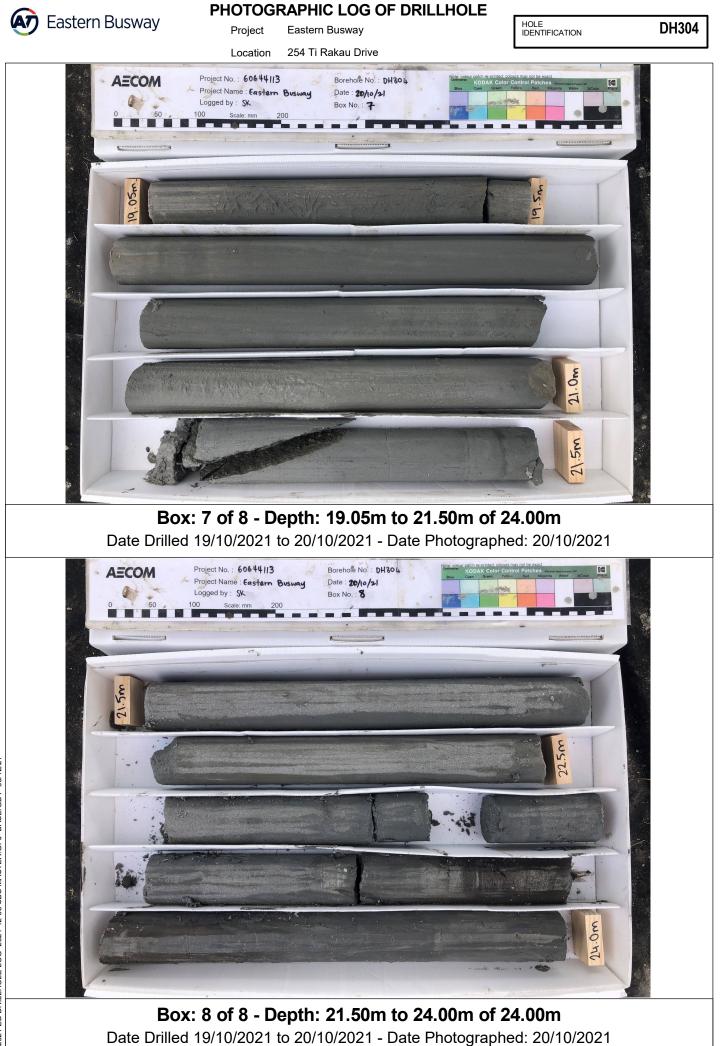


2021 EB DRILLHOLE LOG 2021-12-08 SBS MASTER.GPJ BASE.GDT 08/12/21

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2021 EB DRILLHOLE LOG 2021-12-08 SBS MASTER.GPJ BASE.GDT 08/12/21

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Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

DH305_

Ρ

Co-ordinates	s 41147	5.31mE	795009.92mN
Orientation	-90°	Elevation	8.74m

Location 262 Ti Rakau Drive - China Town

Feature Bridge Pier

D v s	EOLOGICAL ESCRIPTION Veathering, Colour, Fabric, ROCK NAME. Isrength, Discontinuities, Lithological Features bedding, foliation, mineralogy, cement, etc).	Vane/ N \	cords SPT Values 0 - 50	Drilling Method Casing remarks	Core Loss/Lift	MS Relative	>	Depth	Graphic Log	TCR [RQD] (%)	500 Spacing of 100 J Natural 10 Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stre grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ad information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity, u	tion description, subordinate Iditional structures, additiona nd Crush Zones, Foliation,	Instrumentation
FILL	0.0m: FILL comprising silty gravel, cobbles and boulders.			VAC EX						0		0.0m: Vacuum excavation 0.0 to 0.15m: Concrete (car park). 0.15 to 1.0m: Sitly fine to coarse GRAV cobbles and boulders. Densely packed, cobbles and boulders are subangular b	, moist. Gravel,	
0	1.0m: Slightly weathered, dark grey speckled light grey, stained brown on joint surfaces and occasional vesicles, BASALT. Strong.	i		HQ3				1 - - - - - - -		100		1.0 to 4.4m: No flush return in basalt 1.25m: J, 45°, Ud, Ro, NF 1.66m: J, 45°, Ud, Ro, Sn, orange		
AUCKLAND VOLCANIC FIELD	Highly vesicular (<20%), vesicles typically 2 to 10mm. 1.5 to 2.3m: Vesicular (<10%), vesicles 2-40mm. 2.3 to 2.4m: Slightly vesicular (<5%), vesicular			HQ3				2		100		2.14 to 2.29m: J, 65°, Ud, Ro, NF 2.4 to 2.54m: Returned as gravel. 2.42m: J, 45°, Ud, Ro, NF		
JCKLAND VO	(<5%), vesicles 1-10mm. 2.4 to 2.8m: Vesicular (<10%), vesicles 1-2mm. 2.8 to 4.2m: Rare vesicles (<1%), vesicles 1-2mm.			114 HWT				3				2.73 to 2.81m: J, 60°, Ud, Ro, NF 2.8m: 114mm diameter HWT casing	to 2.8m. 꼬	
AL	4.2 to 4.4m: Slightly vesicular			HQ3				- - - - - 4		100		3.49 to 3.59m: J, 60°, Ud, Ro, Cg, or coating 3.9 to 4.4m: J, 85°, Ud, Ro, Sn, oran	3.9	17
	(<5%), vesicles 1-2mm. 4.4m: ALLUVIUM comprising clay, silt and peat.			SPT				- - - - - - 5		100		 4.4m: Organic CLAY; black. Firm, mplasticity. 5.0m: Silty CLAY; light grey with som 		
		48/18		PT						100		staining. Firm, moist, high plasticity. 5.75 to 6.0m: Bluish grey in push tube v organics. Trace organics don't persist.	vith trace	
OUP		0,0,0, 1,1,1 N=3		SPT				-		100		6.25 to 7.5m: Light bluish grey. 6.5 to 7.5m: Stiff, mottled green.		
JRANGA GROUP		I .		HQ3				- - - - -		100		─ 7.45 to 7.5m: With some fine sand.	7	
TAL		3,2,2 N=9		SPT HQ3				- 8		100		7.5m: Fine sandy CLAY; bluish grey, high plasticity. 7.95 to 8.05m: Core Loss: 8.25 to 8.9m: Dark grey, mottled browni		
		0,0,1,		SPT				- - - 9 -		100		organics. 8.9m: Silty CLAY with minor fine san Firm, moist, high plasticity.	d; bluish grey.	
								- - - -						
F Da 13	or explanation of symbols and obs LUID DEPTHS AND DRILLIN ate Time Drilled Depth /06/2022 16:35 13.50 /06/2022 08:00 13.50	NG PROG	RESS	(m)		VS- S- MS- W- VW-	Very stron Strong Moderatel Weak Very weał Extremely	ng ly strong k	UW - SW - MW - HW -	lighly we	red eathered y weathere	Checked GP	Driller McMillan Started 13/06/2022	
	/06/2022 08:00 13.50 2.8 3.97		Rei 50 drill	marks mm st ing. P	andpi iezom	ieter de	velope	ed by a		Finished 15/06/2022 Drill Rig N119				
D	Hand Held Shear Vane R2272: 19mm blade: Calibrated 02/22: rane shear strength per NZGS guid		actor = 1.	.595		Horizontal / Vertical Survey Datums: NZGD2000 - Mount 2000 / New Zealand Vertical Datum 2016				s: NZGD2000 - Mount Eden n 2016	Core Boxes Page 1 of	10 8		



Client Auckland Transport

Project

Eastern Busway

Project number 60644113

Eastern Busway

HOLE IDENTIFICATION

DH305

Co-ordinates	41147	5.31mE	795009.92mN
Orientation	-90°	Elevation	8.74m
Location	262 Ti	Rakau Dri	ive - China Town
	Dridae	Diar	

Feature Bridge Pier SOIL PROPERTIES Instrumentation **Drilling Method** GEOLOGICAL Core Loss/Lift Rock Weathering Subordinate MAJOR minor; colour, structure. Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additiona Graphic Log Spacing c Natural Defects Relative Strength DESCRIPTION Test Records Depth Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc). TCR information, etc [RQD] Casing DEFECT DESCRIPTION SPT Shea (%) (mm) N Values (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.) Vane/ SPT ∞§≥≷ ž§≩ 2020 50 HQ3 -----100 111 x 1111 111 1111 1111 111 111 1111 1 10.35m: Plastic PEAT: black, Firm, moist, high 85/8 ||||11 111 1111 1111 1 1 plasticity **TAURANGA GROUP** T PT 111 100 1111 11 1 10.45m: Silty CLAY with minor fine sand and trace organics; bluish grey. Stiff, moist, high plasticity. x 1 1 |||||||1111 11 0,1,2, 2,2,2 N=8 111 1111 ||||1 1 1111 × SPT 100 |||111 I 1111 1 x ||||111 1111 1 -<u>x</u> 111 |||||111 1111 HQ3 100 111 1111 Т 11 1 × 56/6 ||||1 1 111 1111 12 1111 ss 1,2,2, 3,4,7 N=16 ΪÌÌ 1111 111 SPT 100 111 1111 111 1111 × 12.4m: CW, grey, SILTSTONE. EW XXXXX XXX 111 1111 12.4m: Silty CLAY; grey. Stiff, moist, high plasticity. 11 12.6 to 12.65m: With thin dark grey laminations. 1 1 12.6m: MW, grey, fine to Т 111 XXX 1 1111 HQ3 100 coarse SANDSTONE with some shells. Very weak. 13 1111 11 Ø 12.95m: Silty CLAY, grey. Very stiff, moist, high 11 111 1111 plasticity 12.95m: Highly weathered, grey, SILTSTONE. Extremely 1111 11 111 35/3 ss 3,3,4, 5,7,9 N=25 111 1111 weak SPT 100 1111 X 1111 13.95m: Slightly weathered, grey, SILTSTONE. Extremely 14 III 1111 11 111 1 11 -> 1111 weak 111 111 11 1111 HQ3 93 111 11 1111 111 1 111 11 1111 1111 11 15 ss 9,18,32, 18 for 45mm X SPT 1111 11 100 COAST BAYS FORMATION | | | | 111 1 1111 45mm N>50 I 1111 1 11 11 1111 HQ3 33 ||||||1111 16 11 1111 X 1111 sc 17,33 for 11 1111 MANNA SPT 0 1111 1111 1111 55mm N>50 11 16.8m: Slightly weathered, EAST 17 grey, massive, fine to coarse SANDSTONE. Very weak. 11 1111 1111 11 HQ3 100 ||||||1111 |||1111 1111 ||||||111 1111 111 1111 18 SPT sc 13,37 for 65mm N>50 IXIXIXIXI (XXX) 0 1111 1111 1111 1111 11 07/08/22 ++++11 1111 \mathbf{I} 11 HQ3 100 1 1 1 1 1111 11 19 111 1 1111 11 1111 1111 11 |||||11 1111 11 1 1111 Т 111 1111 1.1 For explanation of symbols and observations, see key sheet RELATIVE STRENGTH WEATHERING Driller Date logged 15/06/2022 FLUID DEPTHS AND DRILLING PROGRESS (m) McMillan VS - Very strong UW - Unweathered Logged SK S - Strong MS - Moderately strong W - Weak SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered Date Time Drilled Depth Casing Depth Fluid Depth Started Checked GP 13/06/2022 VW - Very weak EW - Extremely weak Finished Remarks 15/06/2022 50 mm standpipe piezometer installed upon completion of Drill Rig drilling. Piezometer developed by air lift.

Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden

2000 / New Zealand Vertical Datum 2016

MASTER.GPJ BASE.GDT DRILLHOLE LOG 2022-08-04 B 2021

Hand Held Shear Vane

vane shear strength per NZGS guideline

DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595

10

N119

Core Boxes



Client Auckland Transport

Project

EAST COAST BAYS FORMATION

25.55m: Slightly weathered, grey, fine to coarse SANDSTONE. Very weak.

26.1m: Slightly weathered, grey, SILTSTONE. Very weak.

Eastern Busway

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sc 19,31 for 35mm N>50

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HQ3

HOLE IDENTIFICATION

DH305 P

Instrumentation

Co-ordinates	s 41147	5.31mE	795009.92mN
Orientation	-90°	Elevatior	n 8.74m
Location	262 Ti	Rakau Dr	ive - China Town

Project number 606441	13			eature Bridge Pier
GEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Test Records Shear SPT Vane/ N Values SPT 0-50	Lasing remains Core Loss/Lift S Relative W Strength W Weathering Depth	Graphic Log (%) Bazing of Spacing of Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Strength, moisture condition, grading, beaticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)
16.8m: Slightly weathered, grey, massive, fine to coarse SANDSTONE. Very weak. (continued)	П П П П П П П П П П П П П П П П П П П			
	ндз		100	
Z	 		100 100 101 101 101 101 101 101	
ZOILT WW 24.45m: Slightly weathered, u grey, SILTSTONE. Very weak.				

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2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 07/08/22

27.0m: Slightly weathered, grey, massive, fine to coarse SANDSTONE. Very weak. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11 27 11 27.0 to 27.1m: Discing of drill core. 11 11 111 111 11 100 1111 11 28 1111 11 28 1111 11 100 1111 11 28 1111 11 1111 1111 11 28 1111 11 1111 1111 11 29 1100 1111 11 100 1111 1111 11 100 1111 1111 11 100 1111 1111 11 100 1111 1111 11 100 1111 1111 11 100 1111 1111 11 100 1111 1111 11 100 1111 1111 11 100 1111 1111 11 11 1111 1111 11 110 1111 1111 11 110 111	extremely weak.
For explanation of symbols and observations, see key sheet FLUID DEPTHS AND DRILLING PROGRESS (m) Date Time Drilled Depth Casing Depth Fluid Depth	RELATIVE STRENGTH WEATHERING VS - Very strong S - Strong W- Weak UW - Unweathered SW - Slightly weathered HW - Moderately weathered HW - Highly weathered CW - Completely weathered Date logged 15/06/2022 Logged SK Checked SK Checked Remarks 50 mm standpipe piezometer installed upon completion of drilling. Piezometer developed by air lift. Date logged 15/06/2022	Driller McMillan Started 13/06/2022 Finished 15/06/2022 Drill Rig
Hand Held Shear Vane DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595 vane shear strength per NZGS guideline	Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016	N119 Core Boxes 10 Page 3 of 8
		7/08/2022

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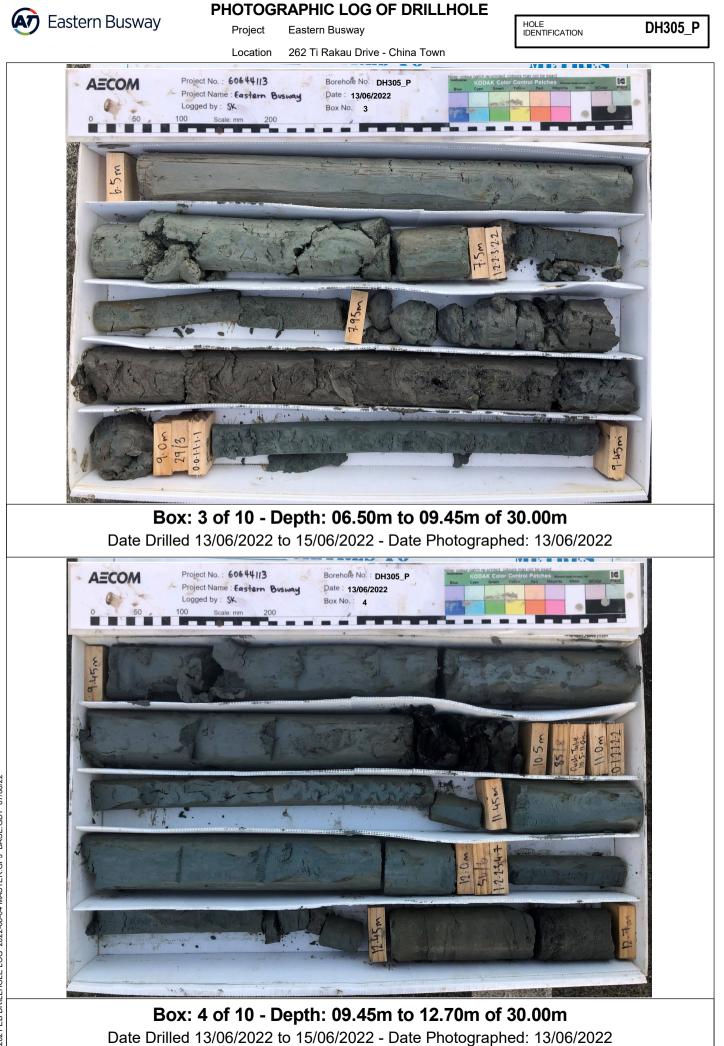
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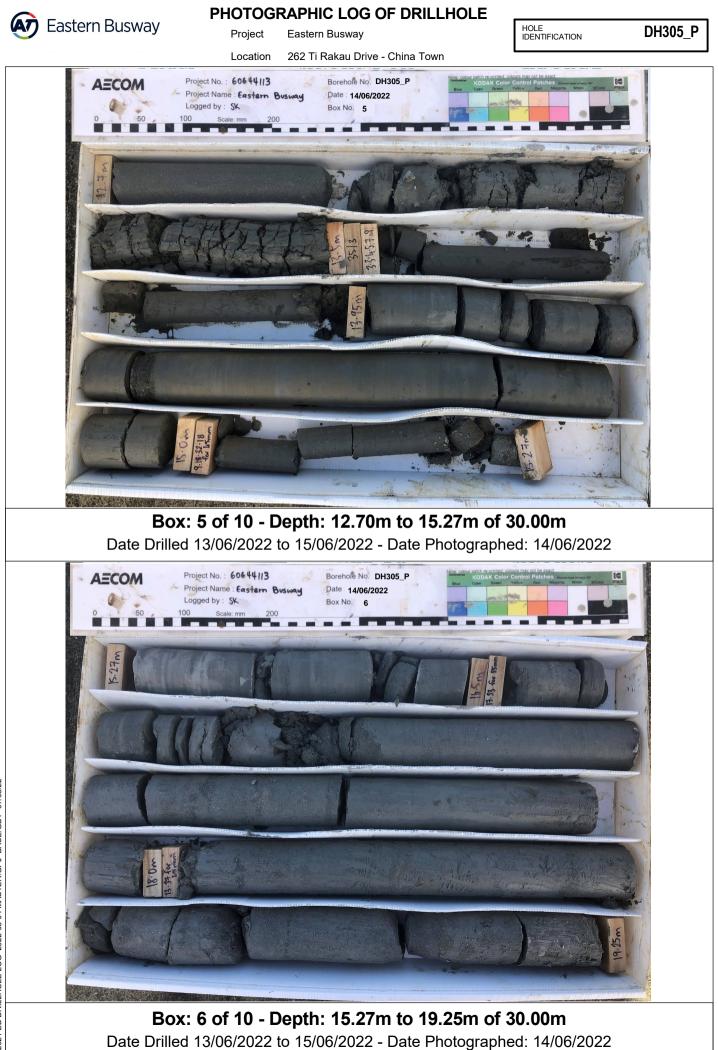
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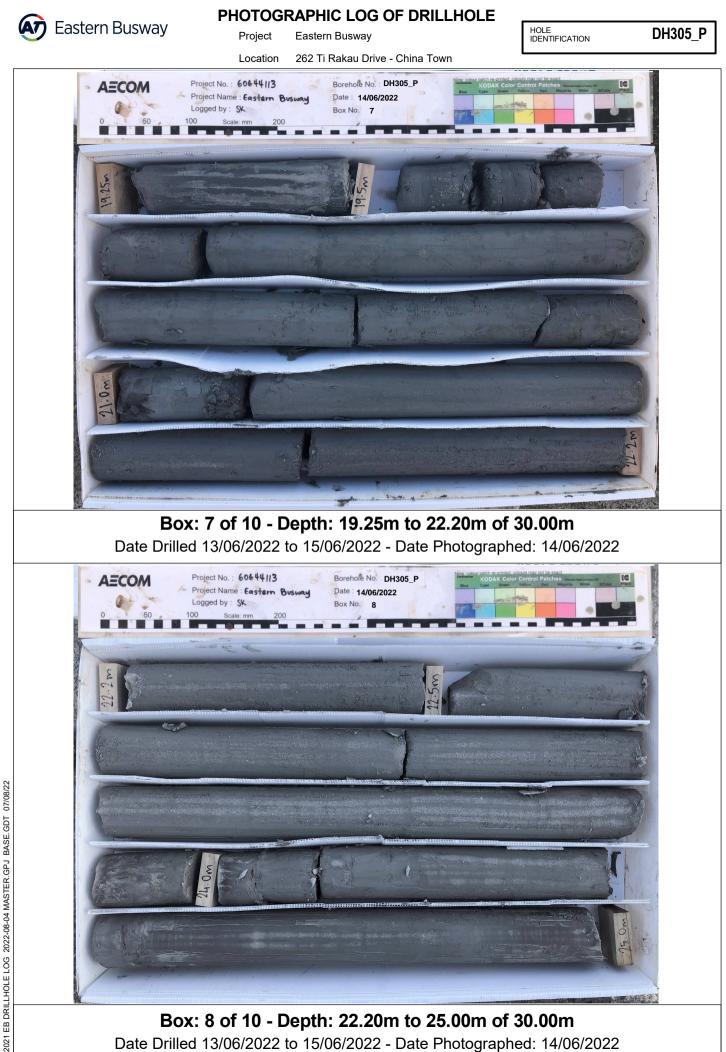
2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 07/08/22

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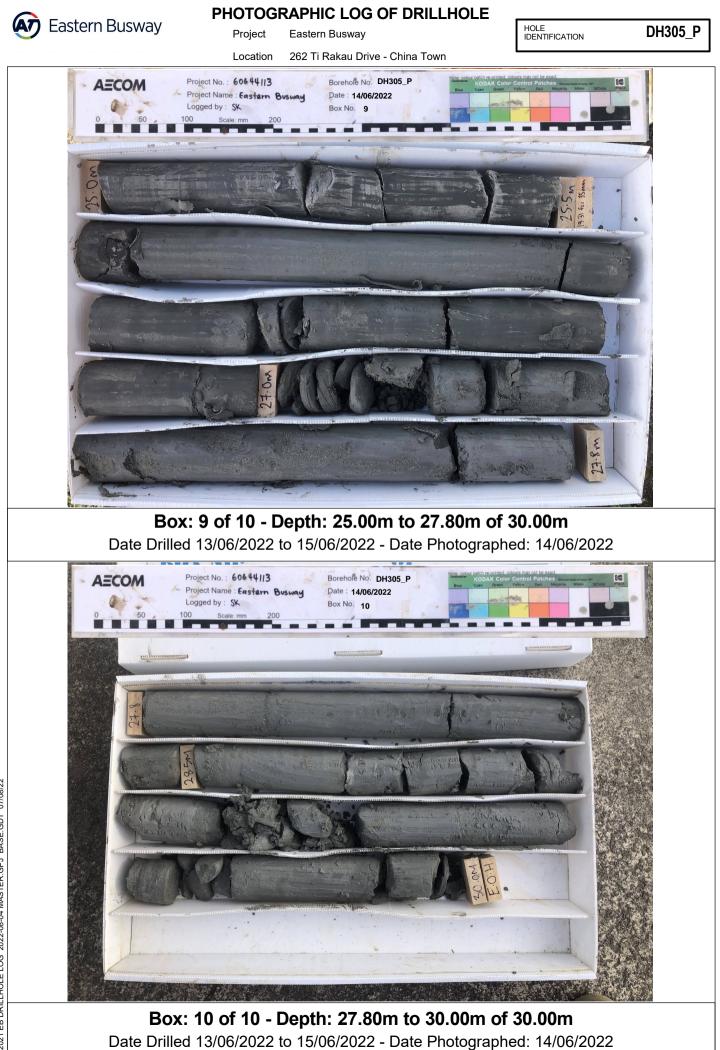


2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 07/08/22

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Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 14/06/2022



2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 07/08/22

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Client Auckland Transport

Project

Eastern Busway

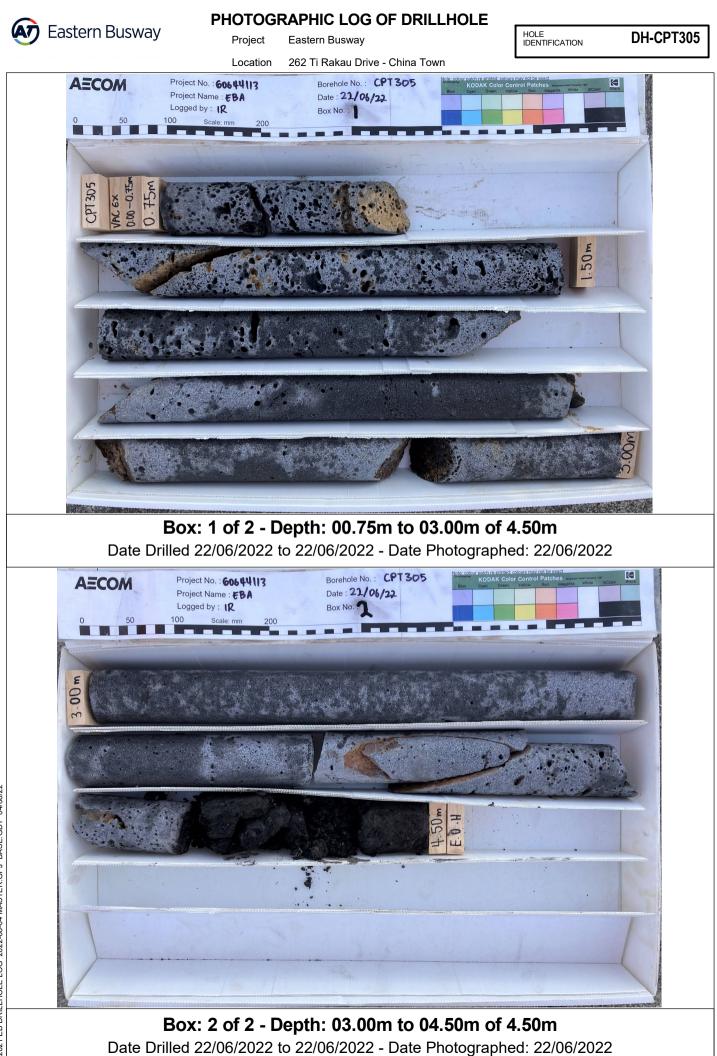
Project number 60644113

HOLE IDENTIFICATION

DH-CPT305

Co-ordinates	41147 ⁻	7.08mE	795012.75mN	
Orientation	-90°	Elevation	ı 8.82m	
Location	262 Ti	Rakau Dri	ive - China Town	
Feature	Bridge	Pier		

DES Weath Streng	DLOGICAL SCRIPTION Pering, Colour, Fabric, ROCK NAME. th, Discontinuities, Lithological Features ing, foliation, mineralogy, cement, etc).	Test Records Shear SPT Vane/ N Values SPT 0 - 50	Drilling Method Casing remarks	Core Loss/Lift	Ms Relative W Strength	>	Depth	Graphic Log	TCR [RQD] (%)	-500) Spacing of -100 Matural -10 (Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stren grading, bedding, plasticity, sensitivity, major fractic information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Schistosity, Attilude, Spacing, continuity, ro	n description, subordinate tional structures, additional d Crush Zones, Foliation,	Instrumentation
TG AUCKLAND VOLCANIC FIELD FILL 6 b <	.0m: FILL. .75m: Slightly weathered, rey speckled light grey, WASALT. Moderately strong. lighly vesicular, up to 60mm. on staining in some esicles. 1.2 to 4.3m: Strong. Moderately vesicular, vesicles up to 30mm. 1.5 to 4.1m: Slightly vesicular, vesicles up to 7mm. 4.1 to 4.3m: Moderately vesicular, vesicles up to 50mm. .7 .3m: ALLUVIUM comprising rganic clay.		VAC EX HQ3 HQ3						100 [100] 100 [87]		 Schistosity, Attitude, Spacing, continuity, ro 0.0m: Vacuum excavation not witness 0.85m: DB, 0° 0.99m: J, 45°, Ud, Ro, Sn, Fe 1.03 to 1.16m: J, 60°, Ud, Ro, Sn, Fe 1.98m: J, 45°, Ud, Ro, MW, P, SIt & F fine gravel. 2.76 to 2.81m: J, 60°, Ud, Ro, Sn, Fe 3.91 to 4.06m: J, 90°, Ud, Ro, Sn, Fe 3.95 to 4.11m: J, 70°, Ud, Ro, Sn, Fe 3.95 to 4.11m: J, 70°, Ud, Ro, Sn, Fe 4.25m: J, 0°, Ud, Ro, Sn, Fe 4.35m: Fine gravel ceases. DH-CPT305 terminated at 4.5m Depth Criteria Achieved	e, Subangular Moderately	
PLUE DAILLHOLE LOG 2022-09-04 MAS	explanation of symbols and obs ID DEPTHS AND DRILLIN Time Drilled Depth Ind Held Shear Vane	IIII IIII ervations, see key IG PROGRESS Casing Depth Fl	(m)		RELAT VS- S MS- W- VW- VW- EW- Rel Dril con No Hoi	IIII IIII IIII IIII IIII IIII IIII Very stro Strong Moderat Weak Very wea Extreme marks Iling th ntinue npleti groun	ely strong ak ly weak S hrough d with on of (ndwate al / Ve	n basalt cone p CPT. er encor	enetra unterec urvev [IIII IIII IIII IIII RING red athered y weathe athered y weathe athered y weathe tion te	Checked CP	Driller McMillan Started 22/06/2022 Finished 22/06/2022 Drill Rig N119 Core Boxes	2



2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 04/08/22

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Client Auckland Transport

Project

Eastern Busway

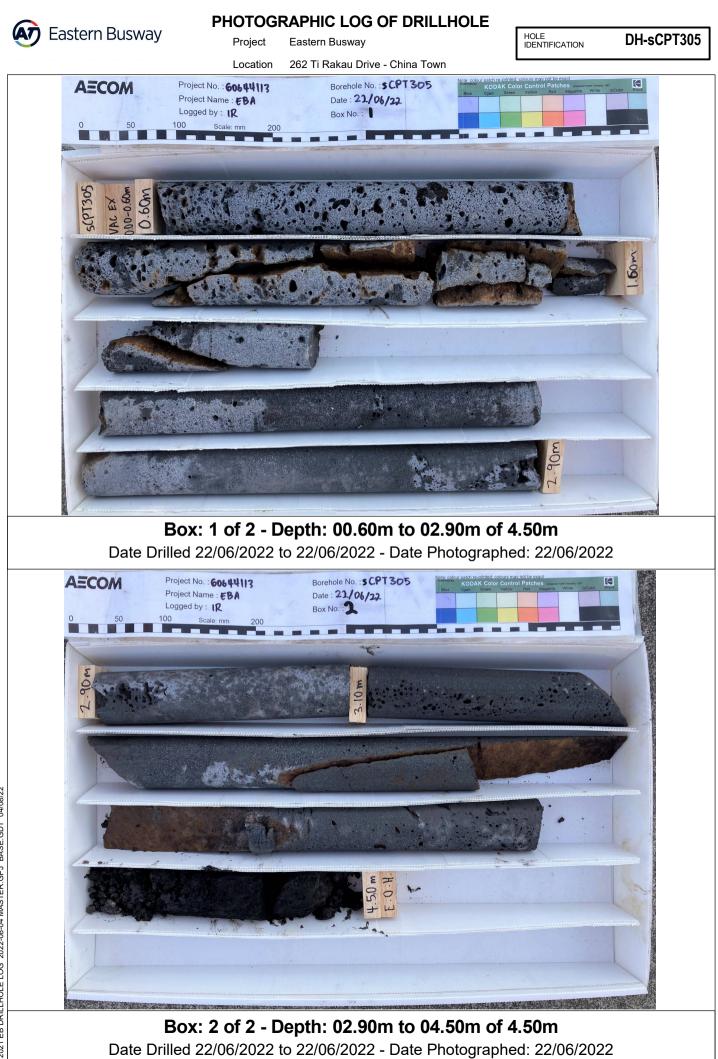
Project number 60644113

HOLE IDENTIFICATION

DH-sCPT305

Co-ordinates	s 41147	7.65mE 795014.01mN
Orientation	-90°	Elevation 8.85m
Location	262 Ti	Rakau Drive - China Town
Feature	Bridge	Pier

D	EOLOGICAL ESCRIPTION /eathering, Colour, Fabric, ROCK NAME. trength, Discontinuities, Lithological Features pedding, foliation, mineralogy, cement, etc).	Test Records	Drilling Method Casing remarks	Core Loss/Lift	Relative Strength	Rock Weathering	Depth	Graphic Log	TCR [RQD] (%)	 Spacing of	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc DEFECT DESCRIPTION	Instrumentation
FILL	0.0m: FILL.	Vane/ N Values SPT 0-50	VAC	0	∞≌≥≶				0		(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.) 0.0m: Vacuum excavation not witnessed.	-
ILD	0.6m: Slightly weathered, grey speckled light grey, BASALT. Moderately strong. Highly vesicular, vesicles typically 2 to 25mm, up to 50mm. Iron staining in some vesicles.		НQ3								1.02m: J, 20°, Ud, Ro, Sn, Fe 1.06m: J, 0°, Ud, Ro, Sn, Fe 1.1 to 1.83m: J, 90°, Ud, Ro, Sn, Fe, (1.1-1.34m: 70 deg; 1.34-1.72m: Cg Slt)	
AUCKLAND VOLCANIC FIELD	 to 1.83m: Strong. Moderately vesicular, vesicles up to 20mm. to 20mm. to 4.35m: Becomes slightly vesicular, vesicles up to 10mm. 		HQ3				2		100 [100]		1.73 to 1.83m: J, 90°, Ud, Ro, Sn, Fe 2.4m: J, 0°, Ud, Ro, Sn, Fe	
AUCKLA	2.87 to 2.27m: 40mm long vesicle.		HQ3				- 3 				3.45m: J, 20°, Ud, Ro, Sn, Fe 3.57 to 4m: J, 70°, Ud, Ro, Sn, Fe, Rootlets in joint.	
τg	4.35m: ALLUVIUM			- - 			- - - - - - 5				4.35m: Organic CLAY with some silt and fine basalt gravel; black mottled orange. Very stiff, moist, moderate plasticity. 4.45m: Fine gravel ceases.	• • • • • • • • •
							- - - - - - - - - - - - - - - - - - -				DH-sCPT305 terminated at 4.5m Depth Criteria Achieved	
		liii			- - - - - - - - - - - - - - - - - - -							
F	or explanation of symbols and obs	NG PROGRES	S (m)		IIII IIII RELAT		ERENGT	UW -	WEATHE	 ERING	Date logged 22/06/2022 Driller McMillan	
	ate Time Drilled Depth			Depth	S - MS - W - VW - EW -	Strong Moderate Weak Very wea Extremel	ely strong ik y weak	SW - MW - HW -	Slightly we Moderatel Highly we Completel	eathered y weather athered	Checked GP agrociana	
 	and Held Shear Vane				Dril cor upo	lling th ntinue on con	nrougł d with npletio		cone PT.	penet	ter hole; investigation iration test. Hole backfilled Drill Rig N119 Core Boxes	2
Vi	ane shear strength per NZGS guid	deline			Hoi 200	rizonta)0 / Ne	al / Ve ew Ze	rtical S aland V	urvey [′ertical	Datum Datur	s: NZGD2000 - Mount Eden Page 1 of	2



2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 04/08/22



Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

DH306

Co-ordinates	s 411487	7.71mE	795041.15mN
Orientation	-90°	Elevation	8.71m
Location	262 Ti	Rakau Dri	ive - China Town

Feature

Bridge Pier

GEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Test Records Shear SPT Vane/ N Values SPT 0-50	Drilling Method Casing remarks © Core Loss/Lift		W Weathering	nepru	Sraphic Log	TCR [RQD] (%)	E 500 Spacing of Control Contro Control Control Control Contr	SOLL PROPERTIES Subordinate MAJOR minor; colour, structure. Stru grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, at information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear et Schistosity, Attitude, Spacing, continuity,	tion description, subordin dditional structures, additio and Crush Zones, Foliation	ate Istrumeni
0.0m: FILL comprising silty gravel, cobbles and clay.		VAC EX			1		0		0.0m: Vacuum excavation 0.0 to 0.15m: Concrete (car park). 0.15 to 1.5m: Silty fine to coarse GRAV cobbles. Densely packed, moist. Grave subangular basalt		
	ss 1,3,1, 1,2,3 N=7	SPT 			2		100		1.5m: Silty CLAY with some fine san gravel; mottled grey, orange and bro high plasticity. Gravel is fine to coars basalt.	own. Stiff, moist,	
3.1m: ALLUVIUM comprising	UTP ss 1,1,1,1	HQ3 			3		100		3.1m: Silty CLAY; bluish grey. Stiff, r	noist high	^{3.06} ⊈
clay, silt and peat.	1,2,3 N=7				x x				plasticity. 3.45 to 3.9m: Firm with some gravel.	noisi, nign	^{3.65} ⊈
	62/27 ss 0,0,1, 1,1,0				4		100		3.9 to 6.25m: Light brownish grey.		44 7
	N=3	ндз			5 5		100		5.0 to 5.4m: Some orange flecks.		
GROUP	38/10	PT			6		100		5.9 to 8.1m: Firm. 6.25 to 8.1m: Bluish grey.		
TAURANGA GROUP	ss 0,1,0, 1,0,1 N=2	SPT 			7		100		6.25 to 6.85m: Bluish grey in push tube orange mottling.	e with trace of	
	30/5	PT			o ماالا الا		100				
	ss 0,0,0, 0,0,1 N=1	SPT 					100		8.1m: Fine to medium sandy CLAY organics; dark grey. Soft, moist, high 8.65m: Silty CLAY; bluish grey. Soft,	n plasticity.	
	16/6 I I I ss 0,0,0, I I I 0,0,0, I I I I N=0 I I I I SUOW I I I I	SPT			9		100		9.15 to 10.45m: With some fine sand le		
					8	× × ×					
For explanation of symbols and obs FLUID DEPTHS AND DRILLIN Date Time Drilled Depth (15/06/2022 16:00 15.00 16/06/2022 07:45 15.00 16/06/2022 12:15 25.50		6 (m)	VS - Ve S - St MS - M W - W VW - Ve EW - E	loderately s /eak ery weak xtremely we	trong	UW - L SW - S MW - N HW - H	lighly we	red eathered y weathere	Checked GP	Driller McMillan Started 15/06/2022 Finished	
6/06/2022 12:15 25.50 11.8 3.65		Remarks Hole backfilled with Horizontal / Vertical 2000 / New Zealand				Irvey [Datums	s: NZGD2000 - Mount Eden	16/06/2022 Drill Rig N119 Core Boxes	9	
DR2272: 19mm blade: Calibrated 02/22: vane shear strength per NZGS guid		.595								Page 1 o	



Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

DH306

Co-ordinates	\$ 41148	7.71mE	795041.15mN
Orientation	-90°	Elevatior	า 8.71m
Location	262 Ti	Rakau Dr	ive - China Town

Feature Bridge Pier

DI w	EOLOGICAL ESCRIPTION eathering, Colour, Fabric, ROCK NAME. rength, Discontinuities, Lithological Features edding, foliation, mineralogy, cement, etc).	Test Shear Vane/ SPT	SPT N Values 0 - 50	Drilling Method Casing remarks	Core Loss/Lift	s Relative W Strength	ww Weathering		Graphic Log	TCR [RQD] (%)	 500 Spacing of 50 Matural 50 Defects 	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Str grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, at information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear Schistosity, Attitude, Spacing, continuity,	tion description, subordinate dditional structures, additiona and Crush Zones, Foliation,	Instrumentation
		46/11 		HQ3					F F F F F F	100		8.65m: Silty CLAY; bluish grey. Soft, plasticity. <i>(continued)</i>	, moist, high	
ROUF		0,0,1, 0,0,0 N=1		SPT					के कर्षक क ह कर कर क <u>क कूर कर</u> क	100		10.65m: Spongy PEAT; black. Firm, _plasticity.	moist, high	
TAURANGA GROUP				HQ3					F	100		10.95m: Silty CLAY; bluish grey. Ver high plasticity.	ry stiff, moist,	
Т		UTP ss 1,1,1, 1,2,1 N=5		SPT					F F F F F F	100		11.8m: 114mm diameter HWT casin	g to 11.8m.	
	12.45m: Highly weathered, grey, fine to coarse SANDSTONE. Extremely weak.			HQ3				- - - - - - 13		100		12.45m: Silty fine to coarse SAND; g dense, moist, well graded.	grey. Very	
		ss 6,12,15, 26,9		SPT				-	× × ×	100				
		for 25mm N>50						14				13.85 to 14.33m: Slightly weathered.		
	14.33m: Slightly weathered, grey, SILTSTONE. Very weak.	sc		HQ3				_ _ _ _ _ 15	× × × × × × × × × × × × × × × × × × ×	100				
EAST COAST BAYS FORMATION	14.95m: Slightly weathered, grey, fine to coarse SANDSTONE. Extremely weak.	16,34 for 50mm N>50		HQ3						0		14.95m: Silty fine to coarse SAND; o dense, moist, well graded.	jrey. Very	
ST COAST I	16.5m: Slightly weathered, grey, massive, fine to medium SANDSTONE. Very weak.	sc 13,37 for 35mm N>50		SPT				 17				16.5 to 18.0m: 7 no. subhorizontal d (planes of weakness).	rilling breaks	
EA				HQ3				- - - - - - 18		100		18.0 to 19.5m: 9 no. subhorizontal d	rilling bracks	
				HQ3				_ _ _ _ _ _ _ 1		100		(planes of weakness).		
												19.5 to 21.0m: 16 no. subhorizontal ((planes of weakness).	drilling breaks	
FI								TRENG ately stro eak eely weak (S ackfille	UW - SW - MW - HW - CW -	WEATHI Unweathe Slightly w Moderatel Highly we Complete	ERING eathered by weathered athered by weathered by weathered	red Checked GP	Driller McMillan Started 15/06/2022 Finished 16/06/2022	
	Hand Held Shear Vane					Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden N1 2000 / New Zealand Vertical Datum 2016						Drill Rig N119 Core Boxes	9	
	R2272: 19mm blade: Calibrated 02/22: ane shear strength per NZGS guid		on Factor = '	1.595									Page 2 of	8



Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

DH306

Co-ordinates	\$ 41148	7.71mE	795041.15mN
Orientation	-90°	Elevation	า 8.71m
Location	262 Ti	Rakau Dr	ive - China Town
_			

Feature Bridge Pier

D v s	EOLOGICAL ESCRIPTION leathering, Colour, Fabric, ROCK NAME. trength, Discontinuities, Lithological Features pedding, foliation, mineralogy, cement, etc).	Test Records Shear SPT Vane/ N Values SPT 0-50	Drilling Method Casing remarks	Core Loss/Lift	s Relative W Strength	sw Rock ww Weathering		Graphic Log	TCR [RQD] (%)	 500 Spacing of 100 Matural 100 Defects 	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stru grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ar information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attlude, Spacing, continuity,	tion description, subordinate Iditional structures, addition	nstrumentation
z	20.25m: Slightly weathered, grey, SILTSTONE. Very weak. 21.0m: Slightly weathered, grey, fine to medium SANDSTONE. Very weak.		НQ3				- 21	X X X X X X X X X X X X X X X X X X X	100		21.0 to 22.4m: 5 no. subhorizontal dr (planes of weakness).	rilling breaks	
EAST COAST BAYS FORMATION	22.0m: Slightly weathered, grey, SILTSTONE. Very weak. 22.4m: Slightly weathered, grey, fine to coarse SANDSTONE. Extremely weak.		HQ3				- - 22 - - - - - - - - - - - - - - - - -	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	100		22.4m: Silty fine to coarse SAND; gr moist, well graded. 22.4 to 22.5m: Core recovered broke		
EAS			HQ3				24 24 		87		24.1 to 25.5m: Very weakly cemented.		
							27	<u>titx.titx.</u>			DH306 terminated at 25.5m Depth Criteria Achieved		
F	For explanation of symbols and observations, see key sheet FLUID DEPTHS AND DRILLING PROGRESS (m) Date Time Drilled Depth Casing Depth Fluid Depth			VS-V S-S MS-I W-V VW-V EW-E	RELATIVE STRENGTH WEATHERING Date logged 16/06/2022 VS - Very strong S - Strong MS - Moderately strong W- Veak UW - Unweathered SW - Slightly weathered HW - Highly weathered CW - Completely weathered Logged SK WW - Very weak EW - Extremely weak Checked GP					ed Checked GP	Driller McMillan Started 15/06/2022 Finished 16/06/2022		
D	Hand Held Shear Vane DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595 vane shear strength per NZGS guideline				Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016					Drill Rig N119 Core Boxes Page 3 of	9		

7/08/2022



Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 15/06/2022

2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 07/08/22

Page 4 of 8



Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 15/06/2022



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PHOTOGRAPHIC LOG OF DRILLHOLE

Project Eastern Busway

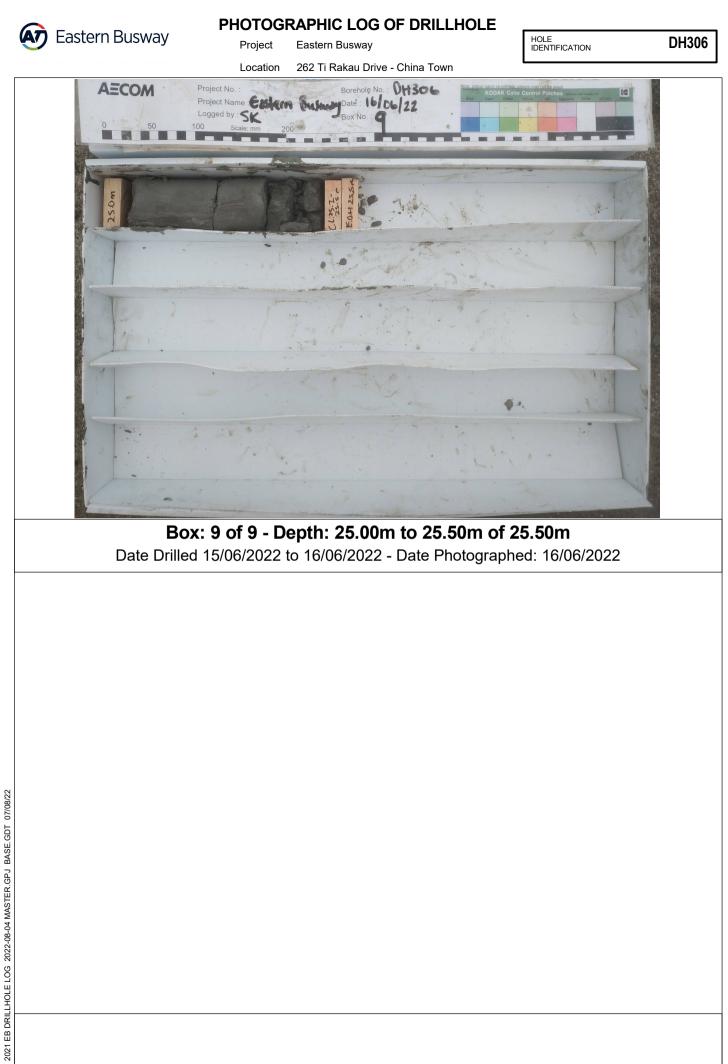
HOLE IDENTIFICATION DH306



Box: 7 of 9 - Depth: 19.40m to 21.95m of 25.50m Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 16/06/2022



Box: 8 of 9 - Depth: 21.95m to 25.00m of 25.50m Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 16/06/2022





Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

DH307

Co-ordinates	s 41149	4.80mE	795054.36mN
Orientation	-90°	Elevation	n 8.86m
Location	262 Ti	Rakau Dr	ive - Chinatown
Feature	Bridge	Abutmen	t/Pier

	SEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Test Records Shear SPT Vane/ N Values SPT 0-50	Drilling Method Casing remarks	Core Loss/Lift	Ms Relative W Strength	sw Rock ^{MW} Weathering	Depth	Graphic Log	TCR [RQD] (%)	500) Spacing of 100 J Natural 50 Uefects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Strength, moistur grading, bedding, plasticity, sensitivity, major fraction descriptior fraction description, minor fraction description, additional struct information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zon Schistosity, Attitude, Spacing, continuity, roughness, in		Instrumentation
	0.0m: FILL comprising silty gravel, cobbles and clay.		VAC EX				- 1		0		0.0m: Vacuum excavation. 0.0 to 0.15m: Concrete (car park). 0.15 to 1.4m: Silly fine to coarse GRAVEL with mir cobbles. Densely packed, moist. Gravel and cobbl subangular basalt.		
FILL		ss 0,0,1, 0,2,2 N=5	SPT				- 2		51		1.4m: Silty CLAY with minor fine sand lenses, fine to medium gravel and indistinct organics; grey mottled brown and black. Stiff, moist, higt plasticity. Gravel is subangular basalt.	bluish	
		225/*	HQ3 114				- - - - - - - - - - - - - - - - - - -		95		2.1 to 2.95m: Very stiff. 2.7m: 114mm diameter HWT casing to 2.7m. 3.0m: Complete water loss. 2.95 to 3.1m: Hard.		
	3.1m: ALLUVIUM comprising clay, silt, sand and peat.	1,1,1, 2,2,2 N=7	SPT						89		3.1m: Silty CLAY with trace indistinct organics, bluish grey mottled brown and speckled black. stiff, moist, high plasticity. 3.6 to 4.08m: Light grey mottled brown.		
		28/11	HQ3 SPT				- 4 		100		4.08 to 4.22m: Fine SAND with some fine to mediu brown subangular basalt gravel.4.5m: Becomes firm.	ım,	
		1,1,1, 1,2,2 N=6 	HQ3				- - 5 -	5 - X - X 5 - X - X - X - X 5 - X - X - X - X 5 - X - X - X - X - X - X - X - X - X -	100				
GROUP		49/11 	PT				6	sxx sxx sxx sxx sxx sxx sxx sxx	80			6.23 文	
TAURANGA GROUP		ss 0,0,1, 1,1,1 N=4	SPT HQ3	84 			 7		100				
		30/8 ss 0,0,0, 0,0,0 N=0 SUOW	SPT				- - - - - - - - - - - 8		100		7.5 to 7.95m: Brownish grey. 7.7m: Mottling ceases.		
		66/11	HQ3 PT				- 0 - - - - -		100		7.95m: Silty CLAY with lenses of fine sand; blu grey. Stiff, moist, high plasticity.	lish	
/		ss 0,0,0, 0,0,0 N=0 SUOW	SPT				9		100				
		servations, see ke NG PROGRES Casing Depth I	S (m) Fluid D	epth	RELAT VS-1 S-2 MS-1 W-1	VE STF Very stror Strong Moderate Veak	ng Iy strong	UW - 1 SW - 1 MW - 1 HW - 1	WEATHE Unweathe Slightly w Moderatel Highly we	ERING red eathered y weather athered	Checked GP agrou	b	
	27/06/2022 08:11 22.50 2.7 6.23			VW- Very weak EW- Extremely weak CW - Completely weathered Cnecked GP Remarks Hole backfilled with grout upon completion.							6/2022 ed 6/2022		
	Hand Held Shear Vane DR1980: 19mm blade: Calibrated Jun 2022: Correction Factor: 1.876					Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016						Drill Rig N119 Core Boxes 7	
	vane shear strength per NZGS guid										Page	1 of 7	7



Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

DH307

Co-ordinates	411494	4.80mE	795054.36mN
Orientation	-90°	Elevation	8.86m
Location	262 Ti	Rakau Dri	ve - Chinatown

Feature Bridge Abutment/Pier

GEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Test Records Shear SPT Vane/ N Values SPT 0-50	Strength ^{WSS} Strength ^{WSS} Strength Weathering Depth Depth Depth MSS MSS MSS Strength ^{MSS} Strength ^{MSS} Strength ^{MSS} Strength ^{MSS} Strength ^{MSS} MSS Strength ^{MSS} MSS MSS MSS MSS MSS MSS MSS	DEFECT DESCRIPTION	on description, subordinate litional structures, additional d Crush Zones, Foliation,
TAURANGA GROUP	56/15 I I HQ3 I 56/15 I I I III SS 0,0,0, I I III SWOW I I I III SUOW I I I III I I I III IIII I I I III IIII I I I IIII IIIIII	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	7.95m: Silty CLAY with lenses of fine grey. Stiff, moist, high plasticity. <i>(cont</i> 10.9m: Fibrous PEAT; dark brownish stiff, moist. 11.1m: Organic CLAY with trace wood brown to bluish grey. Very stiff, moist, plasticity. 11.34m: Silty CLAY with trace fine sai	black. Very d fragments;
	ss 0.1.1. 1.1.2 N=5		grey: our, most, min publicity. 1 12.45 to 12.8m: Core Loss: Assume con weathered boundary washed out.	npletely — — — — — —
12.8m: Slightly weathered, grey, massive, fine to coarse SANDSTONE. Very weak. NOILEWWY04 SANDSTONE. Very weak. 17.8m: Slightly weathered, grey, SILTSTONE. Very	S 6.8.15, 19.16 for 45mm N>50 S 5 5 10.40 for 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1 14.88 to 15.0m: Core Loss: Stuck down retrieve. 1 14.88 to 15.0m: Core Loss: Stuck down retrieve. 1 16.73m: HJ, 60° 1 16.73m: Tace carbonaceous m 17.0m: BP, 40° 1 17.06m: BP, 40°, DB 1 17.3 to 17.55m: Siltstone bed.	
grey, SILTSTONE. Very weak. 18.5m: Slightly weathered, grey, fine to coarse SANDSTONE. Very weak. 19.2m: Slightly weathered, grey, SILTSTONE. Very weak.			 18.14m: DB, 0° 18.37m: DB, 0° 19.2 to 19.5m: DB, 0°, 4 No. 19.24 to 19.28m: Fine sandstone bed. 	
For explanation of symbols and obs FLUID DEPTHS AND DRILLIN Date Time Drilled Depth (ervations, see key sheet	Will III C ******* RELATIVE STRENGTH WEATHERING VS - Very strong UW - Unweathered S - Strong UW - Unweathered MS - Moderately wath WW - Highly weathered WW - Weak WW - Unweathered VW - Very weak WW - Underately weathered WW - Very weak WW - Completely weathered Remarks Hole backfilled with grout upon completely	Date logged 23/06/2022 Logged IR hered chered checked GP	Driller McMillan Started 23/06/2022 Finished 23/06/2022 Drill Rig
Hand Held Shear Vane DR1980: 19mm blade: Calibrated Jun 20: vane shear strength per NZGS guid		Horizontal / Vertical Survey Datu 2000 / New Zealand Vertical Dat	N119 Core Boxes 7 Page 2 of 7	