000) 1574191.26 mE

R.L. GROUND: 4.73m
 R.L. COLLAR: 4.73m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
										Defect Log	Fracture Spacing (mm)	RQD (%)					
T Soil	0.00m: SILT, some sand, trace rootlets; brown. Firm to stiff, moist, non-plastic. Sand, fine. (TOPSOIL).																
	0.40m: Silty fine SAND, trace rootlets; light brown. Moist.																
	0.90m: Fine SAND, minor silt; light brown. Moist.																
Springston Formation	1.20m: SILT, some sand; light brown. Very soft, moist to wet, low to medium plasticity. Sand, fine. 1.25m: Silty fine to medium SAND; light brown. Moist, uniformly graded. 1.50m: Very loose.					1 @ 1.25m BH064 - 01: PSD Percent passing 63 um sieve: 32%							1.25 - 1.50m BH064 - 01: PSD Percent passing 63 um sieve: 32%				
	1.95 - 2.05m Some silt.					1/1// 10/1/0 N=2											
	2.05m: Sandy SILT; light brown mottled orange. Soft, saturated, low plasticity. Sand, fine to medium, (predominantly fine). 2.30 - 2.45m Trace fine gravel.					2 @ 2.10m BH064 - 02: PSD Percent passing 63 um sieve: 58%; AL: LL 25, PL 18, PI 7							2.10m: GWL start of shift 11/06/2025. Casing at approximately 39.6m bgl. Water flush with polymer mud used. 2.10 - 2.30m BH064 - 02: PSD Percent passing 63 um sieve: 58%; AL: LL 25, PL 18, PI 7				
	2.45m: SILT; light brown with orange mottled. Soft to firm, wet, low plasticity.												2.50m: GWL start of shift 10/06/2025. Casing at approximately 3.00m bgl. Water flush with polymer mud used.				
	2.75m: SILT, some clay, trace sand; light grey. Very soft, saturated, low plasticity, dilatant. Sand, fine. 2.90 - 3.00m Wet, dilatant.					3 @ 2.75m BH064 - 03: PSD Percent passing 63 um sieve: 96%; AL: LL 27, PL 20, PI 7							2.75 - 3.00m BH064 - 03: PSD Percent passing 63 um sieve: 96%; AL: LL 27, PL 20, PI 7				
	3.00m: Push tube. Lab technician's sample description: SILT; grey. Very soft, wet.					4 @ 3.00m											
	3.30m: NO RECOVERY.												3.27 - 3.29m 1D Consolidation Test				
	3.45m: SILT, minor clay; light grey. Very soft to soft, wet, low plasticity, dilatant.																
	3.50m: Push tube. Lab technician's sample description: SILT, with minor sand, traces of rootlets and fine gravel; grey. Soft [to firm], moist.						5 @ 3.63m CU Triaxial Test Phi = 35° c' = 0 kPa						3.63 - 3.75m CU Triaxial Test Phi = 35° c' = 0 kPa				
	4.00m: Clayey SILT, trace sand; light grey. Soft to firm, wet, low plasticity. Sand, fine.						5 @ 3.80m 1D Consolidation Test 05 @ 3.82m UU Triaxial Test Cu = 25 kPa						3.80 - 3.82m 1D Consolidation Test 3.82 - 3.94m UU Triaxial Test Cu = 25 kPa				
	4.25m: SILT, some clay, trace sand; light grey. Soft, wet, low plasticity. Sand, fine. 4.35 - 4.95m Light greenish grey. Moist. 4.50m: Very soft to soft.						6 @ 4.00m BH064 - 06: PSD Percent passing 63 um sieve: 99%; AL: LL 31, PL 24, PI 7						4.00 - 4.25m BH064 - 06: PSD Percent passing 63 um sieve: 99%; AL: LL 31, PL 24, PI 7				
	4.95m: Brownish grey. Soft. Trace organic and wood fragments.						0/1// 10/1/0 N=2						4.90m: GWL measured at EOH, within a cased hole. BH at 40.05m bgl. Casing at 39.60m bgl. Water flush with drilling polymer used.				

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Driller reported heaving at 1.5 - 3.0m bgl. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:

BH_64

SHEET: 2 OF 9

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 09/06/2025

FINISH DATE: 11/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Woodend Beach Road

CO-ORDINATES: 5201973.53 mN
 (NZTM2000) 1574191.26 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.73m
 R.L. COLLAR: 4.73m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
										Defect Log	Fracture Spacing (mm)	RQD (%)				
Springston Formation	5.00m: Push tube. Lab technician's sample description: SILT with traces of gravel, sand and organics; dark grey. [Stiff] moist.			PT	100	7 @ 5.00m 7 @ 5.05m 1D Consolidation Test 7 @ 5.09m UU Triaxial Test Cu = 66 kPa 7 @ 5.25m CU Triaxial Test Phi = 36° c' = 11 kPa										
	5.45m: SILT, minor sand, trace gravel; light grey. Soft, wet, low plasticity. Sand, fine to coarse; gravel, fine, rounded.							5.5								
	5.60m: Sandy fine to coarse GRAVEL, trace silt; grey. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse, (predominantly medium to coarse).			SNC	100	8 @ 5.80m BH064 - 08: PSD Percent passing 63 um sieve: 4%										
	6.20m: Fine to medium GRAVEL, some sand, minor silt; dark grey. Medium dense, wet. Gravel, rounded; sand, fine to coarse.			SPT	100	2/2// 3/3/3/3 N=12										
	6.70m: Gravelly fine to coarse SAND, minor silt; grey. Wet, well graded. Gravel, fine to medium, rounded.			SNC	100	9 @ 6.70m BH064 - 09: PSD Percent passing 63 um sieve: 8%										
	7.00m: Silty fine to medium SAND; light grey. Saturated.			SNC	100											
	7.25m: SILT, trace clay; grey. Very soft, wet to saturated, low to medium plasticity.			SPT	100	10 @ 7.25m BH064 - 10: AL: LL 33, PL 20, PI 13										
	7.60m: Gravelly fine to coarse SAND, minor silt; grey. Very loose, wet. Sand, predominantly coarse; gravel, fine to medium, rounded to sub-rounded.			SPT	100	11 @ 7.60m BH064 - 11: PSD Percent passing 63 um sieve: 9%										
	7.95m: Some silt.															
	Christchurch Formation	8.15m: SILT, minor gravel, trace sand; light grey. Very soft to soft, wet, low plasticity. Gravel, fine to medium, rounded to sub-rounded; sand, fine to coarse. 8.30 - 8.35m Trace coarse gravel. 8.35 - 8.50m Some fine to coarse sand.			SNC	100	12 @ 8.70m BH064 - 12: PSD Percent passing 63 um sieve: 3%									
8.70m: Sandy fine to coarse GRAVEL, trace silt; grey. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse, predominantly coarse.				SPT	100	3/5// 6/9/8/8 N=31										
9.10m: Dense.																
9.50m: Fine to medium SAND; light yellowish grey. Dense, moist to wet.																
9.70m: Sandy fine to medium GRAVEL; light yellowish grey. Wet. Gravel, rounded to sub-rounded; sand, fine to medium.																
9.90m: Fine to medium SAND; light yellowish grey. Wet.																

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Driller reported heaving at 1.5 - 3.0m bgl. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:
BH_64

SHEET: 3 OF 9

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 09/06/2025

FINISH DATE: 11/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach Road

CO-ORDINATES: 5201973.53 mN
(NZTM2000) 1574191.26 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.73m
R.L. COLLAR: 4.73m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Christchurch Formation	[CONT] 9.90m: Fine to medium SAND; light yellowish grey. Wet.				SNC	100												
	10.60m: Dense.				SPT	100	13// 8/11/13/10 N=42											
	11.05 - 11.40m Trace fine gravel.				SNC	100												
					SPT	100	46// 8/10/8/9 N=35											
					SNC	100												
	13.70m: Very dense.				SPT	100	24// 10/12/19/9 for 35mm N>=50 Refusal											
	14.11 - 14.26m Trace fine to medium gravel.				SNC	100												
14.26m: Sandy fine to medium GRAVEL; light yellowish grey. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.																		
14.51m: Fine to medium SAND; light yellowish grey. Wet.					SNC	100												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Driller reported heaving at 1.5 -3.0m bgl. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:

BH_64

SHEET: 4 OF 9

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 09/06/2025

FINISH DATE: 11/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Woodend Beach Road

CO-ORDINATES: 5201973.53 mN
 (NZTM2000) 1574191.26 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.73m
 R.L. COLLAR: 4.73m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	[CONT] 14.51m: Fine to medium SAND; light yellowish grey. Wet.				SNC	100	6A// 7/10/12/14 N=43		15.5									
	15.20m: Dense.				SPT	100												
Burnham Formation	15.65m: Sandy fine to coarse GRAVEL, minor silt; light grey. Wet. Gravel, rounded to sub-rounded; sand, fine to coarse.				SNC	100			-11									
	15.95m: SILT, minor sand, trace rootlets; light grey. Very stiff, moist, low to medium plasticity. Sand, fine to medium.				SNC	100			-16.0									
	16.35m: Silty fine to coarse GRAVEL, some sand; light grey. Moist. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100			-16.5									
	16.50 - 16.70m Light brownish grey.				SNC	100			-17.0									
	16.70m: Sandy fine to coarse GRAVEL, minor silt; light brownish grey. Very dense, wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	14/23// 18/23/9 for 60 mm N>=50 Refusal		-12									
Burnham Formation	17.16 - 18.90m Light grey.				SNC	100			-13									
	18.90 - 19.20m Light grey. Saturated.				SPT	100	12/12// 13/12/14/ 11 N>=50 Refusal		-14									
	19.20m: SILT, some sand, minor clay; light yellowish grey. Soft to firm, wet, low plasticity. Sand, fine to medium.				SNC	100	13 @19.20m BH064 - 13: PSD Percent passing 63 um sieve: 88%; AL: LL 21, PL 15, PI 6		-15					19.20 - 19.50m BH064 - 13: PSD Percent passing 63 um sieve: 88%; AL: LL 21, PL 15, PI 6				
Burnham Formation	19.80m: SILT; light brown. Firm to stiff, saturated, low plasticity.				SPT	0	2/2// 2/2/2 N=8		-15					19.80 - 20.25m No recovery in SPT spoon. Recovered in next run.				

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Driller reported heaving at 1.5 -3.0m bgl. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
40.05m

Scale 1:25

Box 14.11-17.86m

Rev: A



BOREHOLE LOG

BOREHOLE No.:
BH_64

SHEET: 5 OF 9

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 09/06/2025

FINISH DATE: 11/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach Road

CO-ORDINATES: 5201973.53 mN
(NZTM2000) 1574191.26 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.73m
R.L. COLLAR: 4.73m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					25	50	75
Burnham Formation	[CONT] 19.80m: SILT; light brown. Firm to stiff, saturated, low plasticity.				SPT	0												
	20.30 - 20.55m Very stiff, moist to wet.																	
	20.75m: SILT, trace clay; light greyish brown with mottled orange. Very stiff, moist, non-plastic to low plasticity.				SNC	100		2/3// 45/67 N=22										
	21.75 - 22.15m Stiff to very stiff, wet to saturated, low plasticity. Some fine sand.				SPT	100												
	22.80m: Stiff.				SNC	100		0/3// 33/44 N=14										
	23.25 - 23.10m Minor clay.				SPT	100												
	24.40m: Very stiff.				SNC	100	0/2// 56/67 N=24											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Driller reported heaving at 1.5 - 3.0m bgl. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
40.05m

Scale 1:25

Rev: A



BOREHOLE LOG

BOREHOLE No.:
BH_64

SHEET: 6 OF 9

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 09/06/2025

FINISH DATE: 11/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach Road

CO-ORDINATES: 5201973.53 mN
(NZTM2000) 1574191.26 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.73m
R.L. COLLAR: 4.73m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Burnham Formation	[CONT] 20.75m: SILT, trace clay; light greyish brown with mottled orange. Very stiff, moist, non-plastic to low plasticity.				SNC	100		25.5								
	25.10 - 25.60m Light brownish orange with mottled orange. Very stiff to hard.															
	25.60m: Silty fine to coarse GRAVEL, some sand; light brown. Moist to wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	7/13// 23/27 for 55 mm N≥50 Refusal		26.0							
	25.72m: Sandy fine to coarse GRAVEL, some silt; light brown. Very dense, wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse.															
Burnham Formation					SNC	100										
					SPT	100	13/18// 29/21 for 75 mm N≥50 Refusal		27.5							
Burnham Formation					SNC	100										
Bromley Formation	28.70 - 28.80m Orange.															
	28.80 - 28.90m Brownish grey.															
Bromley Formation	28.90m: SILT, trace clay; grey. Very stiff, moist, low to medium plasticity.				SPT	100	0/3// 34/5/4 N=16		29.0							
					SNC	100			29.5							

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Driller reported heaving at 1.5 -3.0m bgl. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
40.05m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:

BH_64

SHEET: 7 OF 9

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 09/06/2025

FINISH DATE: 11/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Woodend Beach Road

CO-ORDINATES: 5201973.53 mN
 (NZTM2000) 1574191.26 mE

R.L. GROUND: 4.73m
 R.L. COLLAR: 4.73m

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Fracture Spacing (mm)	RQD (%)	Description & Additional Observations					
Bromley Formation	29.95m: SILT, some sand, trace gravel; light grey. Hard, dry to moist, non-plastic. Sand, fine to coarse; gravel, fine to coarse, rounded to sub-angular.				SNC	100											
	30.50m: Silty fine to coarse GRAVEL, some sand; light greyish brown. Very dense, wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse. 30.58m: CORE LOSS.				SPT	35	0.0// 50 for 75mm N≥50 Refusal										
	31.00m: Silty fine to coarse GRAVEL, some sand; light greyish brown. Wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse.																
	31.35m: Sandy SILT, minor gravel; light greenish grey. Hard, moist, non-plastic. Sand, fine to coarse; gravel, fine to medium, rounded to sub-angular. 31.50m: SILT, some sand, minor gravel; light greenish grey. Hard, moist, non-plastic. Gravel, fine to coarse, rounded to sub-angular.				SNC	79											
	32.00m: Fine to coarse GRAVEL, some silt, minor sand; light brown. Very dense, saturated. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	81	1.8// 18/22/28 for 70 mm N≥50 Refusal										
	32.55m: Silty fine to coarse GRAVEL, some sand; light brown. Moist. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100											
	33.30m: Fine to coarse GRAVEL, trace silt and trace sand; light brown. Saturated. Gravel, rounded to sub-angular; sand, fine to coarse. 33.45m: Silty fine to coarse GRAVEL, some sand; light brown. Very dense, wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	100	16/22// 37/13 for 25 mm N≥50 Refusal										
	34.60m: Fine to medium SAND, minor gravel, trace silt; brownish orange. Moist. Gravel, fine, rounded to sub-rounded.				SNC	100											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Driller reported heaving at 1.5 -3.0m bgl. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
40.05m

Scale 1:25

Box 32.90-32.50m

Box 32.30-315.00m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_64

SHEET: 8 OF 9

DRILLED BY: Tyler
LOGGED BY: CARL

CHECKED: DAA
START DATE: 09/06/2025
FINISH DATE: 11/06/2025
CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach Road

CO-ORDINATES: 5201973.53 mN
1574191.26 mE
(NZTM2000)

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4.73m
R.L. COLLAR: 4.73m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Bromley Formation	35.00m: Fine to medium SAND, minor gravel, trace silt; brownish orange. Very loose, moist. Gravel, fine, rounded to sub-rounded.				SPT	100	3.5// 21/10/0 N=3		35.0									
	35.20m: Fine GRAVEL, minor sand; brownish orange. Very loose, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.								35.2									
	35.45m: Fine to medium SAND, trace gravel; brownish orange. Wet. Gravel, fine, rounded to sub-rounded.								35.45									
	36.40 - 37.10m Some fine gravel .								36.4									
	36.60m: Very dense.								36.6									
	37.10 - 37.30m Saturated.								37.1									
	38.64 - 38.74m Some fine to coarse gravel, rounded to sub-angular.								38.64									
	38.74m: Sandy SILT; light orange. Very stiff, wet, low to medium plasticity. Sand, fine to medium.								38.74									
	38.89m: Fine to coarse SAND, minor gravel; brownish orange . Wet. Gravel, fine to coarse, rounded to sub-angular.								38.89									
	39.30 - 39.60m Sand is fine to medium. Trace fine to medium gravel, trace silt.								39.3									
39.60 - 40.05m Medium dense.								39.6										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Driller reported heaving at 1.5 -3.0m bgl. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5201973.53 mN 1574191.26 mE	DRILL TYPE:	HOLE STARTED: 09/06/2025
R.L.:	4.73m	METHOD: Sonic core drilling	HOLE FINISHED: 11/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



0.00-2.90m



2.90-7.40m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5201973.53 mN 1574191.26 mE	DRILL TYPE:	HOLE STARTED: 09/06/2025
R.L.:	4.73m	METHOD: Sonic core drilling	HOLE FINISHED: 11/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



7.40-10.60m



10.60-14.11m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5201973.53 mN 1574191.26 mE	DRILL TYPE:	HOLE STARTED: 09/06/2025
R.L.:	4.73m	METHOD: Sonic core drilling	HOLE FINISHED: 11/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA

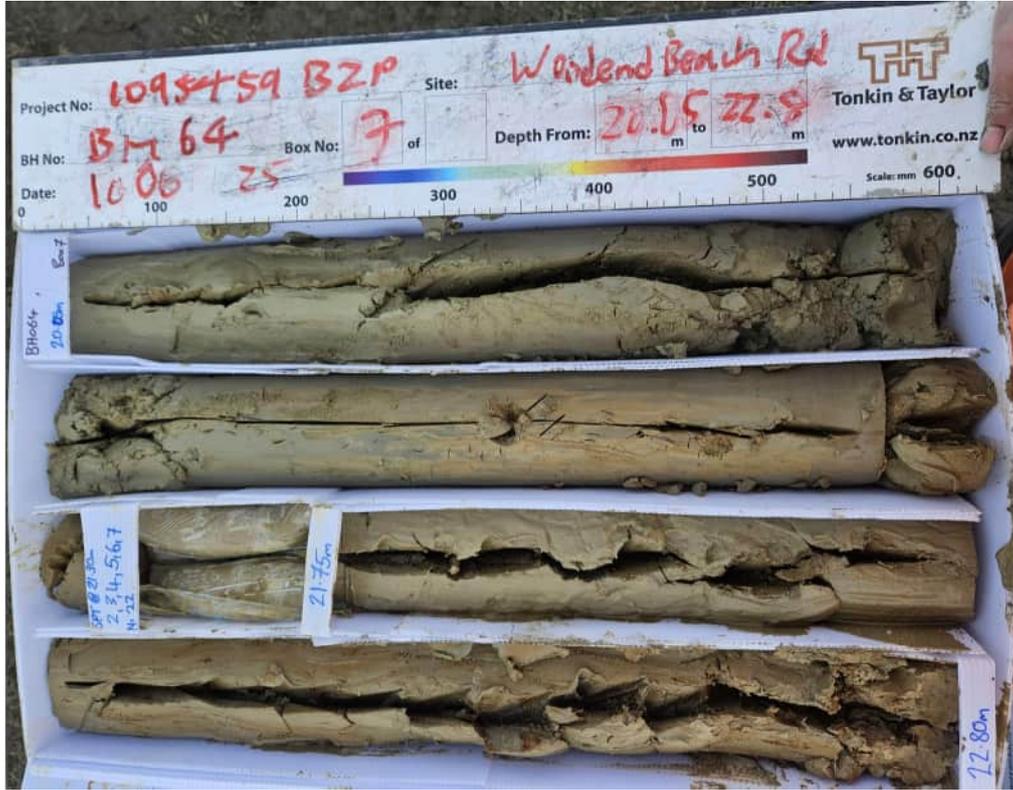


14.11-17.86m



17.86-20.05m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5201973.53 mN 1574191.26 mE	DRILL TYPE:	HOLE STARTED: 09/06/2025
R.L.:	4.73m	METHOD: Sonic core drilling	HOLE FINISHED: 11/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



20.05-22.80m



22.80-26.18m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5201973.53 mN 1574191.26 mE	DRILL TYPE:	HOLE STARTED: 09/06/2025
R.L.:	4.73m	METHOD: Sonic core drilling	HOLE FINISHED: 11/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



26.18-28.90m



28.90-32.30m

CORE PHOTOS

BOREHOLE No.: **BH_64**
 Hole Location: Woodend Beach Road
 SHEET: 6 OF 7

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5201973.53 mN 1574191.26 mE	DRILL TYPE:	HOLE STARTED: 09/06/2025
R.L.:	4.73m	METHOD: Sonic core drilling	HOLE FINISHED: 11/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



32.30-35.00m



35.00-38.10m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5201973.53 mN 1574191.26 mE	DRILL TYPE:	HOLE STARTED: 09/06/2025
R.L.:	4.73m	METHOD: Sonic core drilling	HOLE FINISHED: 11/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill LOGGED BY: CARL CHECKED: DAA



38.10-40.05m



BOREHOLE LOG

BOREHOLE No.:
BH_65

SHEET: 1 OF 9

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 03/06/2025

FINISH DATE: 04/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach Road

CO-ORDINATES: 5202009.39 mN
(NZTM2000) 1574307.37 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.89m
R.L. COLLAR: 3.89m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
T Soil	0.00m: Organic SILT, some gravel, minor sand; brown. Very soft to soft, moist, non-plastic. Gravel, fine to medium; sand, fine. (TOPSOIL).																		
Fill	0.40m: Gravelly fine to medium SAND; light brown. Dry to moist. Gravel, fine to coarse, rounded to sub-angular.																		
Springston Formation	0.85m: Gravelly fine to medium SAND, minor organics; dark brown. Moist. Gravel, fine to coarse, rounded. 1.10m: Grading to, trace organics; brown.																		
	1.30m: Fine to coarse SAND, some gravel; light brown. Wet. Gravel, fine to coarse, rounded to sub-rounded. 1.50 - 2.50m Medium dense.				SPT	11	2/3// 4/3/3/3 N=13												
	2.00m: Sandy fine to coarse GRAVEL, trace silt; brown. Wet. Gravel, rounded to sub-rounded, red; sand, fine to coarse.																		
	3.45m: Fine to coarse GRAVEL, some sand, trace silt; brown, grey and dark red. Loose, wet. Gravel, rounded to sub-rounded; sand, fine to coarse.																		
	4.00m: Sandy fine to coarse GRAVEL; grey. Wet. Gravel, sub-angular; sand, fine to coarse.																		
	4.40m: WOOD; dark blackish grey..																		
	4.50m: Gravelly fine to medium SAND; grey. Loose, wet. Gravel, fine to medium, sub-rounded to sub-angular.				SPT	44	1/2// 3/2/2/2 N=9												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
40.05m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_65

SHEET: 2 OF 9

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 03/06/2025

FINISH DATE: 04/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach Road

CO-ORDINATES: 5202009.39 mN
(NZTM2000) 1574307.37 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.89m
R.L. COLLAR: 3.89m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Springston Formation	4.95m: Sandy fine to coarse GRAVEL, minor silt; dark grey. Loose, wet, well graded. Gravel, rounded to sub-rounded; sand, fine to coarse.				SNC	100	2 @ 4.95m BH065 - 02: PSD Percent passing 63 um sieve: 9%		5.5								
	6.10m: Medium dense.				SPT	33	2/3// 2/3/3/5 N=13		6.0								
	7.10m: Gravelly fine to coarse SAND, minor silt; dark grey. Well graded. Gravel, fine to coarse, rounded to sub-rounded.				SNC	100			7.0								
Christchurch Formation	7.60m: Loose.				SPT	33	3 @ 7.50m BH065 - 03: PSD Percent passing 63 um sieve: 5%		7.5								
	8.05m: Gravelly fine to coarse SAND, some silt; grey. Wet. Gravel, fine to coarse, rounded to sub-rounded.				SNC	100	0/0// 10/2/2 N=5		8.0								
	8.50m: Minor gravel.				SNC	100	4 @ 8.20m BH065 - 04: PSD Percent passing 63 um sieve: 14%		8.5								
	9.10m: Medium dense.				SPT	44	0/1// 12/4/4 N=11		9.5								

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:
BH_65

SHEET: 4 OF 9

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 03/06/2025

FINISH DATE: 04/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach Road

CO-ORDINATES: 5202009.39 mN
(NZTM2000) 1574307.37 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.89m
R.L. COLLAR: 3.89m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Fracture Spacing (mm)	RQD (%)	25 50 75					
Christchurch Formation	15.20 - 15.65m Medium dense.				SNC	100	3/6// 4/4/4/7 N=19		15.5									
	15.65m: SILT; grey. Very stiff, wet, low plasticity.				SPT	44												
	15.75m: Fine to medium SAND, some silt and some gravel; grey. Wet. Gravel, fine to medium, sub-rounded.				SNC	100			16.0									
	16.20m: Sandy fine to medium GRAVEL, minor silt; brown. Wet. Gravel, rounded; sand, fine to coarse.				SNC	100			16.5									
Burnham Formation	16.50 - 16.70m Silty, some sand; dark orange brown.				SPT	33	12/14// 13/9/10/18 N=50		17.0									
	16.70m: Gravelly fine to coarse SAND, minor silt; grey. Very dense, wet. Gravel, fine to coarse, rounded to sub-angular.				SPT	33												
	16.85m: NO RECOVERY.				SNC	100			17.5									
	17.15m: Gravelly fine to coarse SAND, minor silt; grey. Very dense, wet. Gravel, fine to coarse, rounded to sub-angular.				SPT	49	11/13// 17/14/15/4 for 30mm N=50		18.5									
Burnham Formation	18.50m: NO RECOVERY.				SNC	100			19.0									
	18.70m: Gravelly fine to coarse SAND, some silt; brownish grey. Very dense, wet. Gravel, fine to coarse, rounded to sub-angular.				SNC	100			19.5									
	19.20m: SILT, minor clay, trace sand; brownish grey. Firm to stiff, wet, low to medium plasticity.				SPT	56	1/3// 4/3/3/4 N=14		19.80m: Stiff.									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:
BH_65

SHEET: 5 OF 9

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 03/06/2025

FINISH DATE: 04/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach Road

CO-ORDINATES: 5202009.39 mN
(NZTM2000) 1574307.37 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.89m
R.L. COLLAR: 3.89m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 19.20m: SILT, minor clay, trace sand; brownish grey. Firm to stiff, wet, low to medium plasticity.				SPT	56												
	20.25 - 21.30m Mottled dark orange brown and grey.																	
	20.60m: Greyish brown with localised zones of grey mottling.				SNC	100												
	21.30m: NO RECOVERY. Inferred to be stiff, brown SILT based on cuttings recovered following overdrilling of SPT zone.				SPT	0	0/2// 2/3/3/3 N=11											
	21.75m: SILT, minor clay, trace sand; brownish grey. Firm to stiff, wet, low to medium plasticity.				SNC	100												
	21.80 - 22.00m Saturated. 22.00m: Stiff to very stiff.				SNC	100												
	22.40m: Brown with occasional dark orange brown, orange brown and light grey mottling.				SPT	56	2/2// 5/4/5/7 N=21											
	22.80m: Very stiff.				SNC	100												
23.25m: Light yellowish brown.				SPT	56													
23.90m: Orange brown.				SNC	100													
24.40m: Hard.				SPT	56	3/6// 7/9/9/9 N=34												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
40.05m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_65

SHEET: 6 OF 9

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 03/06/2025

FINISH DATE: 04/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Woodend Beach Road

CO-ORDINATES: 5202009.39 mN
 (NZTM2000) 1574307.37 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.89m
 R.L. COLLAR: 3.89m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	24.85m: SILT, minor clay, trace sand; orange brown. Hard, wet, low to medium plasticity.				SNC												
	25.10m: Sandy fine to coarse GRAVEL, some silt; orange brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC												
	25.70m: Interbed of sandy SILT; brown. Hard, dry.				SNC												
	25.80m: Sandy fine to coarse GRAVEL, some silt; orange brown. Wet. Gravel, rounded to sub-angular; sand, fine to coarse. 25.90m: Very dense.				SPT	27	15/19// 24/16/10 for 70 mm N=50										
	27.40 - 27.85m Medium dense.				SNC		76// 53/27 N=17										
Bromley Formation	27.85m: SILT, minor clay; grey. Soft, moist, medium plasticity.				SNC												
	28.60m: Sandy SILT; brown. Hard, dry. Sand, fine.				SNC												
	28.90m: Silty fine to coarse GRAVEL, some sand; light greyish brown. Very dense, moist. Gravel, rounded to sub-rounded; sand, fine to coarse. 29.60m: Recovered as fine to coarse GRAVEL, minor silt and minor sand; light brown. Dry.				SPT	42	27/23// for 45mm N=50							28.90m: SPT hammer bouncing			

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
40.05m
Scale 1:25

Rev.: A

TTNZ_20240902 - GeneralLog - 5/09/2025 9:13:24 am - Produced with Core-GS by GeRoc

Box 23-25-26-28m

Box 26-28-29-02m



BOREHOLE LOG

BOREHOLE No.:
BH_65

SHEET: 8 OF 9

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 03/06/2025

FINISH DATE: 04/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach Road

CO-ORDINATES: 5202009.39 mN
(NZTM2000) 1574307.37 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.89m
R.L. COLLAR: 3.89m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Bromley Formation	35.00m: Fine to coarse SAND; orange brown. Loose, wet.				SPT	56	2/2// 33/1/2 N=9		35.5									
	35.45 - 36.05m Some gravel; brown. Gravel, fine, rounded.								36.0									
	36.60m: Very dense. Minor fine, rounded gravel to 37.60m.				SPT	39	6/7// 9/1227/2 for 5 mm N=50		37.0									
	37.50 - 38.50m Minor gravel. Gravel, fine, rounded to sub-rounded.				SPT	44	2/4// 11/21/18 for 35 mm N=50		38.5									
	39.50m: Dense.				SPT	33	7/6// 6/10/10/9 N=35		39.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:
BH_65

SHEET: 9 OF 9

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 03/06/2025

FINISH DATE: 04/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach Road

CO-ORDINATES: 5202009.39 mN
(NZTM2000) 1574307.37 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 3.89m
R.L. COLLAR: 3.89m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation										Defect Log	Fracture Spacing (mm)	RQD (%)					
Bromley Formation	40.05m: EOBH. Target depth				SPT	33												Box 37, 40-40.05m

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
40.05m

Scale 1:25

Rev.: A

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202009.39 mN 1574307.37 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	3.89m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



0.00-3.80m



3.80-7.10m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202009.39 mN 1574307.37 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	3.89m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill LOGGED BY: JASL CHECKED: DAA



7.10-10.60m



10.60-13.70m

CORE PHOTOS

BOREHOLE No.: **BH_65**
 Hole Location: Woodend Beach Road
 SHEET: 3 OF 7

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202009.39 mN 1574307.37 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	3.89m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



13.70-17.15m



17.15-20.25m

CORE PHOTOS

BOREHOLE No.: **BH_65**
 Hole Location: Woodend Beach Road
 SHEET: 4 OF 7

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202009.39 mN 1574307.37 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	3.89m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



20.25-23.25m



23.25-26.28m

CORE PHOTOS

BOREHOLE No.: **BH_65**
 Hole Location: Woodend Beach Road
 SHEET: 5 OF 7

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202009.39 mN 1574307.37 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	3.89m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



26.28-29.02m



29.02-31.75m

CORE PHOTOS

BOREHOLE No.: **BH_65**
 Hole Location: Woodend Beach Road
 SHEET: 6 OF 7

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202009.39 mN 1574307.37 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	3.89m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



31.75-34.30m



34.30-37.40m

CORE PHOTOS

BOREHOLE No.: **BH_65**
 Hole Location: Woodend Beach Road
 SHEET: 7 OF 7

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202009.39 mN 1574307.37 mE	DRILL TYPE:	HOLE STARTED: 03/06/2025
R.L.:	3.89m	METHOD: Sonic core drilling	HOLE FINISHED: 04/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



37.40-40.05m



BOREHOLE LOG

BOREHOLE No.:
BH_66

SHEET: 1 OF 5

DRILLED BY: Taph, Sam, Nathan

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 19/05/2025

FINISH DATE: 19/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach to Gladstone

CO-ORDINATES: 5202612.30 mN
1574361.34 mE
(NZTM2000)

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.08m
R.L. COLLAR: 5.08m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Top	0.00m: Organic SILT, some sand; dark brown. Very soft, moist, non-plastic. Sand, fine. Trace rootlets. (TOPSOIL).						5										
Springston Formation	0.20m: Fine SAND, trace rootlets and trace gravel; greyish brown. Moist.				SNC			0.5									
	0.80m: CORE LOSS.							1.0									
	1.20m: Fine to coarse GRAVEL, some sand, trace silt; greyish brown. Wet, well graded. Gravel, sub-rounded to angular; sand, fine to coarse. 1.50m: Medium dense.				SPT	100	8.6// 7.7/7.6 N=27	1.5									
	2.80m: CORE LOSS. 3.00m: Medium dense.				SPT	33	4.5// 5.5/3.3 N=16	2.0									
	3.30m: Fine to coarse GRAVEL, some sand, trace silt; greyish brown. Medium dense, wet. Gravel, sub-rounded to angular; sand, fine to coarse. 3.45m: Drilling disturbed (loss of fines). Recovered as medium to coarse subangular gravel. 3.60m: Fine to coarse GRAVEL, some sand, minor silt. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 3.80m: CORE LOSS.				SNC	81		2.5									
	4.50m: Fine to coarse GRAVEL, minor sand, trace silt; brown. Loose, wet. Gravel, sub-rounded; sand, fine to coarse.				SPT	22	0.0// 1.1/2.2 N=6	4.5									
								3.0									
								3.5									
								4.0									
								4.5									

2.20m: GWL measured at EOH, in casing. BH at 20.22m bgl. Casing at 19.80m bgl. Water flush with drilling polymer used.



19.80m bgl.

Box 0.00-4.50m

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.22m
Scale 1:25

TTNZ_20240902 - GeneralLog - 5/09/2025 9:17:47 am - Produced with Core-GS by GeRoc



BOREHOLE LOG

BOREHOLE No.:
BH_66

SHEET: 2 OF 5

DRILLED BY: Taph, Sam, Nathan

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 19/05/2025

FINISH DATE: 19/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach to Gladstone

CO-ORDINATES: 5202612.30 mN
(NZTM2000) 1574361.34 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.08m
R.L. COLLAR: 5.08m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	5.20m: Sandy fine to coarse GRAVEL, minor silt, trace cobbles; light bluish grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse; cobbles, sub-rounded, up to 70mm diameter recovered.				SNC	100			0									
	6.20m: Fine to medium GRAVEL, minor sand; grey. Medium dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	56	5/7 // 9/7/7/12 N=35		5.5									
	6.55m: Fine to medium GRAVEL, minor sand; grey. Medium dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.								6.5									
Christchurch Formation	7.20m: SILT, minor rootlets, trace sand and trace gravel; greyish brown. Very soft to soft, wet, non-plastic. Sand, fine to coarse; gravel, fine to medium.								6.0									
	7.40m: Medium to coarse SAND, some gravel; grey. Moist. Gravel, fine to medium, rounded.								6.5									
	7.60m: Fine to coarse SAND, minor gravel, trace silt; brownish grey. Medium dense, wet. Gravel, fine to medium, rounded.				SPT	100	0/1 // 3/4/6/12 N=25		7.5									
	8.50m: Fine to medium SAND; grey. Moist.				SNC	100			7.0									
	8.60m: WOOD; dark blackish brown. Saturated, spongy. Fibres retain no strength. Recovered as wood fragments and amorphous organics..								7.5									
	8.70m: Coarse SAND, trace gravel; dark grey. Moist. Gravel, fine, rounded.								8.0									
	8.90m: Fine to medium SAND; grey. Moist.								8.5									
9.00m: Coarse SAND, trace gravel; dark grey. Very dense, moist. Gravel, fine.				SPT	100	2/4 // 8/12/15/15 for 50mm N=50		9.0										
9.30m: Fine to medium SAND; light grey. Wet.				SNC	100			9.5										
												7.60 - 8.05m BH066-7.6: PSD percent passing 63um sieve 3%						

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:
BH_66

SHEET: 3 OF 5

DRILLED BY: Taph, Sam, Nathan

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 19/05/2025

FINISH DATE: 19/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach to Gladstone

CO-ORDINATES: 5202612.30 mN
(NZTM2000) 1574361.34 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.08m
R.L. COLLAR: 5.08m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No			
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)								
Christchurch Formation	[CONT] 9.30m: Fine to medium SAND; light grey. Wet.				SNC	100		-5												
	10.00 - 10.10m Trace fine gravel.																			
	10.60m: Very dense.																	SPT	100	4.5// 9/12/23/5 for 25mm N=50
	11.55m: Medium to coarse SAND, minor gravel; grey. Moist. Gravel, fine to medium.																	SNC	100	
	11.70m: Fine to medium SAND; light grey. Wet.																			
	12.00m: Coarse SAND, trace gravel; dark grey. Moist. Gravel, fine.																			
	12.10m: Fine to medium SAND; light grey. Medium dense, wet.																	SPT	100	1.3// 5.5/4/8 N=22
	12.80 - 12.90m Trace organic.																			
	13.70m: Dense.																	SPT	100	2.8// 5/7/10/17 N=39
	14.15m: Gravelly fine to coarse SAND; grey. Moist, well graded. Gravel, fine to medium, sub-rounded to sub-angular.																	SNC	100	
14.90m: Sandy fine to medium GRAVEL; grey. Moist, well																				

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.22m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_66

SHEET: 5 OF 5

DRILLED BY: Taph, Sam, Nathan

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 19/05/2025

FINISH DATE: 19/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Woodend Beach to Gladstone

CO-ORDINATES: 5202612.30 mN
(NZTM2000) 1574361.34 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.08m
R.L. COLLAR: 5.08m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 18.50m: Fine to medium GRAVEL, some sand; grey. Wet. Gravel, sub-rounded to sub-angular; sand, medium to coarse.				SPT	100	N ₅₀	-15	18.50								Box 19, 10-20.22m
	20.22m: EOBH. Target depth								20.5								
									21.0								
									21.5								
									22.0								
									22.5								
									23.0								
									23.5								
									24.0								
									24.5								

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.22m

Scale 1:25

Rev.: A

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202612.30 mN 1574361.34 mE	DRILL TYPE: JS1000	HOLE STARTED: 19/05/2025
R.L.:	5.08m	METHOD: Sonic core drilling	HOLE FINISHED: 19/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



0.00-4.50m

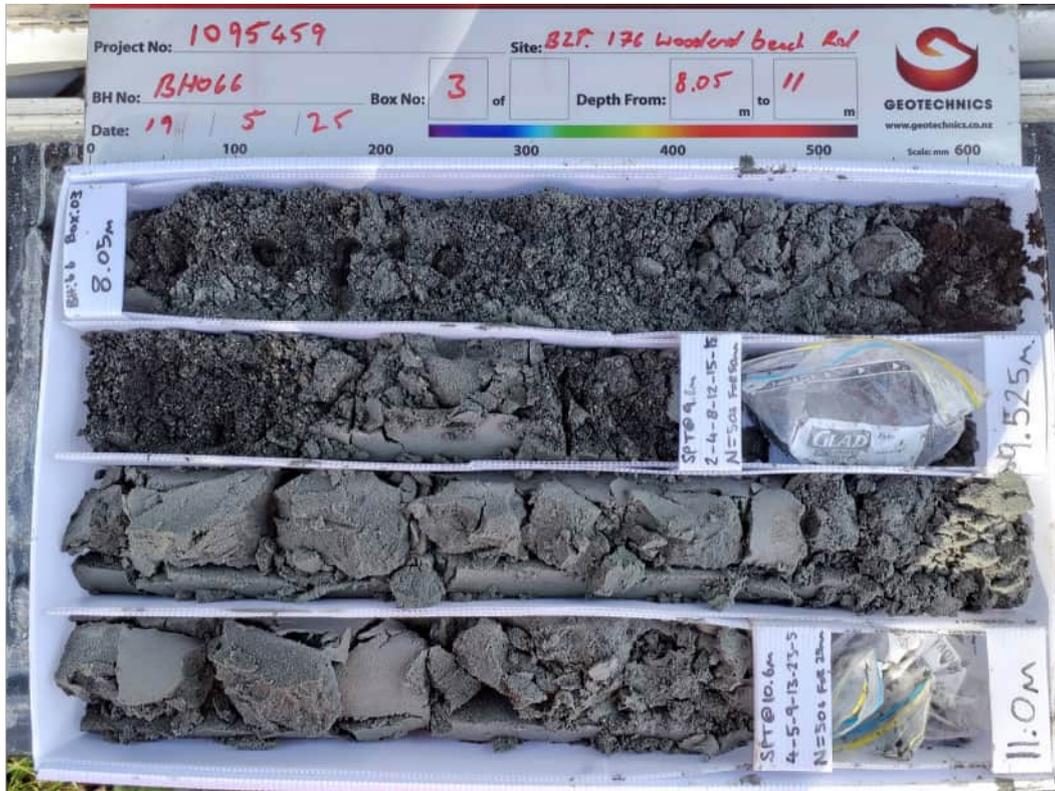


4.50-8.05m

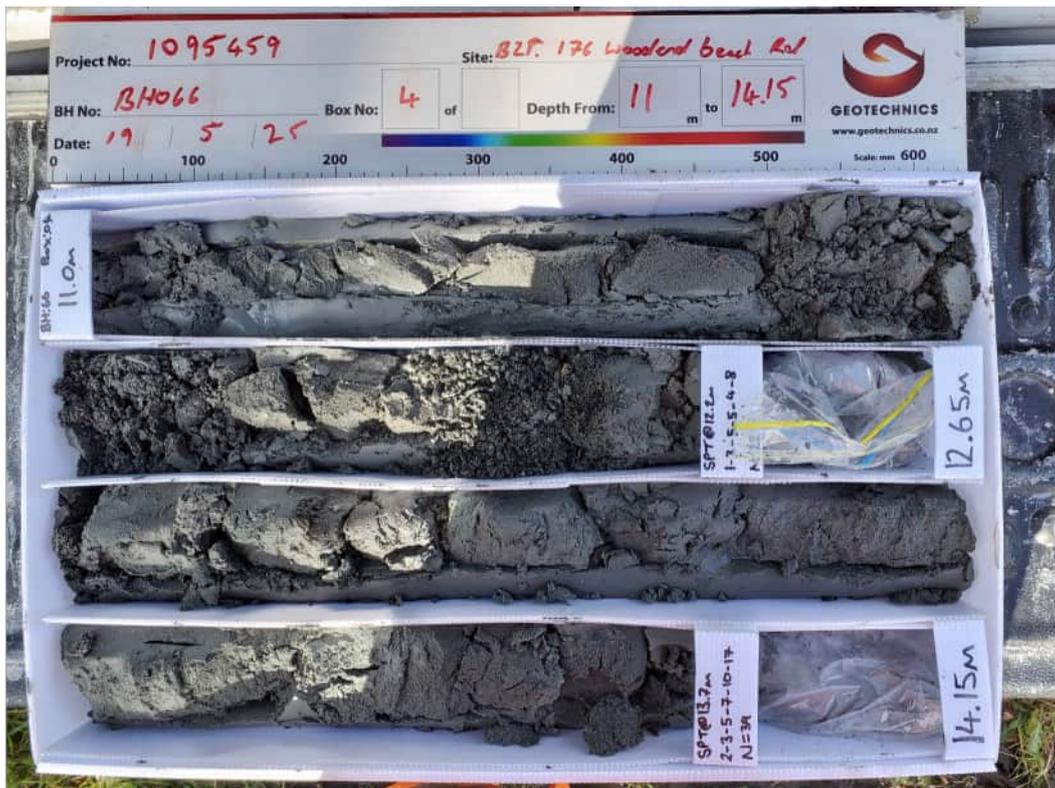
CORE PHOTOS

BOREHOLE No.: **BH_66**
 Hole Location: Woodend Beach to Gladstone
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202612.30 mN 1574361.34 mE	DRILL TYPE: JS1000	HOLE STARTED: 19/05/2025
R.L.:	5.08m	METHOD: Sonic core drilling	HOLE FINISHED: 19/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



8.05-11.00m



11.00-14.15m

CORE PHOTOS

BOREHOLE No.: **BH_66**
 Hole Location: Woodend Beach to Gladstone
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202612.30 mN 1574361.34 mE	DRILL TYPE: JS1000	HOLE STARTED: 19/05/2025
R.L.:	5.08m	METHOD: Sonic core drilling	HOLE FINISHED: 19/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



14.15-17.15m



17.15-19.40m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5202612.30 mN 1574361.34 mE	DRILL TYPE: JS1000	HOLE STARTED: 19/05/2025
R.L.:	5.08m	METHOD: Sonic core drilling	HOLE FINISHED: 19/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



19.40-20.22m



BOREHOLE LOG

BOREHOLE No.:
BH_67

SHEET: 1 OF 5

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Gladstone Road

CO-ORDINATES: 5203226.38 mN
(NZTM2000) 1574313.69 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 6.71m
R.L. COLLAR: 6.71m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Top	0.00m: Organic SILT, some gravel; dark brown. Soft to firm, moist, non-plastic. Gravel, fine to medium. Trace rootlets. (TOPSOIL).																	
Fill	0.20m: Sandy fine to coarse GRAVEL; orange brown. Wet. Gravel, sub-rounded to angular, sand, medium to coarse. (FILL).				SNC 100			0.5										
Springston Formation	0.95m: Silty fine to coarse SAND, some gravel; brown. Moist. Gravel, fine to coarse, rounded to angular.						1.0											
	1.15m: Sandy fine to coarse GRAVEL, trace silt; brown. Moist. Gravel, sub-rounded to angular; sand, fine to coarse.						1.5											
	1.50m: Medium dense.				SPT 33	47// 65/57 N=23	1.5											
	1.95m: Fine to coarse SAND, minor gravel, trace silt; brown. Moist. Gravel, fine to coarse, sub-rounded to sub-angular.						2.0											
	2.20m: Sandy fine to coarse GRAVEL, minor silt, trace cobbles; brown. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, angular, broken by drilling process.				SNC 100		2.5											
3.00m: Medium dense.				SPT 22	35// 65/54 N=20	3.0												
3.75m: Cobble.						3.5												
3.80m: CORE LOSS.				SNC 33		4.0												
4.50m: Sandy SILT, some gravel, trace clay; grey. Soft, wet, low plasticity. Sand, fine; gravel, fine to medium, rounded to sub-rounded.				SPT 100	31// 10/1/1 N=3	4.5												

3.10m: GWL measured at EOH, in casing. BH at 20.25m bgl. Casing at 19.80m bgl. Water flush with drilling polymer used.

4.50 - 4.95m BH_67_4_5: AL: LL 34, PL 22, PI 12
4.50 - 4.95m BH_67_4_5: PSD Percent passing 63 um sieve: 61%

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth 20.25m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:

BH_67

SHEET: 2 OF 5

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Gladstone Road

CO-ORDINATES: 5203226.38 mN
 (NZTM2000) 1574313.69 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 6.71m
 R.L. COLLAR: 6.71m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Springston Formation	4.95m: Sandy SILT; grey. Soft, wet, low plasticity. Sand, fine to coarse.				SNC	100													
	5.25m: PEAT (FIBROUS); black. Very soft, wet, non-plastic. Minor rootlets.																		
	5.30m: Organic SILT; grey mottled brown and black. Soft, wet, low plasticity.																		
	5.45m: SILT, minor clay, trace sand; grey mottled light brown. Soft, wet, medium plasticity. Sand, fine.																		
	5.95 - 6.10m Minor sand.																		
Christchurch Formation	6.10m: Silty fine to medium SAND; grey. Wet.				PT	0													
	6.10 - 6.70m Saturated.																		
	6.55m: Fine to medium SAND, minor silt; grey. Wet.																		
	7.10 - 7.30m Fine to coarse SAND.				SNC	100													
	7.60m: Dense.				SPT	44													
	8.10m: Fine to coarse SAND, minor silt and minor gravel; grey. Wet, effectively gap graded. Gravel, fine to medium, rounded.																		
	8.10m: Fine to coarse SAND, minor silt and minor gravel; grey. Wet, effectively gap graded. Gravel, fine to medium, rounded.				SNC	100													
	8.90m: Fine to coarse SAND, minor silt; grey. Wet.				SPT	33													
	9.10m: Dense.				SNC	100													

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:
BH_67

SHEET: 3 OF 5

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Gladstone Road

CO-ORDINATES: 5203226.38 mN
(NZTM2000) 1574313.69 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 6.71m
R.L. COLLAR: 6.71m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	10.35m: Sandy fine GRAVEL; dark grey. Wet. Sand, medium to coarse.				SNC	100			10.35									
	10.60m: Dense.				SPT	33	12// 8/11/10/11 N=40		10.60									
	11.05m: Fine to medium SAND, minor silt; grey. Wet.								11.05									
	11.35m: Sandy fine GRAVEL; dark grey. Wet. Sand, fine to coarse, predominantly medium to coarse.				SNC	100			11.35									
	11.95m: Fine to coarse SAND, trace silt; grey. Wet.								11.95									
	12.20m: Gravelly fine to coarse SAND, minor silt; grey. Very dense, wet. Gravel, fine, rounded.				SPT	53	14// 12/19/19 for 75 mm N=50		12.20									
12.78m: Fine to coarse SAND, trace silt; grey. Wet.								12.78										
13.05 - 13.25m: Gravelly fine to coarse SAND. Saturated. Gravel, fine.				SNC	100				13.05									
13.70m: Dense.				SPT	33	24// 7/9/14/17 N=47			13.70									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.25m

Scale 1:25

Box 10.10-13.25m

Rev: A



BOREHOLE LOG

BOREHOLE No.:
BH_67

SHEET: 4 OF 5

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Gladstone Road

CO-ORDINATES: 5203226.38 mN
(NZTM2000) 1574313.69 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 6.71m
R.L. COLLAR: 6.71m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering		Rock Strength		Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
		UW SW RW CW OW	VS*	UCS*	σ _v σ ₃ σ ₁ σ ₂ σ ₃ σ ₁ σ ₂ σ ₃						2000 2000 2000 90 20	25 50 75						
Christchurch Formation	15.80m: Gravelly fine to medium SAND; grey. Wet, poorly graded. Gravel, fine to medium.			SNC	100	SPT	2/3// 6/8/10/14 N=38		15.5									
	16.70m: Medium dense.			SNC	100	SPT	2/2// 24/9/13 N=28		16.0									
Burnham Formation	17.15m: Sandy fine to medium GRAVEL, minor silt; grey. Wet. Gravel, sub-rounded; sand, fine to coarse.			SNC	100	SPT	4/2// 23/5/10 N=20		17.0									
	18.30m: Medium dense.			SNC	100	SPT	12/9// 9/8/11/8 N=36		17.5									
	18.75 - 18.85m Brownish grey. Gravel fine to coarse.			SNC	100	SPT			18.0									
	19.25 - 19.45m Minor silt, non plastic .			SNC	100	SPT			18.5									
	19.60 - 19.70m Fine SAND. Saturated.			SNC	100	SPT			19.0									
	19.80m: Dense.			SNC	100	SPT			19.5									
	19.90m: NO RECOVERY.			SNC	100	SPT			19.9									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.25m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_67

SHEET: 5 OF 5

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 27/05/2025

FINISH DATE: 27/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Gladstone Road

CO-ORDINATES: 5203226.38 mN
(NZTM2000) 1574313.69 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 6.71m
R.L. COLLAR: 6.71m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 19.90m: NO RECOVERY.		UW SW HW CW OW	UW SW HW CW OW	SPT	22				X	2000 2000 2000 90 20							Box 19 75-20.25m
	20.25m: EOBH. Target depth																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.25m
Scale 1:25

CORE PHOTOS

BOREHOLE No.: **BH_67**
 Hole Location: Gladstone Road
 SHEET: 1 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203226.38 mN 1574313.69 mE	DRILL TYPE:	HOLE STARTED: 27/05/2025
R.L.:	6.71m	METHOD: Sonic core drilling	HOLE FINISHED: 27/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



0.00-3.00m



3.00-6.95m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203226.38 mN 1574313.69 mE	DRILL TYPE:	HOLE STARTED: 27/05/2025
R.L.:	6.71m	METHOD: Sonic core drilling	HOLE FINISHED: 27/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



6.95-10.10m



10.10-13.25m

CORE PHOTOS

BOREHOLE No.: **BH_67**
 Hole Location: Gladstone Road
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203226.38 mN 1574313.69 mE	DRILL TYPE:	HOLE STARTED: 27/05/2025
R.L.:	6.71m	METHOD: Sonic core drilling	HOLE FINISHED: 27/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



13.25-16.30m



16.30-19.75m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203226.38 mN 1574313.69 mE	DRILL TYPE:	HOLE STARTED: 27/05/2025
R.L.:	6.71m	METHOD: Sonic core drilling	HOLE FINISHED: 27/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



19.75-20.25m



BOREHOLE LOG

BOREHOLE No.:
BH_68

SHEET: 1 OF 8

DRILLED BY: PD2-Tyler

LOGGED BY: MIBU

CHECKED: DAA

START DATE: 22/05/2025

FINISH DATE: 26/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Gladstone Road

CO-ORDINATES: 5203264.72 mN
(NZTM2000) 1574349.87 mE

R.L. GROUND: 6.16m
R.L. COLLAR:

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering <small>UW SW HW VW CW PW</small>	Rock Strength <small>CS*</small>	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%) <small>25 50 75</small>	Casing	Installation	Core Box No			
									Defect Log	Fracture Spacing (mm) <small>2000 200 50</small>	RQD (%) <small>20</small>								
TSoil	0.00m: SILT, some organics, minor sand; dark brown. Firm, moist, non-plastic. Sand, fine. Trace rootlets. Wood fibres retain original strength. (TOPSOIL).						6												
	0.30m: Sandy SILT, minor organics; light brown. Stiff, moist, non-plastic. Sand, fine. Trace rootlets.						0.5												
	0.65m: Gravelly fine to coarse SAND, minor silt; orangish brown. Dry. Gravel, fine to coarse, rounded to sub-rounded.				SNC	100													
	0.90m: SILT, minor sand, trace rootlets; greyish brown. Soft to firm, wet, non-plastic. Sand, fine.							1.0											
	1.10m: Gravelly fine to coarse SAND, minor silt; light orangish brown. Dry. Gravel, fine to coarse, rounded to sub-rounded.							1.5											
Springston Formation	1.50m: Medium dense.				SPT	44		1.5											
								2.0											
	2.10m: Sandy fine to coarse GRAVEL, minor silt; light orangish brown. Dry. Gravel, rounded to sub-rounded; sand, fine to coarse.							2.5											
	2.50 - 3.45m Moist.				SNC	100		2.5											
									3.0										
						SPT	33		3.0										
									3.5										
3.45m: SILT, minor clay and minor sand, trace rootlets and trace gravel; brownish grey. Soft, wet, high plasticity. Sand, fine to coarse; gravel, fine to medium, rounded, predominantly fine.							3.5												
3.80 - 4.00m Grading to; greyish brown. Medium plasticity.								4.0											
4.00m: Organic SILT, trace clay; dark brown and grey. Soft to firm, moist, low plasticity. Trace wood. Wood; dark brown, spongy, fibres retain some strength.								4.0											
4.50m: NOT LOGGED - Push tube.					PT	100		4.5											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
35.36m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_68

SHEET: 2 OF 8

DRILLED BY: PD2-Tyler

LOGGED BY: MIBU

CHECKED: DAA

START DATE: 22/05/2025

FINISH DATE: 26/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Gladstone Road

CO-ORDINATES: 5203264.72 mN
(NZTM2000) 1574349.87 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 6.16m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering <small>UW, SW, MW, CW, OW, V, S, W, M, H, V, S, W, M, H</small>	Rock Strength <small>U, S, W, M, H, V, S, W, M, H</small>	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%) <small>25, 50, 75</small>	Casing	Installation	Core Box No
									Defect Log	Fracture Spacing (mm) <small>2000, 200, 20</small>	RQD (%)					
Springston Formation	4.95m: SILT, minor clay and minor sand; grey. Soft, wet, low to medium plasticity. Sand, fine to medium. 5.05m: Moist.			SNC 100	6 @ 5.50m BH_68_5.5: AL, LL, 35, PL, 24, PI 11 7 @ 5.50m BH_68_5.5: PSD Percent passing 63 um sieve: 92%	1	5.5					5.50 - 5.70m BH_68_5.5: AL: LL 35, PL 24, PI 11 5.50 - 5.70m BH_68_5.5: PSD Percent passing 63 um sieve: 92%				
	5.70 - 5.80m Some sand.			SPT 44	4.5// 6.6/6.8 N=26	0	6.5									
Christchurch Formation	5.80m: Fine to medium SAND; grey speckled white. Wet. Trace shell fragments. 6.10m: Medium dense. 6.55m: Some gravel, fine.			SNC 100	8 @ 7.00m BH_68_7.0: PSD Percent passing 63 um sieve: 5%	-1	7.0					7.00 - 7.20m BH_68_7.0: PSD Percent passing 63 um sieve: 5%				
	7.00m: Fine to coarse SAND, some gravel, minor silt; grey. Gravel, fine to medium, rounded.			SPT 44	1.2// 4.6/7.9 N=26	-1	8.0									
	7.60m: Medium dense.			SNC 100		-2	8.5									
	8.75 - 9.00m Gravelly. 9.10m: Dense.			SPT 44	1.3// 10.7/13/12 N=42	-3	9.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
35.36m
Scale 1:25

Rev: A



BOREHOLE LOG

BOREHOLE No.:
BH_68

SHEET: 3 OF 8

DRILLED BY: PD2-Tyler

LOGGED BY: MIBU

CHECKED: DAA

START DATE: 22/05/2025

FINISH DATE: 26/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Gladstone Road

CO-ORDINATES: 5203264.72 mN
(NZTM2000) 1574349.87 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 6.16m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering		Rock Strength		Sampling Method		Testing		RL (m)		Depth (m)		Graphic Log		ROCK MASS DISCONTINUITIES		Description & Additional Observations		Water Level / Fluid Loss (%)		Casing		Installation		Core Box No			
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation		SW SH SHW SHL SHLW SHLH SHLH SHLH																											
Christchurch Formation	10.30 - 10.60m Gravelly, fine.		SNC		SNC		SNC		SNC		10.4		10.5		4/7// 10/12/13/13 N=48															
	12.00 - 12.10m Minor gravel, fine. 12.20m: Very dense.		SNC		SNC		SNC		SNC		11.5		12.0		4/9// 25/25 for 66 mm N=50															
	13.00m: Gravelly fine to coarse SAND; grey. Wet. Gravel, fine to medium, rounded.		SNC		SNC		SNC		SNC		13.0		13.5																	
	13.60m: Fine to medium SAND, minor silt; grey. Very dense, wet.		SNC		SNC		SNC		SNC		14.0		14.5		6/8// 11/14/12/13 for 70mm N=50															

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
35.36m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:

BH_68

SHEET: 4 OF 8

DRILLED BY: PD2-Tyler

LOGGED BY: MIBU

CHECKED: DAA

START DATE: 22/05/2025

FINISH DATE: 26/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Gladstone Road

CO-ORDINATES: 5203264.72 mN
 (NZTM2000) 1574349.87 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 6.16m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering <small>UW SW HW CW FW</small>	Rock Strength <small>US SS WS CS FS</small>	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%) <small>25 50 75</small>	Casing	Installation	Core Box No	
									Defect Log	Fracture Spacing (mm) <small>2000 200 50</small>	RQD (%)						
Christchurch Formation	15.49m: Sandy fine to medium GRAVEL; grey. Wet. Gravel, sub-rounded; sand, fine to coarse.			SNC 100	SPT 52 6/11// 26/24 for 65 mm N=50	-9	15.5										
Burnham Formation	16.70m: Dense.			SNC 100	SPT 33 1/5// 7/10/12/13 N=42	-10	16.5										
	17.15m: Fine to coarse GRAVEL, some sand, minor silt; grey. Dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.			SNC 100	SPT 44 3/3// 5/7/9/12 N=33	-11	17.0										
	18.30m: Dense.			SNC 100	SPT 22 5/2// 11/13/13/13 N=50	-12	18.5										
	19.80m: Very dense.			SNC 100	SPT 22 5/2// 11/13/13/13 N=50	-13	19.5										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
35.36m
Scale 1:25

Box 12.70-15.49m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_68

SHEET: 6 OF 8

DRILLED BY: PD2-Tyler

LOGGED BY: MIBU

CHECKED: DAA

START DATE: 22/05/2025

FINISH DATE: 26/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Gladstone Road

CO-ORDINATES: 5203264.72 mN
(NZTM2000) 1574349.87 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 6.16m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	25.40m: SILT, minor sand, trace clay; light orange brown. Hard, wet, non-plastic to low plasticity. Sand, fine.				SNC	100		-19	25.5									
	25.70m: Grading to; greyish brown.																	
	25.90m: Fine to medium GRAVEL, some sand, trace silt; orange brown. Very dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	41	3/14// 15/18/17 for 70 mm N=50	-20	26.0									
	26.50m: Sandy, minor silt.				SNC	100			26.5									
Bromley Formation	27.00m: GRAVEL, minor sand; brown. Gravel, rounded to sub-rounded; sand, medium to coarse.				SNC	100		-21	27.0									
	27.20m: SILT, minor sand and minor gravel; reddish brown. Very stiff, moist, non-plastic. Sand, fine to coarse; gravel, fine, rounded.				SPT	22	2.5// 13/10/12/15 N=50		27.5									
	27.85m: Sandy fine to coarse GRAVEL, minor silt; light brown mottled orange brown. Very dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SPT	29	16/18// 18/20/12 for 45 mm N=50	-23	29.0									
	29.90m: Fine to coarse GRAVEL.				SNC	100			29.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
35.36m

Scale 1:25

Box 24, 77-27, 40m

Rev: A



BOREHOLE LOG

BOREHOLE No.:
BH_68

SHEET: 7 OF 8

DRILLED BY: PD2-Tyler

LOGGED BY: MIBU

CHECKED: DAA

START DATE: 22/05/2025

FINISH DATE: 26/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Gladstone Road

CO-ORDINATES: 5203264.72 mN
(NZTM2000) 1574349.87 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 6.16m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Bromley Formation					SNC	100		-24										
					SPT	37	11/26// 32/18 for 45 mm N ₅₀	30.5										
					SNC	100		-25										
					SPT	29	18/18// 19/22/9 for 35 mm N ₅₀	32.0										
					SNC	100		-27										
					SPT	24	14/12// 14/15/13/8 for 45mm N ₅₀	33.5										
					SNC	100		-28										
								34.5										

34.75m: Fine to coarse SAND, some gravel; orange brown. Saturated. Sand, predominantly fine to medium; gravel, fine, rounded to sub-rounded.

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) have been included where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
35.36m
Scale 1:25

CORE PHOTOS

BOREHOLE No.: **BH_68**
 Hole Location: Gladstone Road
 SHEET: 1 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203264.72 mN 1574349.87 mE	DRILL TYPE: Eijelkamp SonicPro	HOLE STARTED: 22/05/2025
R.L.:	6.16m	METHOD: Sonic core drilling	HOLE FINISHED: 26/05/2025
DATUM:	NZVD2016	LOGGED BY: MIBU	CHECKED: DAA



0.00-2.90m



2.90-6.10m

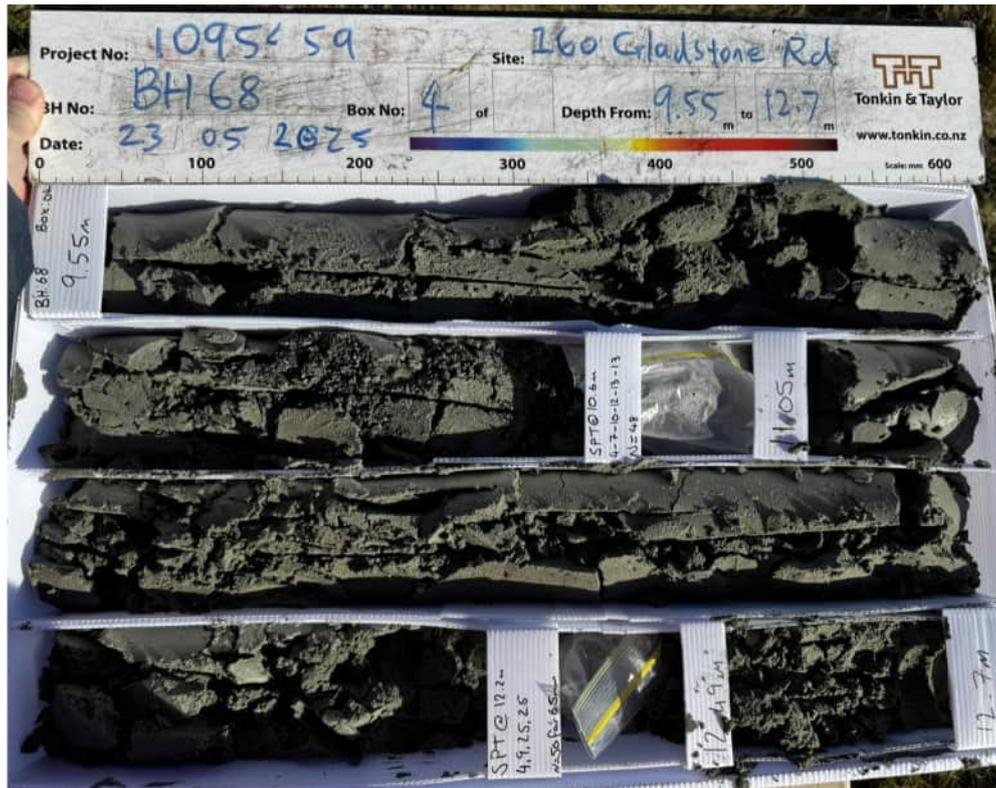
CORE PHOTOS

BOREHOLE No.: **BH_68**
 Hole Location: Gladstone Road
 SHEET: 2 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203264.72 mN 1574349.87 mE	DRILL TYPE: Eijelkamp SonicPro	HOLE STARTED: 22/05/2025
R.L.:	6.16m	METHOD: Sonic core drilling	HOLE FINISHED: 26/05/2025
DATUM:	NZVD2016	LOGGED BY: MIBU	CHECKED: DAA



6.10-9.55m

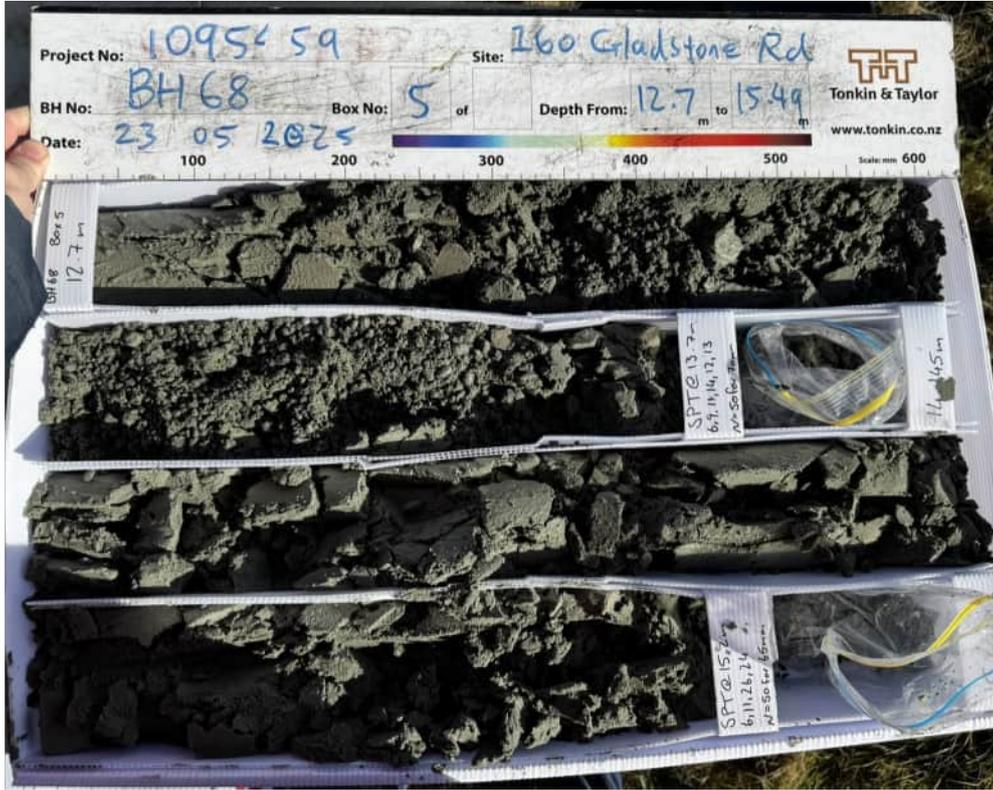


9.55-12.70m

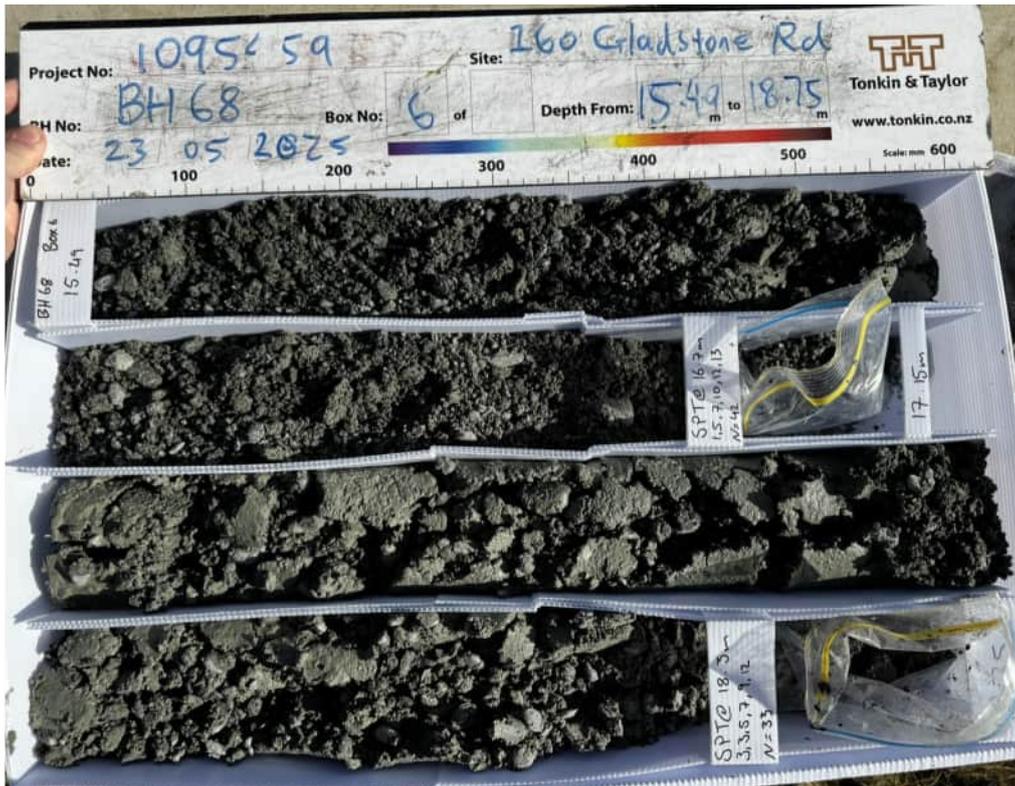
CORE PHOTOS

BOREHOLE No.: **BH_68**
 Hole Location: Gladstone Road
 SHEET: 3 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203264.72 mN 1574349.87 mE	DRILL TYPE: Eijelkamp SonicPro	HOLE STARTED: 22/05/2025
R.L.:	6.16m	METHOD: Sonic core drilling	HOLE FINISHED: 26/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: MIBU
			CHECKED: DAA



12.70-15.49m



15.49-18.75m

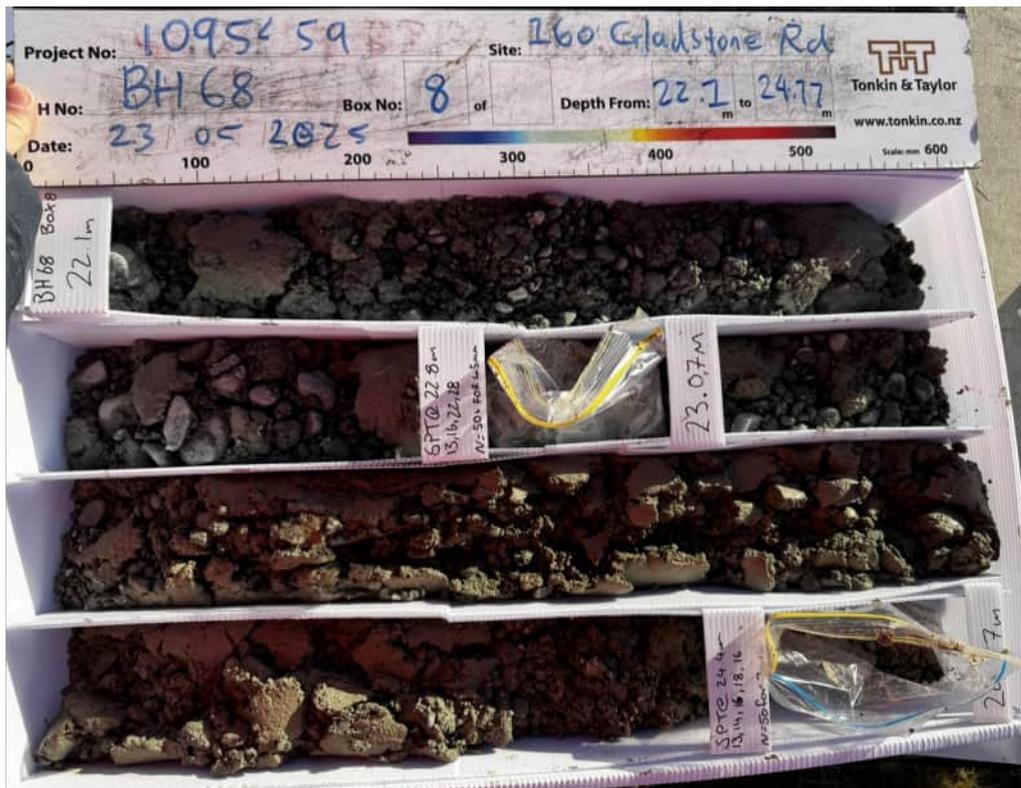
CORE PHOTOS

BOREHOLE No.: **BH_68**
 Hole Location: Gladstone Road
 SHEET: 4 OF 6

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203264.72 mN 1574349.87 mE	DRILL TYPE: Eijelkamp SonicPro	HOLE STARTED: 22/05/2025
R.L.:	6.16m	METHOD: Sonic core drilling	HOLE FINISHED: 26/05/2025
DATUM:	NZVD2016	LOGGED BY: MIBU	CHECKED: DAA



18.75-22.10m



22.10-24.77m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203264.72 mN 1574349.87 mE	DRILL TYPE: Eijelkamp SonicPro	HOLE STARTED: 22/05/2025
R.L.:	6.16m	METHOD: Sonic core drilling	HOLE FINISHED: 26/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill LOGGED BY: MIBU CHECKED: DAA



24.77-27.40m



27.40-30.50m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203264.72 mN 1574349.87 mE	DRILL TYPE: Eijelkamp SonicPro	HOLE STARTED: 22/05/2025
R.L.:	6.16m	METHOD: Sonic core drilling	HOLE FINISHED: 26/05/2025
DATUM:	NZVD2016	LOGGED BY: MIBU	CHECKED: DAA



30.50-33.50m



33.50-35.36m



BOREHOLE LOG

BOREHOLE No.:
BH_69

SHEET: 1 OF 4

DRILLED BY: Tyler, Graeme

LOGGED BY: MIBU

CHECKED: DAA

START DATE: 21/05/2025

FINISH DATE: 21/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Gladstone to Pegasus

CO-ORDINATES: 5203443.24 mN
(NZTM2000) 1574190.03 mE

R.L. GROUND: 5.52m

R.L. COLLAR:

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Top	0.00m: Sandy SILT, trace organics; dark brownish black. Soft to firm, dry to moist, non-plastic. Sand, fine, rounded to sub-rounded. Trace rootlets. (TOPSOIL).																	
Springston Formation	0.20m: Sandy fine to coarse GRAVEL, minor cobbles, trace silt; orangish brown. Dry, well graded. Gravel, rounded to sub-angular; sand, fine to coarse, rounded to sub-angular; cobbles, rounded to sub-rounded, up to 80mm recovered.				SNC	100		0.5										
	1.50m: Medium dense.				SPT	33	2.5// 4.3/3.4 N=14	1.5										
	1.95 - 3.00m Sandy GRAVEL, some silt; light grey. Moist to wet.				SNC	58		2.0										
	2.60m: CORE LOSS.				SPT	11	3.5// 2.1/1/1 N=5	3.0										
	3.45m: WOOD; brown. Firm to stiff, moist, non-plastic. Organics, wood fragments (fresh).				SNC	14		3.5										
	3.65m: CORE LOSS.						4.0											
	4.50m: NO RECOVERY.				PT	0	PT @4.58m	4.5										
							1 @4.95m	5.0										
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BOREHOLE LOG

BOREHOLE No.:

BH_69

SHEET: 2 OF 4

DRILLED BY: Tyler, Graeme

LOGGED BY: MIBU

CHECKED: DAA

START DATE: 21/05/2025

FINISH DATE: 21/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Gladstone to Pegasus

CO-ORDINATES: 5203443.24 mN
 (NZTM2000) 1574190.03 mE

R.L. GROUND: 5.52m

R.L. COLLAR:

DIRECTION: 0°

ANGLE FROM HORIZ.: -90°

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Christchurch Formation	4.95m: Fine to medium SAND, some silt; light bluish grey. Wet, uniformly graded, dilatant.				SNC	10	BH69-01: PSD Percent passing 63 um sieve: 14%	5.52	0								
	5.50m: Silty fine SAND; light bluish grey. Moist, uniformly graded.				SNC	10		5.5									
	5.90 - 7.30m Minor silt.				SPT	100	37// 88/12/13 N=42	6.5	-1								
	6.10m: Dense.				SNC	100		7.0									
	7.00 - 7.30m Medium to coarse SAND, minor gravel; dark grey. Gravel, fine to medium, sub-rounded to angular.				SPT	100	24// 9/11/2/15 N=47	7.5	-2								
7.30m: Silty.				SNC	100		8.0										
9.10m: Very dense.				SPT	100	25// 9/14/15/12 for 65mm N=50	9.0	-3									
9.90 - 10.30m: Medium to coarse SAND, minor gravel; dark grey. Dry to moist. Gravel, fine to medium, sub-rounded to angular.				SNC	100		9.5	-4									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
17.09m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_69

SHEET: 3 OF 4

DRILLED BY: Tyler, Graeme

LOGGED BY: MIBU

CHECKED: DAA

START DATE: 21/05/2025

FINISH DATE: 21/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Gladstone to Pegasus

CO-ORDINATES: 5203443.24 mN
 (NZTM2000) 1574190.03 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.52m
 R.L. COLLAR:
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering <small>UW SW HW CW OW</small>	Rock Strength <small>U_{sp} S_{sp} W_{sp} C_{sp} O_{sp}</small>	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%) <small>25 50 75</small>	Casing	Installation	Core Box No
									Defect Log	Fracture Spacing (mm) <small>2000 200 20</small>	RQD (%)					
Christchurch Formation	[CONT] 5.50m: Silty fine SAND; light bluish grey. Moist, uniformly graded.															
	10.30 - 10.66m SAND, minor silt.			SNC	100											
	10.60m: Dense.			SPT	100	2.8// 7/9/10/12 N=38										
	11.11 - 11.16m SAND, minor gravel; grey. Dry to moist. Gravel, fine to medium, rounded to sub-rounded.															
	11.25 - 11.35m Sandy fine GRAVEL; grey. Dry to moist. Gravel, rounded to sub-angular.															
Christchurch Formation	11.70 - 11.90m Sandy fine GRAVEL; grey. Dry to moist. Gravel, rounded to sub-angular.			SNC	100											
	12.65 - 12.90m Silty fine SAND. Wet, dilatant rapid.			SPT	100	3.6// 5/13/14/13 N=45										
	13.70m Sandy fine to medium GRAVEL, trace silt; bluish grey. Very dense, wet. Sand, fine to coarse.			SPT	100	2.8// 6/15/22/7 for 25mm N=50										
Burnham Formation	14.70 - 15.10m Minor sand.			SNC	100											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:

BH_69

SHEET: 4 OF 4

DRILLED BY: Tyler, Graeme

LOGGED BY: MIBU

CHECKED: DAA

START DATE: 21/05/2025

FINISH DATE: 21/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Gladstone to Pegasus

CO-ORDINATES: 5203443.24 mN
 (NZTM2000) 1574190.03 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 5.52m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					25	50	75
Burnham Formation	[CONT] 13.70m: Sandy fine to medium GRAVEL, trace silt; bluish grey. Very dense, wet. Sand, fine to coarse. 15.20m: Dense.				SNC	100												
	16.00 - 16.30m Minor sand.				SPT	100	5/7 // 9/11/15/14 N=49											
	16.70m: Very dense.				SNC	100												
	17.09m: EOBH. Target depth																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203443.24 mN 1574190.03 mE	DRILL TYPE: SonicPro	HOLE STARTED: 21/05/2025
R.L.:	5.52m	METHOD: Sonic core drilling	HOLE FINISHED: 21/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: MIBU
			CHECKED: DAA



0.00-3.00m



3.00-7.10m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203443.24 mN 1574190.03 mE	DRILL TYPE: SonicPro	HOLE STARTED: 21/05/2025
R.L.:	5.52m	METHOD: Sonic core drilling	HOLE FINISHED: 21/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: MIBU
			CHECKED: DAA



7.10-10.20m



10.20-13.30m

CORE PHOTOS

BOREHOLE No.: **BH_69**
 Hole Location: Gladstone to Pegasus
 SHEET: 3 OF 3

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5203443.24 mN 1574190.03 mE	DRILL TYPE: SonicPro	HOLE STARTED: 21/05/2025
R.L.:	5.52m	METHOD: Sonic core drilling	HOLE FINISHED: 21/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: MIBU
			CHECKED: DAA



13.30-16.30m



16.30-17.09m



BOREHOLE LOG

BOREHOLE No.:

BH_70

SHEET: 1 OF 5

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 16/06/2025

FINISH DATE: 16/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus Approach

CO-ORDINATES: 5204413.91 mN
 (NZTM2000) 1573424.60 mE

R.L. GROUND: 9.63m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

DIRECTION: 0°

ANGLE FROM HORIZ.: -90°

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
T Soil	0.00m: Silty fine SAND, minor organics, trace rootlets; dark brown. Moist. (TOPSOIL).																	
	0.40m: Fine SAND, minor silt, trace rootlets; light grey with mottled orange. Moist to wet.								0.5									
Springston Formation	1.00 - 1.10m Some silt, trace fine gravel.								1.0									
	1.20 - 1.30m Sand is fine to medium.								1.2									
	1.30m: CORE LOSS.								1.3									
	1.50m: Sandy fine to coarse GRAVEL, trace silt; light brown. Loose to medium dense, wet, well graded. Gravel, rounded to sub-angular; sand, fine to coarse.								1.5									
	2.40m: Sandy fine to coarse GRAVEL; grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.								2.4									
	2.85 - 3.00m Trace rootlets, trace silt.								2.85									
	3.00m: Loose.								3.0									
	3.45 - 3.75m Rounded to angular gravel.								3.45									
3.75m: Fine to coarse SAND, trace gravel; grey. Wet. Gravel, fine to coarse, rounded to sub-angular.								3.75										
4.10m: Fine to coarse GRAVEL, minor sand; grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.								4.1										
4.40 - 4.50m Trace cobbles.								4.4										
4.50m: Clayey gravelly SILT, minor sand; light grey. Very soft, wet, poorly graded, medium plasticity. Gravel, fine to coarse, rounded to sub-angular; sand, fine to coarse.								4.5										
4.90 - 5.00m Trace organics and wood.								4.9										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:
BH_70

SHEET: 2 OF 5

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 16/06/2025

FINISH DATE: 16/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Pegasus Approach

CO-ORDINATES: 5204413.91 mN
(NZTM2000) 1573424.60 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.63m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	[CONT] 4.50m: Clayey gravelly SILT, minor sand; light grey. Very soft, wet, poorly graded, medium plasticity. Gravel, fine to coarse, rounded to sub-angular; sand, fine to coarse. 5.00 - 5.10m Trace cobbles. 5.10m: Firm.																	
	5.45m: Sandy SILT; light grey. Very soft, saturated, low plasticity, dilatant. Sand, fine.				SNC	100			5.5									
	5.90m: SILT, trace sand; light grey. Soft to firm, wet, low plasticity. Sand, fine.								6.0									
	6.10m: NOT LOGGED - Push tube. Silt at both ends.				PT	100			6.10		N/L							
	6.55m: SILT; light grey. Firm, moist to wet, low plasticity.								6.55									
	7.30m: SILT; light grey. Soft, wet, medium plasticity.								7.3									
	7.60m: NOT LOGGED - Push tube. Silt on both ends.				PT	100			7.60		N/L							
	8.05m: SILT; light grey. Firm, moist to wet, low plasticity. 8.30 - 9.10m Minor fine sand.								8.05									
	9.10m: Firm.				SPT	0			9.1									
	9.85m: Sandy SILT; grey. Stiff, wet, low plasticity. Sand, fine.								9.85									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth 20.25m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_70

SHEET: 3 OF 5

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 16/06/2025

FINISH DATE: 16/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Pegasus Approach

CO-ORDINATES: 5204413.91 mN
(NZTM2000) 1573424.60 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.63m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering		Rock Strength		Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation		USP SW HW CW OW	USP SW HW CW OW	USP SW HW CW OW	USP SW HW CW OW						2000 2000 2000 90 20	25 50 75						
Springston Formation	[CONT] 9.85m: Sandy SILT; grey. Stiff, wet, low plasticity. Sand, fine.				SNC	100													
	10.30 - 10.40m Trace rootlets, partially decomposed.							11// 34/4/4 N=15											
Christchurch Formation	10.60m: Very stiff.				SPT	100													
	11.00m: Silty fine to medium SAND; grey. Medium dense, saturated.				SNC	100													
	11.60m: Fine to medium SAND; grey. Wet.				SNC	100													
	12.20m: Medium dense. Minor fine to medium gravel, sand is fine to coarse.				SPT	100		5.5// 6.5/7/5 N=23											
	12.20m: Medium dense. Minor fine to medium gravel, sand is fine to coarse.				SNC	100													
	14.45m: Sandy SILT; grey. Stiff, wet, low plasticity. Sand, fine to medium.				SPT	100		11/8// 5.8/6/8 N=27											
	14.65m: Fine to medium SAND; grey. Wet to saturated.				SNC	100													

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:
BH_70

SHEET: 4 OF 5

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 16/06/2025

FINISH DATE: 16/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Pegasus Approach

CO-ORDINATES: 5204413.91 mN
(NZTM2000) 1573424.60 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.63m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering		Rock Strength		Sampling Method		Core Recovery (%)		Testing		RL (m)		Depth (m)		Graphic Log		ROCK MASS DISCONTINUITIES		Description & Additional Observations		Water Level / Fluid Loss (%)		Casing		Installation		Core Box No		
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation		SW	SH	SW	SH	SW	SH	SW	SH	SW	SH	SW	SH	SW	SH	SW	SH	SW	SH	SW	SH	SW	SH	SW	SH	SW	SH	SW	SH	
Christchurch Formation	[CONT] 14.65m: Fine to medium SAND; grey. Wet to saturated.						SNC	100			5A// 68/8/10 N=32																				
	15.20 - 16.70m Dense.						SPT	100																							
	15.75 - 16.25m Minor shell fragments.						SNC	100																							
	16.70m: Loose to medium dense.						SPT	100			02// 13/3/3 N=10																				
Burnham Formation	17.00m: Silty fine SAND, trace rootlets; grey. Loose to medium dense, wet.						SNC	100																							
	18.10m: SILT, trace organics, trace rootlets; grey. Firm, moist, low plasticity. Organics, charcoal.						SPT	100			00// 01/2/3 N=6																				
	19.30 - 19.35m Some fine sand.						SNC	100																							
	19.35m: Silty fine to medium SAND; grey. Wet to saturated.						SPT	100			13/12// 10/12/11/8 N=41																				
19.70m: Sandy fine to coarse GRAVEL, minor silt; grey. Dense, wet to saturated. Gravel, rounded to sub-angular; sand, fine to medium.						SPT	100																								

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.



BOREHOLE LOG

BOREHOLE No.:
BH_70

SHEET: 5 OF 5

DRILLED BY: Tyler

LOGGED BY: CARL

CHECKED: DAA

START DATE: 16/06/2025

FINISH DATE: 16/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Pegasus Approach

CO-ORDINATES: 5204413.91 mN
(NZTM2000) 1573424.60 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.63m

R.L. COLLAR:

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 19.70m: Sandy fine to coarse GRAVEL, minor silt; grey. Dense, wet to saturated. Gravel, rounded to sub-angular; sand, fine to medium.				SPT	100												Box 14 75-20.25m
	20.25m: EOBH. Target depth																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Unless otherwise shown, continuity of material description of soils is based on material recovered by over-coring of insitu test zones (SPT) where split spoon samples have not been recovered. SPT sample loss is recorded within the graphic log only. Over-cored sample has not been retained within core boxes.

Hole Depth
20.25m

Scale 1:25

Rev.: A

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204413.91 mN 1573424.60 mE	DRILL TYPE:	HOLE STARTED: 16/06/2025
R.L.:	9.63m	METHOD: Sonic core drilling	HOLE FINISHED: 16/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



0.00-3.00m



3.00-5.90m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204413.91 mN 1573424.60 mE	DRILL TYPE:	HOLE STARTED: 16/06/2025
R.L.:	9.63m	METHOD: Sonic core drilling	HOLE FINISHED: 16/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



5.90-9.25m



9.25-12.20m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204413.91 mN 1573424.60 mE	DRILL TYPE:	HOLE STARTED: 16/06/2025
R.L.:	9.63m	METHOD: Sonic core drilling	HOLE FINISHED: 16/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



12.20-15.65m



15.65-18.75m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204413.91 mN 1573424.60 mE	DRILL TYPE:	HOLE STARTED: 16/06/2025
R.L.:	9.63m	METHOD: Sonic core drilling	HOLE FINISHED: 16/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



18.75-20.25m



BOREHOLE LOG

BOREHOLE No.:

BH_71

SHEET: 1 OF 8

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 12/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus A (West)

CO-ORDINATES: 5204781.42 mN
 (NZTM2000) 1573487.39 mE

R.L. GROUND: 9.27m
 R.L. COLLAR: 9.27m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
TSoil	0.00m: Organic SILT, minor sand; brown. Very soft to soft, moist, non-plastic. (TOPSOIL).								9									
	0.50m: SILT; light orange mottled reddish orange. Very soft to soft, moist, non-plastic.								0.5									
	0.85m: Fine to medium SAND, minor silt; light orange. Wet.								1.0									
	1.10m: Sandy SILT; orange brown. Very soft, saturated, non-plastic. Sand, fine to medium.								1.5									
Springston Formation	2.40 - 2.70m Some reddish orange.								2.5									
	2.70m: SILT, trace clay and trace sand; orange brown. Very soft to soft, moist, low to medium plasticity. Sand, fine.								3.0									
	4.30 - 4.50m Minor sand, grading to grey.								4.5									
Christchurch Formation	4.50m: Sandy SILT; grey. Stiff, wet, non-plastic. Sand, fine to medium.								4.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Attempted push sample at 30.5-30.95, no recovery, but recovered during next drilling run. Groundwater measured at 5.3 m below ground level upon completion of drilling on 13/05/2025. Groundwater measured at 0.3 m below ground level on the morning prior to drilling. SPT hammer efficiency at 88.2%.

Hole Depth 39.71m

Scale 1:25

Rev.: A

TTNZ_20240902 - GeneralLog - 5/09/2025 5:52:49 pm - Produced with Core-GS by GeRoc



BOREHOLE LOG

BOREHOLE No.:

BH_71

SHEET: 2 OF 8

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 12/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus A (West)

CO-ORDINATES: 5204781.42 mN
 (NZTM2000) 1573487.39 mE

R.L. GROUND: 9.27m
 R.L. COLLAR: 9.27m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	4.95m: SILT, trace clay; grey streaked light orange. Soft to firm, wet, low plasticity, dilatant.				SNC	100	4 @ 5.30m BH_71-04: AL: NP	4	5.30				5.30 - 5.50m BH_71-04: AL: NP 5.30 - 5.00m GWL at EOH, measured in casing. BH at 39.71m bgl. Casing at 39.60m bgl. Water flush with drilling polymer used.	25				
	5.05m: Fine SAND, trace silt; grey. Loose, wet.				SNC	100			5.50									
	5.20m: SILT, minor sand; grey. Soft to firm, moist, non-plastic. Sand, fine to medium.					SPT	100	0.0// 11/12/4 N=8 BH_71-05: PSD percent passing 63 um sieve: 17%	3	6.50			6.20 - 6.40m BH_71-05: PSD percent passing 63 um sieve: 17%	50				
	6.10m: Fine to medium SAND, some silt; grey. Loose, wet.					SNC	100			6.00								
	7.60m: Medium dense.					SPT	100	1.1// 24/3/2 N=11	2	7.50								
	8.35m: SILT, trace sand; grey with black mottling. Soft to firm, moist, low to medium plasticity. Sand, fine.					SNC	100	6 @ 8.50m BH_71-06: AL: LL 40, PL 27, PI 13	1	8.50			8.50 - 8.70m BH_71-06: AL: LL 40, PL 27, PI 13	75				
	8.70m: WOOD; black. Wet, with organics, spongy. Fibres have lost most of their original strength.					SPT	100	0.2// 2/1/0/1 N=4	0	9.00								
	8.80m: SILT, trace sand; grey. Soft to firm, wet, low to medium plasticity. Sand, fine.					SPT	100			9.50								
	9.35m: WOOD; black. Wet, with organics, spongy. Fibres have lost most of their original strength.					SNC	100			9.50								
	9.65m: SILT, trace sand; grey. Soft to firm, wet, low to medium plasticity. Sand, fine.					SNC	100			9.50								

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Attempted push sample at 30.5-30.95, no recovery, but recovered during next drilling run. Groundwater measured at 5.3 m below ground level upon completion of drilling on 13/05/2025. Groundwater measured at 0.3 m below ground level on the morning prior to drilling. SPT hammer efficiency at 88.2%.

Hole Depth
39.71m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_71

SHEET: 3 OF 8

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 12/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus A (West)

CO-ORDINATES: 5204781.42 mN
 (NZTM2000) 1573487.39 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.27m
 R.L. COLLAR: 9.27m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Christchurch Formation	[CONT] 9.65m: SILT, trace sand; grey. Soft to firm, wet, low to medium plasticity. Sand, fine.																		
	10.40 - 10.60m Greyish dark brown with organic staining.				SNC	100													
	10.60m: Push tube. Lab technician's sample description: SILT with a trace of clay and organics; dark grey. Soft, moist.				PT	20		PT 01 @ 10.60m 10 @ 10.63m 1D Consolidation Test											
	11.05m: SILT, trace sand; grey mottled black. Soft to firm, moist, low to medium plasticity. Sand, fine.																		
	11.35 - 11.95m Non-plastic to low plasticity.																		
	11.95 - 12.10m Low plasticity.																		
12.20 - 13.05m Firm. Sand fine to medium (predominantly fine).																			
13.00m: Fine to coarse SAND, minor silt and minor gravel; grey. Wet. Gravel, fine to medium, rounded to sub-rounded.																			
13.70m: Loose.																			
14.15m: SILT, minor sand; grey. Stiff, wet, low plasticity, dilatant. Sand, fine. Trace shell fragments.																			
14.90m: Fine to medium SAND, minor silt; grey. Wet.																			
12.20 - 12.40m BH_71-07: PSD percent passing 63 um sieve: 40%																			
14.30 - 14.50m BH_71-08: PSD percent passing 63 um sieve: 89%; AL: LL 33, PL 22, PI 11																			

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Attempted push sample at 30.5-30.95, no recovery, but recovered during next drilling run. Groundwater measured at 5.3 m below ground level upon completion of drilling on 13/05/2025. Groundwater measured at 0.3 m below ground level on the morning prior to drilling. SPT hammer efficiency at 88.2%.

Hole Depth
39.71m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_71

SHEET: 4 OF 8

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 12/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus A (West)

CO-ORDINATES: 5204781.42 mN
 (NZTM2000) 1573487.39 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.27m
 R.L. COLLAR: 9.27m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Fracture Spacing (mm)	RQD (%)	Description & Additional Observations				
Christchurch Formation	[CONT] 14.90m: Fine to medium SAND, minor silt; grey. Wet.				SNC	100	9 @ 15.10m BH_71-09: PSD Percent passing 63 um sieve: 41%	-6									
	15.10m: Sandy SILT; grey. Very stiff, wet, non-plastic. Sand, fine.				SPT	100	3.6// 7.7/6/8 N=28	15.5									
	16.15m: PEAT (FIBROUS); dark brown. Very stiff, moist, non-plastic. Minor wood fragments, fibres have lost most of their original strength.				SNC	100		16.0									
	16.25m: Organic SILT; black. Very stiff, moist, non-plastic, trace wood and trace rootlets.				SPT	100	1.3// 7.1/3/15/15 for 60mm N>=50	16.5									
Burnham Formation	16.70m: Sandy fine to coarse GRAVEL; grey. Very dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100		17.0									
	18.30m: Dense.				SPT	100	11/14// 10/10/10/13 N=43	18.5									
	19.80m: Medium dense to dense.				SPT	100	8.9// 7.8/7/8 N=30	19.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Attempted push sample at 30.5-30.95, no recovery, but recovered during next drilling run. Groundwater measured at 5.3 m below ground level upon completion of drilling on 13/05/2025. Groundwater measured at 0.3 m below ground level on the morning prior to drilling. SPT hammer efficiency at 88.2%.

Hole Depth
39.71m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_71

SHEET: 5 OF 8

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 12/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus A (West)

CO-ORDINATES: 5204781.42 mN
 (NZTM2000) 1573487.39 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.27m
 R.L. COLLAR: 9.27m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	20.00m: Sandy fine to coarse GRAVEL; grey. Medium dense to dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100		-11	20.5									
	21.30m: Dense.				SPT	100	10/9// 10/13/12/13 N=48	-12	21.5									
	22.80m: Very dense.				SPT	100	10/14// 13/20/17 for 65 mm N=50 Refusal	-13	23.0									
	23.57 - 23.77m Light brown.				SNC	100		-14	23.5									
Bromley Formation	23.77m: Fine to coarse SAND, minor silt and minor gravel; reddish brown. Wet. Gravel, fine to medium, sub-rounded.				SNC	100		-15	24.0									
	23.87m: Sandy fine to coarse GRAVEL, some silt; light brown. Wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100	18/10// 7/7/6/4 N=24	-15	24.5									
	24.40m: Medium dense.																	
	24.85 - 25.40m Saturated.																	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Attempted push sample at 30.5-30.95, no recovery, but recovered during next drilling run. Groundwater measured at 5.3 m below ground level upon completion of drilling on 13/05/2025. Groundwater measured at 0.3 m below ground level on the morning prior to drilling. SPT hammer efficiency at 88.2%.

Hole Depth
39.71m

Scale 1:25

Rev.: A

TTNZ_20240902 - GeneralLog - 5/09/2025 5:52:49 pm - Produced with Core-GS by GeRoc

Box 18.75-21.75m

Box 21.75-24.85m



BOREHOLE LOG

BOREHOLE No.:

BH_71

SHEET: 6 OF 8

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 12/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus A (West)

CO-ORDINATES: 5204781.42 mN
 (NZTM2000) 1573487.39 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.27m
 R.L. COLLAR: 9.27m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Bromley Formation	25.00m: [CONT] sandy fine to coarse GRAVEL, some silt; light brown. Medium dense, wet to saturated. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SNC	100		-16	25.5										
	25.90m: Very dense. Gravel becomes fine to medium.				SPT	100	15/12// 48/22/16 for 60mm N≥50 Refusal	-17	26.0										
	26.33 - 26.58m: Some silt.								26.5										
	26.58m: Silty fine to coarse SAND, trace gravel; light brown. Saturated. Gravel, fine, rounded to sub-angular.								27.0										
	26.73m: Silty sandy fine to medium GRAVEL; light greyish brown. Wet. Sand, fine to coarse.				SNC	100			27.5										
	27.10m: Grading to light bluish grey.								28.0										
	27.40m: Very dense.				SPT	100	11/17// 17/16/17 for 65 mm N≥50 Refusal	-18	28.5										
	27.77 - 29.35m: Gravel becomes fine to coarse.								29.0										
	28.10 - 28.30m: Brownish grey.				SNC	100			29.5										
	28.90m: Dense.				SPT	100	16/20// 13/9/6/7 N=35	-19	29.5										
29.35m: Sandy SILT; light grey. Stiff, moist, non-plastic to low plasticity. Sand, fine.								29.5											
29.65 - 30.80m: Trace shell fragments.				SNC	100			29.5											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Attempted push sample at 30.5-30.95, no recovery, but recovered during next drilling run. Groundwater measured at 5.3 m below ground level upon completion of drilling on 13/05/2025. Groundwater measured at 0.3 m below ground level on the morning prior to drilling. SPT hammer efficiency at 88.2%.

Hole Depth
39.71m

Scale 1:25

Rev: A



BOREHOLE LOG

BOREHOLE No.:

BH_71

SHEET: 8 OF 8

DRILLED BY: Tyler Glassford

LOGGED BY: JASL

CHECKED: DAA

START DATE: 12/05/2025

FINISH DATE: 13/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus A (West)

CO-ORDINATES: 5204781.42 mN
 (NZTM2000) 1573487.39 mE

R.L. GROUND: 9.27m
 R.L. COLLAR: 9.27m

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Bromley Formation	35.00m: [CONT] silty fine to coarse GRAVEL, some sand, trace cobbles; grey. Very dense, wet. Gravel, rounded to sub-angular; sand, fine to coarse.		[Weathering symbols]	[Strength symbols]	SNC	100	25/24// 17/19/14 for 65mm N>=50 Refusal	-26	35.5	[Graphic log symbols]	[Fracture spacing symbols]	[RQD symbols]	[Description]	[Water level symbols]	[Casing]	[Installation]	[Core Box No]	
	35.37 - 35.67m Saturated.																	
	35.37m: Fine to coarse GRAVEL, some silt and some sand, trace cobbles; light bluish grey. Wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse; cobbles, rounded to angular.																	
	35.87 - 36.17m Saturated.																	
	35.97 - 36.17m Becomes trace sand and silt.																	
	36.17m: Sandy fine to coarse GRAVEL, some silt; light bluish grey. Wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse.																	
	36.60 - 37.30m Very dense.																	
	37.30m: Fine to coarse GRAVEL, some silt and some sand, trace cobbles; light bluish grey. Wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse; cobbles, rounded to angular.																	
37.50m: Sandy fine to coarse GRAVEL, some silt; light bluish grey. Wet to saturated. Gravel, rounded to sub-angular; sand, fine to coarse.																		
38.10m: Very dense.																		
39.00m: Gravel is fine to medium, saturated.																		
39.71m: EOBH. Target depth		39/11// for 30mm N>=50 Refusal		SPT	100	20/20// 15/12/12/11 N>=50	-29	39.5	[Graphic log symbols]	[Fracture spacing symbols]	[RQD symbols]	[Description]	[Water level symbols]	[Casing]	[Installation]	[Core Box No]		

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Attempted push sample at 30.5-30.95, no recovery, but recovered during next drilling run. Groundwater measured at 5.3 m below ground level upon completion of drilling on 13/05/2025. Groundwater measured at 0.3 m below ground level on the morning prior to drilling. SPT hammer efficiency at 88.2%.

Hole Depth
39.71m

Scale 1:25

Rev.: A

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204781.42 mN 1573487.39 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 12/05/2025
R.L.:	9.27m	METHOD: Sonic core drilling	HOLE FINISHED: 13/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



0.00-2.80m



2.80-6.10m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204781.42 mN 1573487.39 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 12/05/2025
R.L.:	9.27m	METHOD: Sonic core drilling	HOLE FINISHED: 13/05/2025
DATUM:	NZVD2016	LOGGED BY: JASL	CHECKED: DAA



6.10-9.10m



9.10-12.65m

CORE PHOTOS

BOREHOLE No.: **BH_71**
 Hole Location: Pegasus A (West)
 SHEET: 3 OF 7

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204781.42 mN 1573487.39 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 12/05/2025
R.L.:	9.27m	METHOD: Sonic core drilling	HOLE FINISHED: 13/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



12.65-15.65m



15.65-18.75m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204781.42 mN 1573487.39 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 12/05/2025
R.L.:	9.27m	METHOD: Sonic core drilling	HOLE FINISHED: 13/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



18.75-21.75m



21.75-24.85m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204781.42 mN 1573487.39 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 12/05/2025
R.L.:	9.27m	METHOD: Sonic core drilling	HOLE FINISHED: 13/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA



24.85-27.77m



27.77-30.50m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204781.42 mN 1573487.39 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 12/05/2025
R.L.:	9.27m	METHOD: Sonic core drilling	HOLE FINISHED: 13/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: JASL
			CHECKED: DAA

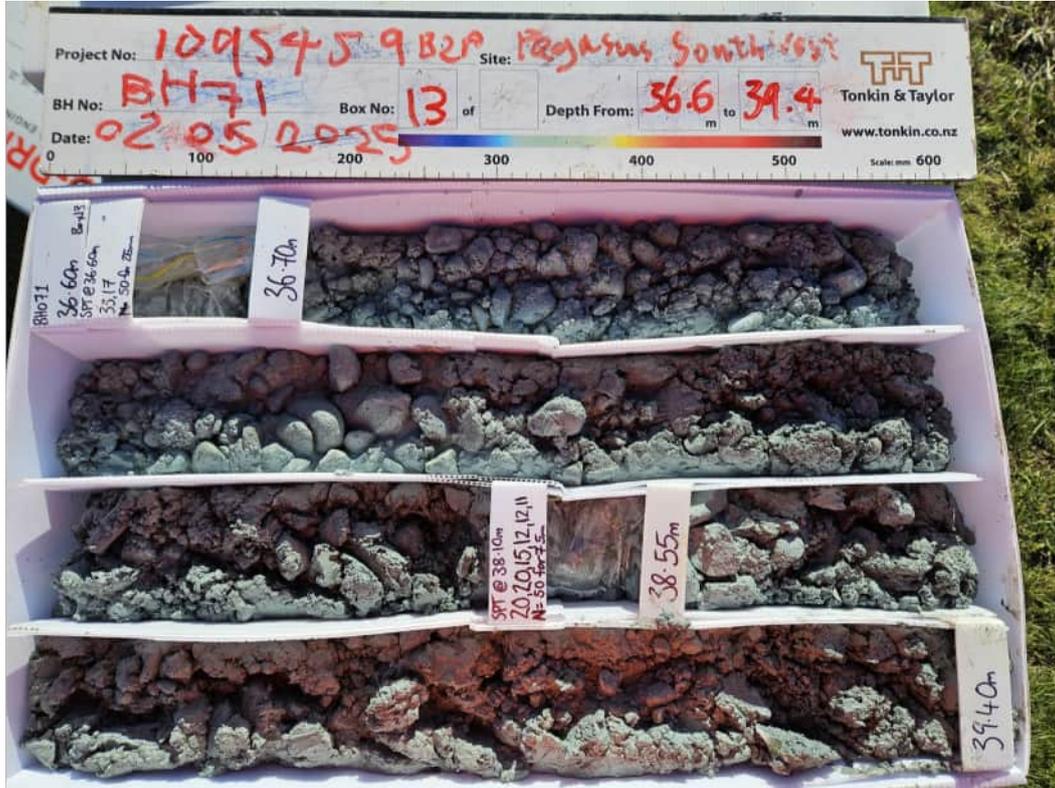


30.50-33.30m



33.30-36.60m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204781.42 mN 1573487.39 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 12/05/2025
R.L.:	9.27m	METHOD: Sonic core drilling	HOLE FINISHED: 13/05/2025
DATUM:	NZVD2016	LOGGED BY: JASL	CHECKED: DAA



36.60-39.40m



39.40-39.71m



BOREHOLE LOG

BOREHOLE No.:

BH_73

SHEET: 1 OF 5

DRILLED BY: Tyler Glassford

LOGGED BY: CARL

CHECKED: DAA

START DATE: 16/05/2025

FINISH DATE: 16/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus A (West)

CO-ORDINATES: 5204843.07 mN
 (NZTM2000) 1573604.50 mE

R.L. GROUND: 8.76m
 R.L. COLLAR: 8.76m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No		
									Defect Log	Fracture Spacing (mm)	RQD (%)							
Top	0.00m: Organic SILT; dark brown. Dry to moist, medium plasticity, trace rootlets. 0.10m: SILT, minor sand, trace rootlets; dark brown. Stiff, dry to moist, low plasticity. Sand, fine. 0.45 - 0.60m Sandy.																	
Springston Formation	0.60m: SILT, minor sand; light brownish grey with mottled brownish orange. Stiff, moist, low to medium plasticity. Sand, fine. 1.05 - 1.45m Becomes some sand.			SNC 100			0.5 1.0											
	1.45m: Fine to coarse SAND, some silt; light brown. Wet to saturated. Sand, predominantly fine to medium. 1.50m: Very loose to loose. 1.95 - 2.15m Light grey. Saturated.			SPT 100	10// 01/100 N=1 1 @ 1.60m BH073 - 01 PSD 01: PSD percent passing 63 um sieve: 17%		1.5 2.0											
	2.15m: SILT; grey streaked brown. Soft to firm, wet, low plasticity. 2.20 - 2.25m Very soft, saturated. Trace fine sand. 2.65 - 2.70m Very soft, saturated. Trace fine sand. 2.70 - 3.60m Brown mottled grey. 3.00 - 3.30m Trace fine sand. 3.30 - 3.60m Very soft to soft, saturated. Minor sand, quick dilatancy.			SNC 100	2 @ 2.30m BH073 - 02 Atterberg 01: AL: LL 52, PL 21, PI 11		2.5 3.0											
	3.60m: Silty fine SAND; grey. Saturated.			SNC 100	3 @ 3.70m BH073 - 03 PSD 02: PSD percent passing 63 um sieve: 38%		3.5 4.0											
	3.70m: Sandy SILT; light grey. Soft to firm, wet, low plasticity. Sand, fine to medium. 4.20 - 4.50m Sand, fine.			SNC 100	4 @ 4.20m BH073 - 04 PSD 03: PSD percent passing 63 um sieve: 44%		4.0 4.5											
	4.50m: Fine to medium SAND, some silt; light grey. Loose, wet.			SPT 100	11// 13/32 N=9		4.5											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Push tube at 3.0 to 3.45m bgl no recovery, recovered next drilling run. Groundwater measured at ground level upon completion of drilling on 16/05/2025. SPT hammer efficiency at 88.2%.

Hole Depth
20.25m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_73

SHEET: 2 OF 5

DRILLED BY: Tyler Glassford

LOGGED BY: CARL

CHECKED: DAA

START DATE: 16/05/2025

FINISH DATE: 16/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus A (West)

CO-ORDINATES: 5204843.07 mN
 (NZTM2000) 1573604.50 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 8.76m
 R.L. COLLAR: 8.76m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	4.95m: Sandy SILT; light grey. Soft to firm, wet, low plasticity. Sand, fine to medium. 5.15 - 5.65m Sand, fine.				SNC	100			5.5									
	5.65m: Silty fine to coarse SAND; grey. Wet. 5.85 - 6.95m Minor silt. Sand, fine to medium. 6.10m: Medium dense.				SPT	100	2/1// 2/3/3/5 N=13		6.0									
	6.95m: Sandy SILT; grey. Stiff, wet, non-plastic. Sand, fine to medium.				SNC	100	5 @ 7.10m BH073 - 05 PSD 04; PSD percent passing 63 um sieve: 69%		7.0				7.10 - 7.30m BH073 - 05 PSD 04; PSD percent passing 63 um sieve: 69%					
	7.40m: Sandy SILT; grey. Soft to firm, wet, low to medium plasticity. Sand, fine.				SPT	100	1/0// 0/0/0/0 N=0		7.5									
	7.60m: SILT, minor sand; grey. Very soft, wet, low to medium plasticity. Sand, fine.				SPT	100			8.0									
	8.10 - 9.10m Low plasticity.				SNC	100	6 @ 8.10m BH073 - 06 Atterberg 02; AL: LL 27, PL 19, PI 8		8.5				8.10 - 8.30m BH073 - 06 Atterberg 02: AL: LL 27, PL 19, PI 8					
	8.50m: Firm to stiff.				SNC	100			9.0									
	8.85m: Stiff, moist.				SNC	100			9.5									
	9.10m: Push tube SILT, trace sand; grey. Firm, moist. (Lab technician's sample description).				PT	100	PT @ 9.10m											
	9.55m: SILT; brownish grey. Firm to stiff, moist, low plasticity.				SNC	100	7 @ 9.31m 1D Consolidation Test 7 @ 9.41m CU Triaxial f' = 32° c' = 6 kPa						9.31 - 9.33m 1D Consolidation Test 9.41 - 9.54m CU Triaxial f' = 32° c' = 6 kPa					

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Push tube at 3.0 to 3.45m bgl no recovery, recovered next drilling run. Groundwater measured at ground level upon completion of drilling on 16/05/2025. SPT hammer efficiency at 88.2%.

Hole Depth
20.25m
Scale 1:25



BOREHOLE LOG

BOREHOLE No.:
BH_73

SHEET: 3 OF 5

DRILLED BY: Tyler Glassford

LOGGED BY: CARL

CHECKED: DAA

START DATE: 16/05/2025

FINISH DATE: 16/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Pegasus A (West)

CO-ORDINATES: 5204843.07 mN
(NZTM2000) 1573604.50 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 8.76m
R.L. COLLAR: 8.76m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No	
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)						
Springston Formation	[CONT] 9.55m: SILT; brownish grey. Firm to stiff, moist, low plasticity. 10.20 - 10.60m Soft, moist to wet.				SNC	100			10.5										
	10.60m: Very soft to soft.				SPT	100	0.0// 0.0/1/1 N=2		11.0										
	11.05m: Sandy SILT; brownish grey. Very stiff to hard, wet, non-plastic. Sand, fine to medium. 11.30 - 11.40m Saturated.				SNC	100	8 @ 11.20m BH073 - 08 PSD 05: PSD percent passing 63 um sieve: 62%		11.5										
Christchurch Formation	12.20m: Medium dense.				SPT	100	1.4// 6.7/9/10 N=32		12.0										
	12.40m: Gravelly fine to coarse SAND, some silt; grey. Dense, wet. Gravel, fine to medium, rounded to sub-rounded.				SNC	100	9 @ 12.50m BH073 - 09 PSD 06: PSD percent passing 63 um sieve: 16%		12.5										
	12.95 - 13.35m Sand becomes fine to medium, sand is clean.				SNC	100			13.0										
	13.35 - 13.50m Sand becomes fine, silty. 13.50 - 14.20m Sand becomes fine, silty. 13.70m: Medium dense.				SPT	100	2.8// 3.4/4/4 N=15		13.5										
	14.20 - 14.80m Wet to saturated. Sand becomes fine to medium, some silt.				SNC	100			14.0										
	14.80 - 15.20m Wet to saturated. Sand becomes fine to medium, trace silt.				SNC	100			14.5										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Push tube at 3.0 to 3.45m bgl no recovery, recovered next drilling run. Groundwater measured at ground level upon completion of drilling on 16/05/2025. SPT hammer efficiency at 88.2%.

Hole Depth
20.25m

Scale 1:25

Box 9:55-12:55m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_73

SHEET: 4 OF 5

DRILLED BY: Tyler Glassford

LOGGED BY: CARL

CHECKED: DAA

START DATE: 16/05/2025

FINISH DATE: 16/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus A (West)

CO-ORDINATES: 5204843.07 mN
 (NZTM2000) 1573604.50 mE

R.L. GROUND: 8.76m
 R.L. COLLAR: 8.76m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Fracture Spacing (mm)	RQD (%)	25 50 75					
Christchurch Formation	[CONT] 12.40m: Gravelly fine to coarse SAND, some silt; grey. Dense, wet. Gravel, fine to medium, rounded to sub-rounded.				SNC	100												
	15.20m: Silty fine SAND; grey. Medium dense, saturated.				SPT	100	3/2// 7/1/3/7 N=21		15.5									
	15.65m: Fine to medium SAND, minor silt; grey. Medium dense, saturated. 15.85 - 16.05m Wet.								16.0									
Burnham Formation	16.05m: Organic SILT; black and dark brown. Very stiff, moist, low to medium plasticity, trace wood fragments and rootlets. Wood fibre retains some of its original strength.				SNC	100	10 @ 16.10m BH073 - 10 Organic Matter Content: 55%		16.5					16.10 - 16.40m BH073 - 10 Organic Matter Content: 55%				
	16.50m: SILT, minor rootlets; light brownish grey. Firm to stiff, moist, low plasticity. Rootlets retain some of their original strength.				SPT	100	3/8// 14/11/10/9 N=44		17.0									
	16.60m: Fine to medium SAND, minor silt; light brownish grey. Dense, wet. 16.70 - 17.15m Becomes grey.								17.5									
	17.15m: Sandy fine to coarse GRAVEL, some silt; light grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.				SNC	100			18.0									
	18.30m: Dense.				SPT	100	11/14// 13/12/11/12 N=48		18.5									
	19.35 - 19.80m Trace cobbles.				SNC	100			19.5									
					SPT	100	11/13// 13/11/12/10 N=46		19.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Push tube at 3.0 to 3.45m bgl no recovery, recovered next drilling run. Groundwater measured at ground level upon completion of drilling on 16/05/2025. SPT hammer efficiency at 88.2%.

Hole Depth
20.25m

Scale 1:25

Box 15:65-18.75m

Box 12:55-15.65m



BOREHOLE LOG

BOREHOLE No.:
BH_73

SHEET: 5 OF 5

DRILLED BY: Tyler Glassford

LOGGED BY: CARL

CHECKED: DAA

START DATE: 16/05/2025

FINISH DATE: 16/05/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Pegasus A (West)

CO-ORDINATES: 5204843.07 mN
(NZTM2000) 1573604.50 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 8.76m
R.L. COLLAR: 8.76m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation										Defect Log	Fracture Spacing (mm)	RQD (%)					
Burnham Formation	[CONT] 17.15m: Sandy fine to coarse GRAVEL, some silt; light grey. Wet. Gravel, rounded to sub-angular; sand, fine to coarse.		UW SW HW CW OW	U S W P	SPT	100		20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0
	20.25m: EOBH. Target depth																	Box 14 75-20.25m

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR. Push tube at 3.0 to 3.45m bgl no recovery, recovered next drilling run. Groundwater measured at ground level upon completion of drilling on 16/05/2025. SPT hammer efficiency at 88.2%.

Hole Depth
20.25m

Scale 1:25

Rev.: A

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204843.07 mN 1573604.50 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 16/05/2025
R.L.:	8.76m	METHOD: Sonic core drilling	HOLE FINISHED: 16/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA

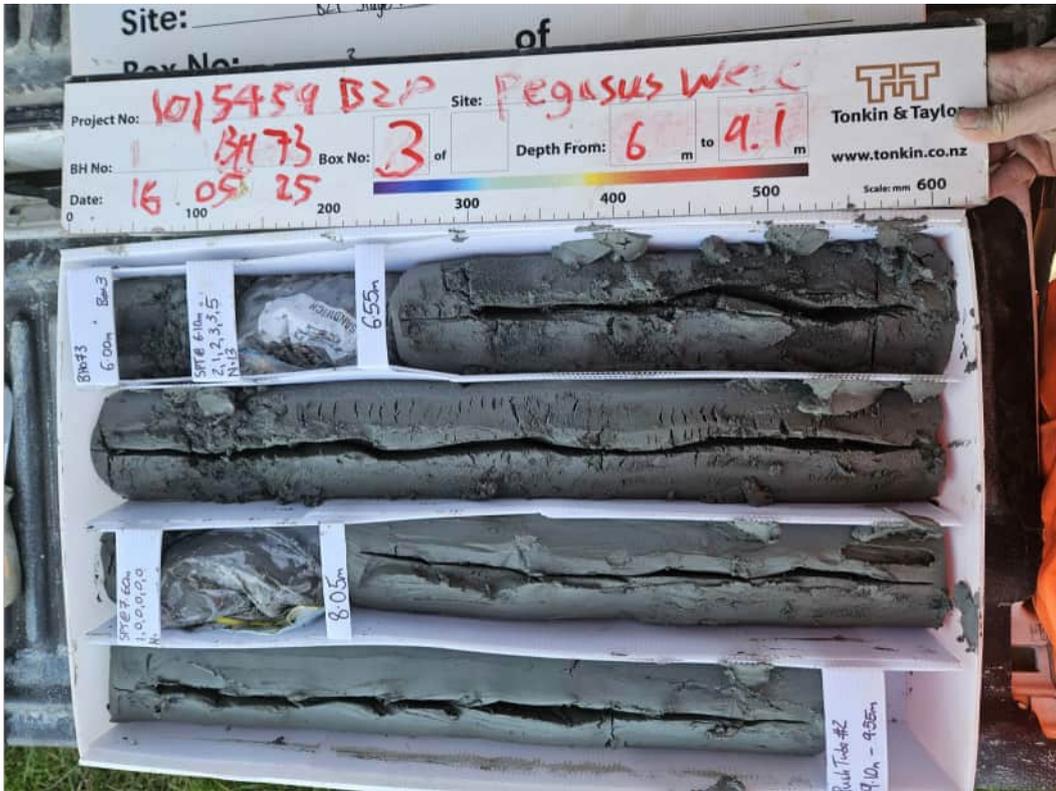


0.00-3.00m



3.00-6.00m

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204843.07 mN 1573604.50 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 16/05/2025
R.L.:	8.76m	METHOD: Sonic core drilling	HOLE FINISHED: 16/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



6.00-9.55m



9.55-12.55m

CORE PHOTOS

BOREHOLE No.: **BH_73**
 Hole Location: Pegasus A (West)
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204843.07 mN 1573604.50 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 16/05/2025
R.L.:	8.76m	METHOD: Sonic core drilling	HOLE FINISHED: 16/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



12.55-15.65m

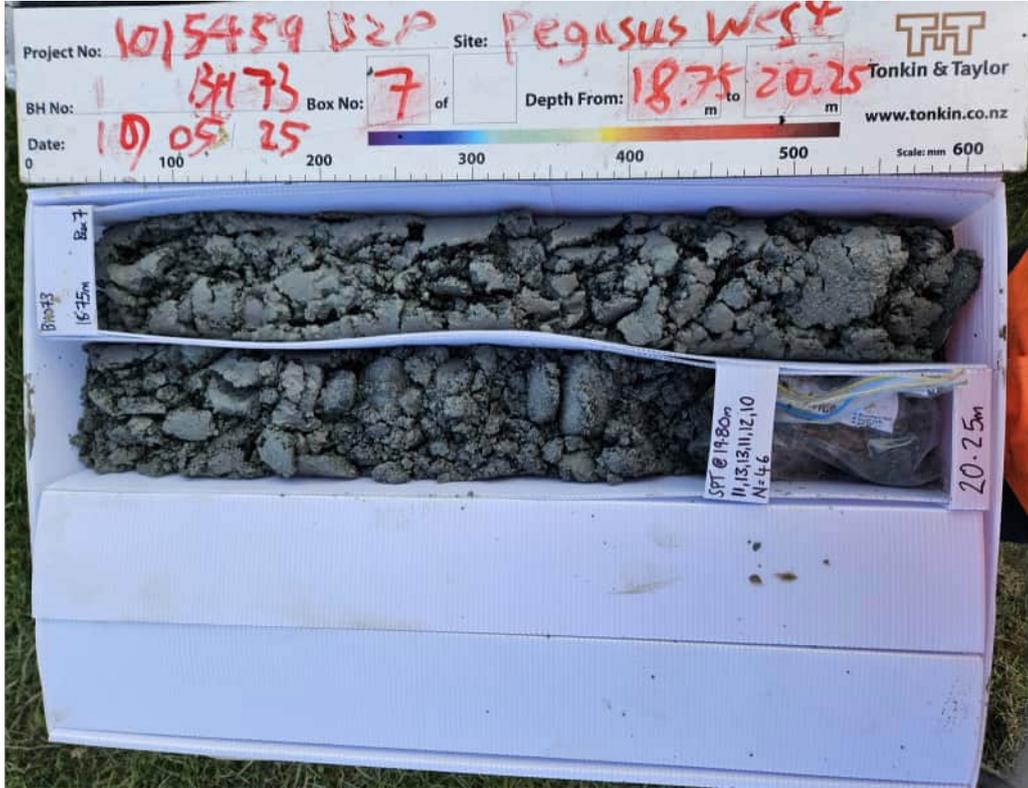


15.65-18.75m

CORE PHOTOS

BOREHOLE No.: **BH_73**
 Hole Location: Pegasus A (West)
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204843.07 mN 1573604.50 mE	DRILL TYPE: Sonic Rig	HOLE STARTED: 16/05/2025
R.L.:	8.76m	METHOD: Sonic core drilling	HOLE FINISHED: 16/05/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: CARL
			CHECKED: DAA



18.75-20.25m



BOREHOLE LOG

BOREHOLE No.:

BH_74

SHEET: 1 OF 5

DRILLED BY: Tyler

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 19/06/2025

FINISH DATE: 19/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus B (West)

CO-ORDINATES: 5204722.13 mN
 (NZTM2000) 1573463.05 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.66m
 R.L. COLLAR: 9.66m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering <small>UW, SW, MW, CW, OW, VU, SU, MU, CU, OU</small>	Rock Strength <small>U, S, M, C, O</small>	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%) <small>25, 50, 75</small>	Casing	Installation	Core Box No	
									Defect Log	Fracture Spacing (mm) <small>2000, 200, 20</small>	RQD (%)						
Top	0.00m: SILT, minor sand, trace gravel; dark brown. Very soft to soft, moist, non-plastic. Sand, fine. (TOPSOIL).																
Fill	0.25m: SILT, some sand, trace gravel; light brown. Very soft to soft, moist, non-plastic. Sand, fine; gravel, coarse. (FILL).						0.5										
	0.50m: Silty fine SAND, trace rootlets; light brown. Moist. (FILL).																
Springston Formation	0.90m: Sandy SILT; brown mottled orange brown and light grey. Very soft, moist, non-plastic. Sand, fine. 1.30 - 1.50m Wet.						1.0										
	1.90 - 2.40m Saturated.						1.5										
	2.60m: SILT, trace sand; grey with mottled orange brown. Very soft, moist, low to medium plasticity. 3.00m: Soft to firm.						2.0										
	3.80m: SILT, trace organics and trace clay; grey. Soft, moist, low plasticity, dilatant.						3.5										
	4.50m: CORE LOSS.						4.5										
	4.85m: Sandy SILT; light orangish brown. Soft, wet, low						4.85										

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_74

SHEET: 2 OF 5

DRILLED BY: Tyler

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 19/06/2025

FINISH DATE: 19/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus B (West)

CO-ORDINATES: 5204722.13 mN
 (NZTM2000) 1573463.05 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.66m
 R.L. COLLAR: 9.66m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					Description & Additional Observations
Springston Formation	plasticity. Sand, fine to medium.						BH_7403: PSD Percent passing 63 um sieve: 65%		5.5								
	5.60m: Sandy SILT; grey. Very soft to soft, moist, low plasticity, dilatant. Sand, fine.				SNC	100			6.0								
	6.10m: Push tube. Lab technician's sample description: SILT with minor clay and traces of sand; bluish grey with orange brown. [Firm] moist to wet, highly dilatant.				PT	100	PT @6.10m 4 @6.21m 1D Consolidation Test 4 @6.25m CU Triaxial F = 36° c' = 1 kPa 4 @6.39m UU Triaxial Cu = 33 kPa		6.5								
	6.55m: SILT, some sand; light grey. Very soft to soft, wet, low plasticity, dilatant. Sand, fine.								6.7								
Christchurch Formation	6.70m: Silty fine to medium SAND; light grey. Wet.				SNC	100	5 @6.75m BH_7405: PSD Percent passing 63 um sieve: 35%		7.0								
	7.60m: Medium dense.								7.5								
	8.00 - 8.40m Sand, fine to coarse.				SPT	100	0.0// 14/3/4 N=12		8.0								
	8.40m: Sandy SILT; light brownish grey. Firm, wet, non-plastic, dilatant. Sand, fine.				SNC	100	6 @8.45m BH_7406: PSD Percent passing 63 um sieve: 78%		8.5								
	8.70m: SILT, minor sand, trace rootlets; brownish grey. Firm, wet, low to medium plasticity.						7 @8.70m BH_7407: AL: LL 37, PL 24, PI 13		9.0								
	9.10m: SILT, trace organics; light greenish grey. Firm, moist, low plasticity. Trace shell fragments.				SPT	0	0.0// 0/1/2/2 N=5		9.5								
	9.90 - 10.20m: Some sand. Dilatant.				SNC	100											

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth 20.25m

Scale 1:25

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_74

SHEET: 3 OF 5

DRILLED BY: Tyler

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 19/06/2025

FINISH DATE: 19/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus B (West)

CO-ORDINATES: 5204722.13 mN
 (NZTM2000) 1573463.05 mE

R.L. GROUND: 9.66m

R.L. COLLAR: 9.66m

DIRECTION: 0°

DATUM: NZVD2016

ANGLE FROM HORIZ.: -90°

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	[CONT] 9.10m: SILT, trace organics; light greenish grey. Firm, moist, low plasticity. Trace shell fragments.				SNC	100		10.5									
	10.60m: Very soft.				SPT	100	0.0// 0.0/0.0 N=0	11.0									
	10.90m: SILT, minor organics, trace clay; grey with black speckled. Very soft, moist, low to medium plasticity.				SNC	100		11.5									
	11.50m: SILT, minor sand; grey with black speckling. Very soft, moist, low to medium plasticity. Sand, fine.				SNC	100		12.0									
	12.10m: Sandy SILT; light grey with black speckling. Soft, moist, non-plastic. Sand, fine to medium.				SPT	100	1.1// 2.1/0.0 N=3	12.5									
	13.50m: Fine to coarse SAND, some silt, trace gravel; grey. Wet. Gravel, fine to medium, sub-rounded to sub-angular. 13.70m: Dense. 13.80 - 14.10m Minor gravel.				SPT	100	5.6// 7.8/9.7 N=31	14.0									
	14.40m: Silty fine SAND; brownish grey. Wet.				SNC	100		14.5									
	14.90m: SILT; light brownish grey. Very soft to soft, moist, non-																
	12.20 - 12.65m BH_74-08 : PSD Percent passing 63 um sieve: 51%; AL: Non-plastic																

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

Box 9, 10-1, 190m

Box 11, 90-15, 000m



BOREHOLE LOG

BOREHOLE No.:

BH_74

SHEET: 4 OF 5

DRILLED BY: Tyler

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 19/06/2025

FINISH DATE: 19/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus B (West)

CO-ORDINATES: 5204722.13 mN
 (NZTM2000) 1573463.05 mE

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.66m
 R.L. COLLAR: 9.66m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	plastic, dilatant.		[Weathering symbols]	[Strength symbols]	SNC	100	0.0// 0.0/0/0 N=0	-6	15.5	[Graphic Log]	[Discontinuities]	[RQD]	[Description]	[Water/Fluid Loss]	[Casing]	[Installation]	[Core Box No]	
	15.10m: SILT, minor sand; light brownish grey. Very soft, moist, non-plastic, dilatant.				SPT	100												
	15.90m: Fine to medium SAND, minor silt; grey. Wet.				SNC	100												
Christchurch Formation	16.40m: Organic SILT; brown. Firm, moist, non-plastic, some wood. Wood is firm and retains some of its fibre strength. 16.60 - 16.80m: Dark brown. Minor wood, trace rootlets. 16.70m: Hard.		[Weathering symbols]	[Strength symbols]	SPT	100	6.8// 9.9/9/10 N=37	-7	16.5	[Graphic Log]	[Discontinuities]	[RQD]	[Description]	[Water/Fluid Loss]	[Casing]	[Installation]	[Core Box No]	
	16.80m: Sandy fine to coarse GRAVEL, minor silt; grey. Dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100												
	19.80m: Medium dense to dense.				SNC	100												
Burnham Formation	19.80m: Medium dense to dense.		[Weathering symbols]	[Strength symbols]	SPT	100	12/9// 13/13/10/12 N=48	-8	17.0	[Graphic Log]	[Discontinuities]	[RQD]	[Description]	[Water/Fluid Loss]	[Casing]	[Installation]	[Core Box No]	
					SPT	89		-9	17.5	[Graphic Log]	[Discontinuities]	[RQD]	[Description]	[Water/Fluid Loss]	[Casing]	[Installation]	[Core Box No]	
					SPT	100	14/15// 10/7/7/6 N=30	-10	18.5	[Graphic Log]	[Discontinuities]	[RQD]	[Description]	[Water/Fluid Loss]	[Casing]	[Installation]	[Core Box No]	
					SNC	100			19.0	[Graphic Log]	[Discontinuities]	[RQD]	[Description]	[Water/Fluid Loss]	[Casing]	[Installation]	[Core Box No]	
					SNC	100			19.5	[Graphic Log]	[Discontinuities]	[RQD]	[Description]	[Water/Fluid Loss]	[Casing]	[Installation]	[Core Box No]	

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

Box 15.00-18.30m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:
BH_74

SHEET: 5 OF 5

DRILLED BY: Tyler

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 19/06/2025

FINISH DATE: 19/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Pegasus B (West)

CO-ORDINATES: 5204722.13 mN
(NZTM2000) 1573463.05 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.66m

R.L. COLLAR: 9.66m

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering <small>SW SSW S SSW SS SSW SS</small>	Rock Strength <small>CS S SS SSW SS</small>	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%) <small>25 50 75</small>	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm) <small>2000 200 20</small>	RQD (%)					
Burnham Formation	[CONT] 16.80m: Sandy fine to coarse GRAVEL, minor silt; grey. Dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT 100												Box 14: 30-20.25m
	20.25m: EOBH. Target depth																

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204722.13 mN 1573463.05 mE	DRILL TYPE: XL1	HOLE STARTED: 19/06/2025
R.L.:	9.66m	METHOD: Sonic core drilling	HOLE FINISHED: 19/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



0.00-2.75m



2.75-6.10m

CORE PHOTOS

BOREHOLE No.: **BH_74**
 Hole Location: Pegasus B (West)
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204722.13 mN 1573463.05 mE	DRILL TYPE: XL1	HOLE STARTED: 19/06/2025
R.L.:	9.66m	METHOD: Sonic core drilling	HOLE FINISHED: 19/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



6.10-9.10m



9.10-11.90m

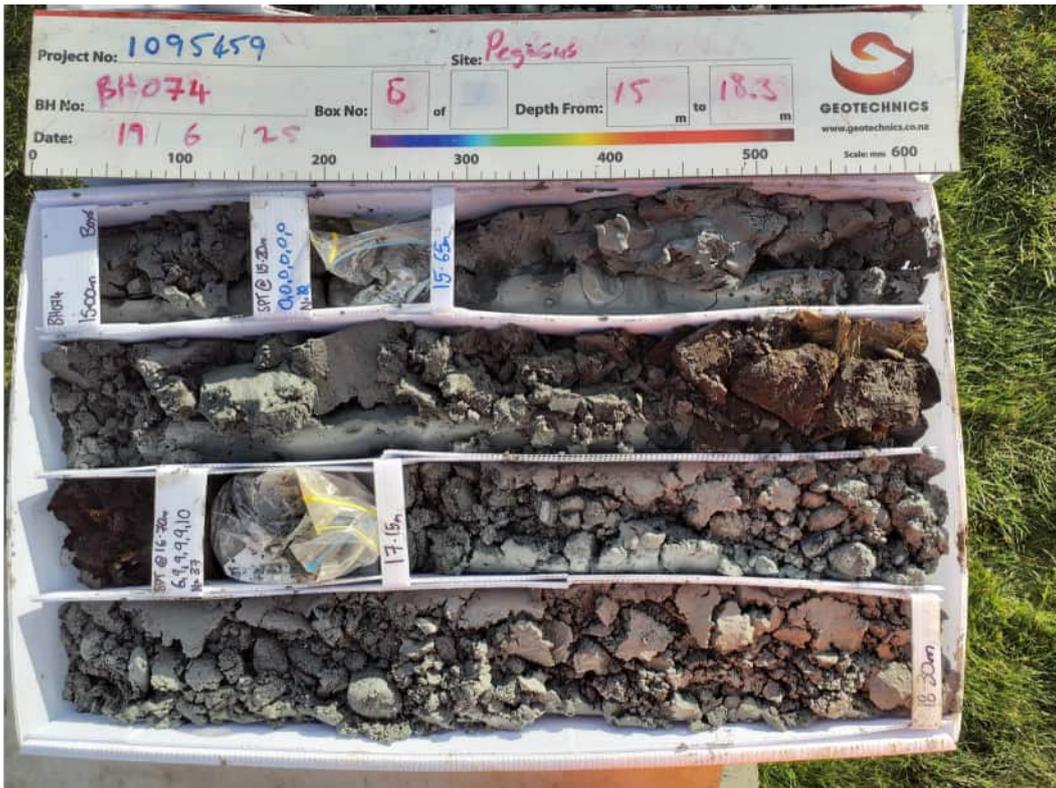
CORE PHOTOS

BOREHOLE No.: **BH_74**
 Hole Location: Pegasus B (West)
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204722.13 mN 1573463.05 mE	DRILL TYPE: XL1	HOLE STARTED: 19/06/2025
R.L.:	9.66m	METHOD: Sonic core drilling	HOLE FINISHED: 19/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



11.90-15.00m



15.00-18.30m

CORE PHOTOS

BOREHOLE No.: **BH_74**
 Hole Location: Pegasus B (West)
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204722.13 mN 1573463.05 mE	DRILL TYPE: XL1	HOLE STARTED: 19/06/2025
R.L.:	9.66m	METHOD: Sonic core drilling	HOLE FINISHED: 19/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



18.30-20.25m



BOREHOLE LOG

BOREHOLE No.:
BH_75

SHEET: 2 OF 5

DRILLED BY: Tyler

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 18/06/2025

FINISH DATE: 19/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Pegasus B (West)

CO-ORDINATES: 5204846.82 mN
(NZTM2000) 1573571.08 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 8.87m
R.L. COLLAR: 8.87m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	[CONT] 3.60m: Sandy SILT; grey. Soft, moist, non-plastic. Sand, fine to medium.				SNC	100	4 @ 5.20m BH_75-04 PSD Percent passing 63 um sieve: 55%	5.5				5.20 - 5.40m BH_75-04: PSD Percent passing 63 um sieve: 55%					
	5.70m: Silty fine to medium SAND; grey. Moist.							6.0									
	6.10m: Loose. Grading to some silt.				SPT	100	12// 12/2/2 N=7	6.5									
	6.45 - 6.85m Sand, fine to coarse.							7.0									
	6.85m: Fine to medium SAND, minor silt; grey. Moist.							7.5									
	7.05m: Sandy SILT; grey. Stiff, moist, low plasticity. Sand, fine.				SNC	100	5 @ 7.30m BH_75-05 PSD Percent passing 63 um sieve: 52%	7.5					7.30 - 7.60m BH_75-05: PSD Percent passing 63 um sieve: 52%				
	7.60m: Very soft.						0.0// 0.0/0.0 N=0	8.0					7.60m: SPT rod-string self weight penetration when hammer added.				
	7.70m: SILT, some sand; grey. Very soft, moist, non-plastic, dilatant. Sand, fine.				SPT	100		8.5									
	8.20m: SILT, minor sand; light greenish grey. Very soft, moist, low to medium plasticity. Sand, fine.							9.0									
	9.00 - 9.80m Dilatant.							9.5									
9.10m: Soft.				SPT	0	0.0// 0.0/2.1 N=3											
9.20 - 9.80m Bluish grey.																	
9.80m: SILT, minor organics, trace clay; light brownish grey with brown black speckling. Firm, moist, low to medium				SNC	100												

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

Box 2, 85-6, 10m

Box 6, 10-9, 20m



BOREHOLE LOG

BOREHOLE No.:

BH_75

SHEET: 3 OF 5

DRILLED BY: Tyler

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 18/06/2025

FINISH DATE: 19/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus B (West)

CO-ORDINATES: 5204846.82 mN
 (NZTM2000) 1573571.08 mE

R.L. GROUND: 8.87m

R.L. COLLAR: 8.87m

DIRECTION: 0°

ANGLE FROM HORIZ.: -90°

DATUM: NZVD2016

SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Springston Formation	plasticity.				SNC	100												
	10.40m: SILT, minor clay, trace organics; grey. Very soft, moist, low to medium plasticity. 10.60m: Soft.				SPT	100	0.0// 0.1/1/1 N=3		10.5									
	10.80m: Sandy SILT; grey. Soft, moist, low plasticity, dilatant. Sand, fine to medium.				SNC	100			11.0									
Christchurch Formation	12.05m: Silty fine SAND; grey. Moist. 12.20m: Medium dense to dense.				SPT	100	2.2// 3/10/9/8 N=30		11.5									
	12.55m: Fine to coarse SAND, some gravel, minor silt, trace organics; grey. Medium dense to dense, wet. Gravel, fine, sub-rounded to sub-angular. 12.70m: Fine to coarse SAND, trace gravel; grey. Wet.				SNC	100			12.0									
	13.00 - 13.45m Gravelly.				SPT	100			12.5									
	13.45m: SILT, some sand; grey. Soft, moist, non-plastic, dilatant. Sand, fine.				SNC	100			13.0									
	13.70m: Fine to coarse SAND, trace silt; dark grey. Very loose, wet. Trace shell fragments.				SPT	100	0.0// 0.1/0/0 N=1		13.5									
	13.90m: SILT, some sand; grey. Very soft, moist, non-plastic, dilatant. Sand, fine.				SNC	100			14.0									
	14.40m: Fine to medium SAND, some silt; grey. Wet. Trace shell fragments. 14.50 - 14.65m Brownish grey. 14.75 - 14.90m Minor shell fragments.				SNC	100			14.5									

11.25 - 11.55m BH_75-06: PSD Percent passing 63 um sieve: 67% : AL: LL 24, PL 13, PI 11

6 @ 11.25m
 BH_75-06: PSD Percent passing 63 um sieve: 67% : AL: LL 24, PL 13, PI 11

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

Box 9.20-12.05m

Rev.: A



BOREHOLE LOG

BOREHOLE No.:

BH_75

SHEET: 4 OF 5

DRILLED BY: Tyler

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 18/06/2025

FINISH DATE: 19/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
 JOB No.: 1095459.0000
 LOCATION: Pegasus B (West)

CO-ORDINATES: 5204846.82 mN
 (NZTM2000) 1573571.08 mE

R.L. GROUND: 8.87m
 R.L. COLLAR: 8.87m
 DATUM: NZVD2016
 SURVEY: dGPS (with base station)

DIRECTION: 0°
 ANGLE FROM HORIZ.: -90°

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log	Fracture Spacing (mm)	RQD (%)					
Christchurch Formation	[CONT] 14.40m: Fine to medium SAND, some silt; grey. Wet. Trace shell fragments. 15.00 - 15.25m Shelly. 15.20m: Very dense.				SNC	100	3.5// 10/14/18/8 for 50mm N=50		15.5									
	15.30m: Fine to coarse SAND, minor gravel; dark grey. Very dense, wet. Gravel, fine to medium, sub-rounded to sub-angular.				SPT	99			15.5									
	15.75m: Fine to medium SAND; grey. Wet.																	
Burnham Formation	15.85m: Organic SILT; brown. Firm, moist, medium to high plasticity, with minor wood. Wood fibres are spongy and retain some of their original strength.						7 @ 15.85m BH_75: Organic Matter Content: 43%		16.0					15.85 - 16.10m BH_75-07: Organic Matter Content: 40%				
	16.10m: Organic SILT; black. Firm, moist, non-plastic.				SNC	100			16.0									
	16.30m: Sandy SILT, trace rootlets; brownish grey. Soft to firm, moist, non-plastic, dilatant. Sand, fine.								16.5									
	16.50m: Sandy fine to medium GRAVEL, trace silt; brownish grey. Wet. Gravel, sub-rounded to sub-angular; sand, fine to medium.								16.5									
	16.60m: Sandy SILT; brownish grey. Soft to firm, moist, non-plastic, dilatant. Sand, fine.				SPT	100	1/3// 7/11/4/13 N=45		17.0									
	16.65m: Fine to coarse SAND, trace gravel; dark grey. Wet.								17.0									
	17.00m: Fine to coarse GRAVEL, some silt and some sand; grey. Dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT	100	9/12// 11/7/8/8 N=34		18.5									
	18.00m: Minor silt.				SNC	100			18.0									
					SPT	100	7/7// 9/9/8/8 N=34		19.5									

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

Hole Depth
20.25m

Scale 1:25

Box 12: 15.20-15.20m

Rev.: A

TTNZ_20240902 - GeneralLog - 5/09/2025 8:11:40 pm - Produced with Core-GS by GeRoc



BOREHOLE LOG

BOREHOLE No.:
BH_75

SHEET: 5 OF 5

DRILLED BY: Tyler

LOGGED BY: ALSP

CHECKED: DAA

START DATE: 18/06/2025

FINISH DATE: 19/06/2025

CONTRACTOR: ProDrill

PROJECT: Woodend Bypass and B2P Motorway
JOB No.: 1095459.0000
LOCATION: Pegasus B (West)

CO-ORDINATES: 5204846.82 mN
(NZTM2000) 1573571.08 mE

DIRECTION: 0°
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 8.87m
R.L. COLLAR: 8.87m
DATUM: NZVD2016
SURVEY: dGPS (with base station)

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering <small>UW SW PW SW PW CW CW</small>	Rock Strength <small>USe S W W W</small>	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES			Description & Additional Observations	Water Level / Fluid Loss (%) <small>25 50 75</small>	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation									Defect Log <small>2000 200 200 90 20</small>	Fracture Spacing (mm)	RQD (%)					
	20.00m: Fine to coarse GRAVEL, some sand, minor silt; grey. Dense, wet. Gravel, sub-rounded to sub-angular; sand, fine to coarse.				SPT 100												Box 14 75-20.25m
	20.25m: EOBH. Target depth																

COMMENTS: Coordinates derived from RTK GPS. Elevation data from 2025 B2P LiDAR.

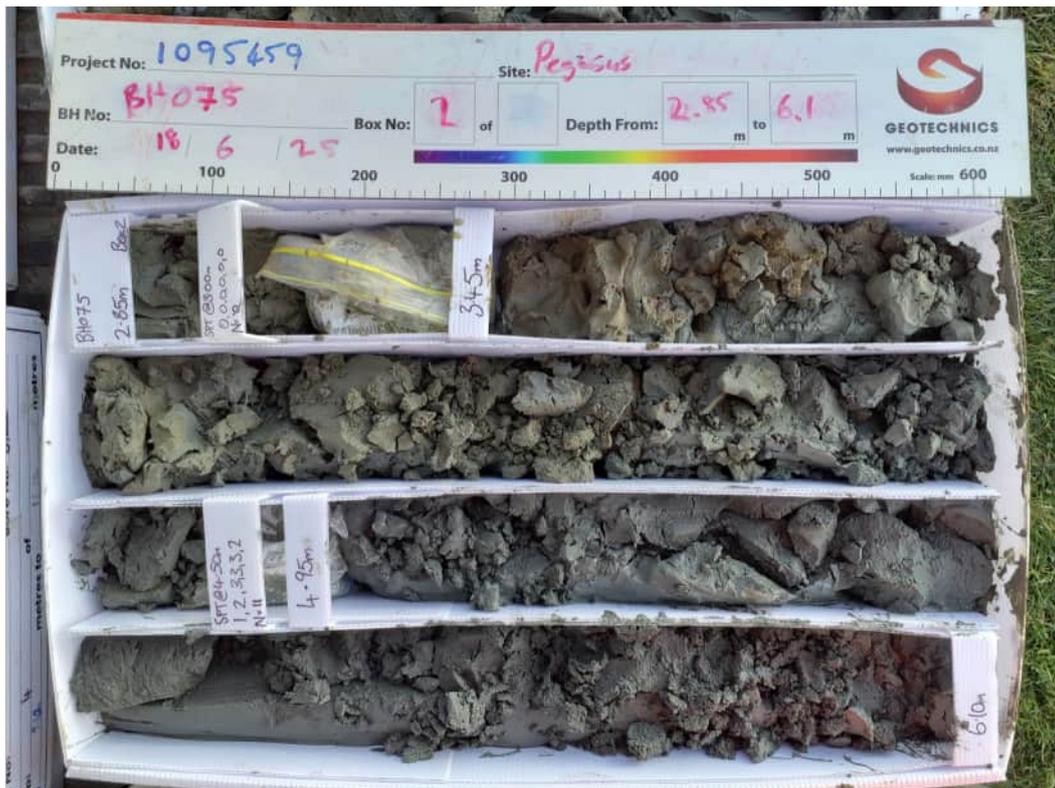
Hole Depth
20.25m

Scale 1:25

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204846.82 mN 1573571.08 mE	DRILL TYPE: XL1	HOLE STARTED: 18/06/2025
R.L.:	8.87m	METHOD: Sonic core drilling	HOLE FINISHED: 19/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



0.00-2.85m



2.85-6.10m

CORE PHOTOS

BOREHOLE No.: **BH_75**
 Hole Location: Pegasus B (West)
 SHEET: 2 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204846.82 mN 1573571.08 mE	DRILL TYPE: XL1	HOLE STARTED: 18/06/2025
R.L.:	8.87m	METHOD: Sonic core drilling	HOLE FINISHED: 19/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill LOGGED BY: ALSP CHECKED: DAA



6.10-9.20m

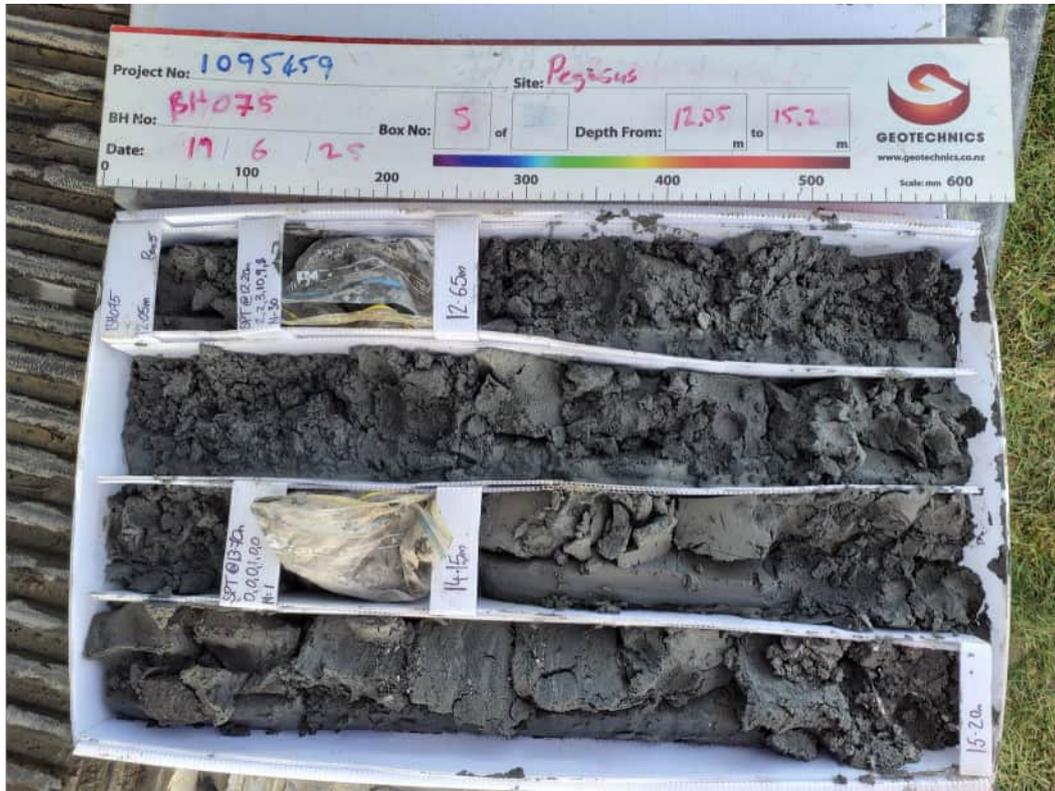


9.20-12.05m

CORE PHOTOS

BOREHOLE No.: **BH_75**
 Hole Location: Pegasus B (West)
 SHEET: 3 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204846.82 mN 1573571.08 mE	DRILL TYPE: XL1	HOLE STARTED: 18/06/2025
R.L.:	8.87m	METHOD: Sonic core drilling	HOLE FINISHED: 19/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



12.05-15.20m



15.20-18.75m

CORE PHOTOS

BOREHOLE No.: **BH_75**
 Hole Location: Pegasus B (West)
 SHEET: 4 OF 4

PROJECT: Woodend Bypass and B2P Motorway		LOCATION: Belfast to Pegasus	JOB No.: 1095459.0000
CO-ORDINATES: (NZTM2000)	5204846.82 mN 1573571.08 mE	DRILL TYPE: XL1	HOLE STARTED: 18/06/2025
R.L.:	8.87m	METHOD: Sonic core drilling	HOLE FINISHED: 19/06/2025
DATUM:	NZVD2016		DRILLED BY: ProDrill
			LOGGED BY: ALSP
			CHECKED: DAA



18.75-20.25m

EXCAVATION LOG

Excavation Id.: **TP-01**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5197737 mN (NZTM2000) 1571477 mE METHOD: Trial pit/trench EXCAV. STARTED: 23/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 23/05/2025
 R.L.: 1.74m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 16%)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9					0.00m: SILT, trace rootlets; dark brown. Stiff, moist, non-plastic. (TOPSOIL). 0.05m: SILT, trace charcoal and rootlets; brownish grey. Stiff, moist, non-plastic. 0.50m: SILT, trace rootlets; brownish grey with orange and brown mottling. Stiff, moist, non-plastic. 1.00m: Very stiff. 1.20m: Grey with orange mottling. 2.50m: Trace wood fragments; brownish grey with orange mottling. Low plasticity. 3.00m: Wet. 3.90m: Bluish grey with orange mottling.	M	St	St	12-24	1.0m: Water pooling in base (stopped digging for 20 min). 3.0m: Water trickling in from sides (pockets?).	Top Christchurch Formation
			99/16			0.00								
			90/14			0.05								
			178/4			0.50					VSt			
			181/30			1.00								
			90/20			1.20								
			72/14			1.50								
			65/14			2.00					St			
			59/16			2.50								
			45/14			3.00					W			
						3.90								
						4.00		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-02**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Christchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5197834.46 mN (NZTM2000) 1571436.12 mE METHOD: Trial pit/trench EXCAV. STARTED: 26/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 26/05/2025
 R.L.: 1.52m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	99/14 kPa Insitu			0.00	TS	0.00m: SILT, trace rootlets; dark brown. Stiff, moist, non-plastic. (TOPSOIL).	M	St	12-24			
				102/12 kPa Insitu		1	0.5		0.25m: SILT, trace rootlets; brownish grey with orange mottle. Stiff, moist, non-plastic. 0.50m: Very stiff.		VSt				
				160/22 kPa Insitu			1.0								
				205/45 kPa Insitu		0	1.5		1.50m: Hard.		H				
				75/11 kPa Insitu			2.0		2.00m: Trace wood fragments. Stiff, low plasticity.		St			1.8m: Water starting to pool when stopped.	
				68/20 kPa Insitu		-1	2.5								
				104/22 kPa Insitu			3.0		3.00m: Very stiff.		VSt				
				106/34 kPa Insitu		-2	3.5								
				68/27 kPa Insitu			4.0		3.70m: Trace fossils of shells; grey with orange mottling.						
							4.0		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR Project note; TEST PITS

Hole Depth 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-03**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5197906.55 mN (NZTM2000) 1571518.62 mE METHOD: Trial pit/trench EXCAV. STARTED: 23/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 23/05/2025
 R.L.: 1.46m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, c_{su} , ϕ_{su})	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	122/14 kPa Insitu		1.46	0.00	TS	0.00m: SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic. (TOPSOIL).	M	VSt				Top
				108/7 kPa Insitu			0.20		0.20m: SILT, trace rootlets; greyish brown. Very stiff, moist, non-plastic.						
				154/2 kPa Insitu			0.60		0.60m: SILT, trace rootlets and partly decomposed wood fragments; brownish grey with orange mottling. Very stiff, moist, non-plastic, pockets of water within mass throughout.					1.0m: Unsure of GWL as every time digging stopped at depths > 1 m water would pool in bottom of pit.	
				108/2 kPa Insitu			1.50								
				66/14 kPa Insitu			2.00		2.00m: Stiff, low plasticity.			St			
				75/22 kPa Insitu			2.50								
				131/23 kPa Insitu			3.00		3.00m: Trace shellfish (bivalves and fossils); grey with orange surrounding trace fossils. Very stiff.			VSt			
				61/16 kPa Insitu			3.50		3.50m: Stiff.			St			
				41/20 kPa Insitu			3.90		3.90m: Trace fossils burrows infilled with iron concentrations; grey. Saturated.			S			
							4.00		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-04**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5198020.31 mN (NZTM2000) 1571500.88 mE METHOD: Trial pit/trench EXCAV. STARTED: 26/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 26/05/2025
 R.L.: 1.21m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	104/18 kPa Insitu		1.21	0.00	TS	0.00m: SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic. (TOPSOIL).	M	VSt	12-24			Top
				126/14 kPa Insitu			0.50		0.20m: SILT, trace rootlets; brownish grey with orange mottling. Very stiff, moist, non-plastic.						Christchurch Formation
				147/18 kPa Insitu			1.00		1.00m: Wet.		W			1.1m: Pit filled with water gushing through cracks in the silt.	
				70/14 kPa Insitu			1.50		1.10m: SILT, minor fibrous wood fragments, trace rootlets; brown. Very stiff, saturated.		S	St			
				61/18 kPa Insitu			2.00		1.20m: SILT, trace rootlets; brownish grey. Stiff, saturated, low plasticity.						
				118/16 kPa Insitu			2.50		2.50m: SILT, minor shells, trace fossils; brownish grey with orange mottling and orange iron concretions. Very stiff, saturated, low plasticity, trace fossils of bivalve shells 'whole'.			VSt			
							3.20		3.2m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.2m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-05**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Christchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5198121.98 mN (NZTM2000) 1571591.76 mE METHOD: Trial pit/trench EXCAV. STARTED: 23/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 23/05/2025
 R.L.: 0.98m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, c_{su} , ϕ_{su})	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	32/25 kPa Insitu			0.00		0.00m: SILT, trace rootlets; dark brown. Firm, moist, non-plastic. (TOPSOIL). 0.15m: SILT, trace rootlets; greyish brown. Very stiff, moist, non-plastic.	M	F				Top
				161/9 kPa Insitu			0.50				VSt				Christchurch Formation
				113/4 kPa Insitu			1.00		0.75m: SILT, trace rootlets; greyish brown with orange and brown mottling. Stiff to very stiff, moist, non-plastic.		St-VSt				
				104/7 kPa Insitu			1.50								
				81/11 kPa Insitu			2.00		2.00m: Wet, low plasticity.		W				
				122/23 kPa Insitu			2.50		2.80m: Grey with orange mottle.					2.4m: GWL hard to determine as slowly filling at every level.	
				95/22 kPa Insitu			3.00								
				36/25 kPa Insitu			3.50		3.40m: Trace shell fragments; grey. 3.50m: Firm.			F			
				57/29 kPa Insitu			4.00		3.90m: Sandy SILT, minor shells and shell fragments, trace fossil burrows; grey. Firm, saturated, non-plastic. Sand, fine.		S				
							4.50		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-06**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5198228.09 mN (NZTM2000) 1571577.95 mE METHOD: Trial pit/trench EXCAV. STARTED: 26/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 26/05/2025
 R.L.: 0.98m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kN/m ²)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0 1 2 3 4 5 6 7 8 9	144/9 kPa Insitu			0.00		0.00m: SILT, trace rootlets; dark brown. Very stiff, dry, non-plastic. (TOPSOIL).	D	VSt	12-24			TSoil
				108/5 kPa Insitu			0.50		0.30m: SILT, trace rootlets and wood fragments; brownish grey with orange mottling. Very stiff, moist, non-plastic. 0.80m: Saturated.	M					Christchurch Formation
				57/0 kPa Insitu			1.00		0.90m: SILT, trace rootlets, minor charcoal and wood fragments; brown. Stiff, saturated, non-plastic.	S	St				
				109/16 kPa Insitu			1.50		1.10m: SILT, trace rootlets; brownish grey. Stiff, saturated, low plasticity. 1.50m: Very stiff.		VSt				
				65/4 kPa Insitu			2.00		2.00m: Brownish grey with orange mottle. Stiff.		St				
				43/14 kPa Insitu			2.50		2.50m: Firm.		F				
				50/14 kPa Insitu			3.00		3.00m: Stiff.		St				
							3.50		3.20 - 3.50m: Trace fossils (shells); grey with orange concretion around fossilised shell and inside burrows.						
							4.00		3.5m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.5m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-07**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5198394.24 mN (NZTM2000) 1571684.85 mE METHOD: Trial pit/trench EXCAV. STARTED: 27/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 27/05/2025
 R.L.: 1.03m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	233/22 kPa Insitu		1	0.00	TS	0.00m: SILT, trace rootlets and charcoal; dark brown. Hard, moist, non-plastic. (TOPSOIL).	M	H				Top
				135/16 kPa Insitu			0.50		0.20m: SILT, trace rootlets; greyish brown with orange mottling. Very stiff, moist, non-plastic.		VSt				Christchurch Formation
				129/0 kPa Insitu		0	1.00		0.75m: SILT, trace rootlets and charcoal; brown. Very stiff, wet, non-plastic, crumbly.		W				
				83/22 kPa Insitu			1.50		0.85m: SILT, trace rootlets; brownish grey with orange mottling. Very stiff, moist, non-plastic.		M				
				61/14 kPa Insitu		-1	2.00		1.00m: Saturated.		S				
				61/18 kPa Insitu		-1	2.50		1.50m: Stiff.						
				83/16 kPa Insitu		-2	3.00		1.70m: Low plasticity.			St			
				57/20 kPa Insitu		-2	3.50		3.30m: Grey with lots of orange mottling. Shell fossils and root or burrow fossils (iron concretions).						
				54/- kPa Insitu		-3	4.00		3.70m: Grey with traces of orange mottling. No obvious fossils.						
							4.00		4m: END OF INVESTIGATION. Target depth.					4.0m: Wall collapsed before remoulded SV reading.	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-08**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5198502.55 mN (NZTM2000) 1571666.97 mE METHOD: Trial pit/trench EXCAV. STARTED: 27/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 27/05/2025
 R.L.: 1.05m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	93/14 kPa Insitu		1.0	0.00m		0.00m: SILT, trace rootlets; dark brown. Stiff, moist, non-plastic. (TOPSOIL).	M	St	12-24		Christchurch Formation	TSoil
				154/0 kPa Insitu		0.5	0.40m		0.40m: SILT, trace rootlets; brownish grey with orange mottling. Stiff, moist, non-plastic.		VSt	12-24			
				136/4 kPa Insitu		0.0	0.50m		0.50m: Very stiff.		S	12-24			
				97/25 kPa Insitu		1.5	0.80m		0.80m: Brown.			12-24			
				79/14 kPa Insitu		-1.0	0.90m		0.90m: Saturated.			12-24			
				147/25 kPa Insitu		-2.5	1.50m		1.50m: Stiff.		St	12-24			
				111/25 kPa Insitu		-2.0	2.50m		2.50m: Very stiff.		VSt	12-24			
						-3.0	2.95m		2.95m: Grey with orange mottle. Shell fossils and iron concretions.						
						-3.0	3.0m		3m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 3m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-09**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5198766.68 mN (NZTM2000) 1571754.43 mE METHOD: Trial pit/trench EXCAV. STARTED: 30/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 30/05/2025
 R.L.: 0.96m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	111/18 kPa Insitu			0.00	TS	0.00m: SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic. (TOPSOIL)	M	VSt	12-24		TSoil	
				135/9 kPa Insitu			0.30		0.30m: SILT, trace rootlets, charcoal and wood fragments; greyish brown with orange mottle. Very stiff, moist, non-plastic.	W				Christchurch Formation	
				72/5 kPa Insitu			0.60		0.60m: SILT, trace rootlets and charcoal; brown. Very stiff, wet, low plasticity.	M	St				
				72/7 kPa Insitu			0.80		0.80m: SILT, trace rootlets and wood fragments; brownish grey with orange mottle. Stiff, moist, low plasticity.						
				32/18 kPa Insitu			2.5		2.5m: END OF INVESTIGATION. Collapsing.						
				99/14 kPa Insitu			4.5								

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 2.5m

Scale 1:42

EXCAVATION LOG

Excavation Id.: **TP-10**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5198858.13 mN (NZTM2000) 1571847.31 mE METHOD: Trial pit/trench EXCAV. STARTED: 27/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 27/05/2025
 R.L.: 1.02m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	170/11 kPa Insitu		1	0.00m	TS	0.00m: SILT, trace rootlets; dark brown. Very stiff, dry, non-plastic. (TOPSOIL).	D	VSt	0-20			Top
				129/11 kPa Insitu			0.50m		0.20m: SILT, trace rootlets; greyish brown with orange mottling. Very stiff, moist, non-plastic.	M		20-30			Christchurch Formation
				109/0 kPa Insitu		0	1.00m		0.70 - 0.90m: Orange brown with black and blackish brown mottle. Saturated, crumbly but also sticky.	S		30-40			
				99/11 kPa Insitu			1.50m		1.50m: Stiff.	M		40-50			
				72/11 kPa Insitu		-1	2.00m		1.80m: Low plasticity, moist within unit but water flowing through cracks.		St	50-60			
				126/25 kPa Insitu			2.50m		2.50m: Very stiff.		VSt	60-70			
				57/22 kPa Insitu		-2	3.00m		2.90m: Trace fossilised shells and burrows, iron concretion; grey with orange mottle.		St	70-80			
				57/- kPa Insitu			3.50m		3.00m: Stiff.			80-90			
				50/- kPa Insitu		-3	4.00m		3.50m: Grey.			90-100		3.5m: Wall collapsed before remoulded SV reading.	
							4.00m		4m: END OF INVESTIGATION. Target depth.					4.0m: Wall collapsed before remoulded SV reading.	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR Project note; TEST PITS

Hole Depth 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-11**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5198971.29 mN (NZTM2000) 1571843.68 mE METHOD: Trial pit/trench EXCAV. STARTED: 04/06/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 04/06/2025
 R.L.: 0.92m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	104/5 kPa Insitu			0.00		0.00m: SILT, trace roots and rootlets; dark brown. Very stiff, moist, non-plastic. (TOPSOIL).		M	VSt	12-24		TSoil
				133/27 kPa Insitu			0.35		0.35m: SILT, trace rootlets; brown with orange mottle. Very stiff, moist, non-plastic.						
				90/0 kPa Insitu			0.70		0.70m: Dark brown. Wet.		W				
				188/18 kPa Insitu			1.00		1.00m: Stiff to very stiff.						
				144/36 kPa Insitu			1.10		1.10m: Greyish brown with orange mottle.			St-VSt			
				106/27 kPa Insitu			1.50		1.50m: Very stiff.			VSt			
				106/18 kPa Insitu			2.00		2.50m: Trace iron concretions (burrows).						
				106/27 kPa Insitu			2.50								
				108/27 kPa Insitu			3.00		3.50m: Trace shell fossils (iron concretions); grey with orange mottle.						
				81/39 kPa Insitu			3.90		3.90m: Trace sand. In small pockets. Sand, fine.						
							4.00		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-12**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199076.69 mN (NZTM2000) 1571952.31 mE METHOD: Trial pit/trench EXCAV. STARTED: 03/06/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 03/06/2025
 R.L.: 1.04m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0 1 2 3 4 5 6 7 8 9	● 165/18 kPa Insitu		1.04	0.00	TS	0.00m: SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic. (TOPSOIL).	M	VSt	12-24			Top
				● 170/25 kPa Insitu			0.25		0.25m: SILT, trace rootlets; greyish brown with orange mottle. Very stiff, moist, non-plastic.						Christchurch Formation
				● 99/11 kPa Insitu			0.80		0.80m: Brown. Saturated, low plasticity.	S					
				● 117/18 kPa Insitu			1.10		1.10m: Brownish grey with orange mottle.						
				● 66/11 kPa Insitu			2.00		2.00m: Stiff to very stiff.			St-VSt			
				● 145/25 kPa Insitu			2.50		2.50m: Very stiff.			VSt			
				● 45/18 kPa Insitu			2.70		2.70m: Trace fossilised burrows and shells; grey with orange mottle. Moist. Fossilised burrows and shells, replaced / infilled with iron concretions.	M		F-St			
				● 54/22 kPa Insitu			3.00		3.00m: Firm to stiff.						
				● 52/27 kPa Insitu			3.50		3.50m: Grey. Small pockets of fine grey sand.						
							4.00		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR Project note; TEST PITS

Hole Depth 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-13**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199169.86 mN (NZTM2000) 1572005.57 mE METHOD: Trial pit/trench EXCAV. STARTED: 03/06/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 03/06/2025
 R.L.: 1.08m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0 1 2 3 4 5 6 7 8 9	158/27 kPa Insitu	1	0.00	TS	0.00m: SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic. (TOPSOIL).	M		VSt	12		Top
				213/45 kPa Insitu	0.5	0.25		0.25m: SILT, trace rootlets; greyish brown with orange mottle. Very stiff, moist, non-plastic.				12		Christchurch Formation
				83/0 kPa Insitu	0	1.00		0.80m: Trace wood fragments; brown with orange mottle. Wet to saturated, low plasticity. 1.00m: Stiff to very stiff.		W-S	St-VSt	12		
				104/11 kPa Insitu	1.5	1.20		1.20m: Brownish grey with orange mottle. Moist.		M		12		
				75/22 kPa Insitu	-1	2.00						12		
				135/29 kPa Insitu	-2	2.50						12		
				54/25 kPa Insitu	-2	3.00		2.90m: Grey with orange burrows and shelly fossil concretions. Moist. 3.00m: Stiff.			St	12		
				50/45 kPa Insitu	-3	3.50		3.5m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR Project note; TEST PITS

Hole Depth 3.5m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-14**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199278.86 mN (NZTM2000) 1572017.03 mE METHOD: Trial pit/trench EXCAV. STARTED: 04/06/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 04/06/2025
 R.L.: 1.23m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	126/18 kPa Insitu		1	TS	0.00m: SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic. (TOPSOIL).	M		VSt	12		Top
				126/16 kPa Insitu		0.5		0.25m: SILT, trace rootlets; light brownish grey with orange mottle. Very stiff, moist, non-plastic.				12		Christchurch Formation
				113/9 kPa Insitu		1.0		0.75m: Greyish brown with orange mottle.				12		
				102/25 kPa Insitu		1.5		0.90m: Minor wood fragments and trace charcoal; brown. Wet.		W		12		
				88/14 kPa Insitu		2.0		1.20m: Brownish grey with orange mottle. Stiff to very stiff.			St-VSt	12		
				126/25 kPa Insitu		2.5						12		
				109/25 kPa Insitu		3.0		3.00m: Grey with orange mottle. Moist.		M		12		
				54/25 kPa Insitu		3.5		3.50m: Stiff.			St	12		
				70/36 kPa Insitu		4.0		3.80m: Grey. Moist.				12		
						4.5		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-15**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199316.90 mN (NZTM2000) 1572112.73 mE METHOD: Trial pit/trench EXCAV. STARTED: 29/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 29/05/2025
 R.L.: 1.25m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	122/14 kPa Insitu		1.25	0.00	TS	0.00m: Topsoil: SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic.	M	VSt	12-24			
				126/18 kPa Insitu		1.00	0.20		0.20m: SILT, trace rootlets; greyish brown with orange mottling. Very stiff, moist, non-plastic.						
				97/0 kPa Insitu		0.75	0.50		0.50m: Mottling increases.						
				65/7 kPa Insitu		0.50	0.95 - 1.55m		0.95 - 1.55m: Trace charcoal; brown. Low plasticity.			St		0.9m: Water pooling in base. Steadily streaming through cracks.	
				86/16 kPa Insitu		0.25	1.00m		1.00m: Stiff.						
				63/14 kPa Insitu		0.00	1.55m		1.55m: Brownish grey with orange mottling. Low plasticity.						
				100/11 kPa Insitu		0.25	3.30m		3.30m: Grey with orange iron concretions in burrows and infilling cracks.						
				57/25 kPa Insitu		0.25	3.5m		3.5m: END OF INVESTIGATION. Collapsing.					3.5m: Collapsed onto SV rod bending it.	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.5m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-16**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199443.53 mN (NZTM2000) 1572146.65 mE METHOD: Trial pit/trench EXCAV. STARTED: 04/06/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 04/06/2025
 R.L.: 1.38m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	126/9 kPa Insitu		1.38	0.00	TS	0.00m: SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic. (TOPSOIL).	M	VSt	12-24		Top	
				194/27 kPa Insitu			0.25		0.25m: SILT, trace rootlets and wood fragments; light brownish grey with orange mottle. Very stiff, moist, non-plastic, high mottling down to 1.2 m.					Christchurch Formation	
				129/16 kPa Insitu			1.00								
				161/9 kPa Insitu			1.50		1.50m: Trace charcoal; brown. Low plasticity.						
				75/25 kPa Insitu			2.00		2.00m: Stiff.		St				
				61/18 kPa Insitu			2.50								
				61/22 kPa Insitu			3.00								
				57/- kPa Insitu			3.30		3.30m: Grey with orange iron concretions infilling burrows and along internal cracks.						
							3.60		3.6m: END OF INVESTIGATION. Collapsing.					3.5m: Collapsed and broke SV rod before remoulded value was recorded.	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.6m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-17**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199465.58 mN (NZTM2000) 1572240.00 mE METHOD: Trial pit/trench EXCAV. STARTED: 29/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 29/05/2025
 R.L.: 1.29m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	136/16 kPa Insitu		1.0	0.00m		0.00m: SILT, trace rootlets and trace gravel; dark brown. Very stiff, moist, non-plastic. Gravel, fine to medium, sub-rounded to sub-angular. (TOPSOIL).	M	VSt	12-24			Top
				194/25 kPa Insitu		0.5	0.20m		0.20m: SILT, trace rootlets; greyish brown with orange mottling. Very stiff to hard, moist, non-plastic.		VSt-H	12-24			Christchurch Formation
				165/25 kPa Insitu		1.0	1.40 - 1.50m		1.40 - 1.50m: Brown band. Crumbly but also sticky.			12-24	1.0m: Water begins to appear in base when digger has stopped. True WL unclear.		
				201/38 kPa Insitu		1.5	2.00m		2.00m: Stiff, low plasticity.		St	12-24			
				57/11 kPa Insitu		2.0	3.30m		3.30m: Grey with orange iron concretions (burrows).			12-24			
				57/20 kPa Insitu		2.5	3.80m		3.80m: Grey (solid).			12-24			
				90/18 kPa Insitu		3.0	4m		4m: END OF INVESTIGATION. Target depth.						
				52/25 kPa Insitu		3.5									
				29/7 kPa Insitu		4.0									

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-18**
 Hole Location: Package 6, William Street Crossing
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199801.48 mN (NZTM2000) 1572637.58 mE METHOD: Trial pit/trench EXCAV. STARTED: 28/04/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 28/04/2025
 R.L.: 2.48m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				0.00	TS	0.00m: Fine to medium SAND, some silt, trace rootlets; dark brown. Loose, dry, well graded. (TOPSOIL) 0.10m: Medium dense	D	L				TSoil
							0.35		0.35m: Fine to medium SAND, trace rootlets; light brown. Medium dense, dry, well graded. 0.40m: Moist.	M	MD				
							0.60		0.60m: Fine to medium SAND, trace rootlets and trace silt; brownish grey. Dense, moist, well graded.						
							1.20		1.20m: Fine to medium SAND, trace rootlets and trace silt; brown. Dense, moist, well graded. Organics, wood fragments.					1.2m: water oozing out from sides of pit	
							1.30		1.30m: Fine to medium SAND; grey. Dense, moist, well graded.						
							1.90		1.90m: Very dense.						
				75/13 kPa			2.40		2.40 - 2.50m: Organic peat (fibrous and amorphous) SILT. Moist, non-plastic. Organics, wood fragments (decomposed).	S	S-F			2.5m: Shear Vane taken from cohesive excavated material at surface	Christchurch Formation
							2.50		2.50m: SILT, minor clay and minor sand, trace organics; grey, homogeneous. Soft to firm, saturated, low plasticity. Sand, fine; organics, wood fragments (decomposed).						
							4.00		4m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-19**
 Hole Location: Package 6, William Street Crossing
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199773.55 mN (NZTM2000) 1572595.87 mE METHOD: Trial pit/trench EXCAV. STARTED: 28/04/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 28/04/2025
 R.L.: 2.12m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				2.0	TS	0.00m: Fine to medium SAND, minor silt, trace rootlets; brown. Very loose to loose, moist, well graded. (TOPSOIL)	M	VL-L				Christchurch Formation
							0.5		0.30m: Fine to medium SAND, trace wood and roots; light brown with orange mottle. Medium dense, moist, well graded.		MD				
							1.0		0.60m: Organic fine to medium SAND, minor silt; dark brown. Loose to medium dense, moist, well graded. Organic, rootlets, partially decomposed wood and amorphous peat.		L-MD				
							1.5		1.20m: Fine to medium SAND, trace organics; grey. Dense, moist, well graded. Organics, pockets of organic material, spongy decomposed wood fragments.		D				
				22/0 kPa			2.0		2.20m: Medium dense.		MD				
							2.5		2.50m: Dense.		D				
							3.0		2.80m: SILT, some clay; grey with dark grey streaks. Soft, moist to wet, low plasticity.	M-W	S		3.0m: SV taken from sample retrieved due to hole collapsing.		
							3.5		3.5m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR Project note; TEST PITS

Hole Depth 3.5m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-20**
 Hole Location: Package 5. Cam River
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199830.31 mN (NZTM2000) 1572628.06 mE METHOD: Trial pit/trench EXCAV. STARTED: 09/06/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 09/06/2025
 R.L.: 2.84m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	97/7 kPa Insitu 81/7 kPa Insitu			0.5	TS	0.00m: SILT, trace rootlets and wood fragments and trace gravel; dark brown. Stiff, moist, non-plastic. Gravel, fine to medium, sub-rounded to sub-angular. (TOPSOIL/FILL)	M	St				Topsoil
							1.0		0.80m: Fine to medium SAND; light brown. Dense, moist, well graded. 1.10 - 1.20m: Band of light brown with orange mottling.		D				Christchurch Formation
							1.50		1.50 - 1.60m: Band of light brown with orange mottling. 1.60m: Light brownish grey. Wet.	W				2.2m: Water pooling.	
							2.0		2.10m: Very dense. 2.20m: Grey. Saturated.			VD			
							2.5		3.00m: Bluish grey.	S					
							3.0								
							3.5		3.30m: Organic SILT, trace sand; dark brown. Firm, wet, non-plastic. Organic, Amorphous peat and fibrous decomposed wood fragments; sand, fine.	W	F			3.3m: Could not get SV readings due to collapsing.	
							4.0		3.40m: SILT, trace rootlets and decomposed wood fragments; grey. Firm, wet, low plasticity.						
							4.5		3.6m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.6m

Scale 1:42

EXCAVATION LOG

Excavation Id.: **TP-21**

Hole Location: Package 6, William Street Crossing

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199754.80 mN (NZTM2000) 1572629.82 mE METHOD: Trial pit/trench EXCAV. STARTED: 28/04/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 28/04/2025
 R.L.: 2.27m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kN/m ²)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9			2		0.00m: Fine to medium SAND, trace rootlets; brown orange mottle. Loose, moist, well graded. (TOPSOIL)	M	L				Christchurch Formation
						0.5		0.30m: Fine to medium SAND, trace rootlets; light brown orange mottle. Medium dense, moist, well graded.	W	L				
						1.0		0.50m: Fine to medium SAND, trace rootlets; brownish grey. Loose, wet, well graded.		MD				
						1.5		0.70m: Medium dense. 1.00m: Dense.		D				
						2.0		1.20m: Fine to medium SAND; grey orange mottle. Dense, wet, well graded.		VD			1.7m: Water seeping in	
						2.5		1.70m: Very dense.						
						3.0		2.40m: PEAT (AMORPHOUS) SILT; dark brown. Firm, moist, non-plastic. Organics, wood fragments (partially decomposed).	M	F				
						3.0		2.50m: SILT, some clay, trace sand; grey. Soft, moist, low plasticity.		S				
						-1		3m: END OF INVESTIGATION. Collapsing.					3.0m: Shear Vane taken from cohesive excavated material at surface	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR Project note; TEST PITS

Hole Depth 3m

Scale 1:42

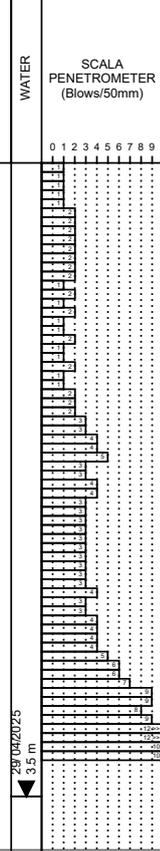
Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-22**
 Hole Location: Package 6, William Street Crossing
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Christchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199826.48 mN (NZTM2000) 1572777.43 mE METHOD: Trial pit/trench EXCAV. STARTED: 29/04/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 29/04/2025
 R.L.: 4.32m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9			4.0		<p>0.00m: Silty fine to medium SAND, trace rootlets; dark brown. Loose, moist, well graded. (TOPSOIL)</p> <p>0.10m: Fine to medium SAND, trace rootlets; light brown. Loose, moist, well graded.</p> <p>0.30m: Medium dense.</p> <p>0.50 - 1.00m: Trace organics. Organics, roots greater than 2mm diameter (fragments).</p> <p>1.50m: Dense.</p> <p>1.70m: Fine to medium SAND, trace rootlets; yellowish brown with orange mottled banding. Medium dense, moist, well graded.</p> <p>2.50m: Dense.</p> <p>2.90m: Fine to coarse SAND, minor gravel; brownish grey streaked with orange brown. Very dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.</p> <p>3.40m: Wet.</p> <p>3.60m: Gravelly fine to coarse SAND; brownish grey. Very dense, saturated, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.</p> <p>3.8m: END OF INVESTIGATION. Collapsing.</p>	M	L	12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 66 69 72 75 78 81 84 87 90 93 96 99 102 105 108 111 114 117 120 123 126 129 132 135 138 141 144 147 150 153 156 159 162 165 168 171 174 177 180 183 186 189 192 195 198 201 204 207 210 213 216 219 222 225 228 231 234 237 240 243 246 249 252 255 258 261 264 267 270 273 276 279 282 285 288 291 294 297 300 303 306 309 312 315 318 321 324 327 330 333 336 339 342 345 348 351 354 357 360 363 366 369 372 375 378 381 384 387 390 393 396 399 402 405 408 411 414 417 420 423 426 429 432 435 438 441 444 447 450 453 456 459 462 465 468 471 474 477 480 483 486 489 492 495 498 501 504 507 510 513 516 519 522 525 528 531 534 537 540 543 546 549 552 555 558 561 564 567 570 573 576 579 582 585 588 591 594 597 600 603 606 609 612 615 618 621 624 627 630 633 636 639 642 645 648 651 654 657 660 663 666 669 672 675 678 681 684 687 690 693 696 699 702 705 708 711 714 717 720 723 726 729 732 735 738 741 744 747 750 753 756 759 762 765 768 771 774 777 780 783 786 789 792 795 798 801 804 807 810 813 816 819 822 825 828 831 834 837 840 843 846 849 852 855 858 861 864 867 870 873 876 879 882 885 888 891 894 897 900 903 906 909 912 915 918 921 924 927 930 933 936 939 942 945 948 951 954 957 960 963 966 969 972 975 978 981 984 987 990 993 996 999 1002 1005 1008 1011 1014 1017 1020 1023 1026 1029 1032 1035 1038 1041 1044 1047 1050 1053 1056 1059 1062 1065 1068 1071 1074 1077 1080 1083 1086 1089 1092 1095 1098 1101 1104 1107 1110 1113 1116 1119 1122 1125 1128 1131 1134 1137 1140 1143 1146 1149 1152 1155 1158 1161 1164 1167 1170 1173 1176 1179 1182 1185 1188 1191 1194 1197 1200 1203 1206 1209 1212 1215 1218 1221 1224 1227 1230 1233 1236 1239 1242 1245 1248 1251 1254 1257 1260 1263 1266 1269 1272 1275 1278 1281 1284 1287 1290 1293 1296 1299 1302 1305 1308 1311 1314 1317 1320 1323 1326 1329 1332 1335 1338 1341 1344 1347 1350 1353 1356 1359 1362 1365 1368 1371 1374 1377 1380 1383 1386 1389 1392 1395 1398 1401 1404 1407 1410 1413 1416 1419 1422 1425 1428 1431 1434 1437 1440 1443 1446 1449 1452 1455 1458 1461 1464 1467 1470 1473 1476 1479 1482 1485 1488 1491 1494 1497 1500 1503 1506 1509 1512 1515 1518 1521 1524 1527 1530 1533 1536 1539 1542 1545 1548 1551 1554 1557 1560 1563 1566 1569 1572 1575 1578 1581 1584 1587 1590 1593 1596 1599 1602 1605 1608 1611 1614 1617 1620 1623 1626 1629 1632 1635 1638 1641 1644 1647 1650 1653 1656 1659 1662 1665 1668 1671 1674 1677 1680 1683 1686 1689 1692 1695 1698 1701 1704 1707 1710 1713 1716 1719 1722 1725 1728 1731 1734 1737 1740 1743 1746 1749 1752 1755 1758 1761 1764 1767 1770 1773 1776 1779 1782 1785 1788 1791 1794 1797 1800 1803 1806 1809 1812 1815 1818 1821 1824 1827 1830 1833 1836 1839 1842 1845 1848 1851 1854 1857 1860 1863 1866 1869 1872 1875 1878 1881 1884 1887 1890 1893 1896 1899 1902 1905 1908 1911 1914 1917 1920 1923 1926 1929 1932 1935 1938 1941 1944 1947 1950 1953 1956 1959 1962 1965 1968 1971 1974 1977 1980 1983 1986 1989 1992 1995 1998 2001 2004 2007 2010 2013 2016 2019 2022 2025 2028 2031 2034 2037 2040 2043 2046 2049 2052 2055 2058 2061 2064 2067 2070 2073 2076 2079 2082 2085 2088 2091 2094 2097 2100 2103 2106 2109 2112 2115 2118 2121 2124 2127 2130 2133 2136 2139 2142 2145 2148 2151 2154 2157 2160 2163 2166 2169 2172 2175 2178 2181 2184 2187 2190 2193 2196 2199 2202 2205 2208 2211 2214 2217 2220 2223 2226 2229 2232 2235 2238 2241 2244 2247 2250 2253 2256 2259 2262 2265 2268 2271 2274 2277 2280 2283 2286 2289 2292 2295 2298 2301 2304 2307 2310 2313 2316 2319 2322 2325 2328 2331 2334 2337 2340 2343 2346 2349 2352 2355 2358 2361 2364 2367 2370 2373 2376 2379 2382 2385 2388 2391 2394 2397 2400 2403 2406 2409 2412 2415 2418 2421 2424 2427 2430 2433 2436 2439 2442 2445 2448 2451 2454 2457 2460 2463 2466 2469 2472 2475 2478 2481 2484 2487 2490 2493 2496 2499 2502 2505 2508 2511 2514 2517 2520 2523 2526 2529 2532 2535 2538 2541 2544 2547 2550 2553 2556 2559 2562 2565 2568 2571 2574 2577 2580 2583 2586 2589 2592 2595 2598 2601 2604 2607 2610 2613 2616 2619 2622 2625 2628 2631 2634 2637 2640 2643 2646 2649 2652 2655 2658 2661 2664 2667 2670 2673 2676 2679 2682 2685 2688 2691 2694 2697 2700 2703 2706 2709 2712 2715 2718 2721 2724 2727 2730 2733 2736 2739 2742 2745 2748 2751 2754 2757 2760 2763 2766 2769 2772 2775 2778 2781 2784 2787 2790 2793 2796 2799 2802 2805 2808 2811 2814 2817 2820 2823 2826 2829 2832 2835 2838 2841 2844 2847 2850 2853 2856 2859 2862 2865 2868 2871 2874 2877 2880 2883 2886 2889 2892 2895 2898 2901 2904 2907 2910 2913 2916 2919 2922 2925 2928 2931 2934 2937 2940 2943 2946 2949 2952 2955 2958 2961 2964 2967 2970 2973 2976 2979 2982 2985 2988 2991 2994 2997 3000	3.5m: Water pooling	Top Christchurch Formation	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.8m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-23**
 Hole Location: Package 6, William Street Crossing
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Christchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199908.39 mN (NZTM2000) 1572709.92 mE METHOD: Trial pit/trench EXCAV. STARTED: 29/04/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 29/04/2025
 R.L.: 2.87m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				0.5	TS	0.00m: Silty fine to medium SAND, trace rootlets; dark brown. Loose, moist, well graded. (TOPSOIL) 0.30m: Medium dense.	M	L				TSoil
						2	1.0		0.50m: Fine to medium SAND; brownish grey. Medium dense, wet, well graded. 1.10m: Dense.		MD			Christchurch Formation	
						1	1.5		1.60m: Very dense.		D				2.0m: Water pooling
						0	2.0		1.80m: Fine to medium SAND; grey. Very dense, saturated, well graded.	S	VD				
				41/0 kPa		0	3.0		2.70m: PEAT (AMORPHOUS) SILT, trace sand; dark brown. Soft, saturated. Sand, fine; organics, roots greater than 2mm diameter (fragments). 2.75m: SILT; grey. Soft, saturated. 3.00m: Firm.		S		3.0m: Shear Vane taken from cohesive excavated material at surface		
						-1	4.0		3.6m: END OF INVESTIGATION. Collapsing.		F				

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.6m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-24**
 Hole Location: Package 6, William Street Crossing
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199926.17 mN (NZTM2000) 1572823.95 mE METHOD: Trial pit/trench EXCAV. STARTED: 21/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 21/05/2025
 R.L.: 3.09m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	TP-24-1 @ 1.50m		3.0	0.00m		0.00m: Silty fine to medium SAND, trace rootlets; dark brown. Loose, moist, well graded. (TOPSOIL).	M	L	12		Christchurch Formation	Top
						0.5	0.15m		0.15m: Silty fine to medium SAND, trace rootlets; brown. Medium dense, moist, well graded.		MD	25			
						1.0	0.20 - 0.40m		0.20 - 0.40m: Trace cobbles. Cobbles, up to 120mm, sub-angular.			30			
						1.5	0.40m		0.40m: Fine to coarse SAND, trace rootlets and trace gravel; light brown. Medium dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.		D	35			
						2.0	1.20m		1.20m: Gravelly fine to coarse SAND; light brownish grey. Dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.		W				
						2.5	1.70 - 2.90m		1.70 - 2.90m: Saturated.		S				
						3.0	2.9m		2.9m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR Project note; TEST PITS

Hole Depth 2.9m

Scale 1:42

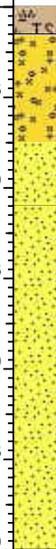
Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-25**
 Hole Location: Package 5. Cam River
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199979.08 mN (NZTM2000) 1572726.74 mE METHOD: Trial pit/trench EXCAV. STARTED: 09/06/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 09/06/2025
 R.L.: 4.41m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	106/11 kPa Insitu 63/18 kPa Insitu			0.00m to 3.00m	 <p>0.00m: SILT, trace rootlets and trace gravel; dark brown. Very stiff, moist, non-plastic. Gravel, fine to coarse, sub-rounded to sub-angular. (TOPSOIL/FILL)</p> <p>0.15m: Gravelly SILT, trace rootlets and some bituminous material; brownish grey. Stiff to very stiff, moist, non-plastic. Gravel, fine to coarse, sub-rounded to sub-angular. (FILL).</p> <p>0.75m: Fine to medium SAND, minor gravel, trace rootlets; brown. Loose, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular. (FILL).</p> <p>1.10m: Fine to medium SAND; light brown. Medium dense, moist, well graded.</p> <p>1.30m: Dense.</p> <p>2.00m: Medium dense, wet.</p> <p>2.50m: Dense, wet.</p> <p>2.70m: Very dense.</p>	M	VSt	St-VSt	12-24	1.1m: Fill down to 1.1 m.	Fill	
							3.00m to 4.50m	<p>3m: END OF INVESTIGATION. Collapsing.</p>						Christchurch Formation	

SKETCH / PHOTO:



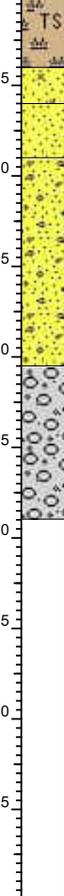
COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3m
 Scale 1:42

EXCAVATION LOG

Excavation Id.: **TP-26**
 Hole Location: Package 7. Quarry Ponds West
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001
 CO-ORDINATES: 5199973 mN METHOD: Trial pit/trench EXCAV. STARTED: 29/04/2025
 (NZTM2000) 1572836 mE EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 29/04/2025
 R.L.: 3.15m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL											
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT				
1-3			0-9				3.0		<p>0.00m: SILT, minor sand and minor gravel, trace rootlets; dark brown, topsoil. Firm, dry, well graded, non-plastic. Sand, fine to coarse; gravel, fine to coarse, sub-rounded to sub-angular 0.10m: Medium dense.</p> <p>0.40m: Silty fine SAND, trace rootlets and trace gravel; yellowish brown with orange mottle. Medium dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.</p> <p>0.60m: Fine to coarse SAND, some gravel; greyish brown. Medium dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.</p> <p>0.90m: Gravelly fine to coarse SAND, trace cobbles; brownish grey. Dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular; cobbles, up to 140mm, sub-angular. 1.20m: Wet. 1.50m: Very dense.</p> <p>2.05m: Sandy fine to medium GRAVEL; grey. Very dense, saturated, well graded. Gravel, sub-rounded; sand, coarse.</p>										
							2.9		2.9m: END OF INVESTIGATION. Collapsing.					2.9m: Water pooling in base					

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS
 Hole Depth 2.9m

EXCAVATION LOG

Excavation Id.: **TP-27**
 Hole Location: Package 6, William Street Crossing
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199922.22 mN (NZTM2000) 1572918.87 mE METHOD: Trial pit/trench EXCAV. STARTED: 21/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 21/05/2025
 R.L.: 3.82m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				0.00	0.00m: Silty fine SAND, trace rootlets; brown. Very loose, moist. (TOPSOIL). 0.15m: Fine SAND; light brown. Loose, dry. Trace tree roots and rootlets. 0.50 - 0.80m: Dark brown with black streaks. Trace charcoal.	M VL						Top
			10-19				0.80	0.80m: Fine to coarse SAND, trace wood and trace gravel; light brown. Medium dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.	M MD						Christchurch Formation
			20-29				2.40	2.40m: Fine GRAVEL, trace sand; grey. Moist, poorly graded. Gravel, sub-rounded; sand, coarse.							
			30-39				2.50	2.50m: Medium to coarse SAND, trace gravel; grey. Moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.							
			40-49				3.00	3.00 - 3.20m: Wet.		W					
			50-59				3.20	3.20 - 3.30m: Saturated.		S					
			60-69				3.50	3.3m: END OF INVESTIGATION. Collapsing.							

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR Project note; TEST PITS

Hole Depth 3.3m

Scale 1:33

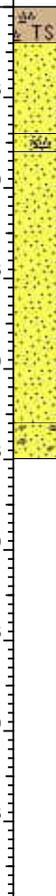
Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-28**
 Hole Location: Package 9. Quarry Ponds East
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200163.20 mN (NZTM2000) 1573277.58 mE METHOD: Trial pit/trench EXCAV. STARTED: 14/04/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 14/04/2025
 R.L.: 1.50m OPERATOR: Digging-Rite Ltd LOGGED BY: CAND
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9	1 @ 0.70m		0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5		<p>0.00m: SAND, minor rootlets, trace gravel; brown. Loose, dry to moist. Gravel, fine to coarse, sub-rounded to sub-angular. (TOPSOIL).</p> <p>0.20m: Fine to medium SAND; light brown. Loose to medium dense, dry to moist.</p> <p>0.70m: Silty fine to coarse SAND, some organics; grey. Medium dense, moist, well graded. Organics, wood fragments.</p> <p>0.80m: Fine to coarse SAND, minor silt; grey. Medium dense, moist to wet, well graded.</p> <p>1.00m: Grades to dense</p> <p>1.80m: Grades to wet</p> <p>2.30m: Gravely fine to coarse SAND; dark grey. Dense, wet, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.</p> <p>2.5m: END OF INVESTIGATION. Collapsing.</p>			<p>0.00m: L</p> <p>0.20m: L-M</p> <p>0.70m: M</p> <p>0.80m: M-W</p> <p>2.30m: W</p> <p>2.5m: D</p>		Christchurch Formation	Top

SKETCH / PHOTO:



0.0 - 2.5m:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 2.5m

Scale 1:42

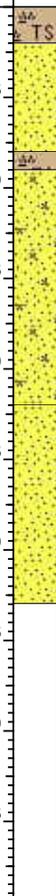
Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-29**
 Hole Location: Package 9. Quarry Ponds East
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200064.49 mN (NZTM2000) 1573282.75 mE METHOD: Trial pit/trench EXCAV. STARTED: 14/04/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 14/04/2025
 R.L.: 2.51m OPERATOR: Digging-Rite Ltd LOGGED BY: CAND
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 16%)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9	1 @ 0.80m		0.00 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5		<p>0.00m: Fine to medium SAND, some rootlets, trace gravel and trace cobbles; light brown. Very loose to loose, dry. Gravel, fine to coarse. (TOPSOIL).</p> <p>0.20m: Fine to medium SAND, trace rootlets; light brown. Loose, dry to moist.</p> <p>0.80m: Silty fine SAND, some organics; dark grey. Loose, dry to moist. Organics, timber fragments. (BURIED TOPSOIL LAYER).</p> <p>0.90m: Fine to medium SAND, some silt; grey. Loose to medium dense, dry to moist. 1.30m: Grades to moist to wet. Dilatant</p> <p>1.80m: Grades to medium dense</p> <p>2.20m: Fine to coarse SAND; grey. Dense, wet, well graded.</p> <p>3.3m: END OF INVESTIGATION. Collapsing.</p>		D D-M L L-M D	VL-L L D	<p>0.00</p> <p>0.25</p> <p>0.50</p> <p>0.75</p> <p>1.00</p> <p>1.25</p> <p>1.50</p> <p>1.75</p> <p>2.00</p> <p>2.25</p> <p>2.50</p> <p>2.75</p> <p>3.00</p> <p>3.25</p> <p>3.50</p> <p>3.75</p> <p>4.00</p> <p>4.25</p> <p>4.50</p>		Top Christchurch Formation

SKETCH / PHOTO:



0.0 - 3.3m:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
3.3m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-30**
 Hole Location: Package 9. Quarry Ponds East
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200160.72 mN (NZTM2000) 1573410.58 mE METHOD: Trial pit/trench EXCAV. STARTED: 14/04/2025
 R.L.: 3.09m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 14/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: CAND
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			3.0	TS	<p>0.00m: Fine to medium SAND, some rootlets, trace gravel and trace cobbles; brown. Loose, dry to moist. Gravel, fine to coarse. (TOPSOIL).</p> <p>0.30m: Fine to medium SAND, trace rootlets; light brown. Loose to medium dense, dry to moist.</p> <p>0.50 - 1.60m: Grades to medium dense.</p>	D-M	L	12-24		Christchurch Formation	TSoil
						2.5		<p>1.60m: Gravelly fine to coarse SAND; grey. Medium dense, moist, well graded. Gravel, fine to medium, sub-rounded to sub-angular.</p> <p>2.00m: Gravel grades to fine to coarse. Sub-angular to sub-rounded.</p> <p>2.50m: Grades to wet.</p>	M	MD	25-30			
						0.0		<p>2.6m: END OF INVESTIGATION. Collapsing.</p>						

SKETCH / PHOTO:



0.0 - 2.6m:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 2.6m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-31**

Hole Location: Package 10. Quarry to Fullers Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200340.76 mN (NZTM2000) 1573527.15 mE METHOD: Trial pit/trench EXCAV. STARTED: 15/04/2025
 R.L.: 2.12m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 15/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			2		0.00m: Topsoil.						TS
						0.5		0.40m: Sandy SILT; dark brown grading to greyish brown with orange mottling. Stiff, moist. Sand, fine to coarse.	M	St			0.5 - 0.55m: Light brown layer of fine to medium sand.	Christchurch Formation
						1.0		0.80m: Fine to coarse SAND, some gravel and some cobbles; light grey. Medium dense. Gravel, coarse, rounded to sub-rounded; cobbles, rounded to sub-rounded.		MD			0.55 - 0.6m: Black streaking through silt layer (possibly organic/charcoal residue)	
						1.5		1.20m: Gravelly medium to coarse SAND; light grey. Dense to very dense, wet. Gravel, fine to medium, rounded to sub-rounded.	W	D-VD				
						2.0		1.70m: Sandy fine to medium GRAVEL; reddish brown. Dense to very dense, saturated. Gravel, rounded to sub-rounded; sand, medium to coarse.	S					
						2.5		2.3m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 2.3m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-32**

Hole Location: Package 10. Quarry to Fullers Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200362.92 mN (NZTM2000) 1573627.88 mE METHOD: Trial pit/trench EXCAV. STARTED: 15/04/2025
 R.L.: 2.55m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 15/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			0.00		0.00m: Topsoil.	M	VS				Top
						0.10		0.10m: Sandy SILT; light brown grading to brownish grey with orange mottling. Very stiff, moist. Sand, fine to medium.						Christchurch Formation
						0.70		0.70m: Fine to medium SAND; light grey . Medium dense, moist.		MD				
						1.50		1.50m: Fine to medium SAND; bluish grey. Medium dense to dense, wet.	W	MD-D				
						2.50		2.50 - 3.00m: Dense.		D				
						3.00		3m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS
 Hole Depth 3m
 Scale 1:42

EXCAVATION LOG

Excavation Id.: **TP-34**

Hole Location: Package 10. Quarry to Fullers Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200278.55 mN (NZTM2000) 1573586.39 mE METHOD: Trial pit/trench EXCAV. STARTED: 15/04/2025
 R.L.: 2.51m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 15/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			0.00	TS	0.00m: Topsoil.						Top
						0.50		0.20m: Sandy SILT, trace rootlets; light brown grading to orange and grey mottling. Firm, dry grading to moist. Sand, fine to medium.	D		F			Christchurch Formation
						1.00		0.70m: Fine to coarse SAND, trace silt; light brown. Medium dense, moist.	M		MD			
						1.50		1.50m: Fine to coarse SAND, trace silt; brownish grey. Medium dense to dense, moist. 1.60 - 2.60m: Wet.			MD-D			
						2.00		2.60m: Fine to coarse SAND; grey grading to bluish grey. Dense to very dense, wet.			D-VD			
						3.50		3.5m: END OF INVESTIGATION. Collapsing.					2.8 - 3.5m: Collapse of test pit	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.5m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-35**

Hole Location: Package 10. Quarry to Fullers Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200557.01 mN (NZTM2000) 1573731.68 mE METHOD: Trial pit/trench EXCAV. STARTED: 16/04/2025
 R.L.: 2.31m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 16/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			2.0	TS	0.00m: TOPSOIL. Dry.	D					Top
						0.5		0.20m: SILT, trace rootlets and trace sand; light brown with orange mottling. Very stiff, dry to moist. Sand, fine to medium.	D-M	VSt				Christchurch Formation
						1.0		1.10m: Fine to medium SAND; brownish grey. Medium dense, moist to wet grading to wet.	M-W	MD				
						1.60 - 1.90m		Dense.			D			
						2.0		1.90m: Fine to medium SAND; bluish grey. Dense to very dense, wet.	W	D-VD				
						4.0		3.8m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.8m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-36**

Hole Location: Package 10. Quarry to Fullers Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200629.94 mN (NZTM2000) 1573839.28 mE METHOD: Trial pit/trench EXCAV. STARTED: 16/04/2025
 R.L.: 1.82m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 16/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, ϕ , ρ_w)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9				0.00	TS	0.00m: Topsoil.						Top
				● 93/23 kPa Insitu			0.50		0.20m: SILT, some sand; light brown grading to brownish grey with orange mottling. Stiff, dry to moist. Sand, fine to medium.	D-M	St				Springston Formation
							1.70		1.70m: Fine to medium SAND; bluish grey with grey layering. Dense to very dense, moist to wet.	M-W	D-VD				Christchurch Formation
							3.00		3m: END OF INVESTIGATION. Collapsing.					2.9m: Groundwater seepage into the test pit from bottom	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 3m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-37**

Hole Location: Package 10. Quarry to Fullers Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200774.25 mN (NZTM2000) 1573878.27 mE METHOD: Trial pit/trench EXCAV. STARTED: 16/04/2025
 R.L.: 1.91m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 16/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	84/27 kPa Insitu			0.00	TS	0.00m: TOPSOIL.						Top
							0.50		0.20m: SILT, minor sand; light brown with orange mottling. Firm, dry grading to moist. Sand, fine, rounded.	D	F				Springston Formation
							1.50		1.30m: SILT; brownish grey with orange mottling. Stiff, moist, low plasticity.	M	St				
							2.00		1.60m: Fine to coarse SAND; bluish grey, homogeneous. Medium dense to dense, wet. Sand, rounded.	W	MD-D			1.9m: Log (driftwood) encountered.	Christchurch Formation
							3.00		3m: END OF INVESTIGATION. Collapsing.					2.3m: Ground water seeping into test pt from the bottom of the excavated hole.	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 3m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-38**

Hole Location: Package 10. Quarry to Fullers Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200899.05 mN (NZTM2000) 1573985.99 mE METHOD: Trial pit/trench EXCAV. STARTED: 17/04/2025
 R.L.: 2.21m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 17/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				2.0	TS	0.00m: TOPSOIL. Dry.		D				Top
				101/20 kPa Insitu			0.5		0.20m: SILT, trace sand; light brown. Very stiff, dry grading to moist. Sand, fine to medium.		VSt				Springston Formation
				107/23 kPa Insitu			1.0								
				49/20 kPa Insitu			1.5								
				35/26 kPa Insitu			2.0								Christchurch Formation
				41/32 kPa Insitu			2.5		2.50m: Sandy SILT, trace organics; bluish grey, homogeneous. Firm, moist. Sand, fine to medium; organics, carbonaceous material.		M	F			
							3.0								
							3.5								3.6m: GW up welling from bottom of test pit
							4.0		3.60m: Silty fine to coarse SAND; bluish grey. Medium dense, wet.		W	MD			
							4.5		3.90m: SILT, trace sand; bluish grey. Saturated, medium to high plasticity. Sand, fine, black.		S				
							4.5		4m: END OF INVESTIGATION						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-39**

Hole Location: Package 10. Quarry to Fullers Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5201031.39 mN (NZTM2000) 1574005.26 mE METHOD: Trial pit/trench EXCAV. STARTED: 17/04/2025
 R.L.: 2.54m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 17/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				0.00	TS	0.00m: TOPSOIL. Dry.	D					Top
				● 136/20 kPa Insitu ● 133/23 kPa Insitu ● 90/14 kPa Insitu ● 104/41 kPa Insitu ● 55/41 kPa Insitu		2.0	0.5		0.20m: SILT, some sand; light brown grading to brownish grey with orange mottling. Very stiff, dry to moist. Sand, fine to medium.	D-M	Vst				Springston Formation
						0.0	2.5		2.50m: Silty fine to medium SAND; bluish grey. Medium dense, wet to saturated.	W-S	MD			2.6m: Shear vane most likely in SAND.	Christchurch Formation
						-1.0	3.0		2.50 - 3.70m: Silty sand grading to sand.					3.0m: GW seepage from sides and bottom of test pit	
						-2.0	4.5		3.7m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.7m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-40**

Hole Location: Package 10. Quarry to Fullers Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5201196.92 mN (NZTM2000) 1574048.80 mE METHOD: Trial pit/trench EXCAV. STARTED: 17/04/2025
 R.L.: 3.59m OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 17/04/2025
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9						0.00m: TOPSOIL. Moist.		M				Top
				● 125/23 kPa Insitu			0.5		0.20m: SILT, some sand; light brown grading to brownish grey. Very stiff, moist. Sand, fine.			VSt			Springston Formation
				● 75/29 kPa Insitu			1.0		1.30 - 2.50m: Stiff.			St			
				● 87/29 kPa Insitu			1.5								
				● 52/20 kPa Insitu			2.0								Chert Frmn
				● 58/20 kPa Insitu			2.5		2.50m: SILT, trace sand; grey with orange mottling. Very stiff, moist. Sand, fine.			VSt			
				● 70/43 kPa Insitu			3.0								
							3.5		3.50m: Silty fine to coarse SAND; bluish grey. Dense, moist. 3.50 - 4.00m: Silty fine to coarse sand grading to fine to coarse sand.			D			
							4.0		4m: END OF INVESTIGATION					4.0m: GW up welling from the bottom of test pit	
							4.5								
							-1								

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR Project note; TEST PITS

Hole Depth 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-87**

Hole Location: Package 10. Quarry to Fullers Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Christchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5200444.13 mN (NZTM2000) 1573634.46 mE METHOD: Trial pit/trench EXCAV. STARTED: 16/04/2025
 R.L.: 2.62m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 16/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			0.00	TS	0.00m: TOPSOIL. Dry.	D					Top
						0.50		0.20m: Sandy SILT, trace rootlets; light brown with orange mottling. Dry to moist. Sand, fine to medium.	D-M					Christchurch Formation
						1.00		0.60m: Fine to medium SAND; light brown grading to grey. Medium dense, moist.	M	MD				
						2.00		2.00m: Fine to medium SAND; light grey with black mottling. Dense, wet.	W	D				
						3.00		3m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 3m

Scale 1:42

Rev.: A

EXCAVATION LOG

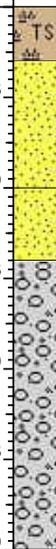
Excavation Id.: **TP-41**

Hole Location: Package 11. Fullers to Woodend Beach Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5201381.85 mN (NZTM2000) 1574141.96 mE METHOD: Trial pit/trench EXCAV. STARTED: 14/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 14/05/2025
 R.L.: 3.87m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL										
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT				
1 2 3			0 1 2 3 4 5 6 7 8 9				0.5 1.0 1.5 2.0 2.5 3.0		<p>0.00m: Silty fine SAND, trace rootlets and trace gravel; dark brown. Very loose, moist, poorly graded. Gravel, fine, sub-rounded. (TOPSOIL).</p> <p>0.30m: Fine SAND, some silt, trace rootlets; greyish brown with orange mottle. Loose, moist.</p> <p>1.00m: Fine to coarse SAND, trace rootlets; light brown with orange mottle. Loose, moist, well graded.</p> <p>1.40m: Medium to coarse GRAVEL, some sand; greyish brown. Medium dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>1.45m: Sandy fine to coarse GRAVEL; greyish brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>1.50m: Very dense. 2.00m: Wet. 2.10m: Saturated.</p>	M	VL	L	VD	W S				TS	Springston Formation
							3.0		3m: END OF INVESTIGATION. Collapsing.										

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR Project note; TEST PITS

Hole Depth 3m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-42**

Hole Location: Package 11. Fullers to Woodend Beach Road

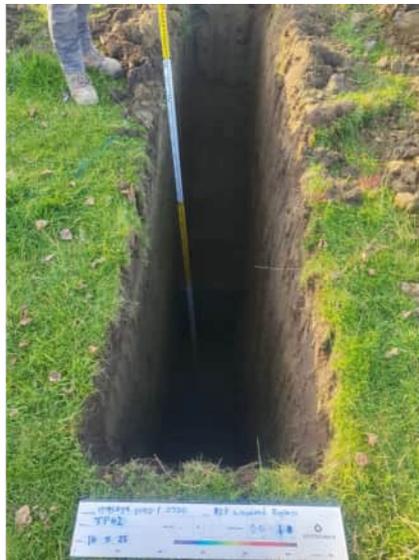
SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5201540.00 mN (NZTM2000) 1574114.69 mE METHOD: Trial pit/trench EXCAV. STARTED: 14/05/2025
 R.L.: 4.74m EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 14/05/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL								
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT		
1-3			0-9			0.00		<p>0.00m: SILT, some sand, trace rootlets; dark brown. Firm, moist, non-plastic. Sand, fine. (TOPSOIL).</p> <p>0.30m: Fine to medium SAND, some silt, trace rootlets; light brown. Loose, moist, poorly graded.</p> <p>1.50m: Light brown with orange mottle.</p> <p>2.20m: Sandy SILT; brownish grey with orange mottling. Firm, wet, non-plastic. Sand, fine.</p> <p>2.50m: Very soft.</p> <p>2.60m: SILT, trace organics; bluish grey. Wet, low plasticity. Organics, rootlets.</p> <p>4.00m: Firm.</p>								TSoil
			68/7			0.00										
			39/7			0.30										
			11/0			1.50										
			18/0			2.20										
			11/0			2.50										
			29/4			2.60										
						4.00										
						4.00		4m: END OF TEST PIT. Target depth reached.								

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-43**

Hole Location: Package 11. Fullers to Woodend Beach Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5201721.71 mN (NZTM2000) 1574206.81 mE METHOD: Trial pit/trench EXCAV. STARTED: 14/05/2025
 R.L.: 4.24m EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 14/05/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION						GEOLOGICAL				
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			4.0		0.00m: Sandy SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic. Sand, fine. (TOPSOIL). 0.30m: Blackish brown.	M	VSt			0.5m: Shear vane taken horizontally.	TSoil
						0.5		0.50m: Sandy SILT, trace rootlets; light brown with orange mottle. Very stiff, moist, non-plastic. Sand, fine.						
						1.0		0.90m: Fine to coarse SAND, trace rootlets; light brown with orange mottle. Medium dense, moist.		MD				
						1.5		1.25m: Fine SAND, trace rootlets; light brown with orange mottle. Medium dense, moist.						
						2.0		1.80m: Fine SAND, trace rootlets; light brown with orange mottle. Medium dense, moist, iron mineralization around rootlets.						
						2.5								
						3.0		2.80m: SILT, trace organics; greyish brown with orange mottle. Firm to stiff, moist, low plasticity. Organics, sticks, grasses and rootlets. 3.00m: Bluish grey with orange mottle. 3.10m: Bluish grey.		F-St			Springston Formation	
						3.5								
						4.0		3.80m: Sandy SILT; bluish grey. Firm, wet, non-plastic. Sand, fine to medium.	W	F				
						4.5		4m: END OF TEST PIT. Target depth reached.						

SKETCH / PHOTO:



COMMENTS: 2020-2023 LINZ LiDAR Project note; TEST PITS

Hole Depth 4m

Scale 1:42

Rev: A

EXCAVATION LOG

Excavation Id.: **TP-44**

Hole Location: Package 11. Fullers to Woodend Beach Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5201789.40 mN (NZTM2000) 1574164.56 mE METHOD: Trial pit/trench EXCAV. STARTED: 15/05/2025
 R.L.: 4.89m EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 15/05/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT	
1-3			0-9	61/4 kPa Insitu			0.00m	TS	0.00m: SILT, some sand, trace rootlets; dark brown. Firm, moist, non-plastic. Sand, fine. (TOPSOIL).	M	F				TSoil	
							0.30m		0.30m: Fine to medium SAND, some silt, trace rootlets; light brown. Loose, moist, well graded.		L					
				39/14 kPa Insitu			1.20m		1.20m: Fine to medium SAND, trace silt; light brown. Loose, moist, well graded.						Springston Formation	
				22/4 kPa Insitu			1.50m		1.50m: SILT, trace sand; greyish brown. Soft to firm, wet, non-plastic.	W	S-F					
				27/7 kPa Insitu			2.80m		2.80m: SILT, trace organics; bluish grey. Soft to firm, wet, low plasticity. Organics, Rootlets + white flecks (not shell).							
				22/7 kPa Insitu			4.0m		4m: END OF TEST PIT. Target depth reached.							
				18/9 kPa Insitu												
				32/14 kPa Insitu												

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-45**
 Hole Location: Package 12, Woodend Beach Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5201941.87 mN (NZTM2000) 1574249.34 mE METHOD: Trial pit/trench EXCAV. STARTED: 15/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 15/05/2025
 R.L.: 4.09m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	77/9 kPa Insitu		4.0	0.0		0.00m: SILT, some sand; dark brown. Firm to stiff, moist, non-plastic. Sand, fine. (TOPSOIL).	M	F-St	12-24			Topsoil
				54/7 kPa Insitu		3.0	0.5		0.80m: SILT, some sand; brown with dark brown and orange mottle. Stiff, moist, non-plastic. Sand, fine.		St	25-35			Springston Formation
						2.0	1.0		1.10m: Silty fine SAND, trace rootlets; greyish brown with orange mottle. Loose, moist.		L	35-45			Springston Formation
						2.0	1.40		1.40m: Sandy SILT; greyish brown with orange mottle. Moist. Sand, fine.		S	45-55			Springston Formation
				14/11 kPa Insitu		2.0	1.60		1.60m: ORGANICS and coarse GRAVEL. Organics, Charcoal and shellfish fragments; gravel, fire cracked.	W	S	55-65			Springston Formation
						2.0	1.80		1.80m: SILT, some sand, minor organics. Soft, wet. Sand, fine; organics, roots, rootlets, twigs and charcoal.		MD-D	65-75			Springston Formation
						2.0	1.90		1.90m: Saturated, water pooling.		S	75-85			Springston Formation
						2.0	2.20		2.20m: Fine to coarse SAND, trace organics; greyish brown with orange mottle. Medium dense to dense, saturated, well graded. Organics, rootlets and grasses.		S	85-95			Springston Formation
						2.0	3.50		3.50m: Sandy SILT; brown. Saturated, non-plastic, collapsed before shear vane. Sand, fine.		S	95-105			Springston Formation
						2.0	3.60		3.6m: END OF INVESTIGATION. Collapsing.						Springston Formation

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.6m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-46**
 Hole Location: Package 12, Woodend Beach Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits	LOCATION: Woodend Bypass, Chirstchurch	JOB No.: 1095459.0000.0001
CO-ORDINATES: 5201992.72 mN (NZTM2000) 1573983.01 mE	METHOD: Trial pit/trench EQUIPMENT: 5.5T Excavator	EXCAV. STARTED: 13/05/2025 EXCAV. FINISHED: 13/05/2025
R.L.: 5.26m	OPERATOR: Digging-Rite Ltd	LOGGED BY: DEMC
DATUM: NZVD2016	DIMENSIONS: 5m by 0.8m	CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kN/m ²)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			5	TS	0.00m: SILT, trace rootlets and trace sand and trace gravel; dark brown. Soft, moist, non-plastic. Sand, fine to coarse; gravel, fine to coarse, sub-rounded to sub-angular. (TOPSOIL).	M	S		0-0.5	0.00m: Area was developed approximately 2-3 years ago.	TSoil
				● 41/25 kPa Insitu		0.5		0.50m: Fine SAND, some silt; brown. Loose, moist, poorly graded.		L		0.5-2.0		
				● 36/32 kPa Insitu		2.0		2.00m: Sandy SILT; brown with orange mottle. Firm, wet, non-plastic. Sand, fine.	W	F		2.0-3.0		
				● 20/13 kPa Insitu		3.0		3.00m: Sandy SILT; bluish grey. Soft, wet to saturated, non-plastic, orange mottling to 3.1 m. Sand, fine.	W-S	S		3.0-4.0	Springston Formation	
				● 14/7 kPa Insitu		4.0		4.00m: Very soft.				4.0-4.5		
				● 11/0 kPa Insitu		4.5		4m: END OF TEST PIT. Target depth reached.				4.5-5.0	4.0m: Water starting to ooze into base.	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
4m

Scale 1:42

Rev.: A

EXCAVATION LOG

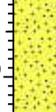
Excavation Id.: **TP-47**

Hole Location: Package 12, Woodend Beach Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5201978.18 mN (NZTM2000) 1574131.57 mE METHOD: Trial pit/trench EXCAV. STARTED: 15/05/2025
 R.L.: 5.00m EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 15/05/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			0.5		0.00m: SILT, trace rootlets and trace sand; dark brown. Firm, moist, non-plastic. Sand, fine. (TOPSOIL). 0.30m: Sandy SILT; brown. Firm to stiff, moist, non-plastic. Sand, fine.	M	F				Springston Formation
					4	1.0		1.00m: Fine to medium SAND, trace silt; light brown. Loose, moist, well graded. 1.70m: Light greyish brown with orange mottle.						
					2	2.5		2.30m: SILT, minor sand, trace rootlets; greyish brown with orange mottle. Very soft to soft, moist, non-plastic. Sand, fine. 2.90m: Wet.						
					3	3.0		3.20m: SILT, trace organics; bluish grey. Very soft to soft, saturated, low plasticity. Organics, twigs.						
					1	4.0		4m: END OF TEST PIT. Target depth reached.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
Project note; TEST PITS

Hole Depth 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-48**
 Hole Location: Package 12, Woodend Beach Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5202049.04 mN (NZTM2000) 1574219.26 mE METHOD: Trial pit/trench EXCAV. STARTED: 15/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 15/05/2025
 R.L.: 4.06m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			4.0	0.00m: TOPSOIL; dark brown.							TSoil
		15/05/25 1.6 m				0.5	0.40m: Sandy fine to coarse GRAVEL, trace rootlets; brown. Medium dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.		M	MD	D		0.6 - 2.5m: Interbedded layers of Sandy GRAVEL and Gravelly SAND.	Springston Formation
						1.0	0.50m: Fine to medium SAND, trace rootlets; light brown. Dense, moist, well graded.							
						1.5	0.60m: Sandy fine to coarse GRAVEL, trace organics; greyish brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; organics, roots and rootlets.							
						2.0	1.50m: Wet. 1.60m: Wood fragments and roots. Saturated, water pooling.							
						2.5	2.5m: END OF INVESTIGATION. Collapsing.							

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 2.5m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-49**
 Hole Location: Package 12, Woodend Beach Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5202022.64 mN (NZTM2000) 1574344.04 mE METHOD: Trial pit/trench EXCAV. STARTED: 13/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 13/05/2025
 R.L.: 3.48m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9				3	0.5	0.00m: SILT, some gravel, trace rootlets and trace sand; dark brown. Firm, moist, non-plastic. Gravel, fine to coarse, sub-rounded to sub-angular; sand, fine to coarse. (TOPSOIL).	M	F				TS
							2	1.0	0.30m: Sandy fine to coarse GRAVEL, trace rootlets; brownish grey. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.	W	VD				Springston Formation
							1	1.5	0.55m: Fine to coarse SAND, some gravel, trace rootlets; greyish brown with orange staining. Medium dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.	S					
							0	2.0	0.60m: Very dense.						
							1	2.5	0.70m: Sandy fine to coarse GRAVEL; greyish brown. Very dense, wet, well graded, orange staining to 0.8 m. Gravel, sub-rounded to sub-angular; sand, fine to coarse.						
							0	3.0	1.00m: Saturated, water pooling.						
							-1	4.5	1.5m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 1.5m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-50**
 Hole Location: Package 12, Woodend Beach Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5201977.76 mN (NZTM2000) 1574458.11 mE METHOD: Trial pit/trench EXCAV. STARTED: 13/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 13/05/2025
 R.L.: 3.89m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kN/m ²)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9			0.00 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 -1		<p>0.00m: SILT, minor sand, trace rootlets and trace gravel; dark brown. Firm, moist, non-plastic. Sand, fine to coarse; gravel, fine to medium, sub-rounded to sub-angular. (TOPSOIL).</p> <p>0.25m: Fine to medium SAND, minor silt, trace rootlets; brownish grey with orange mottle. Loose, moist, well graded.</p> <p>0.45m: Sandy fine to coarse GRAVEL, trace rootlets; brownish grey. Medium dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; rootlets, to 1 m.</p> <p>0.80m: Dense. 0.90m: Very dense. 1.20m: Wet. 1.50m: Saturated, water pooling.</p> <p>1.70m: Silty fine to medium SAND; greyish brown. Saturated, well graded.</p> <p>1.75m: SILT, trace sand; brown. Saturated, non-plastic. Sand, fine.</p> <p>2.3m: END OF INVESTIGATION. Collapsing.</p>	M	F	0.00-0.25: 100-150 0.25-0.45: 100-150 0.45-0.80: 100-150 0.80-0.90: 100-150 0.90-1.20: 100-150 1.20-1.50: 100-150 1.50-1.70: 100-150 1.70-1.75: 100-150 1.75-2.30: 100-150	<p>1.2 - 1.4m: Gravels have a slimy dark brown coating.</p> <p>1.75m: Unsure of total silt layer as it was underwater and the hole kept collapsing.</p>	Top Springston Formation	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 2.3m

Scale 1:42

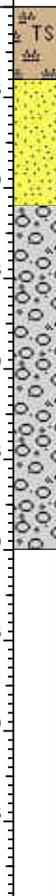
Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-51**
 Hole Location: Package 13, Woodend Beach Road to Gladstone Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5202140.03 mN (NZTM2000) 1574286.77 mE METHOD: Trial pit/trench EXCAV. STARTED: 30/04/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 30/04/2025
 R.L.: 4.23m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kN/m ²)	DEFECTS, STRUCTURE, COMMENTS	UNIT	
1 2 3			0 1 2 3 4 5 6 7 8 9			4		<p>0.00m: Sandy SILT, trace rootlets; dark brown. Soft, moist, non-plastic. (TOPSOIL)</p> <p>0.40m: Fine SAND, trace rootlets; greyish brown. Medium dense, moist, poorly graded.</p> <p>0.60m: Fine to medium SAND; light brown. Medium dense, dry, uniformly graded. 1.00m: Dense.</p> <p>1.10m: Sandy fine to coarse GRAVEL, trace cobbles; brownish grey. Very dense, dry, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, sub-rounded. 1.30m: Dense. 1.70m: Very dense.</p> <p>2.60m: Saturated.</p>	M	S	12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 66 69 72 75 78 81 84 87 90 93 96 99 102 105 108 111 114 117 120 123 126 129 132 135 138 141 144 147 150 153 156 159 162 165 168 171 174 177 180 183 186 189 192 195 198 201 204 207 210 213 216 219 222 225 228 231 234 237 240 243 246 249 252 255 258 261 264 267 270 273 276 279 282 285 288 291 294 297 300 303 306 309 312 315 318 321 324 327 330 333 336 339 342 345 348 351 354 357 360 363 366 369 372 375 378 381 384 387 390 393 396 399 402 405 408 411 414 417 420 423 426 429 432 435 438 441 444 447 450 453 456 459 462 465 468 471 474 477 480 483 486 489 492 495 498 501 504 507 510 513 516 519 522 525 528 531 534 537 540 543 546 549 552 555 558 561 564 567 570 573 576 579 582 585 588 591 594 597 600 603 606 609 612 615 618 621 624 627 630 633 636 639 642 645 648 651 654 657 660 663 666 669 672 675 678 681 684 687 690 693 696 699 702 705 708 711 714 717 720 723 726 729 732 735 738 741 744 747 750 753 756 759 762 765 768 771 774 777 780 783 786 789 792 795 798 801 804 807 810 813 816 819 822 825 828 831 834 837 840 843 846 849 852 855 858 861 864 867 870 873 876 879 882 885 888 891 894 897 900 903 906 909 912 915 918 921 924 927 930 933 936 939 942 945 948 951 954 957 960 963 966 969 972 975 978 981 984 987 990 993 996 999 1002 1005 1008 1011 1014 1017 1020 1023 1026 1029 1032 1035 1038 1041 1044 1047 1050 1053 1056 1059 1062 1065 1068 1071 1074 1077 1080 1083 1086 1089 1092 1095 1098 1101 1104 1107 1110 1113 1116 1119 1122 1125 1128 1131 1134 1137 1140 1143 1146 1149 1152 1155 1158 1161 1164 1167 1170 1173 1176 1179 1182 1185 1188 1191 1194 1197 1200 1203 1206 1209 1212 1215 1218 1221 1224 1227 1230 1233 1236 1239 1242 1245 1248 1251 1254 1257 1260 1263 1266 1269 1272 1275 1278 1281 1284 1287 1290 1293 1296 1299 1302 1305 1308 1311 1314 1317 1320 1323 1326 1329 1332 1335 1338 1341 1344 1347 1350 1353 1356 1359 1362 1365 1368 1371 1374 1377 1380 1383 1386 1389 1392 1395 1398 1401 1404 1407 1410 1413 1416 1419 1422 1425 1428 1431 1434 1437 1440 1443 1446 1449 1452 1455 1458 1461 1464 1467 1470 1473 1476 1479 1482 1485 1488 1491 1494 1497 1500 1503 1506 1509 1512 1515 1518 1521 1524 1527 1530 1533 1536 1539 1542 1545 1548 1551 1554 1557 1560 1563 1566 1569 1572 1575 1578 1581 1584 1587 1590 1593 1596 1599 1602 1605 1608 1611 1614 1617 1620 1623 1626 1629 1632 1635 1638 1641 1644 1647 1650 1653 1656 1659 1662 1665 1668 1671 1674 1677 1680 1683 1686 1689 1692 1695 1698 1701 1704 1707 1710 1713 1716 1719 1722 1725 1728 1731 1734 1737 1740 1743 1746 1749 1752 1755 1758 1761 1764 1767 1770 1773 1776 1779 1782 1785 1788 1791 1794 1797 1800 1803 1806 1809 1812 1815 1818 1821 1824 1827 1830 1833 1836 1839 1842 1845 1848 1851 1854 1857 1860 1863 1866 1869 1872 1875 1878 1881 1884 1887 1890 1893 1896 1899 1902 1905 1908 1911 1914 1917 1920 1923 1926 1929 1932 1935 1938 1941 1944 1947 1950 1953 1956 1959 1962 1965 1968 1971 1974 1977 1980 1983 1986 1989 1992 1995 1998 2001 2004 2007 2010 2013 2016 2019 2022 2025 2028 2031 2034 2037 2040 2043 2046 2049 2052 2055 2058 2061 2064 2067 2070 2073 2076 2079 2082 2085 2088 2091 2094 2097 2100 2103 2106 2109 2112 2115 2118 2121 2124 2127 2130 2133 2136 2139 2142 2145 2148 2151 2154 2157 2160 2163 2166 2169 2172 2175 2178 2181 2184 2187 2190 2193 2196 2199 2202 2205 2208 2211 2214 2217 2220 2223 2226 2229 2232 2235 2238 2241 2244 2247 2250 2253 2256 2259 2262 2265 2268 2271 2274 2277 2280 2283 2286 2289 2292 2295 2298 2301 2304 2307 2310 2313 2316 2319 2322 2325 2328 2331 2334 2337 2340 2343 2346 2349 2352 2355 2358 2361 2364 2367 2370 2373 2376 2379 2382 2385 2388 2391 2394 2397 2400 2403 2406 2409 2412 2415 2418 2421 2424 2427 2430 2433 2436 2439 2442 2445 2448 2451 2454 2457 2460 2463 2466 2469 2472 2475 2478 2481 2484 2487 2490 2493 2496 2499 2502 2505 2508 2511 2514 2517 2520 2523 2526 2529 2532 2535 2538 2541 2544 2547 2550 2553 2556 2559 2562 2565 2568 2571 2574 2577 2580 2583 2586 2589 2592 2595 2598 2601 2604 2607 2610 2613 2616 2619 2622 2625 2628 2631 2634 2637 2640 2643 2646 2649 2652 2655 2658 2661 2664 2667 2670 2673 2676 2679 2682 2685 2688 2691 2694 2697 2700 2703 2706 2709 2712 2715 2718 2721 2724 2727 2730 2733 2736 2739 2742 2745 2748 2751 2754 2757 2760 2763 2766 2769 2772 2775 2778 2781 2784 2787 2790 2793 2796 2799 2802 2805 2808 2811 2814 2817 2820 2823 2826 2829 2832 2835 2838 2841 2844 2847 2850 2853 2856 2859 2862 2865 2868 2871 2874 2877 2880 2883 2886 2889 2892 2895 2898 2901 2904 2907 2910 2913 2916 2919 2922 2925 2928 2931 2934 2937 2940 2943 2946 2949 2952 2955 2958 2961 2964 2967 2970 2973 2976 2979 2982 2985 2988 2991 2994 2997 3000	2.6m	2.6m: Water pooling	TSoil	Springston Formation
						1		3m: END OF INVESTIGATION. Collapsing.							

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
3m

EXCAVATION LOG

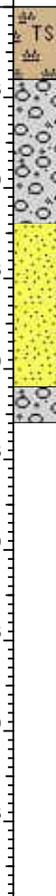
Excavation Id.: **TP-52**

Hole Location: Package 13, Woodend Beach Road to Gladstone Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5202234.04 mN (NZTM2000) 1574241.90 mE METHOD: Trial pit/trench EXCAV. STARTED: 30/04/2025
 R.L.: 4.14m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 30/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kN/m ²)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				4.0		<p>0.00m: Sandy SILT, trace rootlets and trace gravel; dark brown. Soft, moist, non-plastic. Sand, fine to coarse; gravel, fine to coarse, sub-rounded to sub-angular. (TOPSOIL)</p> <p>0.40m: Sandy fine to coarse GRAVEL, trace rootlets; brownish grey. Dense, moist, well graded, bands of orange staining at base. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>0.50m: Very dense.</p> <p>1.20m: Fine to coarse SAND, trace gravel; light brown. Very dense, moist to wet, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.</p> <p>2.10m: Sandy fine to coarse GRAVEL, trace cobbles; grey with reddish mottling. Very dense, saturated, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, sub-rounded to sub-angular.</p> <p>2.3m: END OF INVESTIGATION. Collapsing.</p>	M	S	12-24			
							2.1						2.1m: Water pooling	TSoil	
							0.0							Springston Formation	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 2.3m

Scale 1:42

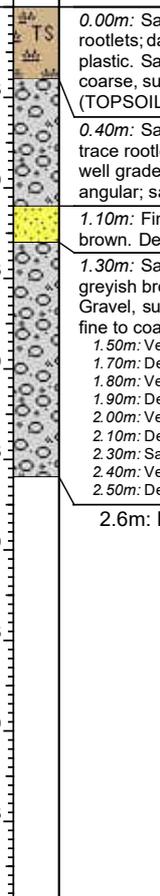
Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-53**
 Hole Location: Package 13, Woodend Beach Road to Gladstone Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5202347.55 mN (NZTM2000) 1574303.33 mE METHOD: Trial pit/trench EXCAV. STARTED: 30/04/2025
 R.L.: 4.23m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 30/04/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			4		<p>0.00m: Sandy SILT, minor gravel, trace rootlets; dark brown. Soft, moist, non-plastic. Sand, fine to coarse; gravel, fine to coarse, sub-rounded to angular. (TOPSOIL)</p> <p>0.40m: Sandy fine to coarse GRAVEL, trace rootlets; greyish brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>1.10m: Fine to coarse SAND; greyish brown. Dense, moist, well graded.</p> <p>1.30m: Sandy fine to coarse GRAVEL; greyish brown. Dense, wet, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>1.50m: Very dense. 1.70m: Dense. 1.80m: Very dense. 1.90m: Dense. 2.00m: Very dense. 2.10m: Dense. 2.30m: Saturated. 2.40m: Very dense. 2.50m: Dense.</p> <p>2.6m: END OF INVESTIGATION. Collapsing.</p>	M	S	12	2.0 - 2.15m: Orange banding / iron staining 2.3m: Water pooling	TSoil Springston Formation	

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 2.6m
 Scale 1:42

EXCAVATION LOG

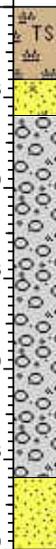
Excavation Id.: **TP-54**

Hole Location: Package 13, Woodend Beach Road to Gladstone Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5202508.03 mN METHOD: Trial pit/trench EXCAV. STARTED: 30/04/2025
 (NZTM2000) 1574333.28 mE EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 30/04/2025
 R.L.: 4.73m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9			0.5 1.0 1.5 2.0 2.5 3.0		<p>0.00m: SILT, some sand, trace rootlets; dark brown. Soft, dry, non-plastic. Sand, fine. (TOPSOIL)</p> <p>0.40m: Silty fine SAND, trace rootlets; light greyish brown. Medium dense, dry, well graded. 0.50m: Dense.</p> <p>0.60m: Sandy fine to coarse GRAVEL; brown with orange mottling. Dense, dry, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 1.30m: Very dense. 1.50m: Moist.</p> <p>2.60m: Fine to coarse SAND; brownish grey. Very dense, saturated, well graded.</p>			<p>12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 66 69 72 75 78 81 84 87 90 93 96 99 102 105 108 111 114 117 120 123 126 129 132 135 138 141 144 147 150 153 156 159 162 165 168 171 174 177 180 183 186 189 192 195 198 201 204 207 210 213 216 219 222 225 228 231 234 237 240 243 246 249 252 255 258 261 264 267 270 273 276 279 282 285 288 291 294 297 300 303 306 309 312 315 318 321 324 327 330 333 336 339 342 345 348 351 354 357 360 363 366 369 372 375 378 381 384 387 390 393 396 399 402 405 408 411 414 417 420 423 426 429 432 435 438 441 444 447 450 453 456 459 462 465 468 471 474 477 480 483 486 489 492 495 498 501 504 507 510 513 516 519 522 525 528 531 534 537 540 543 546 549 552 555 558 561 564 567 570 573 576 579 582 585 588 591 594 597 600 603 606 609 612 615 618 621 624 627 630 633 636 639 642 645 648 651 654 657 660 663 666 669 672 675 678 681 684 687 690 693 696 699 702 705 708 711 714 717 720 723 726 729 732 735 738 741 744 747 750 753 756 759 762 765 768 771 774 777 780 783 786 789 792 795 798 801 804 807 810 813 816 819 822 825 828 831 834 837 840 843 846 849 852 855 858 861 864 867 870 873 876 879 882 885 888 891 894 897 900 903 906 909 912 915 918 921 924 927 930 933 936 939 942 945 948 951 954 957 960 963 966 969 972 975 978 981 984 987 990 993 996 999 1002 1005 1008 1011 1014 1017 1020 1023 1026 1029 1032 1035 1038 1041 1044 1047 1050 1053 1056 1059 1062 1065 1068 1071 1074 1077 1080 1083 1086 1089 1092 1095 1098 1101 1104 1107 1110 1113 1116 1119 1122 1125 1128 1131 1134 1137 1140 1143 1146 1149 1152 1155 1158 1161 1164 1167 1170 1173 1176 1179 1182 1185 1188 1191 1194 1197 1200 1203 1206 1209 1212 1215 1218 1221 1224 1227 1230 1233 1236 1239 1242 1245 1248 1251 1254 1257 1260 1263 1266 1269 1272 1275 1278 1281 1284 1287 1290 1293 1296 1299 1302 1305 1308 1311 1314 1317 1320 1323 1326 1329 1332 1335 1338 1341 1344 1347 1350 1353 1356 1359 1362 1365 1368 1371 1374 1377 1380 1383 1386 1389 1392 1395 1398 1401 1404 1407 1410 1413 1416 1419 1422 1425 1428 1431 1434 1437 1440 1443 1446 1449 1452 1455 1458 1461 1464 1467 1470 1473 1476 1479 1482 1485 1488 1491 1494 1497 1500 1503 1506 1509 1512 1515 1518 1521 1524 1527 1530 1533 1536 1539 1542 1545 1548 1551 1554 1557 1560 1563 1566 1569 1572 1575 1578 1581 1584 1587 1590 1593 1596 1599 1602 1605 1608 1611 1614 1617 1620 1623 1626 1629 1632 1635 1638 1641 1644 1647 1650 1653 1656 1659 1662 1665 1668 1671 1674 1677 1680 1683 1686 1689 1692 1695 1698 1701 1704 1707 1710 1713 1716 1719 1722 1725 1728 1731 1734 1737 1740 1743 1746 1749 1752 1755 1758 1761 1764 1767 1770 1773 1776 1779 1782 1785 1788 1791 1794 1797 1800 1803 1806 1809 1812 1815 1818 1821 1824 1827 1830 1833 1836 1839 1842 1845 1848 1851 1854 1857 1860 1863 1866 1869 1872 1875 1878 1881 1884 1887 1890 1893 1896 1899 1902 1905 1908 1911 1914 1917 1920 1923 1926 1929 1932 1935 1938 1941 1944 1947 1950 1953 1956 1959 1962 1965 1968 1971 1974 1977 1980 1983 1986 1989 1992 1995 1998 2001 2004 2007 2010 2013 2016 2019 2022 2025 2028 2031 2034 2037 2040 2043 2046 2049 2052 2055 2058 2061 2064 2067 2070 2073 2076 2079 2082 2085 2088 2091 2094 2097 2100 2103 2106 2109 2112 2115 2118 2121 2124 2127 2130 2133 2136 2139 2142 2145 2148 2151 2154 2157 2160 2163 2166 2169 2172 2175 2178 2181 2184 2187 2190 2193 2196 2199 2202 2205 2208 2211 2214 2217 2220 2223 2226 2229 2232 2235 2238 2241 2244 2247 2250 2253 2256 2259 2262 2265 2268 2271 2274 2277 2280 2283 2286 2289 2292 2295 2298 2301 2304 2307 2310 2313 2316 2319 2322 2325 2328 2331 2334 2337 2340 2343 2346 2349 2352 2355 2358 2361 2364 2367 2370 2373 2376 2379 2382 2385 2388 2391 2394 2397 2400 2403 2406 2409 2412 2415 2418 2421 2424 2427 2430 2433 2436 2439 2442 2445 2448 2451 2454 2457 2460 2463 2466 2469 2472 2475 2478 2481 2484 2487 2490 2493 2496 2499 2502 2505 2508 2511 2514 2517 2520 2523 2526 2529 2532 2535 2538 2541 2544 2547 2550 2553 2556 2559 2562 2565 2568 2571 2574 2577 2580 2583 2586 2589 2592 2595 2598 2601 2604 2607 2610 2613 2616 2619 2622 2625 2628 2631 2634 2637 2640 2643 2646 2649 2652 2655 2658 2661 2664 2667 2670 2673 2676 2679 2682 2685 2688 2691 2694 2697 2700 2703 2706 2709 2712 2715 2718 2721 2724 2727 2730 2733 2736 2739 2742 2745 2748 2751 2754 2757 2760 2763 2766 2769 2772 2775 2778 2781 2784 2787 2790 2793 2796 2799 2802 2805 2808 2811 2814 2817 2820 2823 2826 2829 2832 2835 2838 2841 2844 2847 2850 2853 2856 2859 2862 2865 2868 2871 2874 2877 2880 2883 2886 2889 2892 2895 2898 2901 2904 2907 2910 2913 2916 2919 2922 2925 2928 2931 2934 2937 2940 2943 2946 2949 2952 2955 2958 2961 2964 2967 2970 2973 2976 2979 2982 2985 2988 2991 2994 2997 3000</p>	<p>1.3 - 1.4m: Orange banding / iron staining</p> <p>2.6m: Water pooling</p>	<p>TSoil</p> <p>Springston Formation</p>	
						3.0		3m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 3m

Scale 1:42

Rev.: A

EXCAVATION LOG

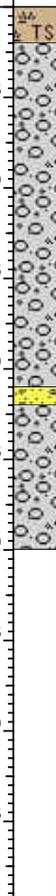
Excavation Id.: **TP-55**

Hole Location: Package 13, Woodend Beach Road to Gladstone Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5202773.79 mN (NZTM2000) 1574362.60 mE METHOD: Trial pit/trench EXCAV. STARTED: 07/05/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 07/05/2025
 R.L.: 5.53m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9			5		<p>0.00m: SILT, trace rootlets and trace sand and trace gravel; dark brown. Firm, dry, non-plastic. Sand, fine to coarse; gravel, fine to coarse, sub-rounded to sub-angular. (TOPSOIL)</p> <p>0.20m: Sandy fine to coarse GRAVEL, trace rootlets and trace cobbles; brownish grey. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 100mm, sub-rounded to sub-angular. 0.40m: Very dense.</p> <p>2.10m: Gravelly fine to coarse SAND; greyish brown. Very dense, wet, well graded. Gravel, fine to medium, sub-rounded to sub-angular.</p> <p>2.20m: Sandy fine to coarse GRAVEL; greyish brown. Very dense, wet, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>2.70m: Saturated.</p> <p>3m: END OF INVESTIGATION. Collapsing.</p>						Top
						4							1.2 - 1.85m: Intermittent orange banding	Springston Formation
						3								
						2								
						1								

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS
 Hole Depth 3m
 Scale 1:42

EXCAVATION LOG

Excavation Id.: **TP-56**

Hole Location: Package 13, Woodend Beach Road to Gladstone Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5202925.44 mN (NZTM2000) 1574321.40 mE METHOD: Trial pit/trench EXCAV. STARTED: 07/05/2025
 R.L.: 6.00m EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 07/05/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			0.00		<p>0.00m: Sandy SILT, trace rootlets; dark brown. Firm, moist, non-plastic. Sand, fine. (TOPSOIL)</p> <p>0.40m: Fine to medium SAND, some silt, trace rootlets; greyish brown with orange mottle. Loose, moist, well graded.</p> <p>0.55m: Sandy SILT, trace rootlets; greyish brown with orange mottle. Firm, moist, non-plastic. Sand, fine.</p> <p>0.70m: Fine to medium SAND, some silt, trace rootlets; greyish brown with orange mottle. Loose, moist, well graded.</p> <p>0.85m: Sandy SILT; greyish brown with orange mottle. Firm, moist, non-plastic. Sand, fine.</p> <p>1.10m: Fine to medium SAND; greyish brown. Dense, wet, well graded.</p> <p>1.30m: Sandy fine to coarse GRAVEL; reddish brown. Very dense, wet, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>2.80m: Trace cobbles. Cobbles, up to 120mm, sub-rounded to sub-angular.</p> <p>3.00m: Saturated.</p>	M	F	12			
						0.50				L				
						1.00				F				
						1.50				L				
						2.00				F				
						2.50				W	D			
						3.00				VD				
						3.00				S			2.95m: Water pooling	
						3.50		3.3m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.3m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-57**
 Hole Location: Package 13, Woodend Beach Road to Gladstone Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits	LOCATION: Woodend Bypass, Chirstchurch	JOB No.: 1095459.0000.0001
CO-ORDINATES: 5203065.18 mN (NZTM2000) 1574357.84 mE	METHOD: Trial pit/trench EQUIPMENT: 8.5T Excavator	EXCAV. STARTED: 07/05/2025 EXCAV. FINISHED: 07/05/2025
R.L.: 5.67m	OPERATOR: Digging-Rite Ltd	LOGGED BY: DEMC
DATUM: NZVD2016	DIMENSIONS: 5m by 0.8m	CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				0.00	TS	0.00m: Gravelly SILT, minor sand, trace rootlets; dark brown. Firm, moist, non-plastic. Gravel, fine to coarse, sub-rounded to sub-angular; sand, fine to coarse. (TOPSOIL)	M	F				TSoil
							0.30		0.30m: Sandy fine to coarse GRAVEL, trace rootlets; brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.		D				
							0.60		0.60m: Fine to coarse GRAVEL, some sand, trace rootlets; reddish brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.			VD		1.2 - 1.4m: Brownish red	Springston Formation
							0.70		0.70m: Sandy fine to coarse GRAVEL, trace rootlets and trace cobbles; reddish brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 150mm, sub-rounded to sub-angular.						
							0.75		0.75m: Fine to coarse GRAVEL, some sand; reddish brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.		W				
							0.90		0.90m: Sandy fine to coarse GRAVEL; reddish brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.		S		2.75m: Water pooling		
							1.20		1.20m: Very dense.						
							1.50		1.50m: Trace organics. Organics, roots greater than 2mm diameter.						
							2.50		2.50m: Trace cobbles. Wet. Cobbles, up to 100mm, sub-rounded to sub-angular.						
							2.80		2.80m: Saturated.						
							3.00		3m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

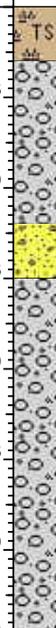
TTNZ_20240902 - ExcavationLogScala - 12/08/2025 3:46:49 pm - Produced with Core-GS by GeRoc

EXCAVATION LOG

Excavation Id.: **TP-58**
 Hole Location: Package 14, Gladstone Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203203 mN (NZTM2000) 1574274 mE METHOD: Trial pit/trench EXCAV. STARTED: 07/05/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 07/05/2025
 R.L.: 6.26m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			6.0		<p>0.00m: SILT, some gravel, trace rootlets; dark brown. Firm, moist, non-plastic. Gravel, fine to coarse, sub-rounded to sub-angular. (TOPSOIL)</p> <p>0.30m: Sandy fine to coarse GRAVEL, trace rootlets; brownish grey. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>0.60m: Medium dense. 0.70m: Dense. 0.90m: Medium dense. 1.10m: Dense.</p> <p>1.20m: Gravelly fine to coarse SAND, trace organic; greyish brown. Very dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular; Organic, roots and rootlets. 1.40m: Dense.</p> <p>1.50m: Sandy fine to coarse GRAVEL, trace rootlets and trace cobbles; greyish brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; rootlets, to 2 m; cobbles, up to 100mm, sub-rounded to sub-angular. 2.20m: Very dense. 2.50m: Wet. 3.00m: Saturated.</p>	M	F	12			
						0.5				D				TSoil
						1.0				MD				
						1.5				MD				Springston Formation
						2.0				D				
						2.5				VD				
						3.0				W				
						3.5				S			3.0m: Water pooling	
						4.0		3.5m: END OF INVESTIGATION. Collapsing.						
						4.5								

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.5m

EXCAVATION LOG

Excavation Id.: **TP-59**
 Hole Location: Package 14, Gladstone Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203228 mN METHOD: Trial pit/trench EXCAV. STARTED: 07/05/2025
 (NZTM2000) 1574352 mE EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 07/05/2025
 R.L.: 6.07m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9			6	TS	0.00m: SILT, some gravel, trace organics; dark brown. Firm, moist, non-plastic. Gravel, fine to coarse, sub-rounded to sub-angular; organics, roots and rootlets. (TOPSOIL)	M	F		12		TS
						0.5		0.30m: Sandy fine to coarse GRAVEL, trace rootlets; brownish grey. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to medium.		D		12		
						5		0.60m: Sandy fine to coarse GRAVEL, trace rootlets and trace cobbles; greyish brown. Very dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; rootlets, to 1.5 m; cobbles, up to 140mm, sub-rounded to sub-angular.		VD		12		Springston Formation
						1.0						12		
						2.5		2.50m: Wet.				12		Springston Formation
						2.7		2.70m: Saturated.		W		12		
						3.0		2.90m: PEAT (FIBROUS); black / very dark grey. Saturated. PEAT (FIBROUS), (partially decomposed).		S		12		Springston Formation
						3.5		2.95m: SILT, trace organics. Soft, saturated, low plasticity. Organics, wood fragments.		S		12		
						4.0		3.5m: END OF INVESTIGATION. Collapsing.				12		

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.5m

EXCAVATION LOG

Excavation Id.: **TP-60**
 Hole Location: Package 14, Gladstone Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203247 mN (NZTM2000) 1574053 mE METHOD: Trial pit/trench EXCAV. STARTED: 30/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 30/05/2025
 R.L.: 7.18m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0 1 2 3 4 5 6 7 8 9	● 117/23 kPa Insitu			7		0.00m: SILT, minor sand, trace rootlets; dark brown. Very stiff, moist, non-plastic. Sand, fine. (TOPSOIL)		M	VSt	10-20		TSoil
				● 72/22 kPa Insitu			0.5		0.30m: Sandy SILT, trace rootlets; brown. Stiff, dry, non-plastic. Sand, fine.		D	St	20-30		
							0.60m		0.60m: Fine SAND, trace rootlets and trace silt; brown with orange mottle. Loose, moist, poorly graded.		M	L	30-40		
							1.50m		1.50m: Fine to medium SAND.						
				● 57/23 kPa Insitu			2.0		1.60m: SILT, trace rootlets and trace sand; greyish brown with orange mottle. Firm, wet, dilatant. Sand, fine.		W	F	40-50		
							2.5		2.20m: Fine to coarse SAND; reddish brown. Loose, saturated, well graded, with clumps of sandy silt, brownish grey with orange mottle.		S	L	50-60		
				● 36/25 kPa Insitu			3.0		2.80m: SILT, trace twigs and rootlets; bluish grey. Firm, saturated, dilatant.			F	60-70		
				● 36/27 kPa Insitu			3.5		3.6m: END OF INVESTIGATION. Collapsing.						
							4.0							2.0m: Water pooling in base.	Springston Formation
							4.5								
							3								

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.6m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-61**

Hole Location: Package 14, Gladstone Road

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203250 mN (NZTM2000) 1574121 mE METHOD: Trial pit/trench EXCAV. STARTED: 30/05/2025
 R.L.: 7.82m EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 30/05/2025
 DATUM: NZVD2016 OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	111/18 kPa Insitu			0.0-0.4		0.00m: SILT, minor sand, trace rootlets; dark brown. Very stiff, moist, non-plastic. Sand, fine. (TOPSOIL)	M	VSt	12-24			TSoil
				47/16 kPa Insitu			0.4-0.6		0.40m: Fine SAND, trace rootlets and trace silt; brown with orange mottle. Very loose, moist, poorly graded.		VL				Springston Formation
				43/14 kPa Insitu			0.6-2.0		2.00m: SILT, some sand; brownish grey with orange mottle. Firm to stiff, wet, non-plastic, dilatant. Sand, fine.		W	F-St			
				45/14 kPa Insitu			2.0-2.8		2.80 - 2.90m: Dark brown.						
				52/39 kPa Insitu			2.8-4.0		3.00m: Small pockets of fine sand in silt layers.						
							4.0-4.5		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:

COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

TTNZ_20240902 - ExcavationLogScala - 11/08/2025 9:47:23 am - Produced with Core-GS by GeRoc

EXCAVATION LOG

Excavation Id.: **TP-62**
 Hole Location: Package 14, Gladstone Road
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203279 mN (NZTM2000) 1574472 mE METHOD: Trial pit/trench EXCAV. STARTED: 20/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 20/05/2025
 R.L.: 6.70m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			0.00m	TS	0.00m: Silty fine SAND, trace rootlets; dark brown. Loose, dry. (TOPSOIL). 0.15m: Fine SAND, trace rootlets; light brown. Loose, dry, poorly graded. 0.25m: Silty fine SAND, trace rootlets; dark brown. Loose, dry. 0.40 - 0.75m: Greyish brown mottled orange.	D	L				Top
						0.75m		0.75m: Fine to medium SAND, some silt; light brown. Loose, dry, well graded. 0.90 - 1.20m: Medium dense. 1.20 - 1.30m: Dense.			MD			Springston Formation
						1.30m		1.30m: Fine to coarse GRAVEL, some sand, trace cobbles; brownish orange. Very dense, dry, well graded. Gravel, rounded to sub-angular; sand, fine to coarse; cobbles, up to 90mm, sub-rounded to sub-angular.			VD			
						2.00m		2.00m: Sandy fine to coarse GRAVEL, trace cobbles; greyish brown with reddish brown. Dry. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 120mm, sub-rounded to sub-angular.						
						2.80 - 3.20m		2.80 - 3.20m: Moist.			M			
						3.20 - 3.40m		3.20 - 3.40m: Wet.			W			
						3.40m		3.40m: Saturated.			D			
						3.7m		3.7m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 3.7m

Scale 1:33

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-64**
 Hole Location: Package 16, Gladstone to Pegasus
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203394 mN (NZTM2000) 1574159 mE METHOD: Trial pit/trench EXCAV. STARTED: 20/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 20/05/2025
 R.L.: 6.72m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				0.00	TS	0.00m: SILT, minor gravel, trace rootlets; dark brown. Moist, non-plastic. Gravel, fine to coarse, sub-rounded to sub-angular. (TOPSOIL).	M					TSoil
			10-19				0.40		0.40m: Sandy fine to coarse GRAVEL; greyish brown. Dense, moist. Gravel, sub-rounded to sub-angular; sand, fine to medium.		D				Springston Formation
			20-29				0.90		0.90m: Sandy fine to coarse GRAVEL, trace rootlets; brownish orange grading to greyish brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.			VD			
			30-39				1.10		1.10m: Fine to medium GRAVEL, some sand, trace rootlets; brownish orange. Dense, moist, well graded. Gravel, sub-rounded; sand, fine to coarse.						
			40-49				1.20		1.20m: Sandy fine grading to coarse GRAVEL; greyish brown. Very dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine grading to medium to coarse.						
			50-59				2.00		2.00 - 2.10m: Brownish orange band.						
			60-69				2.10		2.10m: Sandy fine to coarse GRAVEL, minor cobbles; greyish brown. Moist, well graded. Gravel, sub-rounded to sub-angular; sand, coarse; cobbles, up to 100mm, sub-rounded to sub-angular.						
			70-79				2.80		2.80 - 3.00m: Wet.						
			80-89				3.00		3.00 - 3.40m: Saturated.						
			90-99				3.40		3.4m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.4m

Scale 1:33

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-65**
 Hole Location: Package 16, Gladstone to Pegasus
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203513 mN (NZTM2000) 1574095 mE METHOD: Trial pit/trench EXCAV. STARTED: 20/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 20/05/2025
 R.L.: 5.73m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9				0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0		<p>0.00m: SILT, some sand, trace gravel; dark brown. Moist, non-plastic. Sand, fine to coarse; gravel, fine to coarse, sub-rounded to sub-angular. (TOPSOIL).</p> <p>0.25m: Sandy fine to coarse GRAVEL; greyish brown. Very dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, coarse.</p> <p>0.40m: Sandy fine to coarse GRAVEL, minor cobbles; brownish grey. Very dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, medium to coarse; cobbles, up to 80mm, sub-rounded to sub-angular.</p> <p>0.90m: Large piece of wood/tree trunk.</p> <p>1.50m: Large piece of wood/tree trunk.</p> <p>2.3m: END OF INVESTIGATION. Collapsing.</p>		M	VD	12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 66 69 72 75 78 81 84 87 90 93 96 99 102 105 108 111 114 117 120 123 126 129 132 135 138 141 144 147 150 153 156 159 162 165 168 171 174 177 180 183 186 189 192 195 198 201 204 207 210 213 216 219 222 225 228 231 234 237 240 243 246 249 252 255 258 261 264 267 270 273 276 279 282 285 288 291 294 297 300 303 306 309 312 315 318 321 324 327 330 333 336 339 342 345 348 351 354 357 360 363 366 369 372 375 378 381 384 387 390 393 396 399 402 405 408 411 414 417 420 423 426 429 432 435 438 441 444 447 450 453 456 459 462 465 468 471 474 477 480 483 486 489 492 495 498 501 504 507 510 513 516 519 522 525 528 531 534 537 540 543 546 549 552 555 558 561 564 567 570 573 576 579 582 585 588 591 594 597 600 603 606 609 612 615 618 621 624 627 630 633 636 639 642 645 648 651 654 657 660 663 666 669 672 675 678 681 684 687 690 693 696 699 702 705 708 711 714 717 720 723 726 729 732 735 738 741 744 747 750 753 756 759 762 765 768 771 774 777 780 783 786 789 792 795 798 801 804 807 810 813 816 819 822 825 828 831 834 837 840 843 846 849 852 855 858 861 864 867 870 873 876 879 882 885 888 891 894 897 900 903 906 909 912 915 918 921 924 927 930 933 936 939 942 945 948 951 954 957 960 963 966 969 972 975 978 981 984 987 990 993 996 999 1002 1005 1008 1011 1014 1017 1020 1023 1026 1029 1032 1035 1038 1041 1044 1047 1050 1053 1056 1059 1062 1065 1068 1071 1074 1077 1080 1083 1086 1089 1092 1095 1098 1101 1104 1107 1110 1113 1116 1119 1122 1125 1128 1131 1134 1137 1140 1143 1146 1149 1152 1155 1158 1161 1164 1167 1170 1173 1176 1179 1182 1185 1188 1191 1194 1197 1200 1203 1206 1209 1212 1215 1218 1221 1224 1227 1230 1233 1236 1239 1242 1245 1248 1251 1254 1257 1260 1263 1266 1269 1272 1275 1278 1281 1284 1287 1290 1293 1296 1299 1302 1305 1308 1311 1314 1317 1320 1323 1326 1329 1332 1335 1338 1341 1344 1347 1350 1353 1356 1359 1362 1365 1368 1371 1374 1377 1380 1383 1386 1389 1392 1395 1398 1401 1404 1407 1410 1413 1416 1419 1422 1425 1428 1431 1434 1437 1440 1443 1446 1449 1452 1455 1458 1461 1464 1467 1470 1473 1476 1479 1482 1485 1488 1491 1494 1497 1500 1503 1506 1509 1512 1515 1518 1521 1524 1527 1530 1533 1536 1539 1542 1545 1548 1551 1554 1557 1560 1563 1566 1569 1572 1575 1578 1581 1584 1587 1590 1593 1596 1599 1602 1605 1608 1611 1614 1617 1620 1623 1626 1629 1632 1635 1638 1641 1644 1647 1650 1653 1656 1659 1662 1665 1668 1671 1674 1677 1680 1683 1686 1689 1692 1695 1698 1701 1704 1707 1710 1713 1716 1719 1722 1725 1728 1731 1734 1737 1740 1743 1746 1749 1752 1755 1758 1761 1764 1767 1770 1773 1776 1779 1782 1785 1788 1791 1794 1797 1800 1803 1806 1809 1812 1815 1818 1821 1824 1827 1830 1833 1836 1839 1842 1845 1848 1851 1854 1857 1860 1863 1866 1869 1872 1875 1878 1881 1884 1887 1890 1893 1896 1899 1902 1905 1908 1911 1914 1917 1920 1923 1926 1929 1932 1935 1938 1941 1944 1947 1950 1953 1956 1959 1962 1965 1968 1971 1974 1977 1980 1983 1986 1989 1992 1995 1998 2001 2004 2007 2010 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2613 2616 2619 2622 2625 2628 2631 2634 2637 2640 2643 2646 2649 2652 2655 2658 2661 2664 2667 2670 2673 2676 2679 2682 2685 2688 2691 2694 2697 2700 2703 2706 2709 2712 2715 2718 2721 2724 2727 2730 2733 2736 2739 2742 2745 2748 2751 2754 2757 2760 2763 2766 2769 2772 2775 2778 2781 2784 2787 2790 2793 2796 2799 2802 2805 2808 2811 2814 2817 2820 2823 2826 2829 2832 2835 2838 2841 2844 2847 2850 2853 2856 2859 2862 2865 2868 2871 2874 2877 2880 2883 2886 2889 2892 2895 2898 2901 2904 2907 2910 2913 2916 2919 2922 2925 2928 2931 2934 2937 2940 2943 2946 2949 2952 2955 2958 2961 2964 2967 2970 2973 2976 2979 2982 2985 2988 2991 2994 2997 3000 3003 3006 3009 3012 3015 3018 3021 3024 3027 3030 3033 3036 3039 3042 3045 3048 3051 3054 3057 3060 3063 3066 3069 3072 3075 3078 3081 3084 3087 3090 3093 3096 3099 3102 3105 3108 3111 3114 3117 3120 3123 3126 3129 3132 3135 3138 3141 3144 3147 3150 3153 3156 3159 3162 3165 3168 3171 3174 3177 3180 3183 3186 3189 3192 3195 3198 3201 3204 3207 3210 3213 3216 3219 3222 3225 3228 3231 3234 3237 3240 3243 3246 3249 3252 3255 3258 3261 3264 3267 3270 3273 3276 3279 3282 3285 3288 3291 3294 3297 3300 3303 3306 3309 3312 3315 3318 3321 3324 3327 3330 3333 3336 3339 3342 3345 3348 3351 3354 3357 3360 3363 3366 3369 3372 3375 3378 3381 3384 3387 3390 3393 3396 3399 3402 3405 3408 3411 3414 3417 3420 3423 3426 3429 3432 3435 3438 3441 3444 3447 3450 3453 3456 3459 3462 3465 3468 3471 3474 3477 3480 3483 3486 3489 3492 3495 3498 3501 3504 3507 3510 3513 3516 3519 3522 3525 3528 3531 3534 3537 3540 3543 3546 3549 3552 3555 3558 3561 3564 3567 3570 3573 3576 3579 3582 3585 3588 3591 3594 3597 3600 3603 3606 3609 3612 3615 3618 3621 3624 3627 3630 3633 3636 3639 3642 3645 3648 3651 3654 3657 3660 3663 3666 3669 3672 3675 3678 3681 3684 3687 3690 3693 3696 3699 3702 3705 3708 3711 3714 3717 3720 3723 3726 3729 3732 3735 3738 3741 3744 3747 3750 3753 3756 3759 3762 3765 3768 3771 3774 3777 3780 3783 3786 3789 3792 3795 3798 3801 3804 3807 3810 3813 3816 3819 3822 3825 3828 3831 3834 3837 3840 3843 3846 3849 3852 3855 3858 3861 3864 3867 3870 3873 3876 3879 3882 3885 3888 3891 3894 3897 3900 3903 3906 3909 3912 3915 3918 3921 3924 3927 3930 3933 3936 3939 3942 3945 3948 3951 3954 3957 3960 3963 3966 3969 3972 3975 3978 3981 3984 3987 3990 3993 3996 3999 4002 4005 4008 4011 4014 4017 4020 4023 4026 4029 4032 4035 4038 4041 4044 4047 4050 4053 4056 4059 4062 4065 4068 4071 4074 4077 4080 4083 4086 4089 4092 4095 4098 4101 4104 4107 4110 4113 4116 4119 4122 4125 4128 4131 4134 4137 4140 4143 4146 4149 4152 4155 4158 4161 4164 4167 4170 4173 4176 4179 4182 4185 4188 4191 4194 4197 4200 4203 4206 4209 4212 4215 4218 4221 4224 4227 4230 4233 4236 4239 4242 4245 4248 4251 4254 4257 4260 4263 4266 4269 4272 4275 4278 4281 4284 4287 4290 4293 4296 4299 4302 4305 4308 4311 4314 4317 4320 4323 4326 4329 4332 4335 4338 4341 4344 4347 4350 4353 4356 4359 4362 4365 4368 4371 4374 4377 4380 4383 4386 4389 4392 4395 4398 4401 4404 4407 4410 4413 4416 4419 4422 4425 4428 4431 4434 4437 4440 4443 4446 4449 4452 4455 4458 4461 4464 4467 4470 4473 4476 4479 4482 4485 4488 4491 4494 4497 4500 4503 4506 4509 4512 4515 4518 4521 4524 4527 4530 4533 4536 4539 4542 4545 4548 4551 4554 4557 4560 4563 4566 4569 4572 4575 4578 4581 4584 4587 4590 4593 4596 4599 4602 4605 4608 4611 4614 4617 4620 4623 4626 4629 4632 4635 4638 4641 4644 4647 4650 4653 4656 4659 4662 4665 4668 4671 4674 4677 4680 4683 4686 4689 4692 4695 4698 4701 4704 4707 4710 4713 4716 4719 4722 4725 4728 4731 4734 4737 4740 4743 4746 4749 4752 4755 4758 4761 4764 4767 4770 4773 4776 4779 4782 4785 4788 4791 4794 4797 4800 4803 4806 4809 4812 4815 4818 4821 4824 4827 4830 4833 4836 4839 4842 4845 4848 4851 4854 4857 4860 4863 4866 4869 4872 4875 4878 4881 4884 4887 4890 4893 4896 4899 4902 4905 4908 4911 4914 4917 4920 4923 4926 4929 4932 4935 4938 4941 4944 4947 4950 4953 4956 4959 4962 4965 4968 4971 4974 4977 4980 4983 4986 4989 4992 4995 4998 5001 5004 5007 5010 5013 5016 5019 5022 5025 5028 5031 5034 5037 5040 5043 5046 5049 5052 5055 5058 5061 5064 5067 5070 5073 5076 5079 5082 5085 5088 5091 5094 5097 5100 5103 5106 5109 5112 5115 5118 5121 5124 5127 5130 5133 5136 5139 5142 5145 5148 5151 5154 5157 5160 5163 5166 5169 5172 5175 5178 5181 5184 5187 5190 5193 5196 5199 5202 5205 5208 5211 5214 5217 5220 5223 5226 5229 5232 5235 5238 5241 5244 5247 5250 5253 5256 5259 5262 5265 5268 5271 5274 5277 5280 5283 5286 5289 5292 5295 5298 5301 5304 5307 5310 5313 5316 5319 5322 5325 5328 5331 5334 5337 5340 5343 5346 5349 5352 5355 5358 5361 5364 5367 5370 5373 5376 5379 5382 5385 5388 5391 5394 5397 5400 5403 5406 5409 5412 5415 5418 5421 5424 5427 5430 5433 5436 5439 5442 5445 5448 5451 5454 5457 5460 5463 5466 5469 5472 5475 5478 5481 5484 5487 5490 5493 5496 5499 5502 5505 5508 5511 5514 5517 5520 5523 5526 5529 5532 5535 5538 5541 5544 5547 5550 5553 5556 5559 5562 5565 5568 5571 5574 5577 5580 5583 5586 5589 5592 5595 5598 5601 5604 5607 5610 5613 5616 5619 5622 5625 5628 5631 5634 5637 5640 5643 5646 5649 5652 5655 5658 5661 5664 5667 5670 5673 5676 5679 5682 5685 5688 5691 5694 5697 5700 5703 5706 5709 5712 5715 5718 5721 5724 5727 5730 5733 5736 5739 5742 5745 5748 5751 5754 5757 5760 5763 57		

EXCAVATION LOG

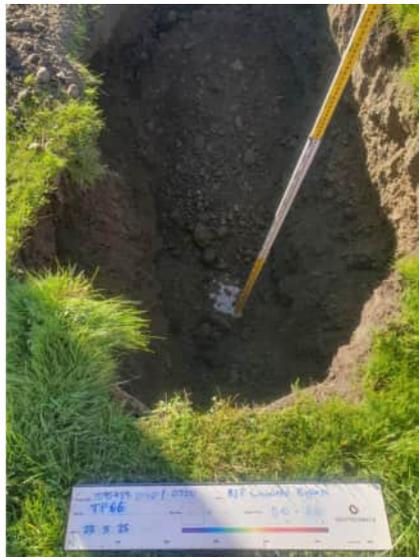
Excavation Id.: **TP-66**
 Hole Location: Package 16, Gladstone to Pegasus
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203620 mN (NZTM2000) 1574051 mE METHOD: Trial pit/trench EXCAV. STARTED: 22/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 22/05/2025
 R.L.: 6.82m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL											
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT					
1-3			0-9				0.00		<p>0.00m: SILT, some sand, trace rootlets and trace gravel; dark brown. Moist, non-plastic. Sand, fine to coarse; gravel, fine. (TOPSOIL).</p> <p>0.30m: Silty fine SAND, trace rootlets; greyish brown. Loose, moist.</p> <p>0.70m: Sandy fine to coarse GRAVEL, minor silt, trace rootlets and trace cobbles; greyish brown. Dense, moist. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 120mm, sub-rounded to sub-angular.</p> <p>0.70 - 1.20m: Cross bedding 1.10 - 1.30m: Medium dense. 1.20 - 2.30m: Reddish brown gravels. 1.30 - 1.50m: Dense. 1.50 - 1.75m: Very dense. 2.00 - 2.20m: Wet. 2.20 - 2.30m: Saturated.</p>	M		L	D	MD	D	VD	D			
							2.30		2.3m: END OF INVESTIGATION. Collapsing.											

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 2.3m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-67**
 Hole Location: Package 16, Gladstone to Pegasus
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits	LOCATION: Woodend Bypass, Chirstchurch	JOB No.: 1095459.0000.0001
CO-ORDINATES: 5203636 mN (NZTM2000) 1573952 mE	METHOD: Trial pit/trench EQUIPMENT: 5.5T Excavator	EXCAV. STARTED: 22/05/2025 EXCAV. FINISHED: 22/05/2025
R.L.: 7.84m	OPERATOR: Digging-Rite Ltd	LOGGED BY: DEMC
DATUM: NZVD2016	DIMENSIONS: 5m by 0.8m	CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 16%)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				0.0	TS	0.00m: Silty fine SAND, trace rootlets; dark brown. Dry, well graded, non-plastic. (TOPSOIL).	D					
							0.5		0.20m: Silty fine SAND, trace rootlets; light brownish grey with orange mottling. Loose, moist.	M	L				
							1.0		0.65m: Fine to medium SAND, trace rootlets; light brown with orange mottling. Loose, moist, well graded.						
							2.0		1.80m: Fine to medium SAND, some silt, trace rootlets; light grey with orange mottling around root structures. Medium dense, moist.			MD			
							2.5		1.90m: Sandy fine to coarse GRAVEL, minor silt, trace cobbles; greyish brown sand with reddish brown gravels. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to medium; cobbles, up to 110mm.						
							3.0		2.80 - 3.10m: Wet.	W					
							3.5		3.10m: Fine to coarse GRAVEL, some sand, minor silt and minor cobbles; brown. Saturated, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 150mm, sub-rounded to sub-angular.	S					
				TP-67-1 @ 3.70m			4.0		3.70m: SILT, minor organics; grey. Moist, low plasticity. Organics, charcoal and wood fragments (partially decomposed).		M				
							4.5		3.8m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.8m

Scale 1:42

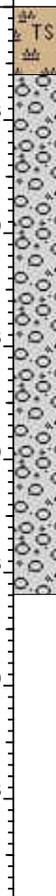
Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-68**
 Hole Location: Package 16, Gladstone to Pegasus
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203752 mN (NZTM2000) 1573913 mE METHOD: Trial pit/trench EXCAV. STARTED: 22/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 22/05/2025
 R.L.: 7.15m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.5m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9				7		<p>0.00m: SILT, some sand and some gravel, trace rootlets and trace cobbles; dark brown. Moist, non-plastic. Sand, fine to coarse; gravel, fine to coarse, sub-rounded to sub-angular; cobbles, up to 120mm, sub-rounded to sub-angular.</p> <p>0.55 - 0.70m: Very dense.</p> <p>0.30m: Sandy fine to coarse GRAVEL, minor silt, trace rootlets and trace cobbles; brown sand with reddish brown gravels and cobbles. Dense, moist. Sand, fine to coarse; cobbles, up to 100mm, sub-rounded to sub-angular.</p> <p>1.80 - 1.90m: Wet. 1.90 - 2.60m: Saturated.</p> <p>2.10 - 2.60m: Greyish brown sand with orange brown gravels.</p>	M		D, VD, D	12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66, 69, 72, 75, 78, 81, 84, 87, 90, 93, 96, 99, 102, 105, 108, 111, 114, 117, 120, 123, 126, 129, 132, 135, 138, 141, 144, 147, 150, 153, 156, 159, 162, 165, 168, 171, 174, 177, 180, 183, 186, 189, 192, 195, 198, 201, 204, 207, 210, 213, 216, 219, 222, 225, 228, 231, 234, 237, 240, 243, 246, 249, 252, 255, 258, 261, 264, 267, 270, 273, 276, 279, 282, 285, 288, 291, 294, 297, 300, 303, 306, 309, 312, 315, 318, 321, 324, 327, 330, 333, 336, 339, 342, 345, 348, 351, 354, 357, 360, 363, 366, 369, 372, 375, 378, 381, 384, 387, 390, 393, 396, 399, 402, 405, 408, 411, 414, 417, 420, 423, 426, 429, 432, 435, 438, 441, 444, 447, 450, 453, 456, 459, 462, 465, 468, 471, 474, 477, 480, 483, 486, 489, 492, 495, 498, 501, 504, 507, 510, 513, 516, 519, 522, 525, 528, 531, 534, 537, 540, 543, 546, 549, 552, 555, 558, 561, 564, 567, 570, 573, 576, 579, 582, 585, 588, 591, 594, 597, 600, 603, 606, 609, 612, 615, 618, 621, 624, 627, 630, 633, 636, 639, 642, 645, 648, 651, 654, 657, 660, 663, 666, 669, 672, 675, 678, 681, 684, 687, 690, 693, 696, 699, 702, 705, 708, 711, 714, 717, 720, 723, 726, 729, 732, 735, 738, 741, 744, 747, 750, 753, 756, 759, 762, 765, 768, 771, 774, 777, 780, 783, 786, 789, 792, 795, 798, 801, 804, 807, 810, 813, 816, 819, 822, 825, 828, 831, 834, 837, 840, 843, 846, 849, 852, 855, 858, 861, 864, 867, 870, 873, 876, 879, 882, 885, 888, 891, 894, 897, 900, 903, 906, 909, 912, 915, 918, 921, 924, 927, 930, 933, 936, 939, 942, 945, 948, 951, 954, 957, 960, 963, 966, 969, 972, 975, 978, 981, 984, 987, 990, 993, 996, 999, 1002, 1005, 1008, 1011, 1014, 1017, 1020, 1023, 1026, 1029, 1032, 1035, 1038, 1041, 1044, 1047, 1050, 1053, 1056, 1059, 1062, 1065, 1068, 1071, 1074, 1077, 1080, 1083, 1086, 1089, 1092, 1095, 1098, 1101, 1104, 1107, 1110, 1113, 1116, 1119, 1122, 1125, 1128, 1131, 1134, 1137, 1140, 1143, 1146, 1149, 1152, 1155, 1158, 1161, 1164, 1167, 1170, 1173, 1176, 1179, 1182, 1185, 1188, 1191, 1194, 1197, 1200, 1203, 1206, 1209, 1212, 1215, 1218, 1221, 1224, 1227, 1230, 1233, 1236, 1239, 1242, 1245, 1248, 1251, 1254, 1257, 1260, 1263, 1266, 1269, 1272, 1275, 1278, 1281, 1284, 1287, 1290, 1293, 1296, 1299, 1302, 1305, 1308, 1311, 1314, 1317, 1320, 1323, 1326, 1329, 1332, 1335, 1338, 1341, 1344, 1347, 1350, 1353, 1356, 1359, 1362, 1365, 1368, 1371, 1374, 1377, 1380, 1383, 1386, 1389, 1392, 1395, 1398, 1401, 1404, 1407, 1410, 1413, 1416, 1419, 1422, 1425, 1428, 1431, 1434, 1437, 1440, 1443, 1446, 1449, 1452, 1455, 1458, 1461, 1464, 1467, 1470, 1473, 1476, 1479, 1482, 1485, 1488, 1491, 1494, 1497, 1500, 1503, 1506, 1509, 1512, 1515, 1518, 1521, 1524, 1527, 1530, 1533, 1536, 1539, 1542, 1545, 1548, 1551, 1554, 1557, 1560, 1563, 1566, 1569, 1572, 1575, 1578, 1581, 1584, 1587, 1590, 1593, 1596, 1599, 1602, 1605, 1608, 1611, 1614, 1617, 1620, 1623, 1626, 1629, 1632, 1635, 1638, 1641, 1644, 1647, 1650, 1653, 1656, 1659, 1662, 1665, 1668, 1671, 1674, 1677, 1680, 1683, 1686, 1689, 1692, 1695, 1698, 1701, 1704, 1707, 1710, 1713, 1716, 1719, 1722, 1725, 1728, 1731, 1734, 1737, 1740, 1743, 1746, 1749, 1752, 1755, 1758, 1761, 1764, 1767, 1770, 1773, 1776, 1779, 1782, 1785, 1788, 1791, 1794, 1797, 1800, 1803, 1806, 1809, 1812, 1815, 1818, 1821, 1824, 1827, 1830, 1833, 1836, 1839, 1842, 1845, 1848, 1851, 1854, 1857, 1860, 1863, 1866, 1869, 1872, 1875, 1878, 1881, 1884, 1887, 1890, 1893, 1896, 1899, 1902, 1905, 1908, 1911, 1914, 1917, 1920, 1923, 1926, 1929, 1932, 1935, 1938, 1941, 1944, 1947, 1950, 1953, 1956, 1959, 1962, 1965, 1968, 1971, 1974, 1977, 1980, 1983, 1986, 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, 2016, 2019, 2022, 2025, 2028, 2031, 2034, 2037, 2040, 2043, 2046, 2049, 2052, 2055, 2058, 2061, 2064, 2067, 2070, 2073, 2076, 2079, 2082, 2085, 2088, 2091, 2094, 2097, 2100, 2103, 2106, 2109, 2112, 2115, 2118, 2121, 2124, 2127, 2130, 2133, 2136, 2139, 2142, 2145, 2148, 2151, 2154, 2157, 2160, 2163, 2166, 2169, 2172, 2175, 2178, 2181, 2184, 2187, 2190, 2193, 2196, 2199, 2202, 2205, 2208, 2211, 2214, 2217, 2220, 2223, 2226, 2229, 2232, 2235, 2238, 2241, 2244, 2247, 2250, 2253, 2256, 2259, 2262, 2265, 2268, 2271, 2274, 2277, 2280, 2283, 2286, 2289, 2292, 2295, 2298, 2301, 2304, 2307, 2310, 2313, 2316, 2319, 2322, 2325, 2328, 2331, 2334, 2337, 2340, 2343, 2346, 2349, 2352, 2355, 2358, 2361, 2364, 2367, 2370, 2373, 2376, 2379, 2382, 2385, 2388, 2391, 2394, 2397, 2400, 2403, 2406, 2409, 2412, 2415, 2418, 2421, 2424, 2427, 2430, 2433, 2436, 2439, 2442, 2445, 2448, 2451, 2454, 2457, 2460, 2463, 2466, 2469, 2472, 2475, 2478, 2481, 2484, 2487, 2490, 2493, 2496, 2499, 2502, 2505, 2508, 2511, 2514, 2517, 2520, 2523, 2526, 2529, 2532, 2535, 2538, 2541, 2544, 2547, 2550, 2553, 2556, 2559, 2562, 2565, 2568, 2571, 2574, 2577, 2580, 2583, 2586, 2589, 2592, 2595, 2598, 2601, 2604, 2607, 2610, 2613, 2616, 2619, 2622, 2625, 2628, 2631, 2634, 2637, 2640, 2643, 2646, 2649, 2652, 2655, 2658, 2661, 2664, 2667, 2670, 2673, 2676, 2679, 2682, 2685, 2688, 2691, 2694, 2697, 2700, 2703, 2706, 2709, 2712, 2715, 2718, 2721, 2724, 2727, 2730, 2733, 2736, 2739, 2742, 2745, 2748, 2751, 2754, 2757, 2760, 2763, 2766, 2769, 2772, 2775, 2778, 2781, 2784, 2787, 2790, 2793, 2796, 2799, 2802, 2805, 2808, 2811, 2814, 2817, 2820, 2823, 2826, 2829, 2832, 2835, 2838, 2841, 2844, 2847, 2850, 2853, 2856, 2859, 2862, 2865, 2868, 2871, 2874, 2877, 2880, 2883, 2886, 2889, 2892, 2895, 2898, 2901, 2904, 2907, 2910, 2913, 2916, 2919, 2922, 2925, 2928, 2931, 2934, 2937, 2940, 2943, 2946, 2949, 2952, 2955, 2958, 2961, 2964, 2967, 2970, 2973, 2976, 2979, 2982, 2985, 2988, 2991, 2994, 2997, 3000, 3003, 3006, 3009, 3012, 3015, 3018, 3021, 3024, 3027, 3030, 3033, 3036, 3039, 3042, 3045, 3048, 3051, 3054, 3057, 3060, 3063, 3066, 3069, 3072, 3075, 3078, 3081, 3084, 3087, 3090, 3093, 3096, 3099, 3102, 3105, 3108, 3111, 3114, 3117, 3120, 3123, 3126, 3129, 3132, 3135, 3138, 3141, 3144, 3147, 3150, 3153, 3156, 3159, 3162, 3165, 3168, 3171, 3174, 3177, 3180, 3183, 3186, 3189, 3192, 3195, 3198, 3201, 3204, 3207, 3210, 3213, 3216, 3219, 3222, 3225, 3228, 3231, 3234, 3237, 3240, 3243, 3246, 3249, 3252, 3255, 3258, 3261, 3264, 3267, 3270, 3273, 3276, 3279, 3282, 3285, 3288, 3291, 3294, 3297, 3300, 3303, 3306, 3309, 3312, 3315, 3318, 3321, 3324, 3327, 3330, 3333, 3336, 3339, 3342, 3345, 3348, 3351, 3354, 3357, 3360, 3363, 3366, 3369, 3372, 3375, 3378, 3381, 3384, 3387, 3390, 3393, 3396, 3399, 3402, 3405, 3408, 3411, 3414, 3417, 3420, 3423, 3426, 3429, 3432, 3435, 3438, 3441, 3444, 3447, 3450, 3453, 3456, 3459, 3462, 3465, 3468, 3471, 3474, 3477, 3480, 3483, 3486, 3489, 3492, 3495, 3498, 3501, 3504, 3507, 3510, 3513, 3516, 3519, 3522, 3525, 3528, 3531, 3534, 3537, 3540, 3543, 3546, 3549, 3552, 3555, 3558, 3561, 3564, 3567, 3570, 3573, 3576, 3579, 3582, 3585, 3588, 3591, 3594, 3597, 3600, 3603, 3606, 3609, 3612, 3615, 3618, 3621, 3624, 3627, 3630, 3633, 3636, 3639, 3642, 3645, 3648, 3651, 3654, 3657, 3660, 3663, 3666, 3669, 3672, 3675, 3678, 3681, 3684, 3687, 3690, 3693, 3696, 3699, 3702, 3705, 3708, 3711, 3714, 3717, 3720, 3723, 3726, 3729, 3732, 3735, 3738, 3741, 3744, 3747, 3750, 3753, 3756, 3759, 3762, 3765, 3768, 3771, 3774, 3777, 3780, 3783, 3786, 3789, 3792, 3795, 3798, 3801, 3804, 3807, 3810, 3813, 3816, 3819, 3822, 3825, 3828, 3831, 3834, 3837, 3840, 3843, 3846, 3849, 3852, 3855, 3858, 3861, 3864, 3867, 3870, 3873, 3876, 3879, 3882, 3885, 3888, 3891, 3894, 3897, 3900, 3903, 3906, 3909, 3912, 3915, 3918, 3921, 3924, 3927, 3930, 3933, 3936, 3939, 3942, 3945, 3948, 3951, 3954, 3957, 3960, 3963, 3966, 3969, 3972, 3975, 3978, 3981, 3984, 3987, 3990, 3993, 3996, 3999, 4002, 4005, 4008, 4011, 4014, 4017, 4020, 4023, 4026, 4029, 4032, 4035, 4038, 4041, 4044, 4047, 4050, 4053, 4056, 4059, 4062, 4065, 4068, 4071, 4074, 4077, 4080, 4083, 4086, 4089, 4092, 4095, 4098, 4101, 4104, 4107, 4110, 4113, 4116, 4119, 4122, 4125, 4128, 4131, 4134, 4137, 4140, 4143, 4146, 4149, 4152, 4155, 4158, 4161, 4164, 4167, 4170, 4173, 4176, 4179, 4182, 4185, 4188, 4191, 4194, 4197, 4200, 4203, 4206, 4209, 4212, 4215, 4218, 4221, 4224, 4227, 4230, 4233, 4236, 4239, 4242, 4245, 4248, 4251, 4254, 4257, 4260, 4263, 4266, 4269, 4272, 4275, 4278, 4281, 4284, 4287, 4290, 4293, 4296, 4299, 4302, 4305, 4308, 4311, 4314, 4317, 4320, 4323, 4326, 4329, 4332, 4335, 4338, 4341, 4344, 4347, 4350, 4353, 4356, 4359, 4362, 4365, 4368, 4371, 4374, 4377, 4380, 4383, 4386, 4389, 4392, 4395, 4398, 4401, 4404, 4407, 4410, 4413, 4416, 4419, 4422, 4425, 4428, 4431, 4434, 4437, 4440, 4443, 4446, 4449, 4452, 4455, 4458, 4461, 4464, 4467, 4470, 4473, 4476, 4479, 4482, 4485, 4488, 4491, 4494, 4497, 4500, 4503, 4506, 4509, 4512, 4515, 4518, 4521, 4524, 4527, 4530, 4533, 4536, 4539, 4542, 4545, 4548, 4551, 4554, 4557, 4560, 4563, 4566, 4569, 4572, 4575, 4578, 4581, 4584, 4587, 4590, 4593, 4596, 4599, 4602, 4605, 4608, 4611, 4614, 4617, 4620, 4623, 4626, 4629, 4632, 4635, 4638, 4641, 4644, 4647, 4650, 4653, 4656, 4659, 4662, 4665, 4668, 4671, 4674, 4677, 4680, 4683, 4686, 4689, 4692, 4695, 4698, 4701, 4704, 4707, 4710, 4713, 4716, 4719, 4722, 4725, 4728, 4731, 4734, 4737, 4740, 4743, 4746, 4749, 4752, 4755, 4758, 4761, 4764, 4767, 4770, 4773, 4776, 4779, 4782, 4785, 4788, 4791, 4794, 4797, 4800, 4803, 4806, 4809, 4812, 4815, 4818, 4821, 4824, 4827, 4830, 4833, 4836, 4839, 4842, 4845, 4848, 4851, 4854, 4857, 4860, 4863, 4866, 4869, 4872, 4875, 4878, 4881, 4884, 4887, 4890, 4893, 4896, 4899, 4902, 4905, 4908, 4911, 4914, 4917, 4920, 4923, 4926, 4929, 4932, 4935, 4938, 4941, 4944, 4947, 4950, 4953, 4956, 4959, 4962, 4965, 4968, 4971, 4974, 4977, 4980, 4983, 4986, 4989, 4992, 4995, 4998, 5001, 5004, 5007, 5010, 5013, 5016, 5019, 5022, 5025, 5028, 5031, 5034, 5037, 5040, 5043, 5046, 5049, 5052, 5055, 5058, 5061, 5064, 5067, 5070, 5073, 5076, 5079, 5082, 5085, 5088, 5091, 5094, 5097, 5100, 5103, 5106, 5109, 5112, 5115, 5118, 5121, 5124, 5127, 5130, 5133, 5136, 5139, 5142, 5145, 5148, 5151, 5154, 5157, 5160, 5163, 5166, 5169, 5172, 5175, 5178, 5181, 5184, 5187, 5190, 5193, 5196, 5199, 5202, 5205, 5208, 5211, 5214, 5217, 5220, 5223, 5226, 5229, 5232, 5235, 5238, 5241, 5244, 5247, 5250, 5253, 5256, 5259, 5262, 5265, 5268, 5271, 5274, 5277, 5280, 5283, 5286, 5289, 5292, 5295, 5298, 5301, 5304, 5307, 5310, 5313, 5316, 5319, 5322, 5325, 5328, 5331, 5334, 5337, 5340, 5343, 5346, 5349, 5352, 5355, 5358, 5361, 5364, 5367, 5370, 5373, 5376, 5379, 5382, 5385, 5388, 5391, 5394, 5397, 5400, 5403, 5406, 5409, 5412, 5415, 5418, 5421, 5424, 5427, 5430, 5433, 5436, 5439, 5442, 5445, 5448, 5451, 5454, 5457, 5460, 5463, 5466, 5469, 5472, 5475, 5478, 5481, 5484, 5487, 5490, 5493, 5496, 5499, 5502, 5505, 5508, 5511, 5514, 5517, 5520, 5523, 5526, 5529, 5532, 5535, 5538, 5541, 5544, 5547, 5550, 5553, 5556, 5559, 5562, 5565, 5568, 5571, 5574, 5577, 5580, 5583, 5586, 5589, 5592, 5595, 5598, 5601, 5604, 5607, 5610, 5613, 5616, 5619, 5622, 5625, 5628, 5631, 5634, 5637, 5640, 5643, 5646, 5649, 5652, 5655, 5658, 5661, 5664, 5667, 5670, 5673, 5676, 5679, 5682, 5685, 5688, 5691, 5694, 5697, 5700, 5703, 5706, 5709, 5712, 5715, 5718, 5721, 5724, 5727, 5730, 5733, 5736, 5739, 5742, 5745, 5748, 5751, 5754, 5757, 5760, 5763, 5766, 5769, 5772, 5775, 5778, 5781, 5784, 5787, 5790, 5793, 5796, 5799, 5802, 5805, 5808, 5811, 5814, 5817, 5820, 5823, 5826		

EXCAVATION LOG

Excavation Id.: **TP-69**
 Hole Location: Package 16, Gladstone to Pegasus
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203899 mN (NZTM2000) 1573660 mE METHOD: Trial pit/trench EXCAV. STARTED: 16/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 16/05/2025
 R.L.: 9.46m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9											
			16/05/2025 3.9 m	<ul style="list-style-type: none"> 39/18 kPa Insitu 115/22 kPa Insitu 61/22 kPa Insitu 47/18 kPa Insitu 56/32 kPa Insitu 30/14 kPa Insitu 		0.00m: SILT, trace rootlets and trace sand; dark brown. Moist, non-plastic. Sand, fine. (TOPSOIL). 0.40m: Silty fine SAND, trace rootlets; brown with orange mottle. Very loose, moist, poorly graded. 0.70m: SILT, trace rootlets; brown with orange mottle. Firm to stiff, moist, non-plastic. 2.00m: Sandy SILT; brown with orange mottle. Firm, moist, non-plastic. Sand, fine. 2.10m: Fine to medium SAND, some silt; light brown. Loose, moist to wet, well graded. 2.45m: Sandy SILT, trace organics; bluish grey with orange and brown mottling. Stiff, saturated, non-plastic. Sand, fine. 2.90m: Mottling ends. 3.00m: SILT, trace organics; bluish grey. Firm, saturated, low plasticity. 3.50m: Fine to medium SAND, some silt; bluish grey. Dense, saturated, non-plastic, dilatant.		M						
						4.0		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-70**
 Hole Location: Package 16, Gladstone to Pegasus
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203885 mN (NZTM2000) 1573594 mE METHOD: Trial pit/trench EXCAV. STARTED: 16/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 16/05/2025
 R.L.: 9.19m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	144/32 kPa Insitu		9.0	0.00m		0.00m: SILT, trace rootlets and trace sand; dark brown. Very stiff, moist, non-plastic. Sand, fine. (TOPSOIL).	M	VSt	12-24		TS	TS
				133/16 kPa Insitu		0.5	0.30m		0.30m: SILT, trace rootlets; greyish brown with orange mottle. Very stiff, moist, non-plastic.						
						0.8	1.00m		1.00m: Fine SAND, some silt, trace rootlets; greyish brown with orange mottle. Medium dense, moist to wet, poorly graded.	M-W	MD	25-35		Springston Formation	
						1.4	1.40m		1.40m: Silty fine SAND; greyish brown with orange mottle. Medium dense, wet, poorly graded.	W					
				29/18 kPa Insitu		2.0	1.80m		1.80m: SILT, some sand, trace organics; brownish grey with orange mottling. Firm, wet, non-plastic, iron and rhizolith nodules. Sand, fine.		F	35-45			
				32/14 kPa Insitu		2.5	2.80m		2.80m: SILT, trace organics and trace sand; bluish grey with brownish grey and orange mottle. Saturated, non-plastic. Organics, seeds.	S	S	45-55		3.0m: Water oozing.	
				18/7 kPa Insitu		3.5	2.90m		2.90m: Sandy SILT; bluish grey. Soft, saturated, non-plastic.	W-S	MD-D	55-65			
						4.0	3.30m		3.30m: Fine to medium SAND, trace rootlets and trace silt; bluish grey. Medium dense to dense, wet to saturated.						
				54/18 kPa Insitu		4.0	3.80m		3.80m: SILT, some sand, minor organics; bluish grey. Stiff, saturated, non-plastic. Sand, fine; organics, wood fragments (fibrous).	S	St	65-75			
						4.5	4m		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-71**

Hole Location: Package 16, Gladstone to Pegasus

SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5203987 mN (NZTM2000) 1573545 mE METHOD: Trial pit/trench EXCAV. STARTED: 19/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 19/05/2025
 R.L.: 10.05m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			10		0.00m: SILT, trace rootlets and trace sand; dark brown. Moist, non-plastic. Sand, fine.		M				Springston Formation
						0.5		0.30m: Fine to medium SAND, trace rootlets and trace silt; brown. Medium dense, moist, well graded.		MD				
						1.0								
						2.0		1.90 - 2.40m: Brownish grey mottled orange.						
				54/29 kPa		2.5		2.40 - 2.50m: Grey with orange mottle.		St				
				36/18 kPa		3.0		2.50m: SILT, trace organics and trace sand; brownish grey mottled orange. Stiff, moist, non-plastic. Sand, fine. Wood fragment.						
				34/18 kPa		3.5		3.00m: SILT, minor organics and minor sand; bluish grey. Firm, moist, low plasticity. Sand, fine to medium. Wood fragments.		F				
				50/22 kPa		4.0		3.00 - 4.00m: 3.0 - 4.0 - Organic silt lenses, dark brown, saturated, peaty (fibrous).						
						4.5		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

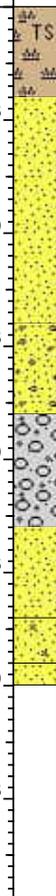
Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-73**
 Hole Location: Package 16, Gladstone to Pegasus
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5204141 mN (NZTM2000) 1573431 mE METHOD: Trial pit/trench EXCAV. STARTED: 19/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 19/05/2025
 R.L.: 10.99m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL								
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT		
1 2 3			0 1 2 3 4 5 6 7 8 9			0.5		<p>0.00m: SILT, trace rootlets and trace sand; dark brown. Moist, non-plastic. Sand, fine. (TOPSOIL).</p> <p>0.40m: Fine to medium SAND, trace rootlets; light brown. Loose, moist, well graded.</p> <p>1.40m: Gravelly fine to medium SAND, trace rootlets and trace silt; brownish grey with orange mottling. Very dense, wet, well graded. Gravel, medium to coarse, sub-rounded to sub-angular.</p> <p>1.80m: Sandy fine to coarse GRAVEL; brownish orange. Wet, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 2.10 - 2.30m: Brownish orange.</p> <p>2.30m: Fine to medium SAND, trace organics and trace silt; brownish grey with orange mottling. Saturated, well graded. Wood fragments.</p> <p>2.70m: Silty fine to medium SAND, trace organics; brownish grey with orange mottling. Saturated.</p> <p>2.90m: Fine to medium SAND, minor silt, trace organics; bluish grey. Saturated. Trace wood fragments.</p> <p>3m: END OF INVESTIGATION. Collapsing.</p>		M	L	W	VD	S		TSoil
						1.0								Springston Formation		
						1.5										
						2.0										
						2.5										
						3.0										
						3.5										

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3m

Scale 1:33

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-74**
 Hole Location: Package 17, Pegasus Approach
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5204298 mN (NZTM2000) 1573357 mE METHOD: Trial pit/trench EXCAV. STARTED: 19/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 19/05/2025
 R.L.: 10.61m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL					
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			10.0	<p>0.00m: SILT, some sand, trace rootlets and trace gravel; dark brown. Moist, non-plastic. Sand, fine to coarse; gravel, fine to coarse, sub-rounded to sub-angular. (TOPSOIL).</p> <p>0.25m: Sandy fine to coarse GRAVEL, minor cobbles, trace rootlets; brownish grey. Very dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 120mm, sub-rounded to sub-angular.</p> <p>0.90m: Fine to coarse GRAVEL, minor sand, trace rootlets; brownish orange. Moist. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>1.00m: Sandy fine to coarse GRAVEL, minor cobbles; brownish grey. Wet, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 120mm, sub-rounded to sub-angular.</p> <p>1.70m: Fine to coarse GRAVEL, minor sand; brownish orange. Saturated, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>1.80m: Fine to coarse GRAVEL, some sand, trace cobbles; dark grey. Saturated. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 100mm, sub-rounded to sub-angular.</p> <p>2.2m: END OF INVESTIGATION. Collapsing.</p>	M	VD		12, 25, 50, 100, 200, 400		Top
						9.0		W					Springston Formation
						8.0		S					
						7.0							
						6.0							

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 2.2m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-75**
 Hole Location: Package 17, Pegasus Approach
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5204326 mN (NZTM2000) 1573343 mE METHOD: Trial pit/trench EXCAV. STARTED: 20/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 20/05/2025
 R.L.: 9.99m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9					<p>0.00m: SILT, some sand, trace rootlets; dark brown. Soft, dry, non-plastic. Sand, fine to medium. (TOPSOIL).</p> <p>0.05m: Sandy gravelly SILT; greyish brown. Dry. Sand, fine to coarse; gravel, fine and coarse, sub-rounded to sub-angular. Trace tree roots and rootlets.</p> <p>0.40m: Fine to coarse GRAVEL, some sand, trace rootlets; reddish brown. Very dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.</p> <p>0.60m: Sandy fine to coarse GRAVEL, minor cobbles, trace rootlets; brownish grey with bands of brownish orange. Moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 120mm, sub-rounded to sub-angular.</p> <p>1.00m: Sandy fine to coarse GRAVEL, minor cobbles; grey. Wet, well graded. Gravel, sub-rounded to sub-angular; sand, medium to coarse; cobbles, up to 130mm, sub-rounded to sub-angular. 1.30 - 1.90m: Saturated.</p> <p>1.9m: END OF INVESTIGATION. Collapsing.</p>	D					Top
		20/05/2025 Pooling				9			M	VD			Springston Formation	
						8			W					
						7			S					

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 1.9m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-76**
 Hole Location: Package 18. Pegasus A
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5204572 mN (NZTM2000) 1573387 mE METHOD: Trial pit/trench EXCAV. STARTED: 05/05/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 05/05/2025
 R.L.: 10.12m OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL					
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9		10	0.00m	TS	0.00m: TOPSOIL. Moist.		M				Top
						0.5		0.20m: Silty fine to coarse SAND, trace organics; light brown. Moist. Organics, roots greater than 2mm diameter. (REWORKED ALLUVIUM/FILL).					0.5m: Fence wire (no.8) and barbed wire encountered	Fill
					9	1.00m		1.00m: Fine to coarse SAND, trace rootlets and trace silt; light brown with orange mottling. Loose, moist grading to wet. Rootlets, and roots.		L			1.0m: Plastic plant pots (black PE) and soft plastic wrap (white/clear)	Springston Formation
					8	2.00m		2.00m: Sandy fine to coarse GRAVEL, minor cobbles, trace wood; reddish brown. Medium dense, saturated. Gravel, rounded to sub-rounded, greywacke; sand, fine to coarse; cobbles, rounded to sub-rounded, greywacke; organics, wood fragments. 2.30 - 2.80m: Dense. 2.80 - 3.00m: Medium dense.	S	MD		2.0m: Ground water ingress flowing from west to east		
					7	3.0m		3m: END OF INVESTIGATION. Collapsing.					3.0m: Test pit collapse	

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 3m

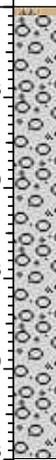
Scale 1:42

Rev.: A

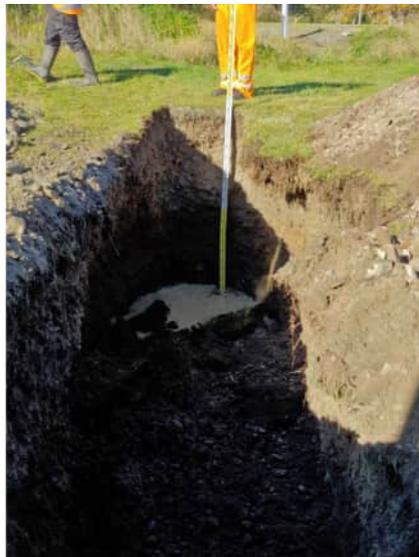
EXCAVATION LOG

Excavation Id.: **TP-77**
 Hole Location: Package 18. Pegasus A
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001
 CO-ORDINATES: 5204601 mN METHOD: Trial pit/trench EXCAV. STARTED: 05/05/2025
 (NZTM2000) 1573417 mE EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 05/05/2025
 R.L.: 9.82m OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kN/m ²)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1 2 3			0 1 2 3 4 5 6 7 8 9				0.5 1.0 1.5 2.0 2.5		<p>0.00m: Gravelly TOPSOIL. Moist. Gravel, fine to medium.</p> <p>0.05m: Sandy fine to coarse grading to medium to coarse GRAVEL, trace rootlets; brownish grey. Loose, moist grading to saturated. Gravel, rounded to sub-rounded, greywacke; sand, fine to coarse; rootlets, and roots; organics, rootlets.</p> <p>0.65m: Dense.</p> <p>1.30m: Minor cobbles. Cobbles, rounded to sub-rounded, greywacke.</p> <p>1.60m: Moist grading to wet.</p> <p>1.70m: Wet grading to saturated.</p> <p>1.80m: Trace boulders. Boulders, rounded to sub-rounded, greywacke.</p>	M	L	D	<p>1.6m: Ground water flowing in from west to east</p>	Top Springston Formation	
							7 3.0 3.5 4.0 4.5		<p>2.5m: END OF INVESTIGATION. Collapsing.</p>				2.5m: Test pit collapse		

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
2.5m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-78**
 Hole Location: Package 18, Pegasus A
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001
 CO-ORDINATES: 5204679 mN (NZTM2000) 1573446 mE METHOD: Trial pit/trench EXCAV. STARTED: 05/05/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 05/05/2025
 R.L.: 9.88m OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			0.00	TS	0.00m: TOPSOIL; dark brown. Moist.	M					Top
						0.25		0.25m: Silty fine to medium SAND; light brown with orange mottling. Loose, moist.		L				1.8 - 2.2m: Ground water up welling from bottom of test pit
						1.30		1.30m: Sandy SILT, trace gravel; brownish grey with orange mottling. Moist grading to wet. Sand, fine to medium; gravel, fine.						
						2.60		2.60m: Coarse SAND, trace organics; reddish brown. Saturated. Organics, Tanic residue throughout the sand layer.	S					
						2.70		2.70m: SILT, minor sand, trace clay; grey with brown/orange mottling. Wet, low plasticity. Sand, fine.	W					Springston Formation
						4.00		4m: END OF INVESTIGATION						



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS
 Hole Depth 4m
 Scale 1:42

EXCAVATION LOG

Excavation Id.: **TP-79**
 Hole Location: Package 18, Pegasus A
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001
 CO-ORDINATES: 5204750 mN METHOD: Trial pit/trench EXCAV. STARTED: 05/05/2025
 (NZTM2000) 1573490 mE EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 05/05/2025
 R.L.: 9.43m OPERATOR: Digging-Rite Ltd LOGGED BY: SAMP
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION					GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT	
1-3			0-9				9.0		<p>0.00m: Gravelly TOPSOIL. Moist. Gravel, fine to coarse</p> <p>0.10m: Gravelly SILT, minor cobbles, trace organics and trace sand; brownish grey. Moist, well graded. Gravel, fine to coarse, rounded to sub-angular, greywacke; cobbles, rounded to sub-rounded, greywacke; sand, fine to coarse.</p> <p>0.35m: Silty fine to medium SAND; light brown. Loose, moist grading to wet.</p> <p>1.10m: Sandy SILT; light brown with orange mottling. Wet. Sand, fine to medium.</p> <p>1.80m: Coarse SAND, trace organics; reddish brown. Medium dense, saturated. Tannic residue throughout the sand layer.</p> <p>2.00m: SILT, some sand; brownish grey with orange mottling. Wet, low plasticity. Sand, fine.</p>	M	L	W	S MD	W	1.7 - 2.0m: Ground water up welling from bottom of the test pit (Sand lens)	Springston Formation
							6.0		3m: END OF INVESTIGATION. Collapsing.				3.0m: Test pit collapsing approximately 3.0m			

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
3m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-80**
 Hole Location: Package 18, Pegasus A
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5204840 mN (NZTM2000) 1573565 mE METHOD: Trial pit/trench EXCAV. STARTED: 06/05/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 06/05/2025
 R.L.: 8.86m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0 1 2 3 4 5 6 7 8 9	90/7 kPa Insitu			0.00		0.00m: SILT, trace rootlets; dark brown. Firm, moist, non-plastic. (TOPSOIL)		M	F			TSoil
				66/14 kPa Insitu			0.30		0.30m: SILT, trace sand; brown with mottled orange. Firm, moist, non-plastic. Sand, fine.						
				38/11 kPa Insitu			1.00		1.20m: Fine to coarse SAND, trace rootlets and trace silt; brown with reddish brown mottling. Medium dense, wet, well graded. 1.30m: Silty fine SAND, trace rootlets; brown with reddish brown mottling. Medium dense, saturated, poorly graded. 1.40m: Fine to coarse SAND, trace silt; brown with reddish brown mottling. Medium dense, saturated, well graded.	W S	MD			Springston Formation	
				13/0 kPa			3.00		3.00m: SILT, trace organics and trace sand; grey. Very soft, saturated, low plasticity. Sand, fine; organics, wood fragments.			VS			
							3.20		3.2m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.2m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-81**
 Hole Location: Package 18, Pegasus A
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5204906 mN (NZTM2000) 1573630 mE METHOD: Trial pit/trench EXCAV. STARTED: 06/05/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 06/05/2025
 R.L.: 8.78m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	93/18 kPa Insitu			0.00		0.00m: SILT, trace rootlets; dark brown. Firm, moist, non-plastic. (TOPSOIL).	M	F				TSoil
				104/25 kPa Insitu			0.30		0.30m: SILT, some gravel, trace rootlets; brown. Firm, moist, non-plastic. Gravel, fine to coarse, sub-rounded to sub-angular.						
							0.80		0.80m: Silty gravelly fine to coarse SAND; brown. Dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.			D VD			Springston Formation
							0.90		0.90m: Sandy fine to coarse GRAVEL, trace cobbles; brown. Very dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 100mm, sub-angular.			W			
							1.40		1.40m: Wet.						
							1.70		1.70m: Greyish brown.						
							2.90		2.90m: Saturated.			S			
							4.00		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-83**
 Hole Location: Package 18, Pegasus A
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5205069 mN (NZTM2000) 1573835 mE METHOD: Trial pit/trench EXCAV. STARTED: 05/06/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 05/06/2025
 R.L.: 7.89m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	99/22 kPa Insitu 185/36 kPa Insitu			0.0		<p>0.00m: SILT, trace rootlets; dark brown. Stiff, moist, non-plastic, (1 x railway pin). (TOPSOIL).</p> <p>0.25m: SILT, trace rootlets and trace sand; light brown with orange mottle. Very stiff, moist, low plasticity. Sand, fine.</p> <p>0.75m: Fine SAND, trace silt; light brown. Medium dense, moist, poorly graded. 1.00m: Loose.</p> <p>1.25m: Silty fine SAND; light brown with orange mottle. Medium dense, moist, poorly graded.</p> <p>1.50m: Fine SAND, trace silt; light brown. Medium dense, wet, poorly graded. 1.60m: Dense.</p> <p>1.70m: Sandy fine to coarse GRAVEL, trace cobbles; light reddish brown. Very dense, wet, well graded, some gravels covered in blackish brown coating (probably algae). Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 120mm, sub-rounded to sub-angular.</p> <p>2.85m: Sand; brown. Gravel; mixed colours but mostly reddish brown. Saturated.</p>	M	St	12-24			Top
							0.5				VSt				Springston Formation
							1.0				MD				
							1.5				L				
							2.0				MD				
							2.5				W	D	VD		
							3.0				S				
							3.6		3.6m: END OF INVESTIGATION. Collapsing.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.6m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-84**
 Hole Location: Package 18, Pegasus A
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5205184 mN (NZTM2000) 1573933 mE METHOD: Trial pit/trench EXCAV. STARTED: 05/06/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 05/06/2025
 R.L.: 7.45m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	165/18 kPa Insitu 230/48 kPa Insitu			7	0.00m: SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic. (TOPSOIL).		M	VSt	12-24			TSoil
							7	0.40m: SILT, trace rootlets and trace sand; light brown with orange mottle. Hard, moist, non-plastic. Sand, fine.			H				Springston Formation
							6	0.75m: Fine SAND, trace silt; greyish brown with orange mottle. Medium dense, moist, poorly graded.			MD				
							6	1.00m: Gravely fine to medium SAND, trace rootlets; brownish grey. Very dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular.			VD				
							5	1.50m: Sandy fine to coarse GRAVEL; brownish grey. Very dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.		W					
							5	1.90m: Silty sandy fine to coarse GRAVEL, trace cobbles; reddish brown. Very dense, wet, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 80mm, sub-rounded to sub-angular.		S					
							4	2.10m: Sandy fine to coarse GRAVEL, trace silt and trace cobbles; brownish grey. Very dense, wet, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse; cobbles, up to 110mm, sub-rounded to sub-angular.							
							4	2.50m: Saturated.							
							3	3.8m: END OF INVESTIGATION. Collapsing.							

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth 3.8m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-85**
 Hole Location: Package 4. Lineside to Cam
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199538.52 mN (NZTM2000) 1572315.22 mE METHOD: Trial pit/trench EXCAV. STARTED: 29/05/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 29/05/2025
 R.L.: 1.63m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9	108/7 kPa Insitu			0.00	TS	0.00m: SILT, trace rootlets; brown. Very stiff, dry, non-plastic. (TOPSOIL).	D	VSt				TSoil
				129/14 kPa Insitu			0.50		0.35m: SILT, trace rootlets; greyish brown with orange mottling. Very stiff, moist, non-plastic.	M					
				129/16 kPa Insitu			1.00								
				140/25 kPa Insitu			1.50		1.50 - 1.70m: Highly mottled orange band (crumbly).						
				97/27 kPa Insitu			2.00		1.70 - 1.80m: Brownish grey with orange mottle along root tracks (tiger stripes) and iron nodules. Plasticity increasing with water content.						
				68/29 kPa Insitu			2.50		1.80 - 1.85m: Trace wood fragments; brown.					2.0m: Water begins to appear in base when digger has stopped. True WL unclear.	
				57/18 kPa Insitu			3.00		2.00m: Stiff.						
				65/29 kPa Insitu			3.50		2.50m: Brownish grey with orange mottle. Low plasticity.						
				52/29 kPa Insitu			4.00		3.50 - 3.80m: Brownish orange sand filled pockets and burrows, burrows are also infilled with iron concretions (some are iron cemented sand). Sand, fine to medium.						
							4.00		3.80 - 4.00m: Grey. With pockets of grey sand. Sand, fine to medium.						
							4.00		4m: END OF TEST PIT. Target depth reached.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-86**
 Hole Location: Package 5. Cam River
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5199604.64 mN (NZTM2000) 1572380.03 mE METHOD: Trial pit/trench EXCAV. STARTED: 03/06/2025
 EQUIPMENT: 5.5T Excavator EXCAV. FINISHED: 03/06/2025
 R.L.: 1.57m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL							
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES, TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 16%)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0 1 2 3 4 5 6 7 8 9	117/9 kPa Insitu			0.00	TS	0.00m: SILT, trace rootlets; dark brown. Very stiff, moist, non-plastic. (TOPSOIL).	M	VSt				
				117/18 kPa Insitu			0.50		0.30m: SILT, trace rootlets and wood fragments; greyish brown with orange mottle. Very stiff, moist, non-plastic.						
				109/11 kPa Insitu			1.00								
				151/36 kPa Insitu			1.50		1.30m: Brownish grey with orange mottle. Low plasticity. 1.50m: Trace charcoal.					1.5m: Water starts to accumulate.	
				72/18 kPa Insitu			2.00		2.00m: SILT, minor wood fragments and roots; grey with orange mottling. Stiff, moist, low plasticity.			St			
				22/14 kPa Insitu			2.50		2.50m: Soft to firm.			S-F			
				54/22 kPa Insitu			3.00		2.80m: SILT; bluish grey. Wet to saturated, low plasticity.	W-S					
				54/25 kPa Insitu			3.50		3.00m: Fine SAND; bluish grey. Dense, saturated, poorly graded.	S	D				
							4.00		3.20m: SILT, sandy SILT and fine SAND; All bluish grey. Silt, dilatant, stiff. Sand, fine, medium dense to dense. Interbedded layers. Saturated.						
							4.50		3.80m: Silty fine SAND; bluish grey. Dense, saturated, poorly graded.			D			
							4.50		4m: END OF TEST PIT. Target depth reached.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A

EXCAVATION LOG

Excavation Id.: **TP-92**
 Hole Location: Package 18. Pegasus A
 SHEET: 1 OF 1

PROJECT: Woodend Bypass and B2P Motorway - Test Pits LOCATION: Woodend Bypass, Chirstchurch JOB No.: 1095459.0000.0001

CO-ORDINATES: 5204931 mN (NZTM2000) 1573672 mE METHOD: Trial pit/trench EXCAV. STARTED: 06/05/2025
 EQUIPMENT: 8.5T Excavator EXCAV. FINISHED: 06/05/2025
 R.L.: 8.56m OPERATOR: Digging-Rite Ltd LOGGED BY: DEMC
 DATUM: NZVD2016 DIMENSIONS: 5m by 0.8m CHECKED BY: CMS

EXCAVATION TESTS				ENGINEERING DESCRIPTION				GEOLOGICAL						
PENETRATION	SUPPORT	WATER	SCALA PENETROMETER (Blows/50mm)	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa, 1kPa)	DEFECTS, STRUCTURE, COMMENTS	UNIT
1-3			0-9			0.5		0.00m: SILT, trace rootlets and trace gravel; dark brown. Soft, moist, non-plastic. Gravel, fine to coarse, sub-rounded to sub-angular. (TOPSOIL).	M	S				TSoil
						0.5		0.50m: SILT, some sand, trace rootlets; brown with orange mottle. Firm, moist, non-plastic. Sand, fine to coarse.		F				Springston Formation
						1.0		1.00m: Silty sandy fine to coarse GRAVEL, trace rootlets; brown. Dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse.		D				
						1.5		1.05m: Fine to coarse SAND, some gravel, trace rootlets; brown. Dense, moist, well graded. Gravel, fine to coarse, sub-rounded to sub-angular. 1.20m: Wet. 1.30m: Very dense.		VD				
						2.0		1.40m: Sandy fine to coarse GRAVEL; greyish brown. Very dense, moist, well graded. Gravel, sub-rounded to sub-angular; sand, fine to coarse. 1.90m: Wet.		W				
						3.0		2.90m: Brown.						
						3.5		3.50m: Saturated.		S				
						4.0		4m: END OF INVESTIGATION. Target depth.						

SKETCH / PHOTO:



COMMENTS: 2025 B2P LiDAR
 Project note; TEST PITS

Hole Depth
 4m

Scale 1:42

Rev.: A